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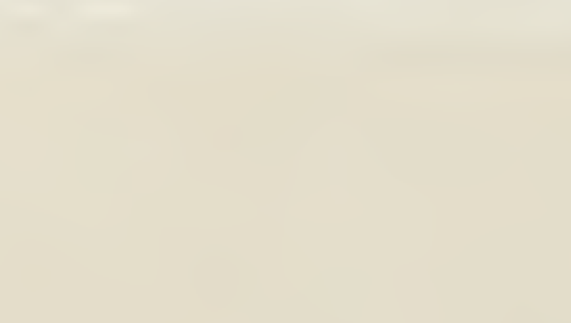

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THE ADMINISTRATION OF SALVARSAN IN SYPHILIS *

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Before the introduction of the Wassermann reaction the treatment of syphilis was more or less a matter of guess-work. While it is doubtless true that some patients were cured by the methods then in vogue, and others possibly treated for too long a period, the observations which I have made during the past three years show that the majority of such patients still retained their infection. The idea which prevailed among physicians and is still prevalent among the laity, that one attack of syphilis confers immunity, is chiefly if not entirely due to the fact that syphilis was seldom cured under the old methods of treatment. It is impossible to give the average percentage of cures formerly obtained, but from my findings and the application of the Wassermann test to cases treated five to twenty-five years ago I should say not more than 20 to 25 per cent.

The great rarity of a second infection in these patients supports the contention that cures were then infrequent. Since the beginning of the salvarsan era reinfection is being reported with growing frequency, and, as recent laboratory and clinical studies tend to show that immunity in syphilis does not exist, except perhaps in certain cases covered by Profeta's law, the number may be expected to multiply. The failure, then, to develop a second attack is not due to true immunity, but to an insusceptibility because the disease is still present. This insusceptibility or anergy is said to develop soon after generalization of the infection and lasts until it is cured spontaneously or by specific remedies.

Cases of reinfection after a cure had been established with salvarsan alone or in combination with mercury have been reported by various continental observers, and I mention Gennerich particularly, as he employed the more intensive combination-therapy from the beginning and controls his cases by means of provocative treatment, or the biologic reactivation of the Wassermann reaction. Both Gennerich and Milian found that by injecting patients with 0.3 gm. of the remedy six months or a year after a supposed cure and by examining their blood every day thereafter for two weeks a transient positive reaction was procurable if any evidence of the infection was left, while it remained negative if cure was absolute.

In my own experience I have met a case of possible reinfection giving the following history:

Case 1.—A. B., aged 30, developed a primary lesion Dec. 9, 1910; Wassermann was double plus, Dec. 30, 1910; Jan. 1, 1911, 0.5 gm. salvarsan was given intravenously; Feb. 17, 1911, Wassermann was weakly positive. About the middle of March, ten days after exposure, patient developed an induration like the original chancre on the opposite side of the glans penis. Spirochetes were found in the lesion. On April 15 the Wassermann reaction was strongly positive; April 17 and 24 patient received 0.52 gm. The serum reaction May 6 was plus minus, July 14 negative and has remained negative. Neither instance was followed by a generalized rash.

The treatment of syphilis is no longer the control of symptoms, but should be undertaken with a full appreciation of the serious nature of the infection. Furthermore, it should be undertaken with a thorough understanding of what is to be accomplished with the remedies employed. The amount of treatment in lues cannot be arbitrarily fixed, as the infection varies within wide limits in different individuals. In some its course is so mild that it is possible to eradicate it with a minimum amount of the drugs, while in others — and they are in the majority—it persists with treatment increased many fold.

The perfunctory administration of protoiodid pills, a practice only too much in vogue, accomplishes little in the eradication of the disease and leads to an immunity to the drug. Day after day we see patients, the victims of paresis, tabes or other serious disease, all giving an identical therapeutic history, namely, two, three or more years of pill-taking. The method stands condemned by its eloquent results.

If practitioners follow the rules of treatment laid down in certain modern text-books on therapeutics, one as recent as 1911, the number of cures will certainly not increase. On the contrary the late manifestations will continue to show as large a percentage as in the past. It is time a campaign of education is instituted as to the proper administration of our standard drugs in the treatment of syphilis. When a physician who pretends to be an instructor of students states that the treatment of syphilis by mercury given internally is still the method of choice, it is, to say the least, far from the truth. In the light of the results shown by the Wassermann reaction, as I have reiterated time and again, few patients treated in this manner are actually cured by the drugs employed; on the contrary, an increasing immunity to mercury is produced so that its subsequent administration is absolutely without effect except to impair the nutrition of the patient. I have repeatedly seen cases of obstinate syphilitic infection of the skin, as scaling syphilids of the palm, treated for years internally with-

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* Because of lack of space this article is somewhat abbreviated in The Journal. It appears in full in the Transactions of the Section and in the author's reprints.

* Read before the joint meeting of the Section on Dermatology and the Section on Pathology and Physiology of the American Medical Association at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

out any effect, yield after four or five injections of salicylate of mercury. It is not sufficient to know that mercury influences the syphilitic lesions, but one should be familiar with the methods of administration which influence the disease in the most rapid and permanent manner and this certainly cannot be said of mercury by the mouth. It is true that when it is administered in large doses combined with potassium iodid, the so-called mixed treatment, it is efficacious in many of the late cutaneous manifestations, but I have seen few cases in which even a persistent use of the remedies given in this way would permanently change the serum reaction.

The efficiency of the modern treatment of lues is attested by hundreds of experienced observers all over the world. It is now known that criticism of the specific action of salvarsan when given in single doses is of no value nor are the conclusions based on imperfect methods of preparation and administration. Since its introduction several modifications in the technic have taken place. Subcutaneous and intramuscular injections have entirely given way to the intravenous method, although, as I have observed previously, the intramuscular injection of an alkaline solution was the more efficacious of the two. This statement is borne out by the results obtained in some of the early patients treated, several of whom I have been able to keep under observation to the present time.

Salvarsan is a specific spirochetal poison the efficiency of which is in direct ratio to the age of the infection. One of its most pronounced points of superiority over mercury, in my estimation, lies in the treatment of the early cases in which in the primary stage it is possible to prevent the development of secondary symptoms and a positive Wassermann, or, in the event of its being already positive, to change it to negative. In the old days it was the rule for the practitioner to await the development of secondary symptoms to corroborate his diagnosis or to justify various superstitions such as proneness to nerve syphilis or an inhibition of antibody formation, if treatment were instituted in the early period of the disease. The latter had a certain amount of support from pathologists who believed that the natural defenses of the body would rally to the fore more quickly and strongly if the combat were not interfered with by drugs. Such views have long since been discredited and it has been proved that the best interest of the patient is served by the earliest possible treatment. With laboratory aids, such as the dark-field microscope and the Wassermann reaction, a diagnosis need not long remain in doubt. Of the significance of antibodies in syphilis, Thalmann's view is perhaps the prevalent one, namely, that early in the disease, especially after the destruction of the spirochetes by treatment and the liberation of their endotoxins, there is corresponding formation of antibodies and with it an increase in immunity. This antibody production may be so considerable that even without further treatment an arrest and improvement of the disease may result. As the living spirochetes gradually continue to proliferate, immunity decreases, and later when the foci are smaller in number they contain weaker spirochetes and few antibodies. According to this author, the endotoxins have so weakened the tissue cells that in tertiary syphilis only slight amounts of the virus are sufficient to cause a destruction of tissue and ulcerative processes. Wolff-Eisner,[2] however, attributes the severe clinical alterations to a hypersensitiveness brought about by the repeated absorption of heterogenous albumin.

It cannot be too strongly emphasized that in the treatment of the various stages of the disease different problems confront us. In the early period it may be possible with one or two or three doses of salvarsan, alone or in combination with mercury, completely to sterilize the patient and eradicate the infection. This has been demonstrated in my experience in the following cases:

Case 4.—Patient (S), who had three initial lesions of the lips, and secondary eruption, was treated May 19, 1910, with 0.3 gm. alkaline solution intramuscularly. Prior to this treatment he had had two intramuscular injections of hydrarg. salicylate. Since then he has had no other treatment; no clinical signs of the disease; his Wassermann reaction was negative Oct. 23, 1910, and the last one made March 15, 1912, was likewise negative.

Case 5.—The patient (C) had a chancre Oct. 12, 1910. Treatment was given Nov. 17, 1910, 0.55 gm. alkaline solution; Dec. 23, 1910, 0.6 gm. alkaline solution. The serum reaction, strongly positive before the first treatment, was only weakly so before the second and became negative on March 30, 1911. Repeated examinations made to Feb. 17, 1912, have all been negative. This patient never developed secondaries.

Case 6.—The patient (P) developed a primary lesion Feb. 10, 1911; Feb. 25, 1911, he received 0.6 gm. salvarsan intravenously. The Wassermann reaction was negative at the time of treatment and continued so with no further development of symptoms.

Case 7.—The patient (B) had an initial lesion Dec. 9, 1910; received treatment Jan. 1, 1911, April 17, 1911, and April 28, 1911, 0.5 gm. each. Reaction, negative in July, has remained so since.

Case 8.—The patient (B) developed a primary lesion Sept. 21, 1910. On Oct. 24, 1910, he received 0.6 gm. salvarsan in alkaline solution. Reaction was negative March 11, 1911.

Case 9.—The patient (S) had a primary lesion September, 1910, with beginning secondaries. He received treatment Dec. 27, 1910, 0.6 gm. alkaline solution followed by a course of inunctions. Reaction was negative January, 1911, and is still negative.

Case 10.—The patient (N) had two initial lesions on hand November, 1910. No. 28, 1910, he received 0.6 gm. alkaline solution. Reaction has been negative since March, 1911.

Case 11.—The patient (W) had an initial lesion Dec. 1, 1910, began treatment Dec. 30, 1910, 0.6 gm. alkaline solution followed by mercurial injections. March 17, 1911, he received 0.55 gm. salvarsan intravenously, followed by mercurial injections. The Wassermann reaction has been negative from June 12, 1911, to the present.

Case 12.—The patient (E) had a tonsillar lesion Jan. 1, 1911. On Feb. 21, 1911, he received 0.5 gm. salvarsan intravenously, and on March 10, 1911, 0.4 gm. intravenously, followed by mercurial treatment. The Wassermann became negative March 29, 1911, and has continued so.

Case 13.—The patient (D) had a chancre in March, 1911; he was treated March 10 and April 7, 1911, receiving 0.5 gm. salvarsan each dose intravenously, followed by two courses of mercurial injections. He never developed any secondaries and his Wassermann reaction is negative.

Case 14.—The patient (B) had a primary lesion in July 1911; received treatment Aug. 22, 1911, 0.58 gm., followed by mercurial injections; and Oct. 2, 1911, and Nov. 18, 1911, 0.5 gm. each. His reaction is now negative.

Case 15.—The patient (M) was infected Aug. 16, 1911. At the time of treatment he had an indurated lesion containing numerous spirochetes; reaction was positive. Sept. 2, 1911, he received an intravenous injection of 0.58 gm., followed by a course of inunctions. No other manifestations developed and the reaction Nov. 23, 1911, and Feb. 11, 1912, was negative.

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[2] Wolff-Eisner: Clinical Immunity, 1911.

While it is demonstrated that it is possible to cure syphilis within six months with two to four doses of salvarsan alone or with mercury, it will not do to rely too confidently on accomplishing this result: in patients in whom a negative reaction has been obtained. I insist on serologic observations for at least a year after the first negative reaction has been obtained, and when practicable I advise a provocative injection of salvarsan.

Excision of the initial lesion is advocated by a number of modern syphilographers as an aid in ridding the patient of a focus of spirochetes, but as yet we have not accumulated sufficient evidence to show whether the infection in patients thus treated pursues a milder course or not. In former years there were many claims made as to the possibility of aborting syphilis by excising the initial lesion and communicating lymph-nodes, but after many trials the procedure was abandoned, as it was definitely shown that the disease in such patients followed the same course as in those who had not undergone excision. If all of the spirochetes were concentrated in the initial lesion, it would be an entirely rational procedure to excise it and remove the focus at once; it is known that this is not the case, but that early generalization takes place through the lymphatic system and the blood, and that at best we are only ridding the patient of a small nest of spirochetes. When the chancre is situated on the foreskin or an easily accessible region, however, there is certainly no objection to excising it.

During the secondary period of the disease with a strong, positive Wassermann reaction the infection is more difficult to eradicate in a short time, but it is possible even then by more intensive treatment — let us say, five or six doses of salvarsan at intervals of from one to four weeks, followed by a course of mercurial injections or inunctions. That it is possible to cure the disease in from six months to a year in this stage I have demonstrated by cases which have been under observation for from eighteen months to two years. As the disease grows older, the time required for its eradication grows progressively longer, as in cases in which the infection dates back, five, twenty or thirty years. In these it may require ten or twelve injections of salvarsan combined with several courses of mercurial injection to reverse the serum reaction permanently, but, if we pursue our treatment with a definite plan and have confidence in our drugs, persistent treatment, extending over a period of a year, will change the reaction. The question is sometimes rendered more difficult by the failure of patients to cooperate with the physician in their treatment. Usually, however, when the problem is placed before intelligent patients in a clear and definite manner, their cooperation can be secured and, when this is so, salvarsan, supplemented by mercury, will in the majority of cases change the reaction. It may be that there is a certain class of cases in which no amount of treatment will reverse the reaction.

Salvarsan has a much more rapid action on the organism than mercury. This is demonstrated most strikingly in cases with mucous membrane lesions and in those of malignant syphilis. In the latter the extreme cachexia, which characterizes this type of the disease, disappears within two or three weeks, and lesions which have persisted for months promptly recede. It is a common experience to see patients whose cases were absolutely hopeless under the old method restored to health in a few weeks.

CASE 16.—I recall a patient seen a year and a half ago, in a state of extreme physical and mental depression, with ulcerative lesions, joint involvement and a nephritis. His lesions yielded in a surprising manner; at the end of a month his weight had increased from 105 to 121 pounds and under continued treatment he became entirely well. He has now had no drugs for a year, weighs 145 pounds and has had a continuous negative reaction.

CASE 17.—In another case in which the patient was cachectic, had been running a high temperature for a year, had multiple cutaneous lesions and a specific orchitis, all symptoms resolved under two doses of salvarsan and the patient's physician writes me that his nutrition and strength improved to such an extent that for months he has been able to do hard work in a lumber camp, whereas he had been an invalid for nearly a year and a half before treatment. This patient had a decided idiosyncrasy against both mercury and potassium iodid, the latter producing edema of the tongue. His Wassermann reaction, made a few weeks ago, was still strongly positive, as might be expected with only two doses of the drug at his stage of the disease.

In controlling the treatment by the Wassermann reaction it must be borne in mind that from 10 to 15 per cent. of the active late manifestations of syphilis give a negative reaction, so that, in the face of positive clinical findings and a negative test, the latter may be disregarded in the late stages of the disease. I have on several occasions administered salvarsan to patients with a negative Wassermann with the very best results. In the case of a physician with a marked onychia involving the nails of his hands and feet, a decided change took place after the second injection. The nails, which had been thickened, discolored, fissured and every now and then shed and replaced by the same deformity of these structures, were after the treatment reproduced in an absolutely normal manner. The explanation of a negative reaction in the presence of clinical symptoms is based on the fact that the spirochetes are too few in number to give rise to the Wassermann-producing substances.

In disease of the nervous system the administration of salvarsan should be undertaken only with the full knowledge of the possible effects. That great prudence must be exercised was taught by the accidents which occurred in cases with advanced disease of the nervous system during the trial period of the drug. Professor Ehrlich is of the opinion that the former dreaded reactions in late lues of the nervous system are to be referred entirely to faulty technic and the use of old water containing the proteid products of dead organisms. In a letter recently received he states that Dreyfuss of Frankfort has treated hundreds of cases of late nerve syphilis without any reaction whatsoever, except in a single instance in which a spinal puncture had been made just prior to the salvarsan injection. In this patient the puncture was regularly followed by meningeal manifestations lasting several days. When the injection was delayed until such symptoms had subsided, absolutely no by-effects were noted. In syphilis of the brain the possibility of the development of the Herxheimer reaction should always be kept in mind. Although we have no pathologic findings in such cases, the occurrence of convulsions and localized paralyses after the administration of the drug points to an intensification of the inflammatory process about certain focal brain lesions, which in the majority of cases is only transient. Where the remedy is indicated, it should be given cautiously in small repeated doses or preceded by several injections of mercury. In this way a gradual effect on the lesion is produced and we avoid a too rapid dissolution with dangerous consequences. Even with a positive Wassermann reaction and an active process, when combined with degenerative changes in the brain cord, its administration is rather a delicate question to determine.

It is, however, indicated in tabes with a very positive serum reaction and a lymphocytosis of the cerebrospinal fluid. In these cases its administration in repeated small doses at proper intervals offers more than the treatment with mercury and potassium iodid. But to be satisfied with one or two injections is not giving the patient the full benefit of all that may be accomplished. It relieves the pains, increases the efficiency of the bladder function and stimulates the body nutrition. In several patients with inequality of pupils the latter have become equal and in two cases in which they were unresponsive to light the reflex returned. In the old degenerative types with a negative reaction and absence of lymphocytosis, the active specific process is probably entirely replaced by degenerative and sclerotic changes, and the administration of salvarsan or any other remedy can accomplish little or nothing.

The most marked improvement is seen in cases of cerebrospinal syphilis which simulate tabes.

Case 18.—I have under observation a patient who had had a hemiplegia and epileptiform convulsions. His knee-jerk was absent on the right side, locomotion was impaired, his pupils were unequal and sluggish to light and he suffered from incontinence of urine. These symptoms have all practically disappeared. He has regained control of his bladder, his pupils are equal and responsive and he walks now a distance of several miles with little fatigue. His blood reaction has been persistently negative for six months.

In the treatment of paresis my experience has been limited to only a few cases.

Case 19.—In one with a very positive Wassermann reaction the administration of three doses was followed by a marked remission in all of the symptoms. The reaction remained positive and I strongly urged the family of the patient to continue the treatment. The advice went unheeded and within a month or two the patient's symptoms reappeared and progressed in a rapid manner.

Case 20.—At present there is under my care a patient who came to me with the diagnosis of paresis from one of the best-known neurologists in New York. He had marked delusions of grandeur; his pupils were unequal and sluggish to light, and his knee-jerks were absent. There was no speech disturbance and no change in his handwriting. His serum reaction was strongly positive. Up to this time he has had seven injections at intervals of from three to four weeks. His delusions have entirely disappeared, his pupils are practically equal and more responsive to light and in every way he acts like a normal individual. His reaction is still strongly positive and guided by this index I am advising persistence in treatment. In addition to his salvarsan injections he has had several courses of mercurial inunctions. He was lately seen by the consulting neurologist, who was inclined to change his diagnosis of paresis on account of the improvement that had taken place.

All neurologists have emphasized the difficulty of differentiating between the early stages of paresis and other forms of cerebral lues which simulate paresis. Reports of autopsy findings in these two classes of cases are perhaps too meager to enable us to draw deductions as to whether any essential differences exist between the two, other than the cerebrospinal cell count. It has long been held by Dr. Dana that the prognosis in early paresis is not wholly hopeless, as many of these forms develop from a preexisting cerebrospinal syphilis which can be arrested by treatment.

Regarding the permanency of results in nerve syphilis I might refer to a case reported a year and a half ago.

Case 21.—The patient was suffering from an obliterating endarteritis of the base of the brain involving both pyramidal tracts and the sympathetic. His pupils were unequal, very nearly Argyll Robertson, and his speech was thick. There was general involvement of the muscles of the pharynx, tongue and face on the right side with anesthesia, partial paralysis of the right leg, marked Babinski, clonus of both knee and ankle and incontinence of urine. The Wassermann reaction was positive. A decided improvement took place after the first two injections. The treatment was carefully controlled by repeated Wassermann tests and when the strength of the reaction increased, the patient was immediately given another injection. This method of procedure has been kept up to the present time and the man may be considered practically well, with only slight evidence of his former hemiplegia. He has been able to resume his professional duties, which he conducts as well as formerly.

Intense headaches, often so persistent during the secondary and tertiary stage of the disease and due to a low-grade meningitis, are influenced by salvarsan in a most gratifying manner. They usually remit with remarkable rapidity, patients stating that within from twenty-four to forty-eight hours or a few days after the injection the pains have entirely disappeared. Occasionally they are intensified for two or three weeks after treatment and then suddenly disappear.

The drug has been criticized owing to the relapses which have occurred, affecting chiefly the nervous system, and which the critics attributed to a toxic action and a special affinity for nervous tissue. That this view was not justifiable is shown by the experience of the past year, for since the adoption of more intensive treatment such reports have become comparatively rare. The reasonable deduction therefore is that these complications were true relapses, as has been proved by further observation of the cases and in some instances by examination of the cerebrospinal fluid.

The latest word on salvarsan concerns the new product neosalvarsan. This preparation, which bears the laboratory number 914, is a very soluble form of salvarsan obtained by the addition of formaldehydsulphoxylate of soda. It is claimed to be fully as efficacious as the old remedy and possesses certain decided advantages in the simplification of the technic of its preparation and the greater tolerance to it, permitting much larger doses at shorter intervals, thus concentrating the attack on the disease. Neosalvarsan is extremely soluble in water. Neutralization with caustic soda is not necessary as with old salvarsan, as the new product is neutral when in solution. It is prepared by dissolving 0.15 gm. in 20 c.c., or 1.5 gm. in 200 c.c. of freshly distilled water; 0.8 gm. in 22 c.c. gives an isotonic solution. Schreiber, who has been entrusted with the preliminary trials and has given over 1,200 injections since last October, advises that the temperature of the water be about 20 C. (68 F.). As the preparation oxidizes readily and the oxidation products are more toxic than the drug itself, the following precautions are suggested: In making the mixture it should be gently agitated and not vigorously shaken. It should not be warmed after it is made up, and it must be used immediately.

Four doses are administered in succession with an interval of one day between. Schreiber's procedure is to give 0.9 gm. for the first dose, 1.2 gm. for the second, 1.35 gm. on the third day and 1.5 gm. on the fourth. This equals 6 gm. of neosalvarsan or 4 gm. of salvarsan within one week. Women receive from 0.75 to 1.2 gm., children 0.15 to 0.35 and infants 0.05 gm.

In cases of meningitis or involvement of the cerebrospinal system the patient's susceptibility should be cautiously tested with small doses. Owing to its less irritating properties neosalvarsan lends itself more readily to intramuscular use. For this purpose 0.9 gm. are dissolved in about 30 c.c. of water. Several c.c. of a 1 per cent. novocain solution are first injected; the needle is left *in situ,* and the neosalvarsan injected through it several minutes after. Schreiber[4] has observed edema after its use, but never infiltration or necrosis. He prefers, however, the intravenous method.

Two weeks after treatment the Wassermann reaction is to be taken and, if negative, is to be repeated at monthly intervals. If it becomes positive, an intensive course of mercury is to be inaugurated followed by two more injections of neosalvarsan. If it still is positive two weeks after the first series of injections, the above plan is to be put into immediate effect.

Through the kindness of Professor Ehrlich I received a supply of neosalvarsan and have used it in about thirty cases, including early and late manifestations. The data relative to these cases will be published in a subsequent article, as the time which has elapsed since the administration of the remedy is now too short to permit of a definite expression of opinion.

In all the patients except one the clinical symptoms were influenced very promptly. In the exception, a gummatous ulcer of the leg, the lesion remained unaffected two weeks after the fourth injection, but yielded readily to mixed treatment. In none of the cases with a strong Wassermann was the reaction reversed at the end of two weeks. An initial lesion of the lip with secondaries completely resolved in three weeks with a negative Wassermann. A case of early syphilis with a marked iritis and chorioiditis, after 5 gm. of neosalvarsan were given in one week, gave a negative Wassermann after two weeks of mercury. In three other cases the Wassermann reaction has become progressively weaker in from four to six weeks after neosalvarsan has been given.

Of ninety-seven treated by Schreiber sixty-one became negative and thirty-six remained positive; one-third of the former were negative at the end of fourteen days. Five of these cases were still negative after four months and seven after three months.

Schreiber has but seldom noted by-effects after neosalvarsan. He had observed an elevation of temperature after the first injection in the florid stage, and drug rashes were also seen in a few patients, but in the majority the reaction was negligible. In my own experience a sharp febrile reaction has occurred sometimes after the first and sometimes after succeeding injections. In three cases a trace of albumin appeared in the urine, but it disappeared again in a few days. In a few cases slight vomiting or diarrhea was also complained of.

Assuming that the solution of salvarsan is properly prepared and that one is familiar with the technic of its administration, it may safely be stated that, given to an individual with intact kidneys, circulatory and nervous system, it is free from danger, and in the majority of cases causes less disturbance than an intramuscular injection of a mercurial salt. Patients repeatedly state to me that they much prefer to take an injection of salvarsan rather than one of salicylate or bichlorid. As the kidneys are chiefly concerned in the elimination of the drug, a nephritis is much more apt to occur when they are not in a healthy condition, and this emphasizes the importance of carefully ascertaining their state before its administration. I have not found albuminuria a contra-indication, but the remedy must be given in small doses.

It is important that the organs of circulation be in a fairly normal condition. The blood-pressure in some cases drops suddenly after the administration of the drug, and the heart's action becomes slow and feeble. In several cases I have noted that the pulse fell to forty. For this reason it is advisable that patients be kept in the recumbent position for several hours after an intravenous injection. From Auer's animal experiments to determine the cause of the fall in blood-pressure, he found that the heart might be so affected that a slight extra strain would throw it into fatal fibrillation. As this did not occur regularly in his animals, he attributed it to an inherent weakness of the cardiac muscle brought out by the injection of salvarsan. The contention of Ehrlich that myocarditis be regarded as a contra-indication for the intravenous injection of the drug, therefore, has experimental support. Whether this action is exerted on the cardiac muscle, on the vagus endings or on both structures could not be definitely stated.

CONCLUSIONS

The efficiency of salvarsan bears a direct relation to the age of the infection.

In the early stage three or four doses supplemented by mercury will in many cases cure the disease in from six months to a year.

The florid stage requires more intensive treatment; five or six doses followed by several mercurial courses are necessary.

In some forms of syphilis of the nervous system the effects of salvarsan are more satisfactory than mercury and potassium iodid.

In malignant syphilis, when mercury has been given over a long period continuously without changing the clinical manifestations or the blood reaction, not infrequently all of the manifestations disappear after one or two doses of the drug. These patients probably develop more or less immunity to mercury, or their strains of spirochetes are more amenable to arsenic treatment.

A reaction uninfluenced by a long course of mercury may be changed by one or two injections of salvarsan. In other words, a combination of salvarsan and mercury is more efficient in changing the blood reaction than either alone. In the primary stage it is possible permanently to reverse the blood reaction with salvarsan, but, as the disease grows older, the probabilities of changing it with only a few doses grow less. The introduction into the system of such large quantities of the drug as is possible with neosalvarsan may so concentrate the treatment that all or most of the organisms are destroyed, but it has not yet been used long enough to enable us to draw definite conclusions.

8 West Seventy-Seventh Street.

The Special Care of the Nervous Child.—The special care of the nervous child should begin in early infancy and be continued until after puberty. Many of the children are wholly or to a considerable extent bottle-fed babies. Every nervous baby should be fed exclusively on mother's milk for the greater part of the first year if it is possible for sufficient nourishment to be obtained from this source. If not, properly modified cow's milk is the best substitute.—Perry in *Jour. Missouri Med. Assn.*

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[4] Schreiber, E.: Ueber Neosalvarsan, München. med. Wchnschr., April 23, 1912, p. 905.

IDENTIFICATION OF SPIROCHÆTA PALLIDA IN CULTURE *

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The standards by which I identify *Spirochœta pallida* in culture are (1) correct morphology, (2) necessity of the presence of sterile fresh tissue in culture medium, (3) strict anaerobiosis, (4) rather faint hazy growth in solid or fluid mediums without any noticeable change in the proteid constituents, (5) non-production of any offensive odor in culture, (6) capability of inciting an allergic reaction on the skin of certain cases of syphilis and parasyphilis (so-called luetin reaction), (7) specific complement fixation with the antipallida immune serum or certain serums from human cases of syphilis, provided that the antigen is suspended in saline solution and not prepared by an alcoholic extraction, and (8) pathogenicity. The pathogenicity may be gradually attenuated in course of cultivation, but the other seven conditions should be constantly fulfilled.

There are some small spirochete varieties which are difficult to differentiate from the pallida. Morphologically *Spirochœta microdentium and Spirochœta mucosa* (n. s.) closely resemble the pallida, but both of the former can grow in ascitic agar without the addition of fresh tissue, and produce an offensive odor. The *S. mucosa* was isolated by me from a case of pyorrhea alveolaris and is a mucin-producing organism. Neither variety binds complement with the antipallida immune serum when used in an aqueous suspension. From the appearance of the growth *Spirochœta macrodentium* and *Spirochœta refringens* closely resemble the *pallida,* but they are quite different in morphologic features. Neither of these organisms produces any odor in culture and the *S. refringens* grows without the fresh tissue.

In studying the effect of cultural conditions on the life of *Spirochœta pallida* I have observed the appearance of many minute, highly refractory granules in the cultures growing under unfavorable conditions. In such cultures the spirochetes are few in numbers. These minute particles can be distinguished from the serum particles by staining methods. They do not stain with Giemsa when the smear is fixed in methyl alcohol, but take a reddish-violet stain when the film is fixed in sublimate alcohol in wet state. Serum particles remain unstained by either procedure. The ordinary anilin dyes do not stain the granular forms of the *S. pallida.*

Sixty-Sixth Street and Avenue A.

ANAPHYLAXIS TO SALVARSAN*†*

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The use of salvarsan has proved of interest, not only from the standpoint of its curative powers, but also on account of its toxic effects. It is the object of this communication to explain the nature of one of these by-effects.

Practically all drugs with a specific action are poisons. As pointed out by Ehrlich, the relation of curative power to toxicity determines the value of any preparation, and it is the object of the synthetic chemist to furnish a compound with high therapeutic properties as compared to toxic action. In salvarsan we have an active therapeutic agent, but certain toxic properties of the drug have not escaped notice. In fact, the study of the immediate toxic symptoms following intravenous injections has led to an improvement in technic which has rendered possible a much more thorough application of the drug. Wechselmann's discovery, that stale water or saline containing molds or saprophytic bacteria is responsible for the symptoms resembling those of acute arsenical poisoning which formerly were so common following injection of the drug, is one of the most important contributions since the discovery of salvarsan. The use of absolutely freshly distilled and sterilized water has entirely changed our ideas of the toxicity of the drug, so that now it is considered to be even less toxic than mercury.

Several cases of encephalitis hemorrhagica following intravenous injections of salvarsan have been reported. Fischer,[1] in discussing a case which he studied, suggested that this lesion might be due to a hypersensitive condition of the patient, since the symptoms followed a second injection. Hoffmann and Jaffé,[2] and Levens[3] have reported cases showing severe intoxication, starting with anaphylactic-like symptoms immediately after a second intravenous injection, and think that these symptoms occurred in association with a state of hypersensitiveness induced by the first injection. Marschalko,[4] however, in reporting a similar reaction, which followed a first injection of 0.28 gm., considered that the reaction was due to the use of mold-containing water. An experience of ours supports this view. A patient shortly after his fourth intravenous injection of 0.4 gm. went into a state of collapse, which was followed by a high fever, marked gastro-intestinal symptoms, herpes and anuria. The little urine passed the next day boiled solid and contained many casts. The signs of nephritis gradually disappeared, as did the other toxic symptoms, and the patient's condition returned to normal. This case might have been explained as one associated with hypersensitiveness induced by previous treatment, had not the subsequent administration of salvarsan disproved this view. Subsequently the patient had eleven injections of salvarsan. During a period of eight months he had five injections of 0.2 gm. each, followed later by six injections of 0.3 gm. each. Absolutely no toxic symptoms or evidence of renal irritation followed any of these later treatments. The toxic symptoms occurred before we were accustomed to use freshly distilled water, while in the eleven injections following, in which there were no symptoms of intoxication, a more careful technic was followed. It is of interest to note that the above-mentioned cases of intoxication occurred before Wechselmann's discovery.

In florid syphilis one frequently sees a fever and general malaise following the first injection of salvarsan. This picture is probably due to the setting free of some toxic substances from the spirochete.

In addition to these by-effects, a symptom-complex resembling acute anaphylaxis occasionally occurs after repeated intravenous injections of salvarsan. In our experience it has occurred only after repeated injections.

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* † From the Hospital of the Rockefeller Institute for Medical Research, New York.

[1] Fischer, B.: München. med. Wchnschr., 1911, lviii, 1803.

[2] Hoffmann, E., and Jaffé, J.: Deutsch. med. Wchnschr., 1911, xxxvii, 1337.

[3] Levens: Med. Klin., 1911, vii, 852.

[4] Marschalko: Deutsen. med. Wchnschr., 1911, xxxvii, 1702.

Such an attack comes on usually after 30 to 50 c.c. of solution have been introduced. There is a facial expression of anxiety, the patient complains of a feeling of pressure in the epigastrium or cardiac region; this is followed shortly by a sense of suffocation, and a number of times the patients have described a sensation "as though the heart were in the throat." Shortly after this there is a bright red suffusion of the skin of the face, most marked about the eyes; at times, it involves the entire body. In marked cases the eyelids and lips appear swollen. Occasionally the red color changes to a purplish cyanosis. As a rule there is but little change in the pulse-rate, although once it was much increased. The respirations increase slightly in rapidity. The symptoms seem to be largely vasomotor in nature and usually pass off rapidly on stopping the injection.

The stage of the disease does not seem to be an important factor in determining whether the reaction will occur or not. Five of our patients were in the secondary period, two in the tertiary and one had tabes. Three times the first reaction occurred during the fourth injection of a series, twice during the fifth injection, three times during the sixth and once with the seventh. It has recurred with the succeeding treatment in three cases; twice the next treatment did not induce a reaction; once the reaction reappeared at the time of the second succeeding injection following the first reaction. In the patient who showed the most severe reactions, occurring with the fifth and sixth treatment, neosalvarsan was injected two weeks after the last reaction and no symptoms followed. Another patient with a severe reaction during his sixth injection had no reaction with an injection of neosalvarsan a week later. Three times the second reaction was much more intense than the first. Two of the patients showed a skin hypersensitiveness. One, a patient with tabes, had a purpuric eruption on the legs following the first treatment. He also has shown a similar eruption after iodids. The other, a patient with leukoplakia, developed a severe vesicular dermatitis after his eighth treatment. He then was without treatment for eight months, at the end of which time a single intravenous injection of 0.3 gm. was accompanied by a sensation of pressure in the chest, followed in four hours by a generalized erythematous eruption which later became vesicular. This case is an excellent example of hypersensitiveness induced by previous treatment. In three other patients the hypersensitive condition passed off in five weeks, three, and four months, respectively. In one of these it returned at the time of a fourth injection.

Iwashenzow[5] has reported a series of fifteen patients who showed similar symptoms. Fourteen of them had the reaction at the time of the fourth injection, and one with the fifth treatment. His treatment consisted of an intravenous injection of 0.2 or 0.3 gm. salvarsan repeated every two weeks. All of his patients had some syphilitic involvement of the central nervous system. He showed by injecting saline alone that the reaction was not due to proteid substances in the saline used for dissolving the salvarsan. Iwashenzow's cases have one feature in common with ours, i. e., the symptoms followed the repeated intravenous injection of 0.2 or 0.3 gm. The interval between treatments in his cases was two weeks, in ours usually seven days. In both series the reaction occurred with or after the fourth injection.

The reactions seem to be anaphylactic in nature because they appear only after repeated injections; the respiratory symptoms and feeling of oppression and the vasomotor manifestations are similar to those observed in anaphylaxis to a foreign proteid. They differ from serum anaphylaxis in that the period of anti-anaphylaxis is shorter or does not exist at all, although this point has not been sufficiently investigated. In two of our patients with very marked symptoms the injection was renewed after ten minutes without any return of the reaction. This might be interpreted as evidence that a condition of anti-anaphylaxis existed.

In recent years there has been a growing tendency to consider hypersensitiveness to certain drugs as an anaphylactic phenomenon. By passively sensitizing guinea-pigs with the serum of patients who showed an idiosyncrasy to iodoform and antipyrin, Bruck[6] demonstrated the anaphylactic nature of the hypersensitiveness to these drugs. Klausner[7] confirmed these observations with the serum of patients unusually sensitive to both iodoform and iodids. Friedberger and Ito[8] were able to sensitize guinea-pigs actively with a mixture of guinea-pig serum and tincture of iodin. After an interval of two to three weeks these animals were hypersensitive to the same mixture or to sodium iodid or Lugol's solution. A first injection of Lugol's solution induced a condition

TABLE 1.—EXPERIMENT ON THE TOXICITY OF A SECOND INJECTION OF A MIXTURE OF SALVARSAN AND GUINEA-PIG SERUM

	First Injection					Second Injection							
Guinea-Pig	Weight (Gm.)	Method	Salvarsan (Mg.)	Guinea-Pig Serum (C.c.)	Stood (Min.)	Interval (Days)	Weight (Gm.)	Method	Salvarsan (Mg.)	Guinea-Pig Serum (C.c.)	Saline (C.c.)	Stood (Min.)	Symptoms
B 46	300	Intraven.	5	3	70	25	300	Intraven.	5	3	.	40	Practically none.
B 54	250	Intraper.	5	3	80	22	240	Intraven.	5	3	.	15	Prostration, dyspnea; died in ten min. Autopsy: distended lungs.
B 62	Control......................................						220	Intraven.	5	.	3	5	None.
B 64	Control......................................						220	Intraven.	5	3	.	30	None.
B 65	Control......................................						220	Intraven.	5	3	.	40	None.

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[5] Iwashenzow, G.: München. med. Wchnschr., 1912, lix, 806.

[6] Bruck, C.: Berl. klin. Wchnschr., 1910, lxvii, 517, 1929.

[7] Klausner: München. med. Wchnschr., 1910, lvii, 1451.

[8] Friedberger, E., and Ito, T.: Ztschr. f. Immunitätsforsch, 1912, xii, 241.

of hypersensitiveness to iodized guinea-pig serum, but not to sodium iodid or Lugol's solution. The iodin seemed to alter the native serum so that it acted like a foreign proteid. Last year Auer[9] tried to sensitize guinea-pigs with salvarsan and after a suitable period attempted to induce shock by a second injection of salvarsan. His results were entirely negative.

In approaching this problem, I have mixed salvarsan with guinea-pig serum and used this mixture for both the sensitizing and intoxicating doses. In the first series of experiments guinea-pigs were injected intraperitoneally with a mixture of salvarsan and serum, and after four weeks were injected intravenously with a similar mixture. At the time of reinjection the pigs showed toxic symptoms resembling anaphylaxis, while controls injected with the same amount of the mixture or with salvarsan alone showed no symptoms at all. In subsequent experiments the controls of one day served as sensitized animals after a suitable lapse of time.

Table 1 shows a typical experiment. One of the guinea-pigs, B.46, was sensitized by intravenous injection of salvarsan and guinea-pig serum, and on reinjection with a similar mixture after twenty-five days showed no symptoms. The other was first injected intraperitoneally, and after twenty-two days was reinjected intravenously. It showed immediate prostration, marked inspiratory dyspnea and death in ten minutes. The autopsy, performed immediately, showed the heart still beating. The lungs were much distended, filling the entire thoracic cavity. They had a leathery feel and on section were dry. This animal showed a typical anaphylactic death, with characteristic condition of the lungs described by Auer and Lewis.[10] At the beginning of the experiment the toxicity of salvarsan diluted with saline as well as that of a mixture of the same amount of salvarsan and serum were tested on normal guinea-pigs, and at the end of the experiment another control was injected with salvarsan and serum to prove that the mixture had not become toxic during the time of the experiment. This double control was used throughout the series, because it was found that the salvarsan rapidly becomes toxic on standing. It was found necessary to work with freshly prepared salvarsan solution and with fresh serum. The salvarsan was a 1 per cent. alkaline watery solution, always made with freshly distilled and sterilized water. The saline used in the controls was freshly prepared in the same way. The guinea-pig serum was obtained by bleeding the pigs in the usual way and separating the serum from the clot by centrifugalization. The serum was used within six hours of the time of bleeding, as it was found that old serum formed a more toxic mixture than fresh serum. This toxic effect with the first injection of controls was carefully watched and only those experiments in which it was not shown were accepted. It was found that guinea-pigs which weighed only 200 to 220 gm. were unsuitable, because a number showed toxic symptoms or death on first injection of 5 mg. of salvarsan mixed with guinea-pig serum. It will be seen in Table 3 that all the animals which showed anaphylactic symptoms weighed 240 gm. or more.

TABLE 2.—COMPLETELY CONTROLLED EXPERIMENT ON TOXICITY OF SALVARSAN-SERUM MIXTURE

	First Injection—Intravenous						Second Injection After Forty-Two Days—Intravenous					
Guinea-Pig	Weight (Gm.)	Salvarsan (Mg.)	Guinea-Pig Serum (C.c.)	Saline (C.c.)	Stood (Min.)	Symptoms	Weight (Gm.)	Salvarsan (Mg.)	Guinea-Pig Serum (C.c.)	Saline (C.c.)	Stood (Min.)	Symptoms
B. 13	320	5	2	...	15	Slight cramps.	290	5	3	...	37	Slight dyspnea; tremors. one hour; cramps. 30 minutes.
B. 26	290	5	2	...	15	None.	290	5	3	...	50	Jumping. 20 minutes; cramps, 1½ hours.
B. 14	270	5	2	...	23	None.	320	5	.	3	60	None.
B. 25	270	5	2	...	15	Moderate cramps.	220	.	3	0.5	5	Slight dyspnea, one-half hour.
B. 20	270	5	.	2	12	None.	290	5	3	...	50	None.
B. 27	240	3	.	1.5	18	None.	270	5	.	3	70	None.
B. 23	270	..	2	0.5	5	None.	320	5	3	...	40	None.
B. 44	Control....................................						270	5	.	3	7	None.
B. 45	Control....................................						270	5	3	...	18	None.
B. 46	Control....................................						300	5	3	...	70	None.

Table 2 shows a completely controlled experiment. Two pigs previously injected with the salvarsan-serum mixture showed marked toxic symptoms on reinjection with a similar mixture, while controls which received at the same time either salvarsan or serum alone were free from symptoms. Also pigs which received a first injection of salvarsan alone showed no symptoms on reinjection with salvarsan and serum or salvarsan and saline. This experiment proves that it is necessary both to sensitize and to shock with a mixture of salvarsan and serum.

A complete list of the animals used in eight different experiments is given in Table 3. In each of the experiments normal animals of the same or less weight than the sensitized animals of the day were used to control the toxicity of the salvarsan-serum mixture. Among nineteen sensitized animals three died acutely at the time of the second injection and had characteristic autopsy findings, two had very marked symptoms, four showed marked symptoms, three had slight symptoms and seven showed no symptoms on reinjection. The first series of eight controls demonstrates that it is necessary to use both salvarsan and serum at both injections. Seventeen normal controls gave no evidence of intoxication with the first salvarsan injection, and in seven other normal animals the salvarsan when diluted with saline was not toxic.

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[9] Auer, J.: Jour. Exper. Med., 1911, xiv, 497.
[10] Auer, J., and Lewis, P. A.: Jour. Exper. Med., 1910, xii, 151.

This series of experiments demonstrates a very interesting effect of salvarsan. An animal never shows an anaphylactic reaction with untreated homologous serum. The salvarsan alone in the dose employed is not toxic for the guinea-pigs, nor does a single injection of salvarsan render a guinea-pig hypersensitive to a subsequent injection. Nevertheless, the mixture of salvarsan and serum, which on first injection is non-toxic, so alters the condition of the animal that a second injection of the same mixture is toxic. It seems that the action of the salvarsan on the serum changes the nature of the serum so that it acts like a foreign proteid and induces the condition of hypersensitiveness. This is analogous to the alteration in a homologous serum by iodids, which was demonstrated by Friedberger and Ito. In our series of experiments, however, the anaphylactic condition was not induced by the pure chemical substance alone. The possibility is suggested that in mixtures of chemical substances and blood-serum, combinations may occur which alter the nature of the protein in such a way that when injected into animals of the same species from which it was derived, it may react in the manner of a foreign protein. Whether such combinations occur *in vivo* on first administration of a drug and so induce the sensitization of the individual is a matter of considerable interest in the study of drug idiosyncrasies.

TABLE 3.—A COMPLETE LIST OF ANIMALS USED IN EIGHT EXPERIMENTS

Guinea-Pig	Weight (Gm.)	Method	Salvarsan (Mg.)	Guinea-Pig Serum (C.c.)	Saline (C.c.)	Symptoms	Interval (Days)	Weight (Gm.)	Salvarsan (Mg.)	Guinea-Pig Serum (C.c.)	Saline (C.c.)	Stood (Min.)	Symptoms
13	440	Intraper.	2.5	1	...	None.	28	500	11	1.1	...	45	Dyspnea; prostration; death in 2 hours. Autopsy distended lungs, hemorrhages in stomach
B 1	400	Intraven.	10	1	...	None.	20	400	1	0.5	...	10	Dyspnea; prostration; death in 3 hours. Autopsy: distended lungs
B 54	250	Intraper.	5	3	...	None.	22	240	5	3	...	15	Dyspnea; prostration; death in 10 min. Autopsy: distended lungs.
14	440	{ Intraper	2.5	1	..	None.	50	440	5	2	...	10	Dyspnea; prostration; nystagmus. Recovery.
		{ Intraven	10	3	...	Cramps	19						
16	440	Intraper.	20	1	..	None.	29	550	5	3	...	45	Prostration; dyspnea Recovery.
12	500	Intraper	1	1	..	None	29	490	7.5	3	...	50	Prostration. Recovery.
14	440	Intraper.	2.5	1	..	None	29	440	10	3	...	40	Cramps; sneezing. Recovery.
B 13	320	Intraven	5	2	...	Slight cramp. 10 minutes.	42	290	5	3	...	5	Slight dyspnea; tremors 1 hour; cramps 30 minutes Recovery
B 26	290	Intraven.	5	2	...	None.	42	290	5	3	..	37	Jumping 20 minutes; cramps $1\frac{1}{2}$ hours. Recovery
B. 3	400	Intraven	10	3	...	None.	19	400	5	2	...	5	Slight cramps one-half hour Recovery.
B 5	400	Intraven	10	3	...	Cramps.	13	400	5	2	..	15	Slight prostration 25 minutes Recovery.
B 6	350	Intraven	5	3	...	Slight cramp.	24	420	5	2.5	...	30	Dyspnea 15 minutes Recovery.
B 64	220	Intraven	5	3	...	None.	21	290	5	3	...	45	None.
B. 4	350	Intraven	10	3	...	None.	19	350	5	2	...	15	None.
B. 46	300	Intraven	5	3	...	None.	25	300	5	3	...	40	None.
12	500	{ Intraper	1	1	..	None.	32	490	5	2	...	10	None.
		{ Intraven.	7.5	3	...	Prostration; rapid recovery.	13						
B 7	500	Intraven.	5	3	...	None.	24	520	5	2.5	...	22	None.
B. 8	350	Intraven.	5	3	...	None.	24	370	5	3	...	40	None.
B 68	200	Intraper.	5	3	...	None.	21	240	4	2.4	...	70	None
CONTROLS													
B 14	270	Intraven	5	2	...	None.	40	320	5	...	3	60	None.
17	540	Intraper.	20	.	2	None.	29	540	5	3	...	10	None.
B. 62	220	Intraven.	5	.	3	None.	21	300	5	3	...	40	None.
B 20	270	Intraven.	5	.	2	None.	42	290	5	3	...	50	None.
B 27	240	Intraven.	3	.	1.5	None.	42	270	5	...	3	70	None.
B. 23	270	Intraven.	...	2	0.5	None.	42	320	5	3	...	40	None.
11	400	Intraper.	...	1	...	None.	29	420	5	3	...	30	None.
B. 25	270	Intraven.	5	2	...	Cramps: moderate.	42	220	..	3	0.5	5	Dyspnea, slight, one-half hour.

In the patients who showed anaphylactic-like symptoms after repeated injections, some such reaction may have occurred. When introduced into the blood-stream, a combination of salvarsan takes place with the serum. Repeated injections and combinations of this nature probably cause the body to immunize itself against this denaturized serum, so that on a fourth or subsequent injection sufficient alteration in the reactive powers has been brought about to produce the peculiar set of symptoms. The hypersensitive condition developed by patients after repeated injections of salvarsan passes off after a certain period of time. In one patient, however, this condition was more easily induced and the symptoms were more severe with a second series of injections than with the first. This is an example of so-called accelerated reaction. In another patient the hypersensitive condition persisted for more than eight months. Whether moderate-sized doses of salvarsan predispose more to the development of the condition than large doses is still an open question. The condition is one which is relatively infrequent, and when it occurs, if its nature is recognized, need not necessarily be serious. The immediate treatment during the attack is to discontinue the injection. At times the injection may be renewed after ten minutes without a return of the symptoms. This insusceptibility may be explained as a condition of anti-anaphylaxis. If subsequent injections are necessary, our experience with two cases seems to indicate that neosalvarsan may be substituted for salvarsan. After a certain lapse of time the hypersensitiveness usually disappears and then treatment may be renewed.

UNSENSITIZED CONTROLS

Guinea-Pig	Weight (Gm.)	Salvarsan (Mg.)	Guinea-Pig Serum (C.c.)	Saline (C.c.)	Stood at 37° (Min.)	Symptoms
B. 1	400	10	1	...	60	None
B. 36	290	5	2	...	18	None
B. 8	350	5	3	...	25	None
B. 6	350	5	3	...	15	None
B. 45	270	5	3	...	18	None
B. 46	300	5	3	...	70	None
B. 64	220	5	3	...	30	None
B. 65	220	5	3	...	40	None
B. 30	350	5	2	...	5	None
B. 31	250	5	2	...	20	None
B. 33	290	10	2	...	5	None
B. 34	320	10	2	...	15	None
B. 4	356	10	3	...	25	None
B. 5	400	10	3	...	65	None
B. 42	250	5	2.5	...	10	None
B. 43	290	5	3	...	60	None
B. 78	270	4.5	2.7	...	30	None
B. 37	350	5	...	2	60	None
B. 44	270	5	...	3	7	None
B. 62	220	5	...	3	5	None
B. 32	300	5	...	2	5	None
B. 3	400	10	...	3	40	None
B. 41	300	5	...	3	10	None
B. 77	270	4.5	...	2.7	20	None

SUMMARY

After repeated injections of salvarsan, certain patients show symptoms of a respiratory and vasomotor nature like those seen in anaphylaxis, and in one of our cases there occurred a toxic erythema. Guinea-pigs which have been sensitized by the injection of a mixture of guinea-pig serum and salvarsan, and have been reinjected, after a suitable time, with the same mixture, show symptoms like those seen in anaphylactic shock. This acts like a foreign proteid. In patients who show anaphylactic symptoms on repeated injections of salvarsan, a similar reaction probably takes place between the native serum by salvarsan so that the homologous serum phenomenon seems to depend on an alteration of the patient's own serum and salvarsan.

THE PROPER PLACES OF MERCURY AND SALVARSAN IN THE TREATMENT OF SYPHILIS *

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This attempt to formulate the proper place of mercury and salvarsan in the treatment of syphilis must be recognized as presenting the view of the clinic rather than that of the laboratory.

It is an evident fact that the natural history of a disease must be known before the effects of such disturbing elements as drugs can be properly understood.

In the study of the therapeutics of syphilis there are certain facts in the natural history of the disease which must be kept in mind. Syphilis owes its existence to a microorganism which penetrates the body at some point in the external surface and then by the lymph- and blood-vessels spreads through the entire organism and may show itself sooner or later in any part of the body. The disease has the peculiarity of appearing locally at some point after years of quiescence. Treatment is apparently successful for many years only to show at last that the disease still lingers, that the spirochetes have flourished in some little-suspected spot and have there wrought irreparable damage. Its lesions are wonderfully various; as time goes on its importance as a cause of the most varied symptoms is shown to be greater and greater, and the character of the lesions it may originate are seen to be more and more varied. As our knowledge of the disease has increased our means of treatment have grown less satisfactory. It is, I believe, true that the majority of syphilitics recover; but the number of serious results is far too great to allow us to rest content. The remedies in our hands are too valuable to be depreciated. We ought, rather, to be encouraged, but there is still something wanting.

The disease is not to be classed as self-limited, at least not in the sense that pneumonia and perhaps typhoid are self-limited. Its treatment is not simply the support of Nature during a limited period while the disease accomplishes its cycle. It is the combating of an entity. Reports of cures after an observation of only a few months must be received with great caution.

With a disease that involves the whole of the human frame, which may appear suddenly in any minute portion of the body, it is necessary to keep in mind its various phenomena lest we be led astray into attributing to other causes, perhaps to medication, the natural symptoms of the disease.

MERCURY

The value of mercury in the treatment of syphilis is abundantly proved by clinical experience. We know that symptoms disappear under its influence in a wonderful manner. Even those who object to its habitual use recognize the fact that it causes the rapid disappearance of outward manifestations in a large proportion of cases.

Clinical experience is confirmed by scientific observation. Spirochetes are banished from local lesions by local applications or by the internal administration of mercury. The Wassermann reaction is rendered negative, temporarily at least. But to reach the best results it is necessary to continue its use for a series of years. The wider our experience, the less does the drug look like an absolute cure.

Its defects are shown by the occasional reappearance of new symptoms at the very time when the patient is under the influence of the drug; by the existence of occasional individuals on whom its otherwise wonderful powers have little effect and by recurrences after apparent cures by its use — recurrences which may involve any part of the body but which are common in connection with some part of the nervous system.

As a final and absolute cure, mercury is too often a disappointment. It fails, not because it is not fatal to spirochetes, but from some one of various reasons, either because we fail somehow in our technic, or because spirochetes find refuge somewhere beyond the reach of our remedies, or because spirochetes differ in their characteristics and some are less sensitive to our remedies. No matter how long or how faithful our treatment with mercury or what form of administration we use we are never able to say to our patients that they are absolutely and finally cured beyond the possibility of a recurrence.

Probably no drug in the pharmacopeia has been subjected to more severe criticisms than mercury. So great was the prejudice at one time that certain men proclaimed themselves as antimercurialists. It was declared by some that the cure was worse than the disease. The great prejudice against it seems to have been due to its abuse or rather to its unwise use beyond its therapeutic dose or until its toxic properties were manifested, and

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* Read in the Symposium on Mercury and Salvarsan in the Treatment of Syphilis in the Sections on Pathology and Physiology and Dermatology of the American Medical Association, at the Sixty-Third Annual Session held at Atlantic City, June, 1912.

this excessive use of the drug was due to a belief that it must cure if only given long enough and in sufficient doses. We have learned how to avoid its dangers and to profit by its powers for good.

No account of mercury in the treatment of syphilis is complete without mention of the iodids. As adjuvants they are most valuable. In the pains of periosteal disease they are more effective than opium, and in the affections of the nervous system they deserve the highest praise. The treatment of syphilis without their aid would be extremely unsatisfactory. But wonderful as they are, they also fall short of that lasting and definite cure which is our aim.

SALVARSAN

In salvarsan we were promised a speedy cure by a single dose. That original promise has not been fulfilled, but we have been given a drug which in rapidity of curative action is marvelous. It accomplishes in days results which are effected by mercury only after weeks or months, but a little time has been sufficient to show that the disease still retains its natural characteristics. Recurrences take place after salvarsan. The nature of the disease is not changed. It is found necessary to repeat the dose, that the spirillicide effects may be prolonged. But no drug can be expected to show powers as great as those of salvarsan without at the same time demonstrating its ability to do injury. There is no drug of really active properties for good without also the ability in excessive dose or in especially sensitive individuals to do harm. Salvarsan is already credited with a certain small number of deaths. They require scrutiny to determine, if possible, whether they were preventable or whether they were the inevitable result of the use of the drug. Most of them have been reviewed by Ehrlich himself. In the first place the small number reported is to be noted. Perhaps they are no more numerous than those that follow the administration of chloroform. Of these deaths some may have been due to overdoses and several must be considered as sequels rather than results of the administration of the drug. It is impossible to resist the desire to use salvarsan as a last resort in desperate cases. Such use of the drug may be compared to the use of surgical means of rescue in a desperate case. The newspapers speak of the patient as dying of the operation, although the primary cause of death was the disease from the fatal effects of which the operation was unable to save him. But outside of the deaths reported after the administration of salvarsan, the cranial nerves have shown a tendency to be affected, as exemplified by deafness, facial paralysis, dizziness and staggering gait in a small number of patients.

These symptoms are said by certain individuals to be the result of salvarsan and afford such persons a reason for discarding its further use. By other men these symptoms are believed to be due to the disease and to the fact that the drug has failed to reach certain spirochetes. There is, once more, the necessity of studying the natural history of the disease before one can pronounce judicially on the effects of remedies.

DEAFNESS IN SYPHILIS

It must be recognized that before the advent of salvarsan deafness was observed by a large number of authors, American as well as foreign, as a result of syphilis in its earliest as well as in its latest stages, although there seems not to have been perfect accord as to the pathologic lesion. I will quote only American authors. In 1897 Dr. E. A. Crockett, one of the aural surgeons of the Massachusetts Eye and Ear Infirmary, reported cases of syphilitic affections of the ear occurring early after the inception of the syphilis with symptoms of ringing in the ears, deafness, vertigo, facial paralysis, unsteady gait and occasional vomiting. The first of his reported cases came on about six months after a syphilis which had been entirely untreated. In another case exactly the same symptoms came on after the same interval of about six months, although the patient had been under careful treatment and was at the time of the onset of the deafness taking mercury and iodid in full doses. Dr. Crockett had seen some fifteen or twenty cases of this sort during the year since his attention had been called to the subject. Sexton, Bumstead, Sturgis and Turnbull, all writing before the advent of salvarsan, made similar observations.

It is evident that the cases of deafness are syphilitic and are properly designated as neurorecurrences. The only question remaining then is whether such aural symptoms are more frequent after salvarsan. Salvarsan conjointly with the other advances in connection with syphilis of the last ten years has given such an impetus to the study that it is possible that more careful observation has something to do with this apparent increase in aural cases. The sequence, however, is sufficiently marked to demand a most careful examination.

The fear of possible evil consequences must not close our eyes to the wonderful good. It may make us a little slow to urge the drug on the cautious. But were the worst allegations realized, they would be less to be dreaded than the fatal effects of tabes and general paralysis, which we hope to forestall. The accidents are certainly wonderfully few. We may, perhaps, regard the use of this new drug as surgeons have regarded various serious operations—dangerous at first, their danger has been gradually diminished almost to the point of extinction by experience and improvement in technic.

THE USE OF SALVARSAN, MERCURY AND THE IODIDS

We have, then, a disease which continues to show its obstinate tendency to recurrences in spite of all interference, and two drugs which are possessed of wonderful virtues but neither of which is absolutely able to change the nature of the disease. The question is not which we shall choose but how we may best utilize the two. Mercury is always at hand, is easily administered, requires no previous training, has passed beyond the time when it is looked on with special dread and in company with its ally, potassium iodid, accomplishes extremely good results. It continues to be the choice of many. Its usefulness is not diminished by the advent of salvarsan. It must be used in cases in which the use of salvarsan is difficult and in cases of syphilis occurring in persons already suffering from other diseases, notably of the heart or kidney. It must be used in cases in which the disease continues, in spite of repeated doses of salvarsan, to show recurrences.

Salvarsan gives promise of aborting the disease if administered before secondary manifestations. It causes certain symptoms, in which mercury fails, to disappear and we have reason to hope that after sufficient time it will show a radical cure in a greater number of cases. But the number of cases in which relapses have occurred makes it desirable to continue spirillicide action between doses and beyond the single or repeated dosage of salvarsan, and this must be done by mercury.

Let us pursue the subject further by examining the action of the two drugs under different circumstances. Of the value of the local action of mercury there can be no doubt. Experiments on monkeys with calomel ointment by Metchnikoff and Roux have demonstrated that such an ointment thoroughly rubbed into the spot of inoculation within a few hours prevents infection. A single experiment on a human subject has confirmed the observation.

This demonstration of the value of mercury if locally applied immediately to the spot of inoculation may at first thought seem of little practical value. It is true that in practice the opportunities for immediate application must be indeed few, but it may be of the greatest value to the practitioner when he has reason to fear that he has brought the virus into contact with wounds on his own hands. We have the assurance that mercurial or calomel ointment rubbed faithfully into the infected spot may destroy the virus and prevent the inoculation from taking place. This demonstration also justifies the preventive use after exposure, as is now practiced in the armies and navies of several nations. We have reason to believe that the amount of syphilis has been materially diminished by this wholesale application.

The statement so common a few years ago and fortunately less often heard at present, "Wait for secondary symptoms before beginning treatment," ought to be supplanted by some such adage as this: "Begin energetic treatment as soon as a positive diagnosis is made, and take pains to make that diagnosis as early as possible." Between the incubation—confrontation—the clinical picture—glandular reaction—the finding of spirochetes, and occasionally the Wassermann reaction, it ought to be possible to make a diagnosis without waiting for secondary symptoms in a large proportion of cases. It is certainly easier to make a diagnosis of the primary sore at present than it was a few years ago, from the clinical point alone. The improvement in cleanliness diminishes the amount of suppuration which obscured the diagnosis. The lapse of time since the primary sore was first distinguished from other lesions has brought into greater prominence its characteristics. In view of the fact that spirochetes are not always obtainable and that a positive Wassermann reaction is not obtained in all cases until after the sore is clinically recognizable, it seems right to emphasize the study of its clinical aspects. A certain amount of caution, however, ought to be exercised in acting on clinical evidence alone. One advantage of the principle of waiting until secondary symptoms have developed lies in the fact that the patient as well as the physician sees the correctness of the diagnosis. It is to be desired that no opportunity be left to dispute the diagnosis later, on the part either of the patient or of practitioners who may subsequently be consulted.

That treatment in the early cases should be begun immediately is beyond question. Exactly how it should be begun is not unanimously agreed on. There is, perhaps, room for difference of opinion, but it is not so much a question of choice between mercury and salvarsan as a question how to gain the advantages of both drugs. The observations of many years in the use of mercury allows one to say that the primary sore heals much more quickly under treatment by salvarsan. So far, it seems that salvarsan given at the earliest moment offers relatively better assurance of a cure than other drugs. The effect seems almost instantaneous. We may, then, believe that with salvarsan administered as soon as possible and with a mercurial as a local dressing and internally, we are doing all in our power toward the cure of the patient. It has been permitted me to treat in this manner four brother practitioners with chancres of the finger and to see the primary sore heal and all other symptoms remain absent for several months, in one case a year up to the present time. It is no small gratification to keep members of our profession thus at work.

In secondary syphilis, in which mucous patches and lesions of the mouth abound, the work of salvarsan in causing such lesions to disappear is most rapid, but in the disappearance of superficial skin eruptions its superiority to mercury is much less marked. It is during this period that the majority of neurorecidives have occurred. It is the time when the disease is most general and most active. It is especially the time when both drugs should be used.

In the destructive lesions of late syphilis we have remedies of the greatest value in the combined use of mercury and the iodids. There is no one accustomed to treating syphilis by mercury and iodid who has not seen many a threatening lesion heal as by magic under the influence of those drugs. In fact there used to be a feeling that the physician had somehow failed in his duty if such lesions refused to heal under his care. Yet there are certain cases which are resistant to mercury and iodids no matter how used—cases which have deservedly acquired the name of mercury-resistant. These are the cases which persist in spite of all that can be done, improving for the moment only to relapse, until finally a hopeless condition is reached to which death is preferable. In no class of cases are the results from the use of salvarsan more brilliant; they are like a recall from the grave.

The treatment of congenital syphilis is a fruitful subject of study which is coming into prominence. It is possible to make great changes in the condition of hereditary syphilitics by faithful and persistent therapeutic measures. It is not so fully recognized as it should be in all our charitable organizations that these children are capable of improvement and of return to something near the normal standard in a large proportion of cases.

The persistent use of mercurials is to be praised for its benefit, but it has been my good fortune to assist various ophthalmic surgeons by the application of salvarsan to children whose eyes were going badly, with improvement in all cases. Several severe cases of keratitis have certainly been helped by salvarsan.

There is another class of patients who deserve attention, and in regard to whom it has been a question how they shall be treated, namely, the apparently healthy mothers of syphilitic babies. It has long been established that these women are syphilitic, but the fact of their syphilis has been emphasized by the results of serologic study. If they are to continue to bring forth children, they ought to be treated for the sake of their unborn offspring. Many have hesitated to treat these apparently healthy women and have been content with treating the fathers, but now it has become evident that mothers must also be treated. They are difficult to treat by mercury, as they are not willing to continue treatment for a long period in the absence of all signs of disease, and salvarsan offers a quick and ordinarily safe cure. In the one case which has fallen under my notice, a healthy child has been produced.

SALVARSAN AS A PUBLIC PROTECTION

No consideration of the treatment of syphilis at the present day would be complete which stopped with the consideration of the individual. The relation of the syphilitic to the community must be considered. It is established that the state shall protect its citizens against infectious diseases, but its duty in regard to syphilis has been neglected too long. Questions of morality have been allowed to obscure the simple fact that syphilis is an infectious disease, and the treatment required extended over so long a time that the detention of the individual was expensive and difficult. Salvarsan offers a new and easier method of controlling these patients. It is a far different matter to inject a fluid into the veins of a person dangerous to the public health from what it is to keep that patient for a series of months or even years at the public expense. If one hesitates in applying salvarsan in general, it is a remedy of the utmost value in the protection of the public. There are certain reckless, careless, ignorant individuals in whom syphilis is a particular peril to those about them. Salvarsan affords the community protection against such individuals, whether men or women. The drug should be used on syphilitic individuals in jails and almshouses and in hospitals. It should be used on individuals who threaten to infect their children and their families. In all these cases it is a peculiar blessing.

CONCLUSIONS

We must, then, retain mercury because its usefulness is not diminished in the least by salvarsan; because it can be used when the use of salvarsan is difficult and when it is contra-indicated. It may do harm if pushed beyond its therapeutic dose, but properly used it relieves and I believe that in some cases it cures; but it always leaves the future uncertain.

We must thankfully accept salvarsan, for it seems to abort the disease at its earliest appearance, especially with the help of mercury. It banishes the symptoms in many cases in which mercury fails. Unfortunate sequels are so few in comparison with fortunate results that they should stimulate closer study to interpret and diminish them. If the promise of the past year is fulfilled, we are nearer the cure of syphilis than we have ever been before. Especially must we be thankful for the impetus given to the study of syphilis. We may confidently look forward to a time when our present methods will seem crude—to a time when we shall be able to gauge the effect of our remedies more accurately, and when salvarsan shall be replaced by an even better drug.

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THE RELATIVE VALUE OF MERCURY AND SALVARSAN FROM A SEROLOGIC POINT OF VIEW *

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The action of salvarsan on the clinical manifestations of syphilis is well understood at the present time. Its temporary effect on the Wassermann reaction is also fairly well known. To judge, however, of its ultimate effect on the disease either from a clinical or serologic standpoint will be possible only after many years have elapsed. It will therefore be seen that at the present time a serologic comparison of mercury and salvarsan must of necessity be unsatisfactory.

In attempting to collect statistics of various observers on the serologic action of the two remedies, we are confronted with very great difficulties. In the case of mercury the figures vary greatly according to the thoroughness of treatment, the preparation and administration of the drug and the stage of the disease at which the remedy is given. Indeed, there is even now no absolute agreement as to the very best method of using mercury. In the case of salvarsan the difficulties are still greater owing to the newness of the remedy. A large number of the reports deals with methods of treatment (subcutaneous and intramuscular injections) which at the present time, except in the case of children, are practically discarded. A further difficulty in judging of the action of salvarsan alone is due to the fact that at present the majority of syphilographers are using it in combination with mercury. Again, the number of serologic reports on the action of salvarsan is very small in comparison with the enormous number dealing with the clinical aspect of the subject.

In attempting a comparative study that appeared to be rather hopeless at the outset, I have realized the difficulty in drawing conclusions from statistics. It would be possible, I feel, for a prejudiced observer to prove his case in favor of either mercury or salvarsan. My efforts would have indeed been discouraging if it were not for the striking results that have been noted in the abortive treatment of the disease, which will be later discussed.

In judging of the serologic action of mercury I have compiled the records (Table 1) of twenty-one observers. Most of these reports deal with cases that were thoroughly treated by inunctions or injections, in all stages of the disease. The percentage of negative results is perhaps too favorable for mercury, as some of the tests were made after a course of treatment. Omitting three reports that included among the negative results cases in which the reaction was weakened, there were 1,634 cases giving an average of 64.8 per cent. of negative reactions following the use of mercury.

In judging of the serologic action of salvarsan one is struck by the great discrepancies in the results of different observers, particularly in the case of subcutaneous and intramuscular injections. I have tabulated the results of thirteen observers who treated a total of 987 cases by these methods with an average of 47.4 per cent. of negative results. The variations in the results are seen by glancing at Table 2, in which Schreiber and Hoppe reported 92.3 per cent., Lange 61 per cent., Treupel and Levi 25 per cent. and Goldenberg and Kaliski 8.8 per cent. of negative reactions.

The results obtained by intravenous injections, especially when repeated or combined with intramuscular injections, are much more favorable. By the use of triple intravenous injections Gutmann obtained 74 per cent. of negative results, while Zimmern found 68 per cent. after two or more injections. By a combination of intravenous and intramuscular injections Linser obtained 70 per cent. and Micheli and Quarelli 86 per cent. of negative results, while from this method Spiethoff states that a negative reaction was obtained in a majority of his cases.

In a serologic comparison of the different methods of administration of salvarsan, McIntosh and Fieldes found 80 per cent. of negative results after intravenous injec-

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* Because of lack of space this article is abbreviated in THE JOURNAL by the omission of the bibliography. The complete article appears in the Transactions of the Section and in the author's reprints.

* Read in the Symposium on Mercury and Salvarsan in the Treatment of Syphilis in the Sections on Pathology and Physiology and Dermatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

tions, as opposed to 53 per cent. after intramuscular injections. On the other hand, Craig in a comprehensive paper states that he obtained 78.6 per cent. of negative reactions after intramuscular injections (mostly single), as opposed to 63.8 per cent. after combined intramuscular and intravenous methods.

The value of the reports on salvarsan that have been quoted is lessened by the fact that the period of observation of the cases was short as a rule, seldom more than a few months at best. One of the most valuable communications from the standpoint of the number of cases as well as duration of observation has recently been published by Heidingsfeld, whose latest statistics I am able to quote through the kindness of a personal communication. In his series of 333 cases, treated mostly by single injections, 256, or 76.9 per cent., changed from a positive to a negative reaction. Of these cases 101 remained negative one year or more, fifty-eight, nine months or more, forty-five, six months or more, fifty, from one to three months, giving a total average of eight and one-fifth months per negative case.

From the figures of the different observers that have been thus far quoted it is, I think, apparent that no positive conclusions can be made as to the comparative serologic value of mercury and salvarsan. The case is entirely different with regard to the results recently reported from the abortive method of treatment by salvarsan alone or in combination with mercury. From this method of treatment some very strikingly good results have been obtained from a serologic as well as a clinical point of view.

By the early administration of mercury, it has generally been found to be impossible to abort syphilis if we except the almost immediate application of the drug (first eight hours) at the site of inoculation. Even when the early administration is combined with excision of the chancre, the eradication of the disease does not follow. While such early treatment probably shortens the course of the disease, it is nevertheless true that the subsequent use of the drug is almost invariably required.

While it is too early to judge of the permanent results of abortive treatment by salvarsan it can be asserted that they are at least very hopeful and worthy of our most careful consideration. One of the first reports on the abortive method by the use of salvarsan was that of Finger, who treated thirteen cases of primary syphilis by a single intramuscular or subcutaneous injection. During an observation period of twelve weeks to six months, six cases remained or became Wassermann negative.

In a series of twenty-three cases of primary syphilis treated by Milian by two to four injections (intravenous alone or combined with intramuscular), seventeen cases became negative and remained so from two to eight months and showed no clinical manifestations during this time. Milian writes, "It is certain that these statistics show that salvarsan is not a constant abortive remedy, but that among such remedies it is at the present time the most efficacious and powerful."

Of twenty-one cases treated by Emery by three intravenous injections thirteen became negative and remained so for a period of three weeks to two and a half months.

McDonagh treated twenty-two cases by two intravenous injections at intervals of ten days and writes, "I have twenty-two cases of primary syphilis treated in this way, ranging from twelve months to the present time, which have never given a positive Wassermann reaction or developed secondary symptoms."

Géronne and Gutmann report a series of thirty-seven cases, seventeen of which were positive and twenty negative before treatment. The abortive method was successful in twenty-nine cases, the majority of the patients being observed over six months. Ten cases were under observation from twelve to sixteen months.

Of fourteen cases treated by Stern, eight remained negative and showed no clinical symptoms for periods varying from four to fourteen months.

Queyrat reports a series of seventy-eight cases treated by three intravenous injections at intervals of seven days. He found that fifty-one cases became negative and remained so for periods averaging about three months. None of them showed any clinical manifestations.

Favorable as some of these reports appear, it would seem that still better results in the abortive treatment are possible when salvarsan is combined with mercury. In a valuable communication Gennerich reports on eighty-three cases of primary syphilis treated by intravenous injections of salvarsan combined with injections of calomel. The calomel was given as soon as the diagnosis was made by finding the spirochetes. This was followed in one or two days by intravenous injections of salvarsan given at intervals of a few days, in some cases six injections being given. Of sixty-three cases which were negative at the beginning of treatment, all except four remained negative. Of twenty cases that were positive before treatment all except four became negative and remained so. The figures of Gennerich are especially valuable owing to the comparatively long time of observation, thirty-seven of the cases having been followed for six months to a year and twenty of the cases for more than one year.

Löwenberg treated twenty-four cases of primary syphilis by a combination of two intravenous injections of salvarsan and a course of mercurial inunctions. All of his cases remained Wassermann-negative and free from symptoms at the end of a minimum period of six weeks' observation.

Equally good results were obtained by Arning in the treatment of forty-five cases of primary syphilis and twenty-six cases showing the earliest secondaries, in which the average period of observation was four months, the longest being eleven months. His method consisted of a course of inunctions combined with an intramuscular and, ten days later, an intravenous injection of salvarsan. All of his seventy-one cases showed negative reactions and freedom from symptoms at the last period of observation.

Finally, Hecht has treated cases of primary syphilis by a course of mercurial inunctions combined with two intravenous injections of salvarsan, together with excision of the chancre (in a few favorable cases). Of fifteen cases that were Wassermann-negative at the outset, all except one remained negative during a period varying from four to eleven months.

Before giving the conclusions of my statistical paper, it should be said that in a serologic comparison of the two drugs, salvarsan is perhaps at a disadvantage. While a great deal of experimental work has already been done with this new remedy, the last word still remains to be said as to the best method of administration We do not know as yet the limit of the number of doses that can be given. In the case of mercury, on the other hand, there is a fairly general agreement as to the best form of treatment.

TABLE 1.—CASES OF SYPHILIS TREATED WITH MERCURY

No.	Name	No. of Cases	Method of Treatment	Percentage of Negative Results
1	Müller	48		37.5
2	Lederman	92	One to three courses	26
		59	Four or more courses	52
3	Bering	69	Well-treated chronic intermittent method	84
4	Citron	58		46.5, 75.8 including weak reactions.
5	Fischer	62		48
6	Blumenthal and Roscher	95	One to five "Kuren"	51 negative or weakened.
7	Lesser	115	Well treated; at least four good "Kuren"	62
8	Blaschko	90		84 negative or weakened.
9	Mauriac	33	Well treated	60
10	Pürckhauer	116	One or more "Kuren"	65
		54	One to four "Kuren"	68.5
11	Höhne	127	Thoroughly treated by injections and inunctions	52
			Calomel	66
12	Jesionek and Meirowsky	216	One to three "Kuren"	45
		130	Four to eight "Kuren"	61
13	Bruck	...		70
14	Harrison	49	Two courses inunctions or injections	22
		69	Six to eight courses	59
15	Seligman and Pinkus	166	One to three "Kuren"	25
		38	Four to ten "Kuren"	55
16	Feuerstein	112		42.8
17	Almkvist	102		70
18	Boas	231	Mercury alone or combined KI, arsenic and quinin	79
19	Gavini	139	Little treatment	23
			Energetic treatment	85
20	Marcus	200	Majority; ten "Kuren" by injections	87
21	Gennerich	124	Calomel injections and inunctions	75

TABLE 2.—CASES OF SYPHILIS TREATED WITH SALVARSAN

No.	Name	No. of Cases	Method of Treatment	Percentage of Negative Results
22	Schreiber and Hoppe	52	Subcutaneous and intramuscular	92.3
23	Neisser and Kuznitzky.	100	Intramuscular; small doses	44
24	Fraenkel and Grouven	75	Subcutaneous	9, 24 including weak reactions.
25	Lange	250	Subcutaneous and intramuscular	61
26	Jeanselme and Touraine	32	One large dose (?)	75
27	Lesser, E.	66	Intramuscular	25
28	Plaut	46	Subcutaneous	4, 10.9 including weak reactions.
29	Scholtz, Salzberger and Beck.	80	Subcutaneous	26
30	MacRae	54	Subcutaneous and intramuscular	12.9, 29.6 including weak reactions.
31	Weiler	40	Intramuscular	50 became negative or an original negative remained so.
32	Treupel and Levi	115	Subcutaneous and intramuscular	25
33	Freund	43	Mostly subcutaneous	35
34	Goldenberg and Kaliski.	34	Subcutaneous and intramuscular	8.8; a number also gave weakened reactions later.
35	Noguchi	102	Subcutaneous, intramuscular and intravenous	33.7, 52 including weak reactions.
36	Fox and Trimble	71	Intravenous and intramuscular	39
37	Engman and Buhman	32	Intramuscular and intravenous	28
38	Craig	150	Intramuscular	78.6
		30	Intravenous	53
		36	Combined	63.8
39	McIntosh and Fieldes	26	Intramuscular	53
		21	Intravenous	80
40	Gutmann	27	Three intravenous	74
41	Zimmern	132	Two or more intravenous	68
42	Kromayer	30	Repeated small intravenous	26
43	Linser	135	Repeated intramuscular and intravenous	70
44	Spiethoff	90	Combined intravenous and intramuscular	Negative in majority of cases.
45	Michell and Quarelli	34	Combined intravenous and intramuscular	86
46	Heidingsfeld	333	Mostly intravenous	76.9

TABLE 3.—RESULTS OF ABORTIVE METHOD OF TREATMENT BY SALVARSAN ALONE OR IN COMBINATION WITH MERCURY

No.	Name	No. of Cases	Method of Treatment	Period of Observation	Percentage of Negative Results
47	Finger	13	One intramuscular or intravenous	12 weeks to 6 months	46
48	Milian	23	Two to four intraven. or combined intraven. and intramusc.	2 to 8 months	73.9
49	Emery	15	Three intravenous injections	3 weeks to 2½ months	86.6
50	McDonagh	22	Two intravenous injections	12 months to present	100
51	Géronne and Gutmann.	37	Two and three intravenous injections	Majority over 6 mos.; 10 cases from 12-16 mos.	78.3
52	Stern	14		4 to 14 months	57.1
53	Queyrat	78	Three intravenous injections	Average three months	65.3
54	Gennerich	83*	3-6 intravenous injections; 6-12 calomel injections	37 cases ½ to 1 year	63.5
				20 cases more than 1 yr.	20
55	Löwenberg	24	Two intravenous injections of salvarsan combined with course of mercurial inunctions.	At least six weeks	100
56	Arning	45	One intravenous; one intramuscular injection combined with mercurial inunctions.	Average four months	100
57	Hecht	15†	Two intravenous injections combined with mercurial inunctions.	4-11 months	66.6

* Sixty-three negative at outset; twenty positive at outset. † Negative at outset.

The question of the serologic effect of a combination of the two remedies has not been discussed except in the case of the abortive method, as the reports on this aspect of the subject, though favorable, are yet very few in number.

CONCLUSIONS

1. In the primary stage of syphilis, especially before the Wassermann reaction becomes positive, salvarsan is a most valuable remedy from both the serologic and clinical standpoint.

2. Repeated intravenous injections at this stage give promise of aborting the disease in a considerable percentage of cases.

3. No such promising results have ever been reported by the early administration of mercury alone.

4. It is probable that the abortive method will prove still more effective when a combination of the two drugs is used.

5. A serologic comparison of mercury and salvarsan in later stages of syphilis fails to show any decided advantage in favor of either remedy.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SWIFT, FORDYCE, POST, NOGUCHI AND FOX

DR. WILLIAM ALLEN PUSEY, Chicago: Salvarsan was introduced as a remedy that was to destroy the infection of syphilis by one massive injection. What has been its history in the two years since then? First, it was given as one large dose of a neutral emulsion; then came the injection of the alkaline solution in the muscle; then the injection into the veins; now we have salvarsan, plus our old reliance, mercury. Taking the drug itself, first we had salvarsan, then salvarsan hyperideal, and, although one might have thought that a drug called hyperideal had reached the acme of its purpose, now we have neosalvarsan. And we have been forced, by the sad accumulation of facts, away from the claim that salvarsan cures syphilis except—to avoid argument—in early favorable cases. The present situation is a far cry from the original idea of *therapia sterilisans magna*, and yet the lurking notion of salvarsan as a cure for syphilis is still responsible for a large part of its use.

These variations from the original proposition as regards salvarsan are not mere refinements in technic. The transformation that has occurred in salvarsan therapy indicates that we are dealing with a drug still in the making, whose action has not proved satisfactory and which has not come up to the original promises made for it.

We may say positively and finally that salvarsan does not cure syphilis in any more cases than mercury does, on the basis of either the physiologic or the clinical test. That is the most important thing that we can preach to the profession at the present time. In the second place, salvarsan is a symptomatic remedy of efficacy. It is one that can be compared with the combination of iodids and mercury. I am not prepared to believe from my own experience that, except in unusual cases, the symptomatic effects of salvarsan are any more pronounced than those of mercury and potassium iodid in combination.

The real problem in syphilis is parasyphilis. The lesions of syphilis we can handle effectively with mercury and the iodids. What of the prognosis as regards the occurrence of parasyphilitic affections of the nervous system in the cases of syphilis treated with salvarsan? Arsenic itself has an especial affinity for nervous tissue and produces degenerative processes in nerves, and no man can now say whether these massive doses of arsenic given as salvarsan are going to diminish parasyphilitic affections of the nervous system or increase them. In salvarsan we have not another antitoxin for diphtheria, but a tuberculin—a thing of use, but a thing still very far from a definite position.

DR. A. G. RYTINA, Baltimore: I am sure that any one who has had experience with salvarsan is convinced of its immediate and wonderful symptomatic efficiency. Anyone who has used it must have treated cases successfully that resisted mercury and potassium iodid. It is also evident that salvarsan has not fulfilled the early hopes of Ehrlich's *therapia sterilisans magna*, as far as syphilis is concerned; but that this idea is not far-fetched has been proved by its effect in abolishing such infections as frambesia, bilharziosis, human and animal recurrent fever, animal syphilis and certain spirillar diseases in animals and fowls. In these affections, members of the same spirochetal family, the organisms are mostly in the circulation, and therefore, at a point of vantage, as far as attack by salvarsan is concerned. There is no doubt in my mind that salvarsan is specific for the *Spirochæta pallida*, but owing to the pathologico-anatomic changes present, namely, the formation of spirochetal rests, often in parts of the body inaccessible to the circulation, the cause of the failure of salvarsan to cure syphilis is explained. In intravenous injections, owing to the rapid elimination, some organisms escape; these later generate a new progeny, which, escaping into other parts of the body, produce again symptoms comprised under the term "recurrence." On this account I have been of the opinion for a long time, that until salvarsan or some similar drug was modified, so that we could get a prolonged and protracted action, we could not expect a larger percentage of cures. Intramuscular injections of salvarsan, according to Ehrlich and others, are more efficacious but on account of the excruciating pain, abscess formation, etc., have never met with favor.

Within the last four or five weeks I have been experimenting with neosalvarsan, which on account of its neutralness and high solubility lends itself more readily to intramuscular injections, thereby allowing a more prolonged and protracted action. The symptomatic results with neosalvarsan are just as good, if not better than with salvarsan, the constitutional reactions practically *nil* and the pain and local changes, which consist either of an induration or an elastic edema, are decidedly less severe.

Our technic is to give preferably three or four intramuscular injections of 0.9 gm. neosalvarsan at weekly intervals except in the very early cases in which a more intensive action is required. Up to the present time we have not noted any local or general complications.

DR. E. G. BALLENGER, Atlanta, Ga.: During the past eighteen months I have been using salvarsan. I have given 693 injections, mostly intravenous, to 308 patients. These patients are now in better physical condition and freer from evidences of syphilis than any similar group of patients whom I have treated with mercury and potassium iodid. I have continued to use this remedy because the patients thrive on it. The recurrences were less frequent than before; and I shall continue to use it as long as the patients do well. I have given 153 injections of neosalvarsan to fifty-four patients, who have done remarkably well. I have noticed very slight disturbances, and have given intravenous injections every other day, until three or four injections have been given. At the end of the month, two or three injections more are given; and I shall repeat them when needed. I supplement the treatment, when necessary, with mercury.

I have made a slight modification in the technic. In introducing the needle, I push a stiletto, like that used in embroidery, into the skin over the vein, which gives me a little window. By pushing straight down on the needle until it engages the wall of the vein, and then pushing along parallel with the vein, the needle may then be easily inserted accurately through the anterior wall in the lumen of the vein without dissecting the latter out, and with so much accuracy that the patient does not complain of pain afterward. We have given more than 500 consecutive injections, without an incision to expose the vein or cut it out. It is well to do these repeated injections expeditiously and painlessly so that the patients will willingly return for the necessary subsequent treatment. We have evolved several methods of entering the vein, but this one, I think, simplifies the procedure more than any before used.

Dr. Judson Daland, Philadelphia: We must all recollect that Ehrlich is not a physician, and does not see syphilis in the human individual. His own experience was practically limited to syphilis in animals; and he was able absolutely to sterilize the rabbit in a period of twenty-four hours. It was his hope that this would prove to be true so far as syphilis in the human family was concerned. In consequence of this statement, which has been misunderstood, there was in the beginning an extraordinary expectation that any syphilitic patient who received a proper dose would promptly recover; and, therefore, a large number of men are at present disappointed.

With reference to the statements regarding the abortive treatment of syphilis, it seems to me that in this particular form, this drug promises most; and it does seem to me that the statistics already given regarding the serum reaction and other evidences tend to show that it has been of very valuable service in this form, which is the easiest to relieve. In the treatment of primary syphilis, it is desirable that the chancre shall be removed, not so much with the idea of excising all the disease as of excising as much tissue as is known to contain the *Spirochæta pallida*. Then, the introduction of salvarsan, combined with mercury, if desired, promises the best results.

From the very beginning Ehrlich has urged the probable necessity of the use of both mercury and salvarsan in the treatment of syphilis. So far as late manifestations are concerned, we find that salvarsan usually exerts, especially in paresis, very little effect. In other words, a strongly positive Wassermann reaction is not materially influenced; nor are the symptoms especially influenced, as a rule. There are cases that show the marvelous rapidity of the action of the drug, so that often some of the vital structures are saved, which could not have been saved if mercury had been employed. Salvarsan is an additional drug, and is not intended to displace mercury, but to act in combination with it. There is no rivalry in the use of the two drugs. It is to be determined whether to use them singly or combined. Salvarsan has made for itself a place that I believe to be permanent; I think it should be used intravenously, thus making it possible to determine exactly the dosage. In this method also it is distributed best throughout the body. The intramuscular injections give an unknown quantity in the blood. A certain definite dosage is necessary for it to exert its action. Therefore, intramuscular doses are less valuable than intravenous doses.

Dr. Richard L. Sutton, Kansas City, Mo.: While I agree with the majority regarding the great value of salvarsan as a therapeutic agent, I also represent one of a rather thoughtful minority who appreciate the enormous risk involved when the drug is used intravenously. During the past twelve months, I have seen in the practices of other men four cases of hemorrhagic encephalitis which I feel sure were due to salvarsan, and not to syphilis. In two of these instances, freshly distilled water was employed, so the claim that bacteria in the diluting fluid was the cause can safely be ignored. Three of the patients were men who presented no other evidence of disease except syphilis, and every possible precaution was taken to prevent accident, yet the patients were dead in from two to ten days afterward.

When men of the scientific standing of Ehrlich and Craig acknowledge the greater therapeutic value of the intramuscular method as compared with the intravenous, the only objection to the former being the slight amount of pain following injection, we must admit that it is at present the only way in which we are justified in administering the remedy. If the drug is properly mixed, the resulting pain is very slight, and the after-effects are much better than when intravenous injections are given. In a condition like syphilis, in which we have other and very dependable remedies, we have no right to experiment with the lives of our patients.

Dr. B. C. Corbus, Chicago: The biologic control in the treatment of syphilis depends on two things: first, the time at which the patient comes under observation; and second, the amount of previous treatment the patient has had, whether with mercury alone or salvarsan alone, or by the combined method. To be able to make the diagnosis early is to have the cure readily within our grasp. Where it took years before, it now takes only a few months to effect a cure when the diagnosis is made from the primary lesion before the Wassermann is positive. There should be no stereotyped way of administering salvarsan. Each case should be a law unto itself. The prevailing opinion seems to be that the patient is cured when we get the first negative Wassermann. Nothing is said in regard to treatment after that. Most of our observers stop here. We have only just begun to find out that we must continue our treatment energetically under this condition, if we wish a successful cure.

Four years ago, I began treating syphilis with mercury after the biologic method; I have patients with primary and secondary syphilis who are biologically and clinically well, and it is two years since the last treatment was administered. We are all agreed that with the combined method, we have a much quicker way of treating the disease; but I think that the time when the case comes under observation should play a rôle in the selection of the kind of treatment it is to receive.

I began treating patients in October, 1910, with the alkaline intramuscular injections after the Alt-Lesser technic, and some of the patients whom I have had under observation since that time have remained biologically and clinically well with two injections given six weeks apart.

The treatment of syphilis at present should be with both salvarsan and mercury when the patient comes under observation early. An intravenous injection should be given first, followed in four days by an intramuscular injection. This should be followed by a course of rubbings, at least fifty to seventy-five, preferably one hundred, and later, by at least two intravenous injections of salvarsan.

In early secondaries, the treatment should be the same as in the later. In later secondaries (after the second month) two intramuscular injections first, then all subsequent treatment intravenously, combined with vigorous mercury treatment, preferably rubbings.

In latent syphilis and in parasyphilitic conditions, unless the condition is urgent, I prefer to administer potassium iodid and mercury before the employment of salvarsan.

Capt. H. J. Nichols, Washington, D. C.: We in the Army have been very much interested in salvarsan, and believe that it has justified itself by its immediate effects. I think, too, that the era of salvarsan has raised the question of the cure of syphilis, and thrown on it a light that we have never had before. For example, in the British army it has been the custom to give two years' treatment with gray oil, averaging twenty-eight injections. The patient was then considered cured. Since the Wassermann reaction has been introduced and some of these cases have been followed by means of that reaction, it has been found that at the end of two years 40 per cent. of these patients still had a positive reaction, and a still larger percentage must remain infected. Salvarsan, in rapidly bringing about a negative Wassermann, even if it recurs, has reopened the question of the cure of syphilis, and has really led us along right lines toward securing it.

Dr. Pusey has written, I believe, in the last year or so, that nothing was lost by allowing a patient with a primary lesion to develop secondary ones. Such an opinion can be held, of course; but this is not the best opinion on the subject; the same is true, in my opinion, of his general attitude toward the drug.

I think that in this discussion we should not lose sight of Dr. Noguchi's paper, in which he showed that he could cultivate spirochetes from granules. Now if this is developed, it certainly will have some clinical bearing; perhaps it may lead into an explanation of the relation between paresis and tabes and syphilis. At present, if you ask any neurologist or psychiatrist the relation between syphilis and paresis, he has no satisfactory answer to give. He says that syphilis must come before either of these diseases, but spirochetes have never been found in tabes or paresis. What the relation is, he does not know; it may be possible that there are spirochetes present in paresis and tabes in the form of granules which are making the trouble.

Dr. M. L. Ravitch, Louisville, Ky.: If I understand correctly, Captain Nichols criticizes the older writers for their stand that the chancre should be enucleated, preventing thereby the secondary stage with its concomitant eruption. To my mind, the theory of the older writers is very plausible. No doubt the chancre is the initial trouble and it was wisely called the initial sore. Going into the detail of etiology of syphilis, we may sum up the process in this way: The patient was exposed to syphilis. The spirochetes were lodged, let us say, on the highly sensitized skin of a certain organ. The spirochetes constituting a foreign protein and an irritant to the skin, Nature tries her best to throw them off by means of serums and other fluids. Sometimes the battle is successful; the doors are successfully barred against the entrance of the spirochetes into the general circulation. Sometimes Nature fails to kill the spirochetes in the chancre with the aid of protective fluids. Then, the spirochetes go deeper, are absorbed by the lymphatics and blood-vessels, and a general infection is the result. Nature then makes her second effort and sends out more protective fluids; we have then the secondary or eruptive stage. Nature fails; the system becomes sensitized. Nature not being able to help the patient, the latter comes to the medical man. Chemical means are applied. Mercury and arsenic are used, the latter in the new form of salvarsan. But salvarsan is not really a new remedy. Arsenic was used by the same old writers who advocated enucleation of the chancre. No doubt both mercury and salvarsan are good remedies. The first is undoubtedly a specific if used rightly. The latter is a good adjunct and can be used in obscure cases, particularly when mercury cannot reach the latent spirochetes. Sometimes neither remedy completely eradicates the disease. Like the gonococci in gonorrhea, the spirochetes in syphilis may also assume a latent form, and when the body becomes weakened, they may revive and become active again, causing a new eruption. Some writers may assert that the patient has become reinfected; but this is not so. The point I want to make is that the old writers were fully justified in advocating enucleation of the chancre and that salvarsan or arsenic is not a new remedy. Nothing is new in this world.

Dr. Hideyo Noguchi, New York: I forgot to express my views about the cycle in the life of the spirochete. It is first bred very near home; and it will go around in the spiral form near home as long as the condition of the environment remains unfavorable, but not dying out. Then, when the condition of the environment improves, the spiral forms sprout and form these granules, which afterward grow into normal-sized spirochetes. That is the time of life and the stage in which one finds the spirochetes in the primary stage of the disease. This stage may last a year or longer. The immunity reaction of the body then becomes so marked as to restrain the growth of the spirochetes. The unfavorable condition persists, and it may force the spirochetes into the sporulation form. Of course, this is all only speculation, based on the findings in the pure cultures. All the forms of which I have spoken can be demonstrated, however; yet, to be sure, we have to have clinical conditions also bearing on this point. The study of latent syphilis is interesting in connection with the various forms of spirochetes found.

Dr. Homer F. Swift, New York: A case of optic atrophy which began about ten months after an intramuscular injection of an oily suspension of the drug caused us to abandon the intramuscular use of salvarsan. The atrophy was arrested immediately on removal of the necrotic area at the site of the injection. Investigation of the rate of absorption of arsenic from the site of intramuscular injections in rabbits showed that the absorption was so slow that ten weeks after the injection between 5 and 20 per cent. of the arsenic still remained in the muscle. There was extensive necrosis at the site of all the injections. With neosalvarsan there is a necrosis having a similar gross appearance. Until we know that the rate of absorption from intramuscular injections is quite rapid we should probably continue the intravenous injections of neosalvarsan.

Dr. John A. Fordyce, New York: I have had more or less to do with the treatment of syphilis during the past thirty years. I can truthfully say that in the last two years I have seen more patients restored to health by salvarsan alone or combined with mercury than in all of my previous experience. The drug is unquestionably a specific spirochetal poison and when administered early in the disease in doses sufficiently large it will abort a certain percentage of cases of syphilis. If it does not destroy all of the spirochetes it is because they are not reached by it. In such cases an intermittent form of treatment with a combination of salvarsan and mercury is necessary to eradicate the infection. The drug materially shortens the period of treatment of the disease and heals the contagious lesions within forty-eight hours to a week. In the City Hospital with which I am connected such patients were formerly treated for months in many cases with persistence of the contagious lesions. They would frequently leave the hospital with contagious sores and become a menace to those around them. If the drug does nothing more than limit the infectiousness of these individuals it is an exceedingly important addition to therapeutics. In regard to the danger of intravenous treatment I have given over 1,000 such injections and have never seen any serious symptoms except in one case. Since the improvement in the technic by the use of fresh distilled water the intravenous injection of salvarsan is practically as safe as an intramuscular injection of mercury.

Another point I wish to protest against is the indiscriminate cutting down on the veins in order to administer the drug. In the great majority of cases this is absolutely unnecessary as the veins can usually be rendered visible or can be felt and the needle introduced with little trouble. In my experience during the past two years I have not in a single instance found it necessary to resort to this procedure. Frequently, after the veins have been cut down on, they are obliterated and it is exceedingly difficult to administer subsequent injections to these patients. Furthermore it marks the patient for life and indicates to the trained observer the nature of the treatment which the patient has received.

THE TEACHING OF SYPHILIS

THE ATTITUDE OF HOSPITAL BOARDS TO THIS DISEASE *

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In the evolution of the American medical college it has been necessary from time to time to call attention to the object for which the medical school exists. Primarily, in training men to supply the need of a rugged and rapidly increasing population, medical colleges sprang up until their number became excessive, and the quality of instruction furnished failed to keep pace with the demand. At that time, as in the beginning, those who desired to pursue advanced study were compelled to seek such training in the medical centers of Europe. With but few exceptions such was the condition previous to the beginning of the present decade.

The first change in the primitive régime was in the development of the laboratory. This involved an expenditure of money that wrought a double benefit, for it not only improved the curriculum but rendered medical schools unprofitable and consequently impossible as a private business enterprise.

With the medical school on a university basis, and with the necessary endowment, while no one would wish to belittle the importance of the laboratory, for it furnishes the very foundation to medical training, yet, the time has now arrived when careful attention should likewise be given the clinical chairs. Heretofore, in many schools, this has been impossible on account of insufficient endowment, but in the future, clinical chairs must be placed on a teaching basis, with sufficient endowment to secure and encourage the best a competent teacher has to give.

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* Read in the Section on Dermatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

The present need of medical education in this country is: (a) the training of men to become general practitioners of medicine, in other words, the making of competent family doctors; (b) the fitting of men for special fields of work.

The student primarily should be taught the essentials of medicine, and if at this stage he elect to take up a general practice he should also be taught the limitations to which he can safely go for the best interests of his patients and his own reputation. It is in this primary school of medicine, the output of which is the general practitioner, that much that is now taught should be eliminated from the primary grade, while other subjects, now neglected or inadequately taught, should be more thoroughly dwelt on.

The medical man may not at first be called on for any of the more difficult surgical procedures; even should opportunities for such work occur, good judgment would restrain him, for without special postgraduate training for this work his reputation as well as the life of his patients would suffer the utmost peril. He is, however, liable to encounter the initial lesion of syphilis. Here the merest tyro in medicine feels himself competent. Mistakes made, while not so immediately appalling, nor so apparent as in the former instance, are of the gravest moment, for on his knowledge depends the welfare, if not the life, of the patient as well as those with whom he may be associated by family or other ties. It is now conceded that during the first few months more can be done toward eradicating the disease than at any other period. The practitioner, therefore, should be competent to recognize the affection—should be fully cognizant of its gravity and the most approved methods of treatment of this very common and very important affection—important to the patient as well as to the community in which he lives.

During a long course as medical teacher I have repeatedly had occasion to note the lack of exact knowledge of syphilis possessed by candidates for graduation or hospital appointment. The cause may be traced primarily to the curriculum and the absence of correlation among teachers. Not only should the closest relation be encouraged between the laboratory and the clinic, but a more exact correlation should exist among the clinical teachers of a medical college. In no subject is this need more apparent than in the teaching of syphilis. Previous to the present decade there might have been some excuse for the random and inefficient manner in which this affection was taught in the medical schools of this country, but since Schaudinn and Hoffmann discovered the active agent of syphilis and its ease of demonstration, since Wassermann pointed out some of the possibilities of the serum test in determining the presence or absence of syphilis in a given case and since Ehrlich led the way to its more rapid extinction, there is need of more thoroughly trained teachers to instruct the student in this disease.

In 1889 the Western Reserve University established a chair of diseases of the skin and syphilis, and while systematic instruction was given in syphilis, it was nevertheless hampered by the haphazard distribution of clinical material.

In the distribution of cases in most hospitals and clinics syphilis is sent to one department or another, according as the most noticeable symptom is on the skin, in the brain, the eye or the internal viscera. Even the genito-urinary surgeon in some instances claims it as his own. This was the custom at Lakeside Hospital previous to the present year, with the result that patients were discharged "cured" after the special organ involved was restored to its normal condition. Again, students were confused on account of the multiplicity of teachers and obtained no thorough or systematic conception of the disease. Furthermore, the large percentage of reentries for "relapse" demonstrated most forcibly the inadequacy of the system and the harm it was doing both to the patient and to the student.

Since the beginning of the present year the following rule has been adopted at the out-patient department of Lakeside Hospital: On entering, or as soon thereafter as the disease is recognized as syphilis, the case is sent to the department of skin diseases and syphilis. In case particular organs, as the eye, require more specialized treatment the case is referred to the eye department, which in turn returns it after completing such special treatment to the regular department for further systematic treatment or discharge. The results thus far have shown a marked improvement in the treatment and teaching of this disease.

In place of the lack of interest in transitory patients who came only sufficiently long to be temporarily relieved, a high percentage of patients now remain until discharged, and many return when requested, for further observation. The difficulty heretofore, as at present, is that many of the departments are manned by men in general practice, who give this time in exchange for such experience or patients as they may be able to acquire. Since the appointment of an executive officer who is a medical man and who superintends the distribution of clinical material, the out-patient service has been more and more satisfactory and better results are obtained to both patient and student than was previously found possible.

HOSPITAL PROVISION FOR SYPHILIS

Most hospitals not only make no provision for syphilis but refuse patients who seek admission for this disease. In the City of Cleveland only one hospital receives syphilitics, the City or Municipal Hospital; at the same time, in all hospitals there is a very high percentage of syphilitics admitted, because the disease is not recognized and because the patients, admitted for other affections, are found to be also syphilitic. This applies to all departments with about equal frequency. Even orderlies and nurses employed by the hospital have been found to be in the most active stage of the affliction. More danger is encountered in these random, unknown cases than when special wards are provided and proper precautions are observed in their management. Moreover, it demonstrates the utter futility of attempting their complete exclusion. Formerly the need was less urgent for such accommodation than at present. With the treatment by salvarsan it is indispensable to have such patients admitted to the hospital for short periods. Prompt measures at the onset will prevent the danger that always exists to others, and affords the most favorable opportunity of eradicating the disease from the patient's system. In all hospitals, therefore, a male and a female ward should be established for syphilis. In this regard, boards of management and superintendents should be better informed concerning the frequency and the gravity of syphilis and the relation which the disease bears to the general community.

The mistake has arisen in looking on syphilis as a disease confined to the low and vile, while in reality it is encountered in all grades of the moral and social scale; furthermore, the number of blameless persons afflicted with this affection is remarkably high. If special provision were made, there would be far less likelihood of such cases being scattered promiscuously through the various services of a hospital as now occurs under the rule of exclusion, which is wholly theoretic, for in actual practice it does not exclude. Nor should these cases be excluded.

CONCLUSIONS

From the foregoing it seems evident that syphilis should be taught by the creation of a special department; that so far as possible all phases and forms of the affection should be taught in, or at least be under, the supervision of this department; that laboratory facilities should be furnished and manned by a competently trained staff, and that hospital provision is imperative both in better treating the disease and guarding the safety to others in the institution. The good such an arrangement would do would redound to the credit of the hospital and tend to safeguard the community in which the hospital is situated.

If it is inexpedient to establish a special chair or department of syphilis the disease should be grouped with diseases of the skin, because most commonly the lesions of syphilis are found on the skin and an interpretation of these lesions is best entrusted to the trained eye of the dermatologist. In conclusion, he is best equipped to treat skin lesions who, in addition to being trained in the field of general medicine, becomes skilled in observation with the ability to interpret. With the rapid development of serology and other laboratory departments, to be skilled in a given field one must, after the general foundation has been securely established, specialize in order to attain that proficiency which concentration alone can give.

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ABSTRACT OF DISCUSSION

Dr. Abner Post, Boston: The idea that the teacher of syphilis has done his duty when he treats syphilis as a neural disease is passing away. Syphilis is recognized as a constitutional disease which involves the whole body. To teach syphilis properly the teacher must have aid from his colleagues. Dr. Corlett's suggestions as to the way in which such cooperation should be brought about deserve serious attention.

It is a serious question how much a teacher of syphilis should be expected to teach his students. He does not need to make syphilographers of them but he should be able to impress on them the general attributes of the disease, so that whether they practice on the eye or the ear or the internal organs they may recognize obvious symptoms outside of their own branch. We are most of us obliged to depend on ambulatory service and it ought to be possible by some cooperation to connect the cases in the wards with the ambulants.

Dr. John A. Fordyce, New York: There should be a department of syphilography in our medical schools which should teach in an intensive manner the general pathology and symptomatology of the disease, so that a student could obtain from one department a general knowledge of syphilis of the skin, viscera, blood-vessels and the nervous system. I do not intend to convey the idea that one man should cover the entire subject of syphilis. The finer points in the diagnosis of syphilis aside from the skin and mucous membrane lesions should be taught by the department of medicine, surgery, neurology and ophthalmology. The department of syphilis should have under its control a Wassermann laboratory, as at the present time it is impossible to diagnose and treat many of the manifestations of the disease without a proper serologic control. The diagnosis of syphilis should be made as early as possible and when there is any question of doubt the dark field should be employed to clear up the diagnosis. It is only by an early recognition of the infection that the abortive treatment by modern methods can be successfully carried out.

Dr. William A. Pusey, Chicago: About two years ago I served as chairman of a subcommittee which was appointed for the purpose of suggesting a practical working plan for the teaching of dermatology in the medical schools and the time that should be given to it in the curriculum. I was put in the unpleasant position of objecting to the number of hours that almost every other department declared it required. When it came to the department of dermatology, I expected the same objection from others, and very much to my surprise I found an opposite attitude; they agreed that dermatology and syphilis were entitled to liberal consideration. This experience has led me to believe that if we work in reasonable concert along the lines Dr. Corlett has suggested, we might be able to obtain very practical results in a few years.

Dr. Henry C. Baum, Syracuse: To every one who teaches this subject, there can be but one opinion in regard to the advisability of carrying out the suggestions made by Dr. Corlett, and in order that something definite may be accomplished, I would suggest that Dr. White appoint a committee to draft regulations which may be submitted to the institution in which syphilis is taught, and which would give to them the weight of the opinion of this Section on this subject, the committee to report at the next annual meeting of this Section.

Dr. George H. Fox, New York: We must approach the study of syphilis from various points of view, and the man who teaches syphilis should not only understand the cutaneous lesions of the disease, but also syphilis of the eye, throat, nervous system, etc. Most of those teaching this subject are compelled to limit instruction to the cutaneous symptoms, and I believe that one of the best ways to simplify it for students is to use the same terms in describing the skin lesions. As it is now, we employ terms carelessly in referring to the cutaneous manifestations of syphilis. Two weeks ago, at a meeting of the American Dermatological Association in St. Louis, I read a paper calling attention to this fact, and suggested a scheme for simplifying the nomenclature of cutaneous syphilis to take the place of the confusing and often inaccurate classification that is found in many of our text-books.

Dr. Isadore Dyer, New Orleans: I think the idea of relegating the teaching of syphilis in our medical schools to any one man is not practicable at this time. There are comparatively few men who possess such a special knowledge of the subject as to be able to cover the dermatologic, ophthalmologic, rhinologic, neurologic and other phases of the subject. There are comparatively few men who occupy chairs in dermatology who are properly qualified to teach syphilis as it should be taught. Under our present system of teaching syphilis, the students receive a certain amount of instruction regarding it from the various chairs of medicine, surgery and the specialties, but the information is not at all crystallized. At the Tulane University we have tried to cooperate in this respect, so that when the professor of medicine reaches a certain point in the teaching of syphilis, he calls in the various specialists to give a course of lectures on the subject in their special branches. As it is, the students obtain their knowledge of the subject from too many different sources, and what is needed is further cooperation. Syphilis should be given as much prominence as any other subject in the teaching curriculum.

Dr. James M. Winfield, Brooklyn: At the Long Island College Hospital we have been trying an experiment somewhat similar to that outlined by Dr. Dyer. We found that students were receiving a great deal of instruction in regard to syphilis in a rather haphazard way, so the professor on genito-urinary diseases agreed to join with me in an effort to supervise the teaching of syphilis. He limits himself to the etiology, pathology and the primary lesion, and then I follow with a course of lectures on the cutaneous manifestations of the disease. Then the internist, the neurologist, and the various other specialists take up the subject, limiting themselves to their particular branch, one immediately following the other. Thus far the plan has worked wonderfully well.

Dr. W. T. Corlett, Cleveland: I believe syphilis will be better taught in the future than in the past, and while individual opinions may differ as to the best way to attain this end, yet correlation and concentration, which will confine as much as possible the fundamentals to an individual department, will do much to disseminate a better and more definite understanding of the affection among medical men.

THE INTENSIVE TREATMENT OF SYPHILIS *

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NEW YORK

The numerous contributions to the study of syphilis in recent years have confirmed in many points the previous observations of a purely clinical nature; along other lines they have settled mooted questions, but they have caused the previous views in regard to treatment to be largely revised.

The Wassermann reaction has been in use long enough to establish its place definitely as an indicator of efficient treatment. While a single negative reaction does not mean that the patient is cured, a positive reaction certainly indicates the presence of spirochetes in some part of the body. In a previous communication one of us[1] has called attention to the proportion of positive reactions in latent syphilis, and its relation to the intensity of treatment as carried out in this country. In cases of latent syphilis, within three years of the time of infection, 75 per cent. showed a positive reaction. In late latent cases with two years' treatment or less, 58 per cent. of the reactions were positive, while 40 per cent. of the patients who had taken from two and one-half to six years' treatment still gave a positive reaction. In Paris, Levaditi and Latapie[2] found 44 per cent. positive reactions in late cases which had received intensive mercurial treatment. Lesser[3] concluded that four courses of mercury represent the maximum of efficiency, because in the late latent stage he obtained 54 per cent. negative reactions in patients who had undergone four courses, while only 53 per cent. of those patients who had taken six courses gave negative reactions. Jesionek and Meirowsky,[4] however, found that although 41 per cent. of patients who had taken four or five courses of treatment gave positive reactions, the figures fell steadily to 31 per cent. for those who had undergone eight or more courses. With the rule for chronic intermittent treatment laid down by Neisser, namely, six courses of mercury in the first three years, the figures still show the presence of positive reactions in over one-third of all patients who had taken three or more years of treatment. In the above-mentioned figures, the conclusions are drawn from single tests and, considering the tendency of the reaction to relapse when treatment is discontinued, it is probably safe to conclude that 50 per cent. of all patients with syphilis were insufficiently treated. Autopsy[5] findings on subjects, who had a history of previous syphilis and on section showed some visceral lesion, confirm this view.

The advantages of an early diagnosis of syphilis can hardly be overestimated. From the standpoint of the protection of the community, the early diagnosis and hence early treatment decrease the danger of the spread of the disease. The secondary period with its mucous patches and moist condylomas is the most infectious, and the prevention of such lesions will, in a large part, prevent the spread of syphilis.

Of still more importance to the patient is the recognition of the life-history of syphilis. It starts as a local infection and, according to the degree of local reaction and activity of the virus, remains localized for a longer or shorter period. After the spirochetes have broken through the first line of defenses, there is a general invasion of the body. The dissemination of the spirochetes doubtless takes place largely through the bloodstream during the last half of the primary stage and in the early secondary period. During this time the blood is most often found to be infectious. With the blood from a patient at least three weeks before the outbreak of the secondaries, Hoffmann[6] was able to induce a typical initial lesion in monkeys. Fruhwald,[7] in an extensive review of the infectiousness of the blood, states that with one exception spirochetes have never been demonstrated in the blood, either by direct examination or by animal inoculation, later than the first six months of the disease.

ACTION OF THE SPIROCHETE

The knowledge of the early general distribution of the virus gives one an entirely new conception of the progress of the disease. It is probable that all of the tissues are inoculated early, and relapses are simply relapses *in situ.* The progression of the cutaneous manifestations supports this view. The lesions are at first almost universal and very superficial, but with each relapse they become more localized, and tend to group and involve deeper structures until the gummatous stage is reached. These very localized relapses probably are excited by spirochetes long present in the tissues, which the general defenses of the body or therapeutic measures have been unable to destroy and which the local reactions are endeavoring to conquer. It is well established, in both human and experimental syphilis, that spirochetes can lie dormant in tissues for long periods without giving rise to any inflammatory reaction. Spirochetes have been found in various tissues of the body which have never shown any evidence of the disease, and which at the time of examination showed no tissue reaction. The Herxheimer reactions, which occur shortly after treatment, are often noted in areas where no gross lesion could be demonstrated. If this reaction is considered as due to the liberation of toxin from spirochetes present at the site of the reaction, it indicates the probability of such a latent condition of the microorganisms.

The involvement of the central nervous system has always been one of the most important features of syphilis, but only lately are we beginning to realize how early this involvement occurs. With the spinal fluid of a patient in the very early secondary stage and without nervous symptoms, Hoffmann[8] was able to produce syphilis in a monkey. Ravaut[9] found an increase in cell-count in 67 per cent. of 116 patients with early secondary syphilis. In parts of the nervous system which are subject to direct examination, such as the optic nerve and fundus of the eye, the frequent involvement is almost appalling. For example, Wilbrandt[10] found evidence of irritation in forty-five out of 200 cases of secondary syphilis. This irritation is, no doubt, due to the presence of the spirochete, for in no other secondary lesions of any kind do we have evidence of irritation without the presence of the spirochete bodies themselves. The relation of this early involvement of the nervous system to the later manifestations, both tertiary and parasyphilitic, must be carefully considered. Probably during the early secondary period the seed is sown which will cause the development later of diseased brains and spinal cords—blindness, deafness, ataxias and insanities.

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* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Hospital of the Rockefeller Institute for Medical Research, New York.

[1] Swift, H. F.: Arch. Int. Med., 1910, vi, 626.

[2] Levaditi and Latapie: Presse méd., 1911, xix, 889.

[3] Lesser, F.: Deutsch med. Wchnschr., 1910, xxxvi, 116.

[4] Jesionek and Meirowsky: München. med. Wchnschr., 1909, lvi, 2297.

[5] Lesser, F.: Deutsch. med. Wchnschr., 1909, xxxv, 379

[6] Hoffmann, E.: Deutsch. med. Wchnschr., 1906, xxxii, 496.

[7] Fruhwald, R.: Wien. klin. Wchnschr., 1912, xxv, 584.

[8] Hoffmann, E.: Deutsch. med. Wchnschr., 1912, xxxviii, 313.

[9] Ravaut: Ann. de dermat. et de syph., 1903, p. 537.

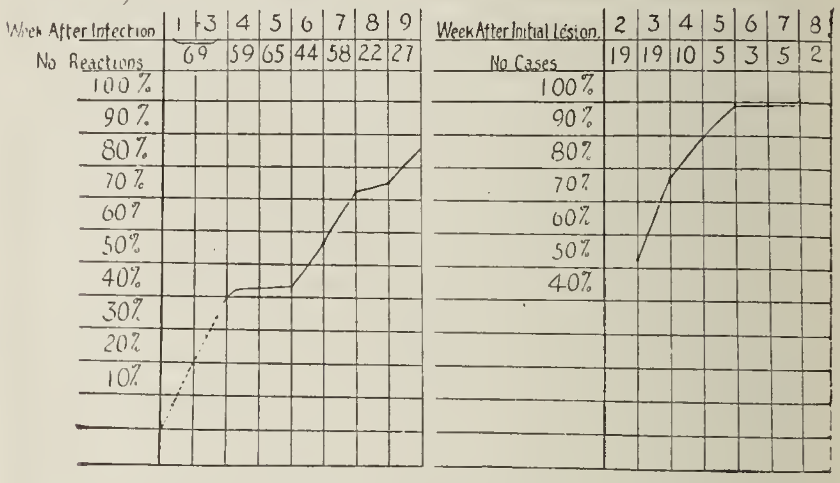
The wide-spread use of the Wassermann reaction has diverted the attention of many clinicians from the importance of the finding of spirochetes as a diagnostic measure. To many the spirochetes have only an academic bearing. Their presence in sections of various syphilitic lesions, both cutaneous and visceral, has been of interest to the pathologist, but their determination in the primary lesion or suspicious ulcers, as an aid to diagnosis, has been and is much neglected. That the *Spirochæta pallida* is the etiologic agent in syphilis has been proved beyond doubt. Their etiologic rôle demands their presence in every primary syphilitic lesion, and they can be demonstrated at some time in every accessible, untreated chancre. The difficulty in finding them varies with the age of the chancre, the previous treatment and mode of examination. In fresh, untreated chancres they can be found in 100 per cent. of examinations. In older lesions, when the ulcer is beginning to heal, it is more difficult to find them in serum from the surface. They can also be easily demonstrated in the mixed sores and phagedenic ulcers. Local antiseptics rapidly remove them from the surface of the ulcer, so that negative findings are of less value than in untreated chancres. This point cannot be too strongly emphasized. No suspicious ulcer should have local antiseptics applied until a diagnosis is made. The usual application of mercuric chlorid and calomel or black wash renders exact diagnosis impossible until the appearance of a positive Wassermann reaction or of secondary symptoms.

EARLY DIAGNOSIS OF SYPHILIS

The technic of examination for the spirochete is one of the simplest in clinical microscopy. A laboratory, such as is necessary in many other diagnostic procedures, is not required. Doubtless the dark-field microscope is the best instrument for routine use. With it the spirochetes can be seen in a living condition and their various characteristic movements studied. A moving object catches the eye much more quickly than one in a stained spread, and many more spirochetes will be seen in a dark-field preparation than in a stained specimen of the same serum. Moreover, no time is lost in staining. Next in simplicity is the India-ink method, but it has the least diagnostic value. The thickness of the "shadow" depends on the thickness of the spread, and different varieties of spirochetes may have a similar appearance. This method should be used only in connection with some differential stain. The best of these is the Giemsa, which should be employed whenever there is a doubt of the nature of the organism found by other methods. Its chief disadvantages are the time required and the difficulty of seeing the spirochetes, especially to the person with little experience.

How far from universal is the use of this important diagnostic method is well illustrated by the reports from fifteen representative medical schools in widely different parts of the country. The total number of graduates from these schools last year was 1,052. Only ten of the fifteen schools owned dark-field microscopes. Five of the graduating classes, representing 536 men, had not seen the instrument. In six of the schools it was used only for demonstration purposes. In only four did the students have any practical experience with it. The use of the staining methods was taught to about the same extent, so that less than one-fourth of the graduates of these fifteen schools had any experience from a practical standpoint in the finding of spirochetes. Doubtless most of these graduates could give in parallel columns the differential diagnosis between chancre and chancroid, yet they could not make the exact diagnosis with a method which can be so easily learned. The recent work in experimental syphilis suggests the possibility of keeping a few rabbits with chancres of the scrotum, which would furnish material for students to prepare their own demonstrations; and with a little extra time they might do the actual animal inoculations and watch the clinical development of the lesion, an observation impossible in human subjects.

WASSERMANN REACTIONS IN PRIMARY SYPHILIS



The relative values of the Wassermann reaction and the determination of spirochetes in initial lesions is well illustrated in the chart. The percentage of reactions in the various weeks after infection is taken from Bruck's[11] collected statistics. The second part, showing the number of positive reactions in various weeks after the appearance of the chancre, is from collected cases of Cummer and Dexter[12] and of Swift.[13] It will be seen that in the third to fifth weeks after infection, or about the time of appearance of the initial lesion, about 40 per cent. of the cases give a positive reaction. For the next three weeks only about 75 per cent. react positively, but practically all show a positive Wassermann before the outbreak of secondaries. The spirochetes are most easily demonstrated when the initial lesion is young. As it becomes older, the conditions are less favorable, but at this time the seroreaction is of more value. If a curve of percentage of findings of spirochetes in the various weeks after the appearance of the initial lesion were plotted, the highest point would be early, with a fall at the time of the rise in the seroreaction curve. By this it is not meant to imply that the examination for spirochetes is not of value late in the primary stage, but that it has greater relative value as an early diagnostic measure.

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[10] Wilbrandt: Cited by Schwartz, St. Petersb. med. Ztschr., 1912, xxxvii, 99.

[11] Bruck, C., and Neisser: Beiträge zur Pathologie und Therapie der Syphilis, C. Springer, Berlin, 1911.

[12] Cummer and Dexter: Cleveland Med. Jour., 1911, x, 910.

[13] Swift, H. F.: Cleveland Med. Jour., 1910, ix, 323.

Aside from the diagnostic application of the seroreaction in the primary stage is its use as an indication of the extent of the invasion. Experimentally the reaction appears when there has been a general distribution of the spirochete throughout the body. Neisser[14] found that the hematopoietic organs of inoculated apes became infections at the time of appearance of the Wassermann reaction; also that animals which were inoculated intravenously developed a positive reaction in about eight days—a much shorter period than those inoculated cutaneously.

If we accept the view that a positive reaction in the primary stage means a general invasion with the virus, it will be seen that nearly 40 per cent. of patients have a generalized syphilis at the time of the appearance of the initial lesion, but that in 50 to 60 per cent. appropriate treatment will limit the infection to its original site. Each week increases the danger of wide-spread distribution of the spirochete. Our aim should be to limit the infection as much as possible to its original site. With our former therapeutic means, this was practically impossible. Many attempts were made to abort the disease with mercury, but most of the trials failed. Hoffmann[8] states that only twice out of numerous attempts has he succeeded with the most intense application of mercury. Bering[15] reports six primary cases with negative Wassermann reactions, in which a course of calomel, followed by two more courses of mercury, was sufficient apparently to abort the disease. After the appearance of a positive reaction, abortive treatment was practically impossible.

TREATMENT BY SALVARSAN AND MERCURY

With the development of the organic arsenic compounds, the attitude toward abortive treatment has entirely changed. The probability of a rapid abortive cure has become almost certain, provided the treatment is properly carried out. The one definite effect of salvarsan has been its rapid curative value in the primary stage, and in cases in which formerly a successful abortive treatment was the exception, it is now the rule. In a recent article of Gennerich[16] on this subject, 159 cases are reported and reviewed. One hundred and four of these were treated while the Wassermann reaction was still negative and only 11 per cent. showed any subsequent appearance of the reaction, while 27 per cent. of fifty-five patients in whom treatment was started after the appearance of a positive seroreaction again showed a serum relapse. Both classes of patients had practically the same treatment; so with a given amount of treatment there is more than twice the liability to relapse if the seroreaction has appeared. Our experience has been practically the same. Three cases treated with salvarsan alone, before the appearance of a Wassermann reaction, have all remained negative, while of five which had progressed to a positive reaction stage and which were treated with both salvarsan and mercury, one has shown a slight return of the reaction, and another has shown a weak reaction after provocatory treatment.

If the disease is allowed to reach the secondary stage, the difficulty and time of cure are increased threefold. Among nine patients with beginning secondaries, only three have had persistent negative reactions. Three of the patients have shown a marked tendency to clinical relapses. Two of them have developed secondary meningitis. Only four out of fifteen cases in a later secondary period have had persistent negative reaction or been free from symptoms after the reaction had become negative following the initial treatment with salvarsan and mercury. In all the other patients a renewal of treatment was necessary. These four classes of early syphilis, namely, primary before the appearance of the positive Wassermann, primary after the appearance of the reaction, secondary with primary lesion still present, and secondary after the disappearance of the chancre, illustrate well the increasing difficulty in treatment as the disease becomes older. It is safe to say that each week's delay in institution of treatment in the primary stage adds a month or more to the necessary amount of intensive treatment.

Since the combination of salvarsan and mercury has come into use, the relative number of "cures" has materially increased. In the first part of this paper the comparative inefficiency of mercury alone was noted. The use of salvarsan alone has resulted in a large per cent. of relapses. Intravenously its action is rapid but not continuous, and hence repeated injections are necessary. A reliable rule to follow is four or five intravenous injections of from 0.3 to 0.5 gm. at intervals of from five to seven days, combined with or followed by a course of insoluble mercury intramuscularly. After the mercury, salvarsan should again be repeated. If these two powerful specifics are alternated, a most intensive treatment can be given with but little danger of an accumulative action from either drug. In the primary stage before the appearance of a positive Wassermann reaction, one course of each drug should be given. With a well-established Wassermann reaction, two courses of salvarsan and one of mercury should be given and, after the outbreak of secondaries, at least two of salvarsan and three of mercury. If this rule were followed, doubtless the majority of cases would remain free from symptoms, and the Wassermann reaction would remain negative. Of course, the treatment should be altered for special cases. What effect the introduction of neosalvarsan will have on the plan of treatment remains to be seen. If Schreiber's scheme of four injections in a week is adopted, perhaps the time will be much shortened without diminishing the amount of medicament.

MORE THOROUGH USE OF PRESENT FACILITIES

In order to carry on a successful campaign against syphilis, the attitude of the public toward the disease must be changed. It is probably not an exaggerated statement to make that in proportion to the efficiency of specific measures, syphilis is one of the most poorly treated of all the diseases. One of the reasons for this is the exclusion of the patient with syphilis from the majority of hospitals. Prof. Friedrich Müller, in discussing our hospitals, stated that he considered the exclusion of these patients one of the worst features of our hospital system. His point of view was that of an educator. He considered that the hospital year of education should furnish the young physician with as thorough a grasp of syphilis as of typhoid fever or heart disease. This attitude of hospital management toward the disease is due to various factors. It has been considered by many as a venereal disease with skin manifestations, and the more serious visceral lesions ignored. The loathsomeness, more than the serious nature of syphilis, has been emphasized in the lay mind. The syphilis of to-day is not usually the pox of the older writers, but its nervous manifestations are increasing each year. The mode of transmission is now known, and the fact well established that it is the least contagious of the contagious diseases. Comparatively simple precautions will prevent infection of attendants or other patients. Outside the body the spirochetes are more fragile than bacteria and are killed by moderate heat, drying or weak chemical solutions. Innocent infection of physicians or nurses is usually from patients in whom the disease was unrecognized.

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[14] Neisser, A.: Beiträge zur Pathologie und Therapie der Syphilis, C. Springer, Berlin, 1911.

[15] Bering, F.: Arch. f. Dermat. u. Syph., 1906, xxxii, 406.

[16] Gennerich: Ztschr. f. Chemotherapie, Ref., 1912, i, 69.

The newer mode of treatment requires the facilities afforded by the hospital for part of its application. The intravenous injection of salvarsan should be performed only under favorable conditions, which the majority of patients cannot afford. During the eruptive period it would be far better to have all patients excluded from contact with the world at large, and the period of isolation might well be combined with the period of intensive treatment. Thus educative, philanthropic and hygienic ends would be fulfilled.

How much less is being done than might be done is illustrated in the attitude toward the disease shown in the reports from a number of hospitals and dispensaries in New York. In thirty-three dispensaries where primary syphilis is treated, spirochete examination is used as a routine in thirteen, in twelve occasionally and in eight not at all. In only thirteen is there a dark-field microscope, in twelve the Giemsa stain is used, in eight the India-ink is the only one employed. In only twelve is the diagnosis made and treatment instituted before the appearance of a positive Wassermann. In twelve others this is occasionally done. In six the routine is to wait until the appearance of secondaries. In twenty-five the patients are treated with salvarsan, "if possible," combined with mercury. The "if possible" is a very important qualification, for in but a small proportion of the cases is it possible to have the patients admitted to the hospital owning the dispensary. Among nineteen such hospitals, only five admit syphilis as a routine, four admit it in special cases, in ten there is absolutely no provision made for ward treatment of these patients. It will be seen that in the majority of institutions there is no adequate provision for either the early diagnosis or efficient treatment of syphilis. Ten hospital beds devoted to the treatment of the disease would provide in a year two weeks' hospital treatment for 250 patients. Fourteen days would provide for practically all the salvarsan treatments a patient should have in one year. The mercury could be administered in the out-patient department, and the treatment controlled by the Wassermann reaction performed in the hospital laboratory.

In the year ending Sept. 30, 1910, half of the general paralysis of the insane of the state of New York was furnished by the Island of Manhattan.[17] This number was 822 patients who would require before their death a total of 340,000 days of hospital treatment. This number of hospital days would provide for over 16,000 patients in the early stage of syphilis, at three weeks per patient. The burden of caring for the paretic falls on the public, but comparatively inadequate provision is being made by that public to cure the disease in its early stage and thus do away with the paretic. Every hospital has constantly in its wards late nervous or visceral manifestations of the disease, and yet most of these hospitals absolutely prohibit the application of preventive measures in these same wards. This is a short-sighted policy which must be corrected.

If syphilis were a disease which affected the individual alone, he might be allowed to follow his own wishes as to his treatment, but it is a disease which is far-reaching in its effects and the burdens which it places on society. Doubtless the three diseases which cause the greatest economic loss are tuberculosis, rheumatism and syphilis. In the latter alone has science furnished us with means for early diagnosis, two specific efficient drugs and a reliable index for control of treatment. All that remains to conquer the disease is a universal recognition of the efficiency and importance of these measures and opportunity in the wards of our hospitals to apply them.

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[17] New York State Commission on Lunacy, Annual Report xxii, Statistical Addenda, 1909-1910.

ABSTRACT OF DISCUSSION

Dr. Gedide A. Friedman, New York: I should like to make a plea for the treatment of cases of late syphilis. This is frequently overlooked, especially in patients with visceral syphilis. For seven or eight months I have had under my care a man who had syphilis twenty-five years ago, and was apparently well until five years ago, when attacks of pain started in the epigastric region; he suffered so much during these attacks that he would roll on the ground. The pain was excruciating. These attacks came on four or five times a year. After eighteen months he noticed that he had difficulty in walking, especially in the evening. He also had intermittent claudication. For years he was treated for stomach trouble. The Wassermann test, made by Dr. Noguchi, was negative in the blood but positive in the cerebrospinal fluid; the luetin test was positive. I started in with the antisyphilitic treatment and now, after seven months, the patient has had no more of these attacks of pain which used to come on about every four months. The intermittent claudication has entirely disappeared.

Dr. Theodore C. Janeway, New York: Syphilis should be recognized as an infectious disease which should be admitted for treatment in our hospitals. Aneurysm, chronic nephritis, some diseases of the myocardium, tabes and many other chronic diseases are dependent on an old syphilis. Early eradication of this infection is going to result in a tremendous diminution in the death-rate from chronic diseases in later life.

THE IMPORTANCE OF THE EARLY DIAGNOSIS OF SYPHILIS *

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AND
CLYDE L. CUMMER, M.D.
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The recent changes in our conception of syphilis, dating from the discoveries of Schaudinn in 1905, form one of the most interesting and important chapters in the history of modern rational medicine. Previous to this fundamental discovery, our knowledge of syphilis was based purely on clinical observation; diagnosis was never certain until the secondary stage and, once the visible manifestations of the disease had disappeared, treatment was guided largely by rule of thumb. When no secondary signs appeared, or when they were of so evanescent a character as to be overlooked, a positive diagnosis was rarely possible. As a result of this unfortunate lack of definite knowledge, many cases of syphilis were recognized only when some tertiary or parasyphilitic manifestation made its appearance; or individuals who had never had the disease received years of unnecessary antiluetic treatment for a phantom condition. Up to 1905, then, the diagnosis of syphilis was often in doubt and occasionally impossible to make, unless the disease ran an absolutely typical course, which outside of the text-books is the exception rather than the rule.

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* Read in the Symposium on Syphilis in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Department of Medicine of Western Reserve University.

Schaudinn's[1] discovery of the etiologic factor of syphilis followed closely by Wassermann's announcement of his complement fixation reaction led to a vast amount of work, which not only has thrown much light on the pathology and biology of syphilis, but has been of inestimable value to the profession at large. It is possible to-day not only to make an early and positive diagnosis in a large proportion of cases of syphilis, but also to institute treatment which will cure the disease, instead of masking it over a long period of years.

So much has been written about the *Spirochæta pallida* and the Wassermann reaction that it is unnecessary to describe either at this time.

During the past two years we have seen a large number of individuals who were either luetic or suspected of being luetic. It is impossible to observe a number of such cases without being impressed with the necessity for deciding definitely at the earliest possible moment whether the condition in question is syphilis or not. We have been fortunate in having had the opportunity to examine a number of cases in the earliest stage of the disease. It has seemed to us worth while to report them with special reference to the results of the search for the spirochete in the lesions, and of the examination of the blood by means of the Wassermann reaction. We have been struck with the variability of the clinical appearance of the primary lesions which we have seen. Roughly, 50 per cent. of lesions which later proved to be syphilis scarcely conformed at all to the usual conception of the syphilitic chancre.

Fifty-two cases of primary syphilis have come to our notice in which we have been able to obtain sufficient history or other evidence on which to base conclusions. The initial lesions were distributed as follows: genital, forty-three; lip, six; tonsil, two; tongue, one. It is interesting to note that nine of these lesions, or 19.2 per cent. were extragenital chancres, whereas the history of an extragenital lesion in an old case is most uncommon.

The technic used in performing the Wassermann reaction is the modification recommended by Swift.[3] An alcoholic extract of syphilitic liver has been used as antigen. For detecting the spirochete numerous methods have been recommended, but the general consensus of opinion is that the dark-field condenser gives the best results.

Recently Phillips and Glynn[4] have published a number of observations on the comparative value of the different methods of finding the organisms of syphilis, and they conclude that the dark-field illuminator gives the highest percentage of positive findings in the shortest time. They also show that many more organisms can be found in a given time with this method than with others. This entirely agrees with our experience.

Various staining methods, however, may be employed and commend themselves to a worker for whom a dark-field condenser would represent an unjustifiable expense. We have found Giemsa's stain very satisfactory. In fact, there is no reason why the practitioner who has a good working knowledge of laboratory methods and a microscope supplied with an oil immersion lens cannot make this search provided that the irritation serum is obtained as directed. This is essential. By this method the spirochete appears as a dark violet or purple closely curled spiral, the length being one and one-half to three times the diameter of an erythrocyte. The turns are close and numerous, ranging from six to twenty-six in each organism.

Burri[5] has recommended the use of India ink to demonstrate the spirochete. With this method the spirochete is seen as a colorless spiral against a dark background, much as in the dark-field preparation. Barach[6] has shown that the India ink method may lead to serious errors, through its tendency to show curious spirochete-like artifacts.

The disadvantage with all the staining methods is that not only do most of them consume a considerable amount of time, but also that the differentiation between the *Spirochæta pallida* and other nearly related and morphologically similar organisms is much more difficult in the stained specimen than in the dark-field preparation.

The organisms may be recovered from the primary sore, or from the skin lesions, mucous patches and condylomas of the secondary stage, and occasionally from the fluid obtained from the glands in the neighborhood of the primary sore. While we have found spirochetes in the skin rashes, we have had far better success in recovering them from the primary sores, and lesions of the mucous membranes. It is of the utmost importance that the lesion to be examined has not been cauterized or treated locally with mercury, for the application of a mercurial dusting-powder or ointment will often render a search for spirochetes useless. It goes without saying that the patient should receive no mercury until the diagnosis has been made, for not only will it mask the symptoms, but also will often vitiate the results of the Wassermann reaction.

The prerequisite for success in making the examination for the spirochete is in obtaining "irritation serum" from the deeper layers, avoiding surface contamination. The lesions are carefully cleaned with sterile normal salt solution on pledgets of cotton and then scraped with a dull curet. If serum fails to flow freely, passive hyperemia is induced by the application of a small suction-cup. After removing the blood the clear serum which finally appears is taken up with a platinum loop or capillary pipet. A drop or two of this serum is mixed with a drop of normal salt solution and examined at once by means of the dark-field condenser. In this way the organisms can be seen in the living state and their contour and movements carefully studied, which, after a little practice, makes the identification of the organism comparatively simple. The serum for stained specimens is obtained in the same way. A few drops are put on a cover-slip and allowed to dry in the air. They are then fixed with methyl alcohol and stained.

The examination for the spirochetes is the most important method of diagnosis during the early days of the disease. Usually at this stage, the Wassermann reaction has not developed in the blood, whereas the early lesions are those which yield the largest number of organisms.

During the past year we have examined twenty-two cases during the first four weeks after the appearance of the chancre and have found the organisms in all but five. It is interesting to note that of these five cases three had had local application of mercury to the sore. In one case we found numerous organisms, twenty-four hours after the appearance of the sore, which when first seen was merely a small superficial excoriation on the foreskin, in no way resembling a primary lesion.

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[1] Schaudinn and Hoffmann: Berl. klin. Wchnschr., May 29, 1905.

[2] Wassermann, Neisser and Bruck: Deutsch. med. Wchnschr., 1906, xxxii, 745.

[3] Swift: Internat. Clin., Series 20, i.

[4] Phillips and Glynn: Brit. Med. Jour., 1911, No. 2654, p. 1283.

[5] Burri: Das Tuschverfahren, etc., Jena, 1909.

[6] Barach: THE JOURNAL A. M. A., Nov. 26, 1910, p. 1892.

Table 1 will serve to classify the cases.

TABLE 1.—EXAMINATION FOR SPIROCHETES

Duration of Lesion	Total Number of Cases	Spirochetes Found
During first week	5	5
During second week	9	6
During third week	5	3
During fourth week	3	3
After fourth week	3	0
Total during first two weeks	14	11
Total during second two weeks	8	6
Total during first four weeks	22	17

We have used the Wassermann reaction in a larger number of cases of primary syphilis, forty-eight in all. Reactions were repeated on thirteen cases. Of the cases examined during the first week after the appearance of the chancre, only 50 per cent. gave Wassermann reactions. The cases seen during the second week showed 65.5 per cent. positive reactions. During the third week positive reactions were found in 81.2 per cent. and during the fourth week in 87.5 per cent. Cases examined from the fifth week to the eighth week, inclusive, showed 100 per cent. of positive reactions. The gradual but steady increase in the reliability of the Wassermann reaction during the first five weeks is of considerable interest (see Chart I).

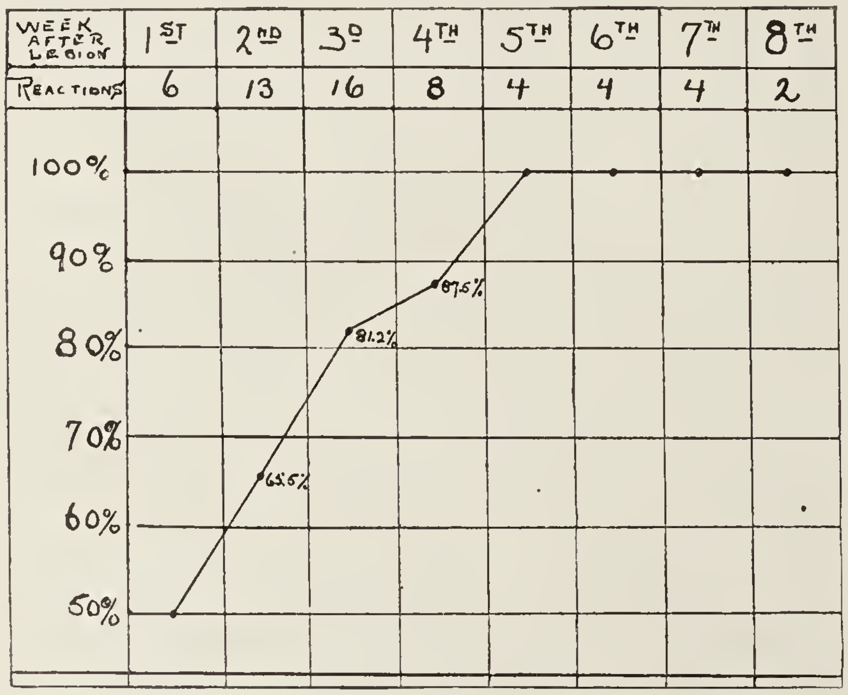

Chart showing percentage of positive Wassermann reactions in primary syphilis according to weeks after infection.

During the first two weeks after the appearance of the lesion there were nineteen cases with eleven, or 53.2 per cent., positive reactions. The examination for spirochetes during the same period gave positive results in eleven out of fourteen cases, or 78.5 per cent. This suggests that during the first two weeks the examination for the organisms will render a considerably higher percentage of positive diagnoses than will the Wassermann reaction.

We performed Wassermann reactions in forty-three cases during the first four weeks after the appearance of the primary lesion. Of these 31, 72.1 per cent., gave positive reactions. During the same period of the disease a search for the organisms was made in twenty-two cases, with positive findings in seventeen, or 77.2 per cent. From this it will be seen that up to the beginning of the fifth week after the appearance of the chancre the examination for spirochetes will give the higher percentage of positive diagnoses, but the Wassermann reaction will serve to detect certain cases in which a search for the spirochete gives negative results.

We have seen several such cases, one of which is of enough practical importance to warrant description.

The patient, a young man, had had an indolent, slowly spreading ulcer of one tonsil for a period of two weeks. Though he admitted exposure about six weeks previously, he had seen no evidence of either primary or secondary lesions. His throat was not typical of syphilis, and his physician had been using daily local applications of silver nitrate. As the throat did not heal, he was referred to us for bacteriologic examination. He had received his last application of silver nitrate a few hours before we saw him. Both tonsils showed superficial yellowish excoriations, which were not typical of syphilis. Careful examination showed no spirochetes. There were, however, enormous numbers of the spiral organisms and of the fusiform bacilli which we have learned to associate with the condition known as Vincent's angina. These findings caused us to feel that we were probably dealing with a non-syphilitic condition. The blood was taken and showed a strongly positive Wassermann reaction; another search for the spirochetes, made two days later, after the local applications of silver nitrate had been stopped, revealed numerous organisms of syphilis.

Fifty-seven reactions were performed in forty-eight cases. There were thirteen cases which on the first examination showed negative reactions. Seven of these were reexamined before the appearance of the secondary signs. Out of forty-eight cases examined a positive reaction was obtained eventually, before the appearance of the secondary signs in forty-two, or 87 per cent.

We give in Table 2 the results of other workers in this field.[7]

TABLE 2.—POSITIVE REACTIONS OBTAINED BY VARIOUS WORKERS

	No. of Cases.	Per Cent. Positive.
Collected by Noguchi	416	69.8
Noguchi (by his own method)	70	92.8
Swift	21	81.0
Collected by Bruck	520	64.4
Bruck, Stern, Merz and Grosser	111	72.1
Kaplan	231	86.9

The analysis of Kaplan's[8] cases is interesting (Table 3).

TABLE 3.—RESULTS OBTAINED BY KAPLAN

Primary Lues.	Number of Cases	Number Positive	Per Cent. Positive
Less than three weeks' duration, no mercurial treatment	101	90	89
Less than three weeks' duration, after mercurial treatment	20	12	60
More than three weeks' duration, no mercurial treatment	74	72	97
More than three weeks' duration, after mercurial treatment	36	26	72

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7. Pearce: Arch. Int. Med., 1910, vi, 478.
8. Kaplan: The Journal A. M. A., Dec. 3, 1910, p. 1952.

During and after the fourth week we have found positive reactions in all but one of the twenty-two cases examined during this period. At this time the local lesion frequently begins to heal spontaneously and there is sufficient fibrous tissue present to prevent the oozing of the irritation serum from the deeper layers which is absolutely necessary if the organisms are to be found. The hunt for spirochetes becomes less fruitful as time goes on.

As instances of the usefulness of one test or the other, we might call attention to the six lip and two tonsillar chancres, which might not be diagnosed readily under ordinary circumstances. Two of these were due to cuts inflicted by barbers. One of the tonsil cases was peculiar in regard to history:

> The patient had had a throat affection about eight weeks previous to the time when we saw him. From his history it would appear that he had suffered from an attack of acute follicular tonsillitis. The physician who attended him made applications to the tonsils and the condition disappeared. Four weeks later his throat again became sore. When our examination was made, both tonsils were enlarged and indurated, and presented ulcerated surfaces with a thin, translucent, grayish-white coating. Spirochetes were found and the Wassermann reaction was strongly positive.

It is obvious that these two diagnostic measures tend to supplement each other completely.

If both tests are performed at the same time a very definite opinion as to the presence or absence of syphilis can be given. We have examined twenty cases with both tests done at the same time, and found one or the other or both tests positive in each of the twenty cases (Table 4).

TABLE 4.—EXAMINATION OF TWENTY SYPHILITIC PATIENTS BY THE WASSERMANN TEST AND BY SEARCHING FOR SPIROCHETES

Serial Number	Location of Lesion	Duration of Lesion	Result of Wassermann	Result of Spiro. Exam.	Remarks
8	Penis.	2 weeks.	—	Present.	One week later Wassermann ++
17	Penis.	10 days.	—	Numerous.	Wassermann +++ at end of 4 weeks.
18	Penis.	3 weeks.	+++	Not found.	
20	Lip.	3 weeks.	+++	Numerous.	
25	Lip.	6 weeks.	+++	Not found.	Had used $HgCl_2$ wash locally.
26	Lip.	2 weeks.	—	Not found.	Wassermann + one week later.
28	Penis.	3 days.	—	Present.	
29	Intra-urethral.	1 week.	—	Present.	
31	Tonsil.	4 weeks.	++	Present.	
33	Tonsil.	4 weeks.	+++	Present.	
34	Penis.	11 days.	—	Present.	
35	Lip.	9 days.	++	Not found.	
36	Penis.	7 weeks.	+++	Present.	
37	Penis.	3 weeks.	+++	Present.	
38	Penis.	3 weeks.	+++	Not found.	
41	Penis.	5 weeks.	+++	Not found.	
42	Penis.	2 weeks.	+++	Not found.	
44	Penis.	1 week.	+++	Present.	
45	Penis.	2 weeks.	+++	Present.	
47	Penis.	1 week.	—	Present.	

In closing, it is only necessary to reiterate that a diagnosis of early syphilis cannot be made with any safety on clinical grounds alone; that no sore on the genitalia or elsewhere, which in any way suggests a primary lesion, should be considered non-syphilitic until repeated observations from bacteriologic, serologic and clinical points of view have substantiated its non-syphilitic character; that the examination for the *Spirochæta pallida* is by no means a difficult procedure; and that the profession at large should be as familiar with it as it is with the examination of the sputum for tubercle bacilli; that the bacteriologic and serologic methods are and must be a part of the diagnosis of syphilis if the diagnosis is to be made early, and that an early diagnosis is of the greatest importance in the combating of the disease in a rational and intensive manner.

The serologic portion of this paper is from the H. K. Cushing Laboratory of Experimental Medicine of Western Reserve University, Cleveland.

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A COMPARISON OF NORMAL AND SYPHILITIC EXTRACTS BY MEANS OF THE WASSERMANN AND EPIPHANIN REACTIONS *

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In the course of some titrations of luetic serums by means of the Wassermann reaction, it was noticed that normal extracts in certain dilutions ceased to fix complement in dilutions of the serum in which extracts from syphilitic tissues gave definite fixation. This observation stimulated us to study more carefully the part played by normal and luetic tissues in the Wassermann reaction, with the hope of throwing some additional light on the much-debated question of specificity.

When the test was first published by Wassermann, Neisser and Brack, the antigen was thought by these investigators to represent the syphilitic virus, and the reaction that occurred as one between mutually specific bodies, i. e., between antigen and antibody, the resulting combination having the power to fix the complement. The Wassermann reaction was thought to be analogous to the complement fixation test in other infectious diseases, notably tuberculosis, typhoid and gonorrhea. In these infections the possibility of preparing an extract of the causative agent makes it almost certain that in them we are dealing with a reaction between specific antibody and antigen, in the sense that typhoid antibody and typhoid bacilli are reciprocally related.

Subsequent investigations on the nature of the Wassermann reaction soon made it necessary to modify the original conception of the complement fixation test for syphilis. It could no longer be regarded as a reaction which occurred between the syphilitic virus and specific antibodies. The work of Marie and Levaditi, Weil and Braun (tumors), Landsteiner (guinea-pig liver), Müller and Poetzl[1] (alcoholic extract of guinea-pig heart), and still other investigators showed conclusively that the Wassermann reaction could also be carried out by using extracts of non-syphilitic tissue, i. e., of other pathologic tissue or normal tissue.

Whereas, this discovery does not affect the reliability of the reaction for diagnostic purposes, for it has been found that positive results are still only obtainable when the serum comes from cases of syphilis or from certain well-known diseases in which the diagnosis is not likely to be confused with syphilis; it does make it difficult to bring into relation the immunity processes in other infectious diseases with the reaction processes occurring in syphilis. In the past we could not speak of antispirochetal antibodies, inasmuch as attempts to produce complement fixation by the use of cultures of *Spirochæta pallida* had failed. Recent investigations by Noguchi, however, working with pure pathogenic cultures of the spirochete, have shown that complement fixation can be obtained by use of pure cultures of the spirochete as antigen (not alcoholic extract) with the serum of inoculated rabbits.[2] There certainly seems to be evidence that specific as well as non-specific factors play a part in the syphilitic process, although the exact rôle of each factor is not yet clear.

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* Read in the Symposium on Syphilis in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the authors' reprints. A copy of the latter wil be sent by the authors on receipt of a stamped addressed envelope.

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[1] Meier, G.: Jahresb. über die Ergebn. d. Immunitätsforsch., 1909, v, 140, contains complete bibliography and discussion of the subject.

Our experiments with the Wassermann and epiphanin reactions have led us to the conclusion that non-syphilitic extracts are not entirely equivalent to extracts from syphilitic tissues; syphilitic extracts contain, besides the non-specific complement-fixing substance or substances present both in non-syphilitic and syphilitic organs, certain other components which depend for their existence on the syphilitic poison in the specific tissue. These may be the *Spirochæta pallida* (?), its virus, its decomposition products or the metabolic products to which it may give rise in the tissue.

Before entering into the details of our observations, it may be well to state briefly the views of different observers.

The original conception of the Wassermann reaction as one between mutually specific bodies was based largely on animal experimentation. Wassermann, Neisser and Bruck were able to show that the serum of infected monkeys, and of those immunized with watery extracts from syphilitic organs could fix complement only with syphilitic antigen, but not with normal antigen. This view is no longer strictly held in its original form even by the discoverers of the reaction. A departure from it was made necessary, as already stated, by the discovery that alcoholic extracts from normal as well as from syphilitic tissues would give the reaction.

At present there are two main views regarding the nature of the antigen and antibody in the Wassermann reaction. Investigators may be divided into two groups according as they support the one view or the other.

The vast majority of investigators regard the reaction as non-specific. The antibodies in luetic serum are according to this view reaction products to an abnormal metabolism which accompanies the syphilitic process. These abnormal products are, according to some, protein derivatives (Weil and Braun).[1] According to most observers they are lipoids capable of being extracted by alcohol and present in all tissues, but to a much larger extent in syphilitic organs.

On the other hand, the second group of investigators, among them Wassermann, Bruck, Citron and Meier, support the dualistic view.[1] They maintain the original view of the specificity of the reaction with certain modifications. They contend that alcoholic extracts of syphilitic tissues contain two components—a non-specific lipoid substance present also in extracts from non-specific tissues, and a specific protein-like body present only in syphilitic extracts. According to Citron,[3] the specific element is a toxic substance arising only in the syphilitic process, which unites with the lipoids of the tissues to form a toxolipoid, and, analogously to the toxolipoids of snake venom, is capable of producing a reaction within the organism, resulting in the formation of antibodies. The ability of these antibodies to unite with the lipoids alone—the non-specific components of the antigen in binding complement—explains, according to Citron, why normal alcoholic extracts can fix complement.

Recent application of new methods to the study of this phase of the reaction has lent some support to this dualistic conception. In 1910, Weichardt[4] was able to apply his epiphanin reaction to the identification of antibodies in the serum of syphilitic patients. In the same year Seiffert[5] reported a series of seventy-five cases studied by this method. Of the seventy-five serums studied there was a correspondence between the Wassermann and epiphanin reactions in sixty-four serums, or in about 85.3 per cent. Of these, forty-three, or 57 per cent. of the seventy-five studied, were positive, and twenty-one, or 28 per cent., were negative. In this series the epiphanin reaction was positive and the Wassermann reaction negative in nine cases. These will be discussed later. In no case was the Wassermann reaction positive and the epiphanin reaction negative. Of twenty-eight non-syphilitic human serums, including cases of typhoid, paratyphoid, tuberculosis, scarlet fever, gonorrhea, erysipelas, measles and diphtheria, and in six tuberculous and six healthy guinea-pigs, as well as in two rabbits, the epiphanin reaction was negative. Ten serums, eight positive and two negative, were titrated with an alcoholic extract of luetic liver and an extract of guinea-pig heart. In every case it was found that alcoholic extracts of syphilitic liver gave a positive reaction, whereas extracts from normal guinea-pig heart gave a negative reaction with luetic serums. This led Seiffert to conclude that for the epiphanin reaction a specific component was necessary which was present in alcoholic extract of syphilitic livers, but not in alcoholic extract of normal guinea-pig heart.

Izar[6] working with a method depending on similar principles, the miostagmin reaction, obtained similar results. He, too, found that syphilitic cases gave a positive and non-syphilitic cases a negative reaction with syphilitic antigen. By working with various antigens he found that alcoholic extract of guinea-pig heart, alcoholic extract of normal human liver and artificial extract of Sachs-Bordoni all gave negative results, and that alcoholic extract of syphilitic liver gave positive results with luetic serums. In a later communication by Izar and Usuelli,[7] however, alcoholic extract of guinea-pig heart and normal human liver were stated to be available as syphilitic antigen. In our work we have been able to confirm and extend the observations of Weichardt, Seiffert and others.

The results of comparative titrations with normal and syphilitic extracts by the Wassermann reaction can be better understood from a consideration of the method employed.

METHOD EMPLOYED IN WASSERMANN REACTION

The technic used in doing the Wassermann reaction is approximately the same as that used in the Wassermann laboratory. Only inactivated serum is used. The titer of the amboceptor (antisheep, rabbit) is determined for every complement used, and four times the titer is used in the reaction. Each patient's serum is tested with two or three extracts of known value, the routine being to use three extracts. Incubation is done in a water-bath. All the necessary controls are made.

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[2] Personal communication from Dr. Noguchi.

[3] Citron, J.: Ergebn. d. inn. Med. u. Kinderh., 1909, iv, 358.

[4] Weichardt, W.: Ztschr. f. Immunitätsforsch., 1910, vi, 651.

[5] Seiffert, G.: Deutsch. med. Wchnschr., 1910, No. 50, p. 2333.

[6] Izar: München. med. Wchnschr., 1910, No. 4, p. 181.

[7] Izar and Usuelli: Ztschr. f. Immunitätsforsch., 1910, vi, 624.

Method of Making Antigens.—For normal organ extracts beef hearts and the livers of normal fetuses were used. The extracts of beef hearts were made according to the method described by Noguchi. The extracts of normal and syphilitic liver were prepared by shaking the finely ground liver substance with ten volumes of absolute alcohol several hours, after which the extraction was continued at 37.5 C. for two days with frequent shakings. The extract was then filtered and preserved in dark glass bottles at room temperature.

Blocks are made from all tissues used except the beef heart, and the presence or absence of *Spirochæta pallida* established. In all tissues used the degree of fatty degeneration was noted. All syphilitic extracts are proved by the presence of the organism in the tissues, the normal tissues being submitted to the same careful examination.

The extracts are investigated for their hemolytic, anticomplementary and antigenic properties, and only those fit for the reaction are selected.

In determining the antigenic value of the extracts, an extract of known antigenic value was used, and parallel titrations carried out, using a known positive patient's serum.

These titrations were made in two ways: First, to parallel series of tubes containing one unit of diluted and inactivated positive patient's serum and complement were added known and unknown extracts in equal dilutions ranging from 1:5 to 1:200. After the addition of the hemolytic system, the series were incubated at 37.5 C., and the point at which complete fixation was no longer obtained noted.

In the second titration, all the extracts were used in a constant dilution of 1:10, and added to tubes containing one unit of guinea-pig complement, and increasing dilutions of the patient's serum ranging from 1:5 to 1:100. The point at which complete fixation ceases was again noted.

With this comparative method of titration it was found that normal extracts could be diluted to a greater degree and still give fixation in a constant dilution of patient's positive serum. On the other hand, when the patient's serum was diluted, fixation was obtained with the syphilitic extract at a point beyond that at which fixation ceased to be obtained with a normal extract. A specific instance may be cited. One of our normal extracts in a dilution of 1:300 gave fixation with a positive serum diluted 1:5, while a syphilitic extract with the same positive serum ceased to give fixation far below this point. If, however, the extracts were used in dilutions of 1:10, and the patient's positive serum diluted, fixation with the syphilitic extract took place in a dilution of 1:40 of the patient's serum, whereas, with the normal extract, fixation ceased to occur beyond a dilution of 1:20 of the patient's serum.

We are aware that these observations can be interpreted in two ways: In the first place, it is generally conceded that specific extracts are more anticomplementary than non-specific extracts, and that this anticomplementary activity may explain the results obtained. In the second place, the observations may be interpreted to mean that specific extracts contain over and above the non-specific complement-fixing substances present both in syphilitic and non-syphilitic tissues certain other substances, perhaps of a more specific nature, capable of action in less concentration, and therefore in greater dilution of the patient's serum.

It is obvious that the one or other interpretation would gain support in its favor if a comparison of specific and non-specific extracts could be made by use of methods which lay claim to greater specificity than the Wassermann reaction is generally conceded to have. For this purpose we have conducted parallel titrations with the physicochemical method known in the literature as the epiphanin reaction (ἐπιφάνεια, surface).

This reaction depends on an observation made in 1908 by Weichardt.[8] This investigator found that diffusion is accelerated when differently colored solutions of antigen and its specific antibody are brought together. Changes in diffusion are associated with changes in the surface tension, both of which depend on a change in the osmotic pressure. This phenomenon he was able to demonstrate by the use of various physicochemical instruments (capillary tubes, chemical balance and diffusiometer). Later Ascoli made use of similar principles in measuring the surface tension of mixtures of antigen and antibodies with the Traube stalagmometer.

In 1909, Weichardt[4,9,10] made the reaction more accessible to practical use by introducing into the solutions of serums and antigen a system composed of sulphuric acid and barium hydroxid together with certain catalytic agents. By the use of phenolphthalein as an indicator he could show that fresh serums in high dilutions alter the surface tension of the finely divided barium sulphate particles by their colloidal action, so as to increase the adsorption of H-ions, thus rendering the solution more alkaline.

Without entering into the details of the physicochemical principles involved, the following generalizations may be made:

Solutions containing colloids, i. e., antigen alone, antiserum alone or antigen plus non-specific antiserum in certain dilutions, act in the above system by shifting the phenolphthalein end-point[11] in the sense of increased OH-ions (pink color).

Specific antigens can inhibit the activity of their specific antiserums, the specific antigen-antibody combination then becoming evident *in vitro* by a shift of the phenolphthalein end-point in the sense of increased H-ion concentration (light color).

The underlying principles of the epiphanin reaction have been confirmed by Kraus and Amiradzibi,[12] and extended by a number of investigators—Schroen,[13] Seiffert,[5] Mosbacher[14] and others. The specificity of the reaction has been proved beyond question by its application to the identification of a host of antigen-antibody combinations *in vitro*. Experiments have already been conducted with the following antigens and their antibodies: diphtheria toxin, tetanus toxin,[4] kenotoxin,[9] uvea albumin,[15, 13] extract of typhoid and tubercle bacilli,[4] extracts from placenta with the serum of pregnant women, extracts of tumors and their antibodies,[4] and lastly extracts of syphilitic fetal livers with the serum of syphilitic patients.[5] It is especially with the titration of syphilitic serums that we are concerned.

In carrying out the epiphanin reaction the method used is essentially that given by Weichardt[16] in his latest communication on this reaction. The arrangement of

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8. Weichardt, W.: Berl. klin Wchnschr., 1908; No. 20; Centralbl. f. Bakteriol., xlii, 143; Centralbl. f. Bakteriol., xlvii, 39.

9. Weichardt, W.: Ueber Ermüdungsstoffe, Stuttgart, Ferd. Enke,. 1910.

10. Weichardt, W.: Deutsch. med. Wchnschr., 1911, No. 4, p. 154.

11. By the end-point is meant the point of neutralization when acid and alkali are brought together in the presence of phenolphthalein as an indicator.

12 Kraus and Amiradzibi: Ztschr. f. Immunitätsforsch., 1910, vi, 16.

13. Schroen, F.: München. med. Wchnschr., 1910, No. 38, p. 1981.

14. Mosbacher, E.: Deutsch. med. Wchnschr., 1911, No. 22, p. 1021.

15 Weichardt and Kümmel: München. med. Wchnschr., 1911, No. 32, p. 1714

16. Weichardt, W.: Berl. med. Wchnschr., 1911, No. 43, p. 1935.

test-beakers recommended by him has not been followed, since it soon became apparent that the method here given was reliable and less time-consuming.

METHOD EMPLOYED IN EPIPHANIN REACTION

Five constituents enter into the test:

1. High dilutions of the antigen ranging from 10^2 (1:100) to 10^4 (1:10,000). As in the Wassermann reaction, not every antigen has the properties which characterize it as good. The qualities of an antigen and the dilutions in which it works best can be determined only by preliminary tests. The dilutions of serum and antigen were made with physiologic salt solution.

2. High dilutions of patient's fresh, unheated serum to be tested. The dilutions used in our tests have ranged from 10^2 (1:100) to 10^{10}. Generally speaking, it is best to use the higher than the lower dilutions. As will be pointed out in the discussion of the results, the use of too concentrated solutions of serums and of antigen may lead to erroneous results.

3. A normal solution of sulphuric acid.

4. A saturated solution of barium hydroxid made equivalent to the normal solution of sulphuric acid. In the use of the barium hydroxid it is imperative to prevent its exposure to the air. A solution which has become cloudy owing to the entrance of carbon dioxid should not be used. In carrying out the test it is best to pour out an amount of barium hydroxid needed for the test into a rubber-stoppered bottle or test-tube so as not to contaminate the stock solution.

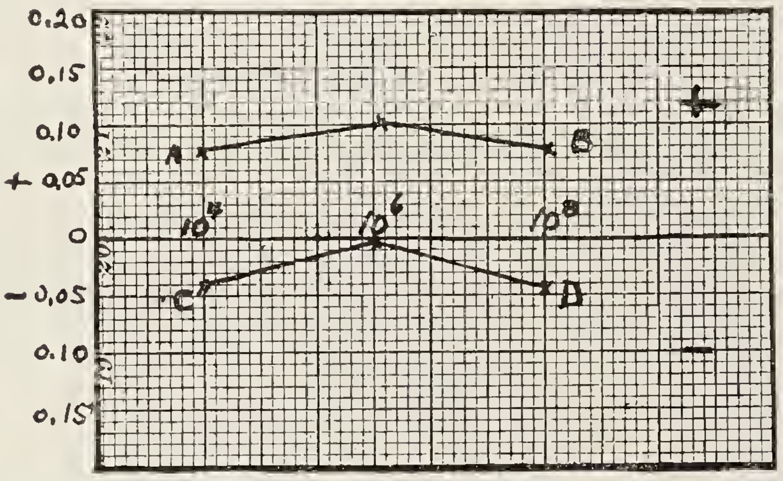

Chart 1.—A-B, curve of positive syphilitic serum using extract (H) of syphilitic liver; C-D, curve of positive syphilitic serum using extract of normal liver.

5. A 1 per cent. alcoholic solution of phenolphthalein containing 1 per cent. of a 10 per cent. solution of strontium chlorid. The strontium chlorid has been found to catalyze the reaction.

The reaction is done as follows: A number of clean beakers of about 50 c.c. capacity are used. For each dilution of the serum a separate beaker is required. One beaker is used for an antigen control, and another to control the system of barium hydroxid and sulphuric acid. In our tests, five beakers were used, Nos. 1, 2 and 3 constituting the main test, No. 4 the antigen control, and No. 5 the system control.

The reagents are added by means of overflow pipets to be described later. To each of the first four beakers is added 1 c.c. of the dilute antigen to be used in the test (about 10^4). To Beaker 5 is added 1 c.c. of the salt solution used in making the dilutions of the antigen and the serums. Now 0.1 c.c. of the dilute serum to be tested is added to each of the first three beakers, each beaker, however, containing the same serum in a different dilution. To Beaker 5 the same quantity of salt solution is added, but to Beaker 4, the antigen control, no serum or salt solution is added.

To each of the five beakers the system of sulphuric acid and barium hydroxid and phenolphthalein is now added carefully. First, 2 c.c. of the normal sulphuric acid solution are added to each; then 2 c.c. of the barium hydroxid, and finally 0.1 c.c. of the phenolphthalein strontium chlorid mixture.

It will be seen that Beaker 4, the antigen control, contains all the constituents of the Test-Beakers 1 to 3 except serum. To make Beaker 4 qualitatively as well as quantitatively equal to Beakers 1 to 3, 0.1 c.c. of the dilute serum (the average of the dilutions of serum which are used in the test) is now added to Beaker 4, the reaction having already taken place.

The addition of the sulphuric acid and barium hydroxid requires great care. Since the reaction depends on small differences in acidity or alkalinity, it is obvious that slight errors will vitiate the results. For the acid and the alkali separate pipets are used. After emptying the pipet of its content of acid or alkali, the last traces adhering to the inside of the pipet are removed by washing. The washings are saved and later added to the beakers to which they belong. In filling the pipets with acid or alkali the latter should first be drawn up into the pipet at least once and then emptied again before the pipet is finally filled for delivery into the next test-beaker. Only by careful attention to these points in the technic can reliable results be obtained.

Interpretation of Results.—If Beakers 1 to 3 contained the antiserum to the antigen used, a positive epiphanin reaction will be obtained, and if the barium hydroxid and sulphuric acid were previously carefully adjusted to one another, it will be found that Beakers 1 to 3 will be lighter than the antigen control, Beaker 4. The presence of a specific antigen-antibody combination has shifted the phenolphthalein end-point in the sense of increased H-ion concentration. The exact differences in the alkalinity between Beakers 1 to 3 and Beaker 4 can be quantitatively determined by titration with hundredth-normal sulphuric acid, and the results expressed as a curve.

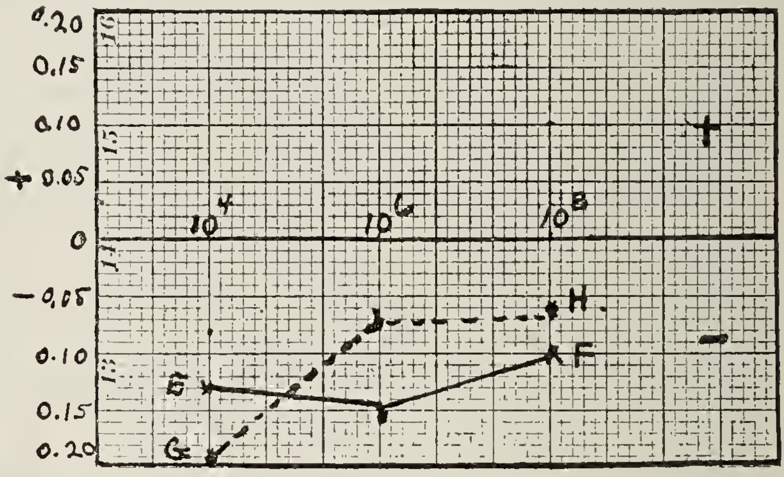

Chart 2.—E-F, curve of negative syphilitic serum using extract of syphilitic liver; G-H, curve of negative syphilitic serum using extract of normal liver.

If the antigen and antibody were not specific, the epiphanin reaction will be negative. Beakers 1 to 3 will be more alkaline than the antigen control Beaker 4, because, as previously pointed out, serums alone or antigen with non-specific serums shift the phenolphthalein end-point in the sense of increased OH-ion concentration.

The results may be plotted as curves (Charts 1 and 2). The titration values in hundredth-normal sulphuric acid are placed on the ordinates and the serum dilutions on the abscissæ. The positive values are plotted above the line and the negative values below the line as the accompanying charts show. No reaction was regarded as positive unless it gave a titration value of at least 0.05 c.c. hundredth-normal sulphuric acid. Values below 0.05 c.c. are easily within the limits of error.

Experiments with the epiphanin reaction have shown that:

1. Syphilitic extracts give positive reactions with luetic serums in about 75 per cent. of the cases.
2. Syphilitic extracts give negative reactions with serums of non-syphilitic patients.
3. Syphilitic extracts give negative reactions with serums of patients suffering from malignant disease.

4. Extracts of carcinomatous tissue give positive epiphanin reactions with serums of patients suffering from malignant disease.

5. Extracts of carcinomatous tissue give negative epiphanin reactions with the serums of luetic patients.

6. Extracts of normal tissue (fetal liver and beef heart) give negative epiphanin reactions with the serums of luetic patients.

In all, 105 serums were titrated with the epiphanin reaction. Of these, fifty-eight serums were titrated with luetic extracts obtained from five different syphilitic fetal livers, in which the spirochetes were demonstrated. The results obtained in this series may be divided into four groups: The first group consists of those serums in which the Wassermann and epiphanin reactions were in agreement. Of the fifty-eight serums, forty-three, or about 74 per cent., belong to this group. These consisted mostly of serums sent to the laboratory for diagnosis. Among these forty-three serums there were twenty-four in which both the Wassermann and epiphanin reactions were positive, and nineteen in which both reactions were negative. The negative serums include about eight cases of malignant disease which were titrated with luetic extracts.

In the second group there are eight cases in which the Wassermann reaction was positive and the epiphanin reaction negative. Clinically, the majority of these cases gave a history of syphilis. In two of these five cases the discrepancy can be accounted for by the unsuitability of the antigen, which as it later appeared also gave poor results with the Wassermann test. In two cases the antigen was used in too concentrated dilutions. As was pointed out before, too concentrated solutions of antigen and of antiserum may give erroneous results.

The third group includes four serums in which the Wassermann reaction was negative and the epiphanin reaction was positive. Three of the patients gave a definite history of syphilis, and all three have received treatment, two with salvarsan and one with mercury and the iodids. In four other cases in which the patients had received salvarsan the results are variable. In two cases both the Wassermann reaction and the epiphanin reaction were negative. In one case the epiphanin reaction was positive and the Wassermann reaction doubtful, while in still another case the epiphanin reaction was negative and the Wassermann reaction doubtful. In Seiffert's series,[5] there were five cases treated with salvarsan, in all of which the Wassermann reaction was negative, whereas the epiphanin reaction was positive.

In the doubtful group belong three serums in which a diagnosis could not be made. In one of these cases the serum was too old. About five luetic serums were heated and then tested with luetic antigen. In each case the epiphanin reaction was positive. Seiffert reports similar results. It would seem that heating the patient's serum to 56 C. for half an hour does not influence the results. The data, however, are too few to justify any conclusions on this point.

About twenty-three definitely positive luetic serums were tested with alcoholic extracts from syphilitic as well as from normal and pathologic tissues. Beef heart, normal liver and carcinomatous lymph-node were the non-syphilitic tissues used. The extract of the beef heart was the acetone insoluble fraction prepared according to Noguchi's method. The normal fetal liver and the carcinoma lymph-node were prepared in the usual way as described above. Of the twenty-three cases all but three, or about 86 per cent., reacted positively with the syphilitic extracts, and negatively with the extracts from non-syphilitic tissues. Two of the positive serums tested were mixtures each of four fresh positive serums. With these serums the difference in the behavior of syphilitic and non-syphilitic extracts was especially striking.

The results of the titration of syphilitic serums with non-syphilitic extracts seem to bear out the contention of Wassermann and his co-workers that syphilitic and non-syphilitic extracts are not entirely equivalent. It would appear that alcoholic extracts of syphilitic tissues do contain some substance which is intimately associated with the syphilitic process; but whether this is a lipoid-protein combination (Wassermann) or a toxolipoid (Citron), it is at present difficult to say.

Of the 105 serums studied, twenty-four were from patients with definite or suspected malignant disease, and a few from patients with benign tumor. Sixteen of the twenty-four patients reacted positively with extracts from carcinoma and sarcoma tisue.

The data are too meager to warrant any definite conclusions; but it would appear that the results are suggestive. More work must be done on a larger number of controls to make sure that we are not dealing with a reaction in the blood-serum characteristic of cachectic states.

CONCLUSIONS

1. Our observations with both the Wassermann and the epiphanin reactions would seem to indicate that syphilitic and non-syphilitic extracts are not entirely equivalent.

2. Comparative titrations of syphilitic and non-syphilitic extracts with the Wassermann reaction have shown the superiority of the former over the latter.

3. By means of the epiphanin reaction it is possible to demonstrate in serums the presence of antibodies specific for a given antigen.

4. The epiphanin reaction may be used to demonstrate the presence of antibodies in the serum of syphilitic patients.

5. Our observations would seem to point to the conclusion that these antibodies are directed against some substance or substances found only in the extracts of syphilitic tissue, and these antibodies are probably associated with the syphilitic process in a specific manner.

6. It must be borne in mind that these antibodies are not necessarily the so-called Wassermann bodies, although it is possible that they may be, in the sense of the conception of the dualistic theory as expressed by Wassermann and by Citron.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. DEXTER AND CUMMER AND KEIDEL AND HURWITZ

Dr. A. W. M. Ellis, New York: In the first and second week the Wassermann reaction is positive in 40 per cent. of cases. Experimental work has shown clearly that the appearance of the Wassermann reaction coincides closely with the general infection of the body. This means that in from 50 to 60 per cent. of cases in the first and second weeks we are still dealing with a local infection. There has been no general distribution of the virus to any extent. This was not of much importance formerly when mercury was used, because it has been shown repeatedly that even intensive treatment with mercury was not sufficient to prevent the Wassermann reaction from becoming positive. With salvarsan however, the condition is far different. Gennerich in the treatment of a hundred patients in whom the reaction had not yet become positive was able to prevent the appearance of the Wassermann reaction in all but ten. One of the fundamental principles in medicine is the prevention of the spread of a local infection and the prevention of the development of septicemia. It is curious that in syphilis clinicians can still be found who advocate waiting until the occurrence of such a septicemia before making their diagnosis and beginning treatment.

Dr. Martin Cohen, New York: During the past year I have applied the luetin test in over fifty cases of ophthalmologic complications of syphilis. In 75 per cent. of the interstitial keratitis cases the clinical manifestations and the Wassermann reaction corresponded with the luetin test. In iridocyclitis, in which chancres had occurred ten, fifteen or twenty years ago, the Wassermann reaction was negative for reasons we were not sufficiently able to explain, while the luetin was actively present. In some recent infections the control reaction, which was always done on the right arm, somewhat resembled the luetin site on the left arm, but there was not that infiltration which occurred in the luetin site. This, I think, is a very important factor. In retro-orbital tumor in which both Wassermann and clinical manifestations were negative, the luetin test was likewise negative, as was evidenced by an operation which allowed of a better view of the orbital conditions. The tumor was found to be a fibro-endothelioma.

A woman whose family history was negative gave a history of infection about twenty years ago and the luetin test was strongly positive. Operation was performed, and Dr. Ewing in his report considers it a case of syphilitic nature. I have had various other cases along the same lines. In some of them the luetin reaction was negative, but changed to positive as soon as antisyphilitic treatment was instituted. I have some cases on record which remained dormant as long as a month and a half, in which the luetin site promptly developed. I believe the three cardinal points in syphilis to be (1) the clinical manifestations, (2) the Wassermann test in early cases and (3) the luetin reaction in tertiary cases. I believe that if we consider these three cardinal factors, we shall make a step forward in our diagnosis.

Dr. B. C. Corbus, Chicago: The best method of diagnosis, of course, is with the dark-field illuminator. I believe that the method of obtaining the specimen by snipping out a small piece of chancre, as recommended by Noguchi, is the best. Every lesion that appears on the genitalia should be diagnosed microscopically, no matter how insignificant. There is a condition on the penis that is little recognized in this country, erosive and gangrenous balanitis, in which we find a spirochete and a vibrio, a spirochete that is sometimes hard to diagnose except by the dark-field illuminator. This form of balanitis may be associated with syphilis, but is most frequently mistaken for chancroidal infection. Clinically this disease appears as a balanitis, always behind a closed foreskin, and the clinical symptoms may very much simulate syphilis. The adenopathy is indolent and not at all painful, and there may be a slight rise of temperature. It is not possible to differentiate this form of balanitis from syphilis without the aid of the dark-field illuminator.

Dr. S. H. Hurwitz, Chicago: I believe that because of the great constancy with which the luetin reaction occurs in cases of secondary and tertiary syphilis we have, according to present-day views, *a priori* evidence that there are such things as antispirochetal antibodies. As we all know, the explanation of the anaphylactic process that is mostly accepted to-day is that in the serum of the inoculated patients there exists some antibody which, together with the specific substance, can give rise to some third body which produces the inflammatory reaction at the site of the lesion. Furthermore, the presence of some specific substance in luetic serum follows from the work of Dr. Noguchi, who has obtained complement fixation with the watery extracts of the *Spirochaeta pallida* as an antigen and the serums of inoculated rabbits. We have not been working with watery extracts, however, but with alcoholic extracts, although this does not seem to me to vitiate the results of our experiments. As was stated in our paper, according to the work of the Wassermann school there are in the alcoholic extracts of syphilitic tissues two components, a non-specific lipoid component and a specific protein-like body in combination with that lipoid; it is possible that the antibodies which we have succeeded in demonstrating have been antibodies directed against alcoholic extracts of the specific and non-specific component together, and in that sense we still wish to maintain our original point of view, that there is in syphilitic serum something which is closely identifiable with the syphilitic process.

Dr. Richard Dexter, Cleveland: Dr. Ellis called attention to the period before the Wassermann reaction appears. If a diagnosis can be made during that period one has a much better chance of cure with modern intensive treatment, as the infection is still local.

The suggestion of Dr. Corbus to snip out a piece of the lesion and pound it up and examine it with a dark-field illuminator is, I should think, an excellent one, though it is the first time it has been brought to my attention.

THE LUETIN REACTION *

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The skin of animals repeatedly inoculated with *Spirochaeta pallida* and the skin of human beings suffering from syphilis do not behave in the same way as does the skin of non-syphilitic individuals. The skin of the syphilitic subjects reacts with an inflammation to the inoculation of the *pallida* substance (the luetin) prepared from the killed pure cultures, while the non-syphilitic skin does not. The intensity of the inflammatory reactions produced by the luetin may vary from an inflammatory nodule to a pustule formation, lasting for several days as a rule. In some instances the reaction may commence as late as three or four weeks after the inoculation. For the precise descriptions of the reaction and mode of making the test, I refer the reader to my special article.

Since the inauguration of the test, one year has passed, and the preparations of the luetin have been distributed to some hospitals and dispensaries both here and abroad during the last four months. The reports so far received are in perfect agreement with my experience already published.[1] Among those who have obtained favorable results may be mentioned Baum, Cohen,[2] Corbus, Fordyce, Fox,[3] Goldenberg and Kaliski, Gradwohl,[4] Holt and Brown, Kämmerer,[5] Moore, Nobl and Fluss,[6] Pusey, Orleman-Robinson,[7] Schmitter, Squires and Crowell, Stein, Stoll and Wolfsohn.[8] Speaking summarily the following facts have been established:

1. The luetin reaction is specific for syphilis.
2. The reaction is present in the majority of cases of tertiary, latent and hereditary syphilis.
3. It is less constantly present in secondary untreated and primary cases.
4. In treated secondary cases the reaction is present in most instances.
5. In general paralysis and tabes dorsalis the reaction is inconstant, but a positive reaction was obtained by Moore and myself in about 60 per cent. of cases.

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* Read in the Symposium on Syphilis in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] Noguchi: Jour. Exper. Med., 1911, xiv, 557; The Journal A. M. A., April 20, p. 1163.

[2] Cohen: Arch. Ophth., 1912, xli, 8.

[3] Fox: Communication made before the American Dermatological Association, May, 1912.

[4] Gradwohl: Med. Rec., 1912, lxxxi, 973.

[5] Kämmerer: Münch. med Wchnschr, 1912, lix, 1534.

[6] Nobl and Fluss: Wien. klin. Wchnschr., 1912, xxv, 475.

[7] Orleman-Robinson: Jour. Cutan. Dis., July, 1912.

[8] Wolfsohn: Bull. Johns Hopkins Hosp., August, 1912.

6. In certain cases of tertiary and hereditary syphilis there may be a considerable inflammatory reaction at the site of injection of the control fluid, and the reaction may sometimes be as strong as that produced at the luetin inoculation site.

7. The condition of the skin which gives the luetin reaction remains but little influenced by the antisyphilitic treatment, although a positive reaction can no longer be obtained in some cases which had been thoroughly treated and believed to be cured.

The relation between the Wassermann and the luetin reactions may be defined here in order that the fullest possible benefit may be derived from the use of both reactions. The Wassermann reaction is more constantly present than the luetin reaction in cases of primary and secondary syphilis, especially when only a slight amount of treatment or none was given. On the other hand, the luetin reaction is more constantly present than the Wassermann reaction in cases of tertiary and latent syphilis. Besides, in cases in which the Wassermann reaction and clinical manifestations of syphilis are very marked and the luetin reaction negative, an energetic treatment can reverse the situation completely. Thus, through the treatment the Wassermann and clinical symptoms gradually are made to disappear, while the luetin reaction becomes more distinct and the condition that gives the reaction to the luetin persists afterward, probably until a cure is effected. From the above-cited facts it may be concluded that the luetin reaction possesses a greater diagnostic value than the Wassermann in tertiary and latent syphilis, and also a decided prognostic value which the Wassermann does not.

While the application of the luetin reaction is simple enough to be within the reach of any physician, one must not underestimate the technical precautions necessary for obtaining reliable results, because all kinds of irregularity of the reaction can be obtained by a neglectful and faulty technic. Besides, it is important to become quite familiar with the reactions before one can recognize the milder form of positive reaction and avoid a misinterpretation. In short, as in the case of everything else, one has to have a certain amount of preliminary training in order to utilize the luetin reaction properly.

Neurasthenia and Obesity.—The characteristic medley of symptoms, psychic and physical, exhibited by the neurasthenic has long been a fruitful field for study by clinicians, and there must be very few phenomena associated with the disease that have not, at some time or other, been observed and placed on record. The due recognition of the fact that in neurasthenia an actual inhibition of the various secretory mechanisms of the body may occur has modified, to a certain extent, former conceptions of the malady, as also the part now known to be played in the etiology of many of its symptoms by toxic absorption. One aspect has not received the attention, perhaps, that its importance deserves—namely, the relationship of obesity to the neurasthenic state, for many neuropaths are the reverse of being emaciated and an undue corpulence is not infrequently followed by neurasthenia. Drs. L. J. Llewellyn and D. Lloyd Smith, of Llandrindod Wells, have recently called attention to the connection between the two morbid states, and in their opinion the obese neurasthenic requires the greatest care when undergoing reduction cures. They also conclude that the prognosis is better in patients who are slightly emaciated, for if a neurasthenic is afflicted with "embonpoint," as Esquirol pointed out, trouble may be expected. The possibility of latent tuberculosis in the obese has further to be borne in mind in the examination and treatment of cases of this type of neurasthenia.—*Medical Press and Circular.*

SECONDARY SYPHILITIC MENINGITIS *

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The subject of syphilitic meningitis, occurring early in the secondary period of the disease, is one which has attracted the attention of occasional observers since 1650, when Guarinoni[1] first described the condition. The meningitis usually shows itself first as a disturbance of sight or hearing and may go on to the typical picture of an acute or subacute diffuse meningitis. In Germany, Rumpf,[2] Knorre,[3] Lang[4] and Nonne,[5] in France, Gros and Lancereaux,[6] Ravaut,[7] Fournier,[8] Boidin and Weil,[9] and in England, Mott[10] and Williamson[11] have especially called attention to the condition. The advent of salvarsan has, however, given the question a prominence which it never possessed before and has led to a vigorous discussion of the real frequency of its occurrence and of the possibility of salvarsan as a predisposing factor.

In November, 1910, Finger[12] in Vienna, in his report on 170 cases of syphilis treated with salvarsan, reported seven cases showing affections of the optic and auditory nerves coming on a few hours to some months after treatment. He considered them examples of a neurotropic action of the drug. In a later communication by Mucha[13] from the same clinic, thirty-seven similar cases were reported. The contentions of Finger immediately aroused wide-spread discussion, and in the past year a very large number of these cases of affections of the cranial nerves after salvarsan have been reported.

Ehrlich,[14] from the beginning, held that these affections of the cranial nerves were due, not to a toxic action of salvarsan, but to a syphilitic meningitis developing from foci of spirochetes in the central nervous system, which had not been reached by the salvarsan. He gave them the name "neurorecidiv," and considered that the increased frequency of such relapses was due merely to a closer observation and therefore more frequent recognition.

Benario,[15] in his collected statistics, showed the frequency of such nerve relapses in mercury-treated patients, and pointed out the exact similarity of such cases to the nerve disturbances following treatment with salvarsan. This similarity and the findings obtained by lumbar puncture have proved the correctness of Ehrlich's opinion as to the syphilitic nature of the process. Lumbar puncture in these cases has shown, almost invariably, large increase in the cells, increased globulin and a positive Wassermann reaction in the spinal fluid.

The question of the relative frequency of early secondary meningitis with and without salvarsan therapy still remains an open one.

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* Read in the Symposium on Syphilis in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Hospital of the Rockefeller Institute.

1. Guarinoni: Cited by Benario, Ueber Neurorezidive, Munich, 1911.
2. Rumpf: Die syphilitischen Erkrankungen des Nervensystems, J. F. Bergmann, Wiesbaden, 1887.
3. Knorre: Deutsch. Klin., 1849, Nos. 6 and 7.
4. Lang. Vrtljschr. f. Dermat. u. Syph., 1881, p. 469.
5. Nonne: Syphilis und Nervensystem, S. Karger, Berlin, 1909.
6. Gros and Lancereaux. Des affections nerveuses syphilitiques, Paris, 1861.
7. Ravaut: Ann. de dermat. et syph., 1903, p. 537.
8. Fournier: La syphilis du cerveau, Paris, 1879.
9. Boidin and Weil: Presse méd., 1907, p. 681.
10 Mott: System of Syphilis, Vol. IV., London, 1910.
11. Williamson: Syphilis and Syphilitic Diseases of the Spinal Cord, Sherrett and Hughes, Manchester, 1899.
12. Finger: Wien. klin. Wchnschr., 1910, xxiii, 1667.
13. Mucha: Wien. klin. Wchnschr., 1911, xxiv, 1012.
14. Ehrlich: München. med. Wchnschr., 1911, lviii, 2481
15. Benario: Ueber Neurorezidive, Munich, 1911.

The occurrence of these nerve relapses after salvarsan is, in the experience of most observers, from 0.5 to 3 per cent. The figures of Finger, who has seen forty-four nerve relapses in 500 cases treated, remain unparalleled. The following tabulation gives the results in some of the large clinics:

Author	No of Cases Treated	No. of Nerve Relapses
Desneux and Dujardin[16]	350	7
Rille[17]	200	3
Krausz[18]	345	5
Von Zeissl[19]	273	4
Frühauf[15]	478	3
Gennerich[20]	340	1
Krausz[18]	345	5
Simonyi[21]	300	0
Gibbard, Harrison and Cane[22]	392	1
Neisser[23]	2000	6
Scholtz[18]	700	3
Klingmuller[18]	1260	4
Schwarz[24]	*	5
Gérone and Gutmann[25]	300	13
Milian[26]	1200	5
Finger	500	44

* Not meutioned.

Such figures show undoubtedly that syphilitic meningitis is much more frequent than we have considered it in the past. Two possibilities arise: (1) that more careful observation has led to more frequent recognition; (2) that salvarsan in some way predisposes to the development of syphilis of the nervous system.

Numerous observers have called attention to the frequency of involvement of the nervous system in the early stages of syphilis. Jarisch[27] noticed the increased reflexes at this period. Fournier described a regional analgesia; Finger[28] himself, in 1881, called attention to the increased irritability of the reflexes during the period of the exanthem, followed by diminished excitability and, in some cases, by disappearance.

Lang,[4] in 1881, referred to the frequent headache, neuralgia and dizziness occurring in the secondary stage and suggested that they were signs of meningeal irritation. Schnabel[29] in the same clinic examined the eyes of forty patients in the secondary stage of syphilis and found in seven retinitis, chorioiditis or chorioretinitis; fourteen others showed some degree of retinal hyperemia.

Wilbrandt,[30] in Hamburg, examined the eye-grounds of 200 syphilitics in the early stages of the disease and found hyperemia thirty-eight times, neuroretinitis five times, retinitis once and retinal hemorrhage once. The frequency of disease of the internal ear in the early stages of syphilis has been noted by several authors.

Habermann,[31] in 1896, reported sixty-six cases of paralysis of the acoustic nerve due to syphilis, thirty-four of which appeared in the secondary stage of the disease. He pointed out the early period at which such lesions might appear. Of the thirty-four occurring in the secondary stage, three appeared on the day of the eruption and in only six was the disturbance of hearing first detected later than ten weeks after the exanthem. Mayer[32] in the same clinic has seen sixty-five examples of acoustic paralysis due to syphilis, of which thirty occurred in the first year.

Frey[33] has collected a large number of reports of cases of syphilitic disease of the middle ear from the literature. He considers the increased frequency of such lesions after salvarsan by no means proved.

The most important contribution to the subject of early involvement of the central nervous system in syphilis was made by Ravaut.[34] in 1903. He examined the spinal fluid in 116 cases of secondary syphilis and found some degree of abnormality, either increased cells or increased protein content, in 67 per cent. In a subsequent paper he reports the examination of thirty-three patients in the secondary stage treated with salvarsan; in them he found abnormality of the spinal fluid in 85 per cent. He considers, therefore, that salvarsan increases the frequency of meningeal involvement. Both papers are open to criticism in that the methods employed in examination are not the most accurate, and in that Ravaut counts as abnormalities changes which the majority of authorities do not accept as being necessarily pathologic. The changes in many of the cases are sufficient, however, to show how frequently syphilitic involvement of the meninges does occur in the secondary period.

The degenerations of cranial nerves following the use of atoxyl, arsacetin and other organic arsenic preparations impressed people with a fear of a similar action for salvarsan. This fear was really unjustified because the chemical structure of salvarsan differs entirely from the earlier preparations. In these the arsenic was in the pentavalent form, while in salvarsan it is trivalent. Moreover, the phenyl-arsenic acid group, which Igersheimer has shown to be responsible for the neurotoxic action of atoxyl and similar compounds, is not present in salvarsan. This fear of a neurotoxic action of salvarsan led to a very careful examination and careful following up of patients treated with the drug, and resulted in the ophthalmologists and otologists seeing many more cases of early syphilis than ever before. In this lies in part, at least, the increased frequency of disturbances in sight and hearing in the early stages of syphilis noticed since the introduction of salvarsan. In this connection the figures of Werther[35] are interesting. Werther, in the past year, has seen twelve cases of meningitis in early secondary syphilis. Three of these had had no treatment, four had had mercury, and five had been treated with salvarsan. Similarly, Kren[18] reports having seen in one month two cases of meningitis in patients treated with mercury.

The supporters of the theory of an increased susceptibility of the nervous system due to salvarsan have advanced several hypotheses, none of which seems very acceptable. Finger considers that salvarsan injures the walls of the small cerebral vessels, leading to a *locus minoris resistentiæ* for syphilitic arteritis. This subsequently spreads and involves the nervous tissue. Other authors consider that salvarsan changes the reaction of the body to the syphilitic virus and use as a simile the occurrence of the so-called Thallmann's chancre on the skin. Others again consider that there is "an abolition

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16. Desneux and Dujardin: München. med. Wchnschr., 1911, lviii, 1245.
17. Rille: Berl. klin. Wchnschr., 1910, xlix, 2281.
18. Cited by Benario: Wien. med. Wchnschr., 1912, lxii, 583.
19. Von Zeissl: Berl. klin. Wchnschr., 1911, xlviii, 1785.
20. Gennerich: 3. Bericht über Salvarsanbehandlung. S. 12, Berlin, 1911.
21. Simonyi: Cited by Benario. (See Note 18).
22. Gibbard, Harrison and Kane: Jour. Royal Army Med. Corps, January, 1912.
23. Neisser: Ueber moderne Syphilistherapie. Halle a. S. 1911.
24. Schwarz: St. Petersburg med. Ztschr., 1912, xxxvii, 99.
25. Gérone and Gutmann: Berl. klin. Wchnschr., 1911, xlviii, 461.
26. Milian: Bull. et mém. de la Soc. méd. d. Hôp. de Paris, 1912, xxviii, 326.
27. Jarisch: Cited by Mott. (See 10).
28. Finger: Ueber eine constante nervöse Störung bei florider Syphilis der secundärperiode, Vrtljschr. f. dermat. u. syph., 1881, p. 255.
29. Schnabel: Vrtljschr. f. dermat. u. syph., 1881, p. 469.
30. Wilbrandt: Cited by Schwarz. (See 24).
31. Habermann: Die luetischen Erkrankungen des Gehörorgans, Jena, 1896.
32. Mayer: Wien. klin. Wchnschr., 1911, xxiv, 381.
33. Frey: Wien. klin. Wchnschr., 1911, xxiv, 385.
34. Ravaut: Presse méd., 1912, No. 18. (Also see 7).
35. Werther: München. med. Wchnschr., 1911, lviii, 505.

of inhibiting substances" or "an increased supply of the food material necessary for growth." Ehrlich[14] has suggested that the sterilization of the rest of the body leads to increased development of the few spirochetes remaining in the central nervous system, inaccessible to salvarsan. He has used as an illustration the growth of bacteria occurring on culture plates. If many bacteria are planted, large numbers of very small colonies appear; if only a few bacteria are introduced, few colonies of large size occur.

At the hospital of the Rockefeller Institute we have seen during the past nineteen months six cases of secondary syphilitic meningitis. All of these patients had had salvarsan. Four cases occurred in our own series of salvarsan-treated patients, which contained thirty-two in the secondary stage of the disease, all but one of whom have now been followed for at least one year. At first sight the frequency of our cases of syphilitic meningitis, four in thirty-two secondary cases treated, appears as great as the figures given by Finger. Only one of the four patients, however, presents the typical picture of a nerve recurrence with paralyses of cranial nerves. In the other three cases, the signs of involvement of the nervous system were quite indefinite and the diagnosis could not have been made without the assistance of lumbar puncture. In addition to these four cases, we have had an opportunity of studying two patients (Cases 5 and 6), both typical examples of the so-called nerve recurrences, occurring in the practice of others, and referred to us for treatment.

Case 1.—May 17, 1911: Chancre of the left index-finger. June 30, 1911: secondaries. Wassermann reaction ++. July 8: 0.5 gm. salvarsan intravenously. July 20: 0.2 gm. salvarsan. August: five injections of mercury salicylate. September 6: ringing in the ears, slight dizziness for one day; Wassermann reaction negative. September 9: 0.4 gm. salvarsan. October and November: five injections of mercury salicylate. November 24: vertigo, nausea, vomiting, ringing in the ears, deafness; stiffness of the muscles of the neck. December 8: unequal pupils, papillitis, nystagmus, right ear diminished air conduction, complete loss of bone conduction and facial paresis; Wassermann reaction negative. Lumbar puncture: fluid hazy, cell-count 575, Noguchi globulin ++, Wassermann reaction in spinal fluid 0.5 c.c. +. December 9: 0.4 gm. salvarsan. December 17: hearing improved, nausea and vertigo have disappeared. May 6, 1912: mercury to point of tolerance; patient feeling well; hearing improved; occasional tinnitus still present; Wassermann reaction negative.

In this patient the first symptom suggesting involvement of the nervous system appeared two and a half months after the secondary eruption, patient having had 0.7 gm. salvarsan and four mercury injections. Improvement under further salvarsan therapy was rapid.

Case 2.—Dec. 27, 1910: primary. Feb. 7, 1911: secondaries of malignant type, headache, lancinating pain in the right ear, pains in the legs. Mercury by mouth for one month. April: severe pain about the right eye, dimness of vision, spots before the eyes, intense headache, tenderness of the scalp. Twenty inunctions of mercury. May 5, 1911: inequality of pupils, exaggerated reflexes; Wassermann reaction negative. May 8: 0.4 gm. salvarsan. May: four injections of mercury salicylate. June 10: 0.4 gm. salvarsan. August 1: general malaise, inability to work, headache, tenderness of the scalp, itching sensation over whole body. Five injections of 0.2 gm. salvarsan; complete disappearance of symptoms. October 4: headache, stabbing pain in left ear, numbness of the left side of the body; Wassermann reaction negative. October 6: lumbar puncture; cell-count 132, Noguchi globulin +, Wassermann reaction in spinal fluid, 0.1 c.c. —. October 7 to October 20: three injections of 0.2 gm. salvarsan. October 25 to October 30: dazed hysterical mental condition. November: two injections of 0.2 gm. salvarsan. November 18: lumbar puncture; cell-count 173, Noguchi globulin +, Wassermann reaction in spinal fluid, 0.4 c.c. —. May 23, 1912: has been taking mercury by mouth and has felt perfectly well since the beginning of January. Reflexes still exaggerated. Lumbar puncture refused.

In this case, the infection of the meninges almost certainly dates from the time of appearance of the secondary rash, and before any salvarsan had been administered. The headache, dimness of vision, spots before the eyes, lancinating neuralgic pain and exaggerated reflexes occurring at this time all indicate the probability of a meningitis being already present.

Case 3.—July, 1911: sore throat, probably chancre of the tonsil, headache, nervousness and insomnia. August: secondaries. October 5: 0.5 gm. salvarsan. October 10: admission to the hospital; Wassermann reaction ++. Oct. 1, 1911, to Jan. 1, 1912: nine injections of 0.2 gm. and one of 0.3 gm. salvarsan. Marked improvement, mental depression has disappeared, headache much less frequent. Discharged. Jan. 1, 1912, to March 1, 1912: four mercury injections and mercury by mouth for two weeks. March 4, 1912: readmission to hospital; mental depression, general malaise, one small area of skin hyperesthesia; knee-jerks exaggerated. Lumbar puncture: cell-count 110, Noguchi globulin ±, Wassermann reaction in spinal fluid, 0.5 c.c. ++. March 4 to April 5: five injections of 0.3 gm. salvarsan. Improvement; disappearance of mental depression, no headache; lumbar puncture: cell-count 14, Noguchi globulin —, Wassermann reaction in spinal fluid, 0.5 c.c. —. April 5 to May 25: four injections of 0.3 gm. salvarsan and two injections of mercury. Feeling well, knee-jerks still very active.

In this patient, the signs of involvement of the nervous system were of the most trivial character, yet lumbar puncture showed an active syphilitic meningitis to be present. Headache, mental depression and exaggerated knee-jerks were the only symptoms at any time. It is significant that these same symptoms were present even before the appearance of the secondary exanthem and before any treatment had been administered.

Case 4.—Oct. 15, 1910: primary. November 15: malaise, pains in the shoulders and in the ankles, indistinctness and blurring of vision. November 22: secondary rash. November 26: 0.6 gm. salvarsan intramuscularly. December 1: patient feeling well. December 30: complains again of "filminess" before the eyes and pain in the right ankle, stiffness of the muscles of the neck and some tenderness over both olecranon processes. Jan. 9, 1911: 0.5 gm. salvarsan intravenously. January 23: still has occasional attacks of filminess before the eyes. February 1 to April 1: six injections of mercury salicylate and eleven of enesol. April 21: general papular eruption, mucous patches, pains in ankles and elbows. May 10: 0.4 gm. salvarsan. June 19: Wassermann reaction negative. June 1 to August 15: ten injections of mercury salicylate and eight of mercuric chlorid. August 15: Wassermann reaction ++. September 15: mucous patches. September 29 to October 27: five injections of 0.2 gm. salvarsan. November 27: mucous patches, palmar and plantar papular syphilids, Wassermann reaction ++. December 22: itching sensation in the axillæ and down the sides of both thighs, blepharospasm, pain about the left ankle. December 1 to December 29: four injections of 0.3 gm. salvarsan. Jan. 1, 1912 to March 1: eight injections of mercury. March 5: hyperesthesia of both knees lasting two days. Patient noticed that his overcoat flapping against his knees hurt him. March 1 to March 29: five injections of 0.3 gm. salvarsan. March 29 to May 23: eight injections of mercury. May 23: lumbar puncture: cell-count 212, globulin ±, Wassermann reaction in spinal fluid, 0.4 c.c. ++. Wassermann reaction in the blood negative.

This is the most resistant case of syphilis we have seen. As soon as treatment was discontinued, the patient immediately relapsed and after eighteen months of almost continuous treatment with mercury and salvarsan, he still has what is evidently an active meningitis. On reading back through the history, one is struck with the occasional headaches, skin hyperesthesia, paresthesia, blepharospasm, pains in the legs and filminess of vision, all symptoms probably referable to the nervous involvement and appearing at intervals from the beginning of the infection. Here again symptoms were noticed before the beginning of treatment which, in the light of subsequent knowledge, suggest involvement of the meninges, even at this early date.

Case 5.—May 1, 1911: primary. May 29: secondaries. June 9 to June 24: three injections of 0.5 gm. salvarsan. July 1 to August 15: six inunctions and twelve injections of mercury. August 19: stiffness of the muscles of the neck, lancinating headache, deafness in the left ear, dizziness, weakness of the left side of the mouth. September 23: admission to the hospital; unequal pupils, exaggerated reflexes. Lumbar puncture: fluid hazy, cell-count 1,074, Noguchi globulin ++, Wassermann reaction in spinal fluid, 0.1 c.c. ++; Wassermann reaction in serum ++. September 28: 0.2 gm. salvarsan; immediate improvement. October 5: 0.2 gm. salvarsan; improvement continues. October 12: 0.2 gm. salvarsan. October 16: feels perfectly well, hearing in left ear only slightly impaired. Lumbar puncture: cell-count 118, Noguchi globulin +, Wassermann reaction in spinal fluid, 0.1 c.c. —. October 12 to November 29: seven injections of 0.2 gm. salvarsan. Wassermann reaction in blood +±. December 5: lumbar puncture: cell count 60, Noguchi globulin +, Wassermann reaction in spinal fluid, 0.5 c.c. +. December 7 to December 14: two injections of 0.2 gm. salvarsan. January, 1912: five injections of mercury salicylate. January 21: lumbar puncture: cell-count 9. February: four injections of mercury. March 1: general malaise, pains in arms and legs. Lumbar puncture: cell-count 46, Noguchi globulin +, Wassermann reaction in spinal fluid, 0.5 c.c. ± (?). March 9 to April 16; five injections of 0.3 gm. salvarsan and one of 0.4 gm. Wassermann reaction negative. April 18: lumbar puncture: cell count 11, Noguchi globulin ±, Wassermann reaction in spinal fluid, 0.5 c.c. —. May 7 to May 28: four injections of 0.3 gm. salvarsan. May 31: lumbar puncture: cell-count 8, Noguchi globulin —, Wassermann reaction in spinal fluid 0.5 c.c. —.

This is a typical example of the so-called nerve recurrences, paralyses of cranial nerves coming on three months after infection in a patient treated with salvarsan. In this case no sign of involvement of the nervous system can be made out in the earlier history. The curative effect of continued, intense salvarsan therapy in such cases of meningitis is well demonstrated. The patient has had 7 gm. of salvarsan in the course of the year.

Case 6.—Oct. 18, 1911: primary. No secondaries. November 15: severe frontal and vertical headache, pain in the eyes, tenderness of the scalp. November 28: 0.5 gm. salvarsan; headache disappeared. December 25: headache severe, deafness in the right ear. Jan. 22, 1912: 0.5 gm. salvarsan; gradual improvement. April 1: headache returning. April 11: admitted to hospital; pupils irregular, reflexes exaggerated: Wassermann reaction +. Lumbar puncture: cell-count 190, Noguchi globulin —±, Wassermann reaction in spinal fluid, 0.4 c.c. ++.

TABLE OF CASES OF SECONDARY SYPHILITIC MENINGITIS

Case Number	1	2	3	4	5	6
Primary	5/17/11	12/27/10	Not known.....	10/15/10	5/1/11	10/18/11
Secondaries	6/30/11	2/7/11	6/15/11	11/22/10	5/29/11	None.
First Nervous Symptom	Deafness, dizziness for one day. 9/10/11.	Headache, pain in the ear, tender scalp. 2/9/11.	Headache. 6/11.	Dimness of vision. 11/20/10.	Headache, deafness, facial paralysis. 8/19/11.	Headache, tender scalp. 11/15/11
Treatment Before First Nervous Symptom.	0.7 gm. salvarsan. 4 Hg injections.	Hg by mouth for 2 weeks.	None	None	1.5 gm. salvarsan. 6 Hg inunctions. 12 Hg injections.	None.
Date of First Lumbar Puncture	12/8/11	10/4/11	3/7/12	5/23/12	9/23/11	4/16/12
Cell-Count in Spinal Fluid	575	132	110	212	1074	190
Globulin in Spinal Fluid	++	+	+	+	++	+
Wassermann Reaction in Spinal Fluid.	0.5 c.c. +	0.1 c.c. — *	0.5 c.c. ++	0.4 c.c. ++	0.1 c.c. ++	0.4 c.c. ++
Wassermann Reaction in Blood at time of First Lumbar Puncture.	—	—	—	—	++	+
Treatment Before First Lumbar Puncture.	1.1 gm. salvarsan. 8 Hg injections.	1.8 gm. salvarsan. 4 Hg injections.	2.8 gm. salvarsan. 4 Hg injections.	5.4 gm. salvarsan. 33 Hg injections. 11 injections enesol.	Same as above and 2 weeks' mixed treatment.	1.0 gm. salvarsan.
Date of Last Lumbar Puncture	Lumbar puncture refused.	Lumbar puncture refused.	6/11/12	First lumbar puncture only 2 weeks ago.	5/31/12	5/22/12
Cell-Count in Spinal Fluid	....	....	8	....	8	23
Globulin in Spinal Fluid	....	....	—	....	—	±
Wassermann Reaction in Spinal Fluid.	....	....	0.5 c.c. —	....	0.5 c.c. —	0.5 c.c. ++
Wassermann Reaction in Blood at Time of Writing.	....	....	—	....	—	++
Treatment Between First and Last Lumbar Puncture.	....	....	3.0 gm. salvarsan. 3 Hg injections.	....	5.5 gm. salvarsan. 9 Hg injections.	0.9 gm. salvarsan.

* Larger amounts of fluid not used at this date.

In the above table the date of first lumbar puncture marks the time at which definite suspicion of nervous involvement first arose, except in Cases 5 and 6, which were referred to us on account of their nervous symptoms and were lumbar punctured on admission.

The severe vertical and frontal headache, tenderness of the scalp and pain in the eyes before any treatment was given again suggest that the meningitis was then already present, in this case, even before the appearance of secondaries.

A review of these cases is instructive. In four of the six, symptoms referable to the nervous system were already present before salvarsan had been given, in two cases even before the appearance of secondaries. In four of the cases, although the indications point to an active meningitis having been present over a period of months, the symptoms were never obtrusive and only lumbar puncture revealed the nature of the process. The triviality of the symptoms which may accompany syphilitic infection of the meninges has been called attention to by

Schwarz, who noticed in several cases of nerve relapses, with improvement under treatment, complete euphoria, although examination of the spinal fluid showed that a high cell count and positive Wassermann reaction in the spinal fluid were still present. Hoffmann[36] has been able to produce a primary lesion in a monkey by inoculation of the spinal fluid of a case of early secondary syphilis, absolutely free from nervous symptoms. The beneficial result of continued intense salvarsan therapy, which has been noticed by all observers, is well illustrated in Cases 3, 5 and 6.

Syphilitic secondary meningitis, therefore, may occur early in the disease. It may be latent, causing no obtrusive symptoms, over long periods. It is a more frequent complication than we have commonly considered. The so-called nerve recurrences after salvarsan are examples of such a meningitis. In most cases the infection of the nervous system has probably already occurred before the institution of treatment. They represent the development of the disease in a region notoriously difficult to reach with curative agents. The contention that salvarsan predisposes in any way to the development of disease of the nervous system has not yet been established.

FOUR YEARS' EXPERIENCE WITH THE WASSERMANN REACTION IN PRACTICE

A FURTHER REPORT ON CASES TREATED FROM THE STANDPOINT OF THE WASSERMANN REACTION WITH MERCURY ALONE, WITH SALVARSAN ALONE AND BY THE COMBINED METHOD (SALVARSAN AND MERCURY), INCLUDING A PRELIMINARY REPORT ON THE NOGUCHI LUETIN SKIN REACTION *

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Previous to the year 1907, there was no method of determining when a patient was cured of syphilis. Biologic treatment begun at this time was only experimental, yet it offered a tangible guide in the treatment of this class of cases.

Before the advent of the Wassermann reaction, when a patient placed himself under treatment, he asked, "How long shall I have to be treated before I am considered cured?" He was told that if he was treated for one and one-half years after all clinical symptoms had disappeared, he could consider himself cured and free to marry.

We all know that with the method then in vogue, i. e., that of chronic intermittent treatment, this was a mistake, except in a relatively few cases. Every one of us who has had any experience at all, and especially those of us who have had a large experience with the Wassermann reaction in clinical practice, know how many cases still showed a positive reaction with or without symptoms. A conservative estimate would be one in four cases that showed a negative reaction without parasyphilitic or nervous manifestations, or in other words, a biologic cure.

Attention has been called to the specificity of the reaction by syphilographers and serologists in all civilized countries in their endeavor to confirm the findings of Wassermann, Neisser and Bruck. Since its introduction there has been no biologic test that has been so universally applied, and likewise so universally abused, as the Wassermann, especially when the laboratory worker failed to confirm the clinician's diagnosis, and as a consequence it has gradually come into disrepute in some quarters. This is more manifest since we know that the reaction is lipoidal in nature, and not a true antibody test, more especially since the advent of salvarsan, as a positive reaction may change to a negative and reverse in a relatively short time.

The organ extract that was at first advocated was prepared by macerating the liver from a case of congenital syphilis in salt solution, and it was considered that in this way an extract containing the specific receptors of the *Spirochaeta pallida* (antigens) was obtained. This combined with the corresponding antibodies in the syphilitic's serum and caused fixation of complement.

Later it was discovered by Porges,[1] Meier,[1] Landsteiner,[2] Mueller,[2] Poetzl,[2] Levaditi,[3] Yamanouchi[3] and Noguchi[4] that alcoholic extracts of normal as well as syphilitic tissues had the property of deviating complement in the presence of syphilitic serum.

Consequently it appeared that the reaction did not correspond in a biologic sense to that between an antigen and antibody, but was entirely lipotropic. This has recently been most conclusively proved by Noguchi in his cultivation of the *Spirochæta pallida.* He showed that syphilitic serums giving the positive Wassermann reaction by means of lipoidal antigens did not bind complement with the same affinity when the lipoids were replaced by an extract or emulsion of *Spirochæta pallida,* and that it was not possible to intensify the ordinary Wassermann reaction in syphilitic serums by adding to the extract an emulsion of the *Spirochæta pallida,* except in some cases following severe treatment, especially after salvarsan, where we certainly assume a large number of antibodies to be present in a patient's serum.

The question arises then of what specific value as an aid in the diagnosis and treatment of syphilis is this test, especially since it is so vacillating as to be present sometimes in narcosis, scarlet fever, pneumonia, leprosy, tumors, tuberculous cachexia, Hodgkin's disease, myeloid leukemia, frambesia, recurrent fever and occasionally in lead-poisoning, and in certain other protozoal diseases. One can readily see it permits the conclusion that either it is not a specific phenomenon, or that a specific process may be simulated by other phenomena.

W. H. Manwaring[5] says that "the prevailing explanation that the Wassermann reaction depends on a complement fixation by specific antibodies has only the value of a working theory," and he maintains that:

> 1. It is possible to produce similar phenomena in which the presence of such antibodies is excluded, as Noguchi has done.
> 2. The hypothesis that this phenomenon depends on a destruction of complement by proteolytic enzymes may be supported by an equally good explanation.

From the latter the evident specificity of the reaction gains in value and points to the existence of factors in the territory of immunochemistry which have hitherto not been considered. Bauer and Hirsch[6] show the

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[36] Hoffmann: Dermat. Ztschr., 1906, xiii, 561.

* Read in the Symposium on Syphilis in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912

[1] Porges and Meier: Berl. klin. Wchnschr., 1908, p. 731.

[2] Landsteiner, Mueller and Poetzl: Berl. klin. Wchnschr., 1908, p 86.

[3] Yamanouchi: Compt. rend. Soc. de biol., Paris, 1907, lxiii, 187.

[4] Noguchi: Jour Exper. Med., 1909, xi, 84.

[5] Manwaring: Ztschr. f. Immunit. Frsch. u. exper. Therap., 1909, iii, No. 4.

[6] Bauer and Hirsch: Wien. klin. Wchnschr., 1912, No. 4, p. 155.

TABLE SHOWING RESULTS OF WASSERMANN REACTION IN

No. of Case, Age & Sex.	Diagnosis	Duration	Previous Treatment	Wassermann Before Salvarsan	Salvarsan			
					1 Date. Gm., Method	2 Date. Gm., Method	3 Date, Gm., Method	4th, 5th, 6th. Date, Gm., Method
1—34, M.	Chancre rectum.	4 wks.	None.	2/ 1 /11, +	2/1/11, 0.6, intravenous.	2/6/11, 0.6 , intramuscular.	5/20/11, 0.6, intravenous.	....
2—28, M.	Chancre tonsil w. secondaries.	6 wks.	None.	11/ 5 /10, +	11/7/10, 0.5, intramuscular.	1/23/11, 0.5 intramuscular.	....	....
3—20, M.	Chancre penis.	5 da.	None.	4/28/11, —	4/29/11. 0.6, intravenous.	5/4/11, 0.6, intramuscular.	7/1/11, 0.6, intravenous.	7/24/11, 0.6, intravenous.
4—18, M.	Chancre penis.	3 wks.	None.	11/28/10, —	11/28/10, 0.5, intramuscular.	12/11/11, 0.5, intramuscular.	....	....
5—26, M.	Secondaries early.	8 mo.	Internal	10/26/10, +	11/28/10, 0.5, intramuscular.	12/1/10, 0.6, subscapular.	4/29/11, 0.6, intravenous.	4th, 6/12/11 ; 5th, 10/18/11 ; 6th, 1/23/12 ; ea. 0.6 intrav.
6—36, M.	Secondaries.	4 yrs.	Internal & rubbings.	12/ 1 /10, +	12/13/10, 0.6, intramuscular.	4/4/11, 0.6, intramuscular.	....	....
7—25, M.	Second., etc.	2 yrs.	Internal & rubbings.	11/23/10, +	11/24/10, 0.5, intramuscular.	1/2/11, 0.5, intramuscular.	1/12/12, 0.6, intravenous.	....
8—40, M.	Secondaries.	4 yrs.	Internal & rubbings.	16/21/10, +	10/21/10, 0.5, intramuscular.	2/13/11, 0.5 intramuscular.	8/7/11, 0.6, intravenous.	4th, 12/8/11 ; 5th, 4/26/12 ; ea. 0.6 intrav.
9—28, M.	Secondaries.	5 yrs.	Internal & rubbings.	2/ 5 /11, +	2/7/11, 0.6, intramuscular.	4/25/11, 0.6, Intravenous.	6/5/11, 0.6, intravenous.	8/19/11, 0.6, intramuscular.
10—32, M.	Secondaries early.	6 mo.	Internal & rubbings.	1/12/11, +	1/12/11, 0.6, intramuscular.	3/23/11, 0.6, intravenous.	8/11/11, 0.6, intravenous.	....
11—35, M.	Secondaries.	2 yrs. & 6 mo.	Internal & rubbings.	11/15/10. +	11/17/10, 0.6, intramuscular.	1/12/11, 0.6, intramuscular.	12/1/11, 0.6, intravenous.	....
12—30, M.	Secondaries.	6 wks.	None.	11/11/10. +	11/18/10, 0.5, intravenous.	11/21/10, 0.6, intramuscular.	8/11/11, 0.6, intravenous.	4th, 11/24/11 ; 5th, 3/1/12 ; ea. 0.6 intrav.
13—23, M.	Secondaries.	8 mo.	Internal	10/19/10, +	1/9/11, 0.6, intramuscular.	4/18/11, 0.6, intramuscular.	8/25/11, 0.6, intravenous.	11/14/11, 0.6, intravenous.
14—40, M.	Secondaries.	2 yrs.	Internal & rubbings.	11/ 3 /10, +	11/4/10, 0.5, intramuscular.	1/17/11, 0.6, intramuscular.	7/24/11, 0.6, intravenous.	....
15—38, M.	Secondaries.	5 mo.	Internal & injections.	11/11/10, +	11/24/10, 0.5, intramuscular.	5/9/11, 0.6, intramuscular.	....	....
16—21, M.	Secondaries.	4 mo.	Internal	4/23/11, +	4/24/11, 0.5, intramuscular.	6/7/11, 0.6, intramuscular.	1/9/12, 0 6, intravenous.	4/26/12. 0.6, intravenous.
17—22, M.	Secondaries.	6 wks.	None.	9/ 9 /11, +	9/11/11, 0.6, intravenous.	10/30/11, 0.6, intravenous.	12/23/11, 0.6, intravenous.	3/4/12, 0 6, intravenous.
18—36, M.	....	4 yrs.	Internal & rubbings.	11/26/11, +	1/18/11, 0.6, intramuscular.	3/18/11, 0.6, intravenous.	8/2/11, 0.6, intramuscular.	....
19—32, M.	Secondaries.	3 mo.	Internal	10/17/11, +	10/23/11, 0.6, intramuscular.	12/8/11, 0.6, intramuscular.	1/26/12, 0.6, intravenous.	....
20—31, M.	Secondaries.	6 yrs.	Internal rubbings & injections.	10/18/10. +	10/20/10, 0.5, intramuscular.	12/11/10, 0.6, intramuscular.	9/2/11, 0.6, intravenous.	3/9/12, 0.6, intravenous.
21—38, M.	Secondaries.	14 mo.	Internal	11/ 3 /10. +	11/11/10, 0.5, intramuscular.	1/17/11, 0.6, intramuscular.	....	....
22—45, M.	Secondaries.	9 mo.	Int., rubbings salv. subcut.	5/23/11, +	5/25/11, 0.6, intravenous.	6/29/11, 0.6, intravenous.	11/24/11, 0.6, intravenous.	....
23—26, F.	Secondaries.	6 mo.	Internal	....	5/18/11, 0.6, intramuscular.	8/4/11, 0.6, intravenous.	....	....
24—20, F.	Secondaries.	5 mo.	Internal & injections.	10/18/10, +	10/18/10, 0 5, intramuscular.	11/30/11, 0.5, intramuscular.	....	....
25—22, M.	Secondaries.	4 mo.	Internal	3/10/11, +	3/13/11, 0.5, intramuscular.	5/8/11, 0.6, intramuscular.	7/7/11, 0.6, intravenous.	....
26—45, M.	Gumma.	No history.	None.	4/18/11, +	4/20/11, 0.6, intramuscular.	6/../11, 0.6, intravenous.	10/../11, 0.6, intravenous.	....
27—32, M.	Latent.	6 yrs.	Internal.	3/10/11, +	3/18/11, 0 6, intramuscular.	6/12/11, 0.6, intramuscular.	11/17/11, 0 6, intravenous.	3/18/12, 0.6, intravenous.
28—30, F.	Latent.	4 yrs.	Internal.	12/15/11, +	2/11/11, 0 5, intramuscular.	6/12/11, 0.5, intramuscular.	11/17/11, 0 5, intravenous.	3/18/12, 0 5, intravenous.
29—26, M.	Latent.	5 yrs.	Internal & rubbings.	5/25/11, +	5/25/11, 0.6, intramuscular.	7/28/11, 0.6, intravenous.	9/22/11, 0.6, intravenous.	4th, 1/22/12 ; 5th, 4/22 ; ea. 0.6, intrav.
30—48. M.	Latent.	12 yrs.	Internal & rubbings.	7/27/11. +	8/4/11, 0 6, intramuscular.	9/23/11, 0.6, intramuscular.	1/23/12, 0.3, intravenous.	1/27/12, 0 3, intravenous.
31—34. M.	Latent.	10 yrs	Internal & rubbings ; severe.	5/ 1 /11, +	5/19/11, 0.6, intramuscular.	9/22/11, 0.6. intravenous.	....	....
32—36, M.	Latent.	12 yrs.	Internal & rubbings ; severe.	1/10/11, +	1/12/11, 0.6, intramuscular.	3/9/11, 0.6. intramuscular.	7/14/11, 0.6, intravenous.	4th, 9/15/11 ; 5th, 1/26/12 ; ea. 0.6 intrav.
33—38, M.	Latent.	8 yrs.	Internal & injections.	6/22/11, +	6/29/11, 0.6, intramuscular.	8/25/11, 0 6, intravenous.	11/24/11, 0.6, intravenous.	4th, 3/20/12, 0.5 ; 5th, 5/4/12, 0.6, intrav.
34—36, M.	Latent.	12 yrs.	Internal & rubbings.	2/ 9 /11, +	2/13/11, 0.6, intramuscular.	5/4/11, 0.6, intramuscular.	1/15/12, 0.6, intravenous.	....
35—25, M.	Latent.	4 yrs.	Internal & rubbings.	5/18/11, +	5/19/11, 0 6, intramuscular.	8/28/11, 0 6, intramuscular.	11/10/11, 0.6, intravenous.	4th, 2/24/12, 5th, 5/6/12, ea. 0.6 intrav.
36—28, M.	Latent.	4 yrs.	Internal. & rubbings.	1/ 5 /11. +	1/5/11, 0.6, intramuscular.	3/5/11, 0.6, intramuscular.	10/21/11, 0.6, intravenous.	3/7/12, 0.4, intravenous.
37—32, M.	Latent.	1 yr.	Salv. intrav. yr. before ; no other treat.	6/ 9 /11, +	6/21/11, 0 6, intramuscular.	8/15/11, 0 6, intramuscular.	10/27/11, 0.6, intravenous.	12/18/11, 0.6, intravenous.
38—28, M.	Latent.	4 yrs.	Internal. & rubbings.	1/23/11, +	2/16/11, 0.6, intramuscular.	7/24/11, 0.6, intravenous.	11/3/11, 0.6, intravenous.	....
39—27, M.	Latent.	6 yrs.	Internal & rubbings.	3/16/11, +	12/9/10, 0.6, intramuscular.	4/20/11, 0 6, intravenous.	....	....
40—32, M.	Latent.	4 yrs	Vigorous rubbings.	11/13/10, +	11/17/10, 0.5, intramuscular.	1/12/11, 0.5, intramuscular.	10/30/11, 0.6, intravenous.	....
41—30, F.	Latent.	4 yrs.	Rubbings & internal.	10/26/10, +	1/17/11, 0.6, intramuscular.	3/16/11, 0.6, intramuscular.	....	....
42—29, M.	Latent.	8 yrs.	Rubbings & internal.	2/20/11, +	2/23/11, 0.6, intramuscular.	9/15/11, 0.6, intravenous.	....	....
43—26, M.	Latent.	3 yrs.	Rubbings & salvarsan	1/23/11, +	5/28/11, 0.6, intravenous.	7/28/11, 0.6, intravenous.	10/22/11, 0.6, intravenous.	4/10/12, 0.6, intravenous.
44—28, M.	Latent.	7 yrs.	Rubbings & internal.	5/ 4 /11, +	5/4/11, 0.6, intramuscular.	6/19/11, 0.6, intravenous.	9/2/11, 0.6, intravenous.	12/22/11, 0.6, intravenous.
45—26, F.	Latent.	5 yrs	Rubbings & internal.	5/18/11, +	5/18/11, 0.5, intramuscular.	7/3/11, 0.6, intramuscular.	10/20/11, 0.6, intravenous.	1/15/12 intravenous.
46—30, M.	Latent.	4 yrs.	Internal.	4/14/11, +	5/14/11, 0.6, intravenous.	5/20/11, 0.6, intramuscular.	11/11/11, 0.6, intravenous.	....
47—42, M.	Incipient tabes.	1 yr	Internal.	11/28/10, +	1/9/11, 0.6, intramuscular.	3/5/11, 0.6, intramuscular.	10/16/11, 0.6, intravenous.	1/13/12, 0.6, intravenous.
48—45, M.	Cerebrospinal syphilis	2 yrs.	Internal.	2/ 5 /11, +	2/6/11, 0.6, intramuscular.	5/1/11, 0.6, intravenous.	....	....

Wassermann After Salvarsan				Other Treatment	Last Wassermann	Present Condition
1	2	3	4th, 5th, 6th.			
2/14/11, —	5/ 9 /11, —	8/ 2 /11, —	10/31/11, —	Rubbings and internal treatment; vigorous.	4/23/12. —	No symptoms since primary sore
11/28/10, +	1/23/11, —	5/ 9 /11, —	....	None.	3/13/12, —	No symptoms since primary sore
6/10/11, —	10/31/11, —	2/20/12, —	....	Rubbings for two months, continuous and vigorous	4/20/12, —	No symptoms since primary sore
1/23/11, —	5/ 1 /11, —	8/ 1 /11, —	....	None.	3/20/12, —	No symptoms since primary sore
10/22/10, +	1/23/11, +	3/10/11, +	4th, 5/1/11, +; 5th, 5/25/11 +; 6th, 6/30/11, —	Rubbings; vigorous.	1/ 9 /12, —	No symptoms since primary sore.
1/11/11, +	8/ 1 /11, —	12/ 8 /11, —	....	Rubbings; vigorous; enesol.	3/ 5 /12. —	No symptoms since primary sore
11/28/10, +	1/11/11, +	3/21/11, +	....	None.	1/ 9 /12. —	No symptoms since primary sore
2/11/11, +	8/ 7 /11, +	12/ 7 /11, +	3/ 2 /12, +	Rubbings and internal; vigorous.	4/29/12, —	No symptoms since primary sore.
7/ 7 /11, +	....	....	....	Rubbings and internal; vigorous	3/15/12. +	Squamous lesion still present on hands.
3/ 2 /11, —	8/ 9 /11, —	....	....	Rubbings and internal; vigorous.	4/24/12, —	No symptoms.
1/11/11, +	3/18/11, +	9/27/11, —	....	None.	11/28/11, —	No symptoms.
11/28/10, +	12/15/10, +	3/ 8 /11, +	4th, 9/18/11, —; 5th, 11/28/11, —	Rubbings and internal.	3/ 2 /12, —	No symptoms.
8/25/11, —	....	....	....	Rubbings; vigorous.	2/12/12, —	No symptoms.
1/17/11, —	3/ 6 /11, —	7/24/11, —	....	None	12/ 1 /11, —	No symptoms.
....	....	....	....	....	2/ 5 /12, —	....
9/ 8 /11, —	....	....	....	Rubbings and internal	1/23/12, —	No symptoms.
10/30/11, +	12/24/11, —	....	....	Rubbings.	3/ 3 /12, —	No symptoms.
8/22/11, —	....	....	....	Rubbings.	1/16/12, —	No symptoms.
12/ 7 /11, +	1/16/12, —	....	....	Rubbings.	4/19/12. —	No symptoms.
11/11/10, +	12/ 1 /10, +	....	....	Rubbings and internal.	3/ 8 /12. +	No symptoms.
4/ 6 /11, +	8/10/11, —	....	....	....	....	Reports no recurrence.
11/24/11, —	....	....	....	Rubbings; vigorous.	....	Reports no recurrence
8/ 2 /11, +	9/22/11, —	....	....	Rubbings.	13/22/12. —	No symptoms.
11/11/10, +	12/ 1 /10, +	....	....	None.	3/ 3 /12, +	No symptoms.
7/ 7 /11, +	....	....	....	Rubbings; vigorous.	....	No symptoms.
....	....	....	....	Hg injections; rubbings.	4/23/11, —	No symptoms.
11/17/11, —	....	....	....	Rubbings; vigorous; internal	3/19/12, —	No symptoms.
3/11/11, +	....	....	....	Rubbings and internal.	3/19/12, —	No symptoms.
8/ 1 /11, +	9/26/11, —	1/23/12, —	....	Rubbings.	4/22/12, —	No symptoms.
9/22/11, +	12/13/11, +	1/23/12, —	....	Rubbings; vigorous.	5/ 1 /12, —	No symptoms.
9/22/11, —	....	....	....	None.	4/19/12, —	No symptoms.
2/18/11, +	4/22/11, +	8/ 7 /11, —	4th, 19/14/11, —; 5th, 12/7/11, —	Rubbings; vigorous.	1/26/12, —	No symptoms.
8/30/11, —	11/29/11, +	2/23/12, —	....	Rubbings; vigorous.	3/ 1 /12, —	No symptoms.
2/27/11, +	5/ 4 /11, +	6/27/11, —	....	Rubbings and internal.	1/15/12, —	No symptoms.
8/30/11, +	10/20/11, +	2/ 6 /12, —	....	Rubbings; vigorous.	5/ 4 /12, —	No symptoms.
3/ 2 /11, +	6/27/11, —	10/20/11, —	....	Rubbings; vigorous.	3/ 8 /12, —	No symptoms.
9/12/11, —	12/19/11. —	....	....	Rubbings; vigorous.	3/ 8 /12, —	No symptoms.
5/ 1 /11, +	8/25/11, —	....	....	Rubbings and internal.	11/ 7 /11, —	No symptoms.
4/20/11, —	6/14/11, —	....	....	Rubbings.	12/ 1 /11, —	No symptoms.
1/ 8 /11. +	4/22/11, —	9/27/11, —	....	None.	10/30/11, —	No symptoms.
3/24/11, +	1/30/12. —	....	....	None.	4/20/12, —	No symptoms.
9/12/11, +	9/22/11, +	1/30/12, —	....	None.	4/15/12, —	No symptoms.
7/27/11, +	9/12/11, —	12/ 7 /11, +	....	Rubbings; vigorous.	4/25/12. —	No symptoms.
6/22/11, +	9/ 2 /11, —	....	....	Rubbings; vigorous.	12/22/11. —	No symptoms.
7/ 7 /11, +	10/21/11, —	....	....	Rubbings; vigorous.	1/16/12. —	No symptoms.
10/21/11, +	....	....	....	Rubbings.	2/23/12, +	No symptoms.
2/23/11, +	7/ 7 /11, +	10/16/11, —	....	Rubbings; vigorous.	1/ 9 /12, —	No symptoms.
4/28/11, +	7/ 7 /11. +	11/14/11, +	....	Internal and rubbings.	5/ 6 /12, —	Gradual improvement of symptoms.

importance of the globulins for the occurrence of the Wassermann.

In several cases they saw a positive Wassermann with the albumin-containing urine of syphilitics and found that the intensity of the reaction stood in indirect relation to the globulin-content; further, that the globulins which had been separated from the urine showed a positive Wassermann more or less intense according to the concentration. The albumins of luetic urine and the urinary globulins of non-luetic urine did not prevent hemolysis.

That the serum-globulins are of importance for the occurrence of the Wassermann has already been asserted by Landsteiner and Mueller.[7] G. Peritz[8] has found that the Wassermann can be made negative temporarily by lecithin injections, and when a serum with a positive Wassermann changes to a negative the organic content of lecithin will be found increased; he further asserts that the reaction may be negative even when the luetic virus is circulating in the blood. In such cases a high lecithin content will be found.

Elias, Neubauer, Porges and Salomon[9] conclude from the results of their observations that the Wassermann reaction is a colloidal reaction between certain hydrophil colloids and albumins which are to be classed with globulins, which possess only slight stability in luetic serum, and therefore cause a more marked precipitation.

Our older and more conservative friends continually remind us that it will be many years before we can substantiate this so-called biological treatment of syphilis. This is without doubt true, but two things are certain: (1) that the practice of this biological treatment can only do lasting good for the patient; (2) that the management of syphilis without this systematic examination of the blood leads only to recurrence and complications; at least this has, in a great measure, been our experience in the past.

In the summer of 1908, following the plan of Neisser,[10] Hoene,[11] Boas,[12] Purkhauer[13] and others, I began a systematic examination of my private cases then under treatment for syphilis, and found that practically all gave a Wassermann positive. Believing then, as we do now, that this surely means a focus of spirochetes somewhere in the body, I began to use a more energetic method of treatment, and continued to make biologic tests from time to time, with the following conclusions:

1. The longer a given case was infected with syphilis, the harder it was to obtain a negative reaction.
2. The earlier a case was diagnosed, the easier it was to obtain and maintain the negative reaction.
3. Those cases that came under observation before the Wassermann was positive were more easily kept in the negative for all time than those that came under observation after the Wassermann was positive.

In June, 1910,[14] I gave a preliminary report of fifty-seven cases treated after the biologic method with mercury, to which I refer for my classification of cases.

In the fall of 1910, having obtained a quantity of salvarsan for experimental use, I immediately treated all my cases with the new specific excepting those that had early obtained a negative reaction and were progressing satisfactorily under mercury. These include two cases in Group 1, A, chancre, before the Wassermann reaction was positive. These cases were treated for one and one-half years vigorously all the time with a negative test Both have remained free from clinical symptoms, biologic tests are negative and there has been no treatment for eighteen and fourteen months respectively.

In Group 1, B, early secondaries, after the Wassermann was positive, only two cases succeeded in getting a negative test and maintaining it.

In Group 3, apparently cured, of the seven cases reported, three have maintained a negative test, one has relapsed and three have not been heard from.

In February, 1911, twenty-eight cases were reported[15] in which two injections of salvarsan were given intramuscularly—in the alkaline solution (Alt, Lesser technic), the second being given six to eight weeks after the first regardless of whether the Wassermann had become negative or not. These include Cases 2, 4, 7, 11 and 14 in the accompanying table. I have no doubt that other cases that came under observation at this time could have maintained the same course, but as these were private cases and salvarsan a new specific of unknown potency, an additional intravenous injection was given for safety's sake.

The accompanying table contains a report of forty-eight cases including primary, secondary, tertiary, latent (only manifest by a positive Wassermann), one case of tabes and one case of lateral sclerosis, both of the latter coming under observation early.

All cases have been under observation from eleven months to one and one-half years; all have had two or more injections, one case six; all except Cases 2, 4, 7, 11, 14, 24, 31, 40, 41, and 42 have had the combined treatment (mercury and salvarsan). In the majority of cases rubbings and internal treatment (potassium iodid) produced a negative reaction (except Cases 9, 20, 24 and 46). The longest negative reaction dates from Nov. 28, 1910, the shortest only from a few weeks. All the patients are in excellent physical condition and without symptoms except Patients 9 and 48; there have been no complications beyond those previously reported (induration and abscess).

METHODS OF ADMINISTERING SALVARSAN

Since its introduction I have given 462 injections. The methods employed have been: (1) intravenous (alkaline solution); (2) intramuscular (alkaline and monacid solution); (3) intramuscular (suspended in iodipin—iodin and sesame oil 25 per cent.). I have discarded the intramuscular suspension in oil as the least productive of biologic and clinical results, notwithstanding the fact that it can be given in the office and is followed by practically no pain.

In the intravenous and intramuscular alkaline solution injections, each case should be a law unto itself. The plan of treatment which I am following is as follows:

In primary syphilis, whether the Wassermann is negative or positive, an intravenous injection of 0.6 gm. of salvarsan is given, followed in four or five days by 0.6 gm. intramuscularly; then two months of continuous mercury rubbings, followed by two more intravenous injections two weeks apart. This, I think, is sufficient for a cure.

In secondary and tertiary syphilis, I prefer to give two intramuscular injections at first, then all subsequent treatment intravenously, alternating the injections with mercury rubbings, preferably fifty at a series.

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[7] Landsteiner and Mueller: Wien. klin. Wchnschr., 1908, p 1076.

[8] Peritz: Zeitschr. f. exper. Path. u. Therap., 1911, viii, 255.

[9] Elias, Neubauer, Porges and Salomon: Wien. klin. Wchnschr., 1908, No. 21.

[10] Neisser: München. med. Wchnschr., 1909, May 25, lvi, 1057.

[11] Hoene: Berl. klin. Wchnschr., 1909, May 10, xlvi, 862.

[12] Boas: Berl. klin. Wchnschr., 1909, March 29, xlvi, 577.

[13] Purkhauer: München. med. Wchnschr., 1909, April 6, lvi, 697.

[14] Corbus: The Journal A. M. A., Sept. 3, 1910, p. 849.

[15] Corbus: The Journal A. M. A., Feb. 25, 1911, p. 566.

I fully appreciate the great storm of disapproval that has spread over the country against the intramuscular injection of the substance in the alkaline solution method, but when I look over my results, I cannot help but be impressed with the method as being superior as far as biologic results are concerned. This method is more simplified by the use of neo-salvarsan in a watery solution. In 15 c.c. of water 0.5 gm. is distinctly neutral and followed by scarcely any pain at all; at least this has been my experience during the last month.

In latent syphilis and syphilis of the nervous system I prefer to give a good full course of mercury first, as an intravenous injection given at this time has very little value, for the spirochetes are so firmly intrenched that the salvarsan washes through the blood stream without coming in contact with them, and does only a relatively small amount of good.

CURABILITY OF SYPHILIS AND THE NOGUCHI REACTION

To say that no syphilitic can be cured would be as absurd as that every syphilitic patient can be cured.

The curability of syphilis depends on making a prompt diagnosis, for the earlier a case comes under observation, the easier it is to effect a cure. That the biologic method offers the best means of controlling the treatment of the disease there can be no question.

Unfortunately, the tendency is to give too little treatment and to stop when the first negative reaction is reached. Under mercury therapy alone I treated all my cases with the negative reaction for eighteen months just as vigorously as when the Wassermann was positive. Under the new therapy (salvarsan and mercury) I treat all my cases except those that come under observation with a negative Wassermann (primary syphilis) at least nine months after the negative goal is reached, giving 150 rubbings of mercury and at least two intravenous injections of salvarsan.

The Noguchi cutaneous reaction, while positive in all cases of tertiary and congenital syphilis, may be of value as a diagnostic aid in bridging over the gap between the first negative test and the so-called cure. In thirty of my cases of syphilis under treatment a positive luetin was obtained in nine. It appears that by the application of this method it may be possible to show immediately whether a given patient is cured, for if he were not cured we assume that there would be protein substances in the blood derived from split toxins or antibodies from killed spirochetes, and thereby designated by a positive luetin test.

Reports following these observations on my cases have appeared elsewhere, and others will be added later.

CONCLUSIONS

The Wassermann reaction offers the best and most efficient guide in the management of syphilitic cases.

Results can be obtained with mercury alone and salvarsan alone, but are more quickly achieved by the combined method (salvarsan and mercury).

Treatment should be continued vigorously during the negative phase if we wish for a permanent result.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. ELLIS, CORBUS AND NOGUCHI

Dr. B. A. Thomas, Philadelphia: My experience with salvarsan given intramuscularly and intravenously, comprising about 200 cases, has resulted in the following statistics: Of the patients who have received one or more injections of salvarsan, about 80 per cent. have continued to show the Wassermann reaction as positive. Of those who were on mercury and who received salvarsan, one or more doses, 60 per cent. have still continued to show a positive Wassermann. On the other hand, in the patients who have been given salvarsan intravenously and then have been subsequently put on mercury, the percentage of positive reactions has been as low as 40 per cent. The cases in which a cure has been obtained, presumably so far as non-appearance of secondaries is concerned and absence of Wassermann reaction, some of which have been observed now for about eighteen months, have been those in which the drug was given before the second week of the chancre, and practically all cases in which the drug was given before the first week of the chancre.

I have great confidence in the Wassermann reaction with respect to the so-called one-unit system, which I have repeatedly demonstrated, having previously used the two-unit system. The disease has proved positive many times by the use of the one-unit system when by the use of the two-unit system it has been negative.

Dr. H. J. Nichols, Washington, D. C.: Salvarsan has been used in a great many other conditions than syphilis, and does not produce any of the nervous relapses which we occasionally see in syphilis. We know that atoxyl may damage the eyes in any disease, but this is not the case with salvarsan. For instance, in yaws, which is due to a spirochete somewhat related to the spirochete of syphilis, a large number of cases (500 in Trinidad) have been treated with salvarsan, and in none were there complications of the retina or the ear or any paralysis of the facial nerve. This is also true in the treatment of relapsing fever. I think we are perfectly safe in concluding that these nervous relapses have a syphilitic basis, and that they are not due solely to the drug. I do think they are more frequent since the use of salvarsan, but this can be explained according to Ehrlich's ideas. He says that with the use of salvarsan there is a much more rapid destruction of the spirochetes, and also a much more rapid proliferation if any organisms are left; that is, under mercury or without any treatment there is more chance for antibodies to develop in the body than there is after salvarsan. With salvarsan there is almost complete sterilization of the body, something like a radical operation in which the drug is used as a knife to cut out the infecting agent; but a bit of the malignant tissue may be missed, which seems to grow again with increased virulence and to produce these nervous symptoms. The lesson is that in early cases in which there are headache and positive findings in the spinal fluid, treatment must be continued much longer than in other cases.

Dr. Hideyo Noguchi, New York: The biologic control of syphilis as advocated by Dr. Corbus is undoubtedly one of the most important guides for the treatment. While but little value may be attached to the disappearance of the Wassermann reaction, yet it is of great importance to carry out the treatment until a positive reaction is turned into a negative. The continuation of treatment in patients in whom the Wassermann had already disappeared and had remained absent for some time is also justified in view of the possibility of relapse. But it would be of great benefit for the physicians and patients if we could only tell when the treatment had been sufficient. In other words, we are in need of a method to determine a cure of this disease. In my opinion, the luetin reaction appears to become of some value in this respect. The fact that most cases of latent syphilis in which the Wassermann reaction and clinical symptoms are missing respond to the luetin test with remarkable constancy indicates the value of the luetin reaction in determining whether a given case, without any clinical or serologic signs of syphilis, is merely in latency or cured. I believe that syphilis can be detected at no matter what stage of the disease, when one resorts to the clinical symptoms, serologic examination and the luetin reaction. In some cases one or two of the three may be absent, but never every one of them. I am firmly convinced that if a patient suspected of being syphilitic shows no clinical signs and gives negative Wassermann and luetin reactions, he is non-syphilitic. From what has been said it follows that a biologic control of syphilis is no longer confined to the detection of the Wassermann reaction, but it includes also a test for the specific allergic condition of the patients, as is done by the use of the luetin test.

Dr. B. C. Corbus, Chicago: Benario of Frankfort was the first observer to refute some of the assertions of Finger. He showed that a large percentage of neurorecurrences were in patients in whom the infection had been around the region of the head (the cephalic chancres), and he advises us to give energetic treatment in this class of cases in which there are headaches or anything that would simulate a meningitis. By following out that energetic line of treatment Dr. Ellis has probably cured a great many cases of syphilitic meningitis. I have been asked why I prefer the mercury rubbings in syphilis to any other method of treatment. In a former service I gave about 5,000 injections of mercury, preferably the soluble salts. It was common to see a prompt clearing up of the symptoms clinically, but the patients came back in two or three weeks with recurrences, especially on the mucous surfaces. Fournier long ago showed the danger of giving insoluble salts, as these become incysted. Cases of fatal mercury poisoning are reported in which the patient has fallen on the buttocks, thereby suddenly setting free sufficient mercury to cause toxic effects. Kromayer some years ago tried to introduce a mask to be worn by the patient at night. He believed that in this way he could introduce sufficient mercury into the patient through inhalation to effect a cure. This was not a success. Finger and others have shown that nurses working in wards in which patients were rubbed with mercury became salivated. In other words, they received an inhalation treatment. Following that plan, I have resorted to the following method: I have my patients rub the mercury on the back and front of the chest. They rub every day for thirty minutes. Twice a week they take a warm bath and scrub the mercury off. The patient wears a thin light-mesh undershirt continually under his other shirt, removing it only at the time of his baths. In this way I believe he obtains both an inhalation and an absorption treatment.

THE VALUE OF THE FOUR REACTIONS IN THE DIAGNOSIS AND TREATMENT OF SYPHILITIC DISEASE OF THE NERVOUS SYSTEM *

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The four tests which I shall discuss are Nonne's Phase 1 or ammonium sulphate reaction for determining an increase of globulin in the spinal fluid, the method for determining whether or not the lymphocytes are increased, and the Wassermann tests in the blood and in the spinal fluid. A fear has been expressed that by a multiplication of reactions the practice of medicine will eventually be reduced to a rule of three. Much[1] says of the Wassermann reaction that it controls the clinic and, on the other hand, is controlled by the clinic. This is true of all other reactions. Their significance must be construed in accordance with the clinical facts.

Nervous syphilis presents a great variety of symptoms, none of which can be said to be characteristic of it more than of some other disease, as multiple sclerosis or brain tumor.

The four tests are valuable as aids to a correct diagnosis for this reason.

NONNE'S PHASE I AND LYMPHOCYTOSIS

Nonne's Phase 1 consists in bringing equal parts of a hot saturated solution of ammonium sulphate which has been allowed to cool and spinal fluid together in a test-tube. If at the instant the two fluids come in contact or within a period of three minutes thereafter a cloudiness or opalescence appears in the tube, the reaction is recorded as positive; a cloudiness appearing after three minutes should be regarded as of no value whatever. The reaction may be read as slightly or strongly positive, depending both on its quickness of appearance and on the degree of opalescence.

The significance of Phase 1 when positive is regarded by Nonne as proof of an abnormal condition of the spinal fluid and consequently of the existence of an organic disease of the nervous system, which may or may not be of a specific character.

Phase 1 and lymphocytosis do not always occur together, and when they occur singly each has its own particular diagnostic value.

When occurring alone, Phase 1 simply speaks for an organic lesion of the nervous system. In all affections of the nervous system of specific origin this reaction is rarely absent. It may occur, however, in a large number of organic conditions which are non-specific in character.

In my own experience during the past year, in eight cases of general paresis Phase 1 was positive in all, as well as in five cases of cerebrospinal lues, three cases of tabes and two cases of tuberculous meningitis. In two cases of brain tumor of non-specific origin it was negative in one at the first puncture and positive in the next puncture after a further development of the disease; in the other case it was positive from the beginning.

In one case of multiple sclerosis, one case of old age apoplexy, and one case of tumor of the spinal cord, the reaction was likewise positive.

In nine cases of neurasthenia, eight cases of manic-depressive insanity, one case of dementia præcox and one case of pernicious anemia without cord symptoms, the reaction was negative.

In the eight cases of general paresis and two cases of tuberculous meningitis the positives were all strong. The strongest positive, however, was presented by the case of spinal tumor. In one of the cases of neurasthenia there was a history of a previous syphilitic infection dating back twenty years.

It will thus be seen that in all of the organic conditions of syphilitic origin Phase 1 was positive, and in the organic conditions of non-syphilitic origin there was only one negative, the brain tumor, which later became positive.

Lenhart says the normal number of lymphocytes in a cubic millimeter of spinal fluid is five or six, and that over nine is abnormal. Various methods have been utilized for the determination of the lymphocytes, but the one proposed by Fuchs and Rosenthal seems to be the most scientific. It consists in counting the lymphocytes in a special counting-chamber in the same manner as the white blood-corpuscles are counted.

Apfelt found lymphocytosis in 40 per cent. of his cases of syphilis in which the nervous system was unaffected, while Phase 1 was always negative. He regards Phase 1 as an important means of differential diagnosis in individuals with a specific history between beginning tabes and paresis on the one hand and cerebral neurasthenia on the other.

In all of my eight cases of general paralysis the increase in lymphocytes was marked, averaging fifteen or more to the cubic millimeter. In three of the five cases of cerebrospinal lues there was a lymphocytosis. In one case the number in 3 c.mm. was twenty-seven at one count and twenty-nine at another, so if one could

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] Much.: Die Immunitäts Wissenschaft.

not actually say a lymphocytosis existed, the number was certainly on the border-line. In one case of an apparently uncomplicated syphilitic endarteritis with hemiparesis the lymphocytes were normal.

In the two cases of tuberculous meningitis the number was increased. This was also true in the three cases of tabes.

In the two cases of brain tumor, one case of spinal cord tumor, one case of multiple sclerosis, one case of spastic paraplegia and one case of apoplexy the lymphocytes were normal in number. They were likewise normal in the nine cases of neurasthenia, eight cases of manic-depressive insanity, one case of dementia præcox and one case of pernicious anemia.

Of the two reactions considered singly, Phase 1 appears as the most important, because except in very rare instances its presence always means an organic lesion. The presence of the two reactions together indicates with the greatest probability syphilitic or metasyphilitic disease, excepting in cases of tuberculous meningitis in which the spinal fluid is also normal in color and appearance. On the other hand, the absence of the two reactions enables one with the greatest probability to exclude not only specific affections, but also any other lesion of the nervous system.

Nonne has expressed himself in regard to the two reactions and lesions of the nervous system of luetic origin in the following manner: In general paresis Phase 1 and lymphocytosis are positive in 95 per cent. of all cases, in tabes positive in 90 per cent. and in cerebrospinal lues rarely absent.

The question has been raised as to whether the character of the cellular elements themselves has a differentiating value in the various types of nervous diseases of syphilitic origin. On this point Andernach, after a careful study of the subject, says that unfortunately he has been unable to find any means of distinguishing tabes from general paresis or paresis from cerebrospinal lues by the character of the cells.

The tests furnished by the Wassermann reaction in the blood and in the spinal fluid have been of much value, not only in aiding in the diagnosis of specific disease, but also in differentiating between the various types of disease of luetic origin. This reaction in its application to diagnosis seems to have been greatly misunderstood. There has been a great diversity in the interpretation of its significance when positve and negative. The reaction is still regarded by many as specific, similar in character to the complement fixation which occurs when the serum of a typhoid patient is brought into contact with an extract of typhoid bacilli. This fact doubtless accounts for some of the misconceptions in regard to it. The reaction is not specific, but is chemical and mechanical in nature.

In order to arrive at a clearer understanding of a correct interpretation of the importance of the Wassermann reaction in diagnosis, one can state as a general proposition that the presence on the one hand of a positive result does not necessarily mean the existence of an active syphilis, nor does its absence on the other exclude an active syphilis. By keeping this general proposition in mind and endeavoring to find the reasons why it is true, the proper interpretation of our positives and negatives will become much easier.

Nonne says that the positive Wassermann in the blood does not necessarily signify the presence of an active syphilis, or that the symptoms presented are due to that disease. It means simply that the individual at some time during his life has had a syphilitic infection. The more the symptoms exhibited resemble those which syphilis is inclined to cause, the greater becomes the probability that these symptoms are of a luetic origin.

In applying the value of a negative Wassermann several important factors must be kept in mind.

We must remember that the number of antibodies in the blood-serum undoubtedly varies at different times and at different stages of syphilis. The number of antibodies present in the secondary stage is greater ordinarily than the number found in tertiary lesions and the number present in general paralysis greater than in cerebrospinal lues.

The antigen must also be regarded as an important factor, and according to the kind of antigen differs greatly as to sensitiveness. A complement fixation with an extremely sensitive antigen might be missed entirely with one less active.

We must also remember when not using the quantitative method that the antibodies present in the serum may be insufficient in number to make a complete complement fixation and consequently enough complement is left over to cause hemolysis.

The influence of previous treatment should always be taken into consideration. This is an especially important factor. Much says that the Wassermann in the primary and secondary stages frequently becomes negative by the administration of mercury and salvarsan and in the tertiary stage is quite easily influenced by potassium iodid. A positive reaction after a two weeks' treatment with potassium iodid is frequently rendered negative and may then remain negative for years. Much has also had the same experience with potassium iodid in tabes, although the symptoms were not influenced in the least. In one of my cases of general paresis an intravenous injection of salvarsan changed a positive reaction in the blood to a negative, which became positive again only after several months. In another case of the same disease the patient had been taking a mixed treatment for a number of months before he came under my care and although this patient has had no specific treatment for over two months, the Wassermann in the blood still remains negative. In both of these cases the reaction of the spinal fluid with 0.2 c.c. of fluid gave strongly positive reactions. In both of these cases the diagnosis was as clear as a clinical picture could make it. The symptoms of both cases were not influenced in any way and the globulin reaction and lymphocytosis were strongly positive. Before excluding general paresis from the diagnosis in a suspected case because the Wassermann reaction is negative in the blood, one should inquire carefully as to previous treatment.

In a case of specific endarteritis with hemiplegic symptoms previous to the time the four tests were made, the patient had been taking 25 drops of a saturated solution of potassium iodid for a period of two weeks. In this case the Wassermann reaction was negative in the blood and also in the spinal fluid when 1 c.c. of fluid was used. Uncomplicated specific endarteritis is, so far as I know, the only syphilitic lesion found in the central nervous system in which the Wassermann, when large quantities of spinal fluid are used, has been found to be negative. These negatives did not signify by any means either that lues could be excluded in the case or that the reaction was unreliable. It demonstrated simply the influence of treatment on the reaction. When we think of the large number of patients with tertiary and metasyphilitic conditions who either recently have been or are under treatment in some form at the time the Wassermann reaction is made, we must recognize the great importance of this factor in placing the proper construction on our negatives.

The spinal fluid seems particularly well adapted for the Wassermann. Unlike the blood, it contains no complement and consequently does not need to be inactivated. Also, unlike the blood, it does not become anticomplementary in large quantities and therefore makes quantitative examinations more simple. The complement-fixation ability, however, is much greater in the blood-serum than in the spinal fluid. Zeissler has estimated that 0.2 c.c. of the serum of a paretic is able to bind eleven units of complement while 0.2 c.c. of spinal fluid can bind only 3.8 units. Dr. A. Hauptmann, assistant in Dr. Nonne's clinic at Hamburg-Eppendorf, and Dr. Hössli, voluntary physician, observed that in most cases of cerebrospinal lues and tabes according to the original Wassermann, the reaction was negative when 0.2 c.c. of fluid was used. Therefore they came to the conclusion that the reason for this was in an insufficient number of antibodies present in the fluid to bind the amount of complement used. Of the two ways of proving this contention. either by increasing the quantity of the fluid or decreasing the complement, they chose the former.

They made a series of Wassermann tests, using the spinal fluid in quantities from 0.2 c.c. up to 1 c.c., and always doubling the quantity in the control tubes in order to be sure that the fluid itself did not produce a non-specific complement fixation. The results of these examinations demonstrated that in the majority of cases of cerebrospinal lues and tabes the Wassermann became positive only when a larger quantity of fluid was used than was contained in the original method, while in general paresis, on the other hand, the largest percentage of positives was obtained with the original quantity, 0.2 c.c. In not a single instance did they obtain a positive Wassermann in either a functional condition or an organic condition of non-syphilitic origin.

While my experience with this modified or quantitative Wassermann in the spinal fluid has not been large, it has proved extremely valuable in diagnosis.

In seven of the cases of paresis the Wassermann was positive in the blood and in the eight cases in the spinal fluid. The negative blood-reaction in the eighth case was undoubtedly due to the mixed treatment which the patient had taken.

In one of the five cases of cerebrospinal lues, the one which had been under the potassium iodid treatment, the globulin reaction (Phase 1) was the only one of the four tests which gave a positive result. In another, a case of relapsing hemiplegia of the endarteritic type in which the patient had received an intramuscular injection of salvarsan two months before, the Wassermann reaction was negative in the blood and in the spinal fluid, but the globulin and lymphocytosis tests were positive.

Two cases gave slight positives in the blood, and the spinal fluid did not become positive until 0.8 c.c. was used.

One case, in which there had apparently been no treatment of a specific nature whatever, gave a negative reaction in the blood and a positive in the spinal fluid with 1 c.c. of fluid.

In one of the cases in which the spinal fluid became positive with 0.8 c.c., the clinical symptoms resembled paresis. The primary lesion dated back ten years; the knee-jerks were absent; the bladder was involved, and on the psychic side there was loss of memory and intense depression. The differential diagnosis of pseudoparesis was made chiefly on the Wassermann reaction in the spinal fluid. The subsequent history of the case sustained the diagnosis.

The three cases of tabes gave moderate reactions in the blood and also in the spinal fluid when 0.6 c.c. was used. The nine cases of neurasthenia, eight cases of manic-depressive insanity, one case of spinal tumor, one case of pernicious anemia, two cases of brain tumor, one case of dementia præcox, one case of spastic paraplegia, two cases of tuberculous meningitis, one case of apoplexy and one case of multiple sclerosis gave negative reactions.

A study of the cases reported demonstrates not only the value of the four tests in the diagnosis of nervous disease but also the importance of making all of them in each case. If positive results from three of the tests are absent, the presence of a positive in one may lead us to a proper understanding of the absence of a positive in the others. If positive results are present in three or all four, they then become cumulative evidence.

In two cases of manic-depressive insanity, one with a positive history of a previous syphilis and the other with no history of a syphilitic infection, but with a family record of miscarriages and defective offspring, the negatives of the four tests gave me positive assurance in differentiating between a functional condition and a beginning paresis.

Nonne says that in general paresis the Wassermann is positive in the blood in almost 100 per cent. of the cases, positive in the spinal fluid in 75 per cent. of the cases with the original method, and in 100 per cent. of the cases with larger quantities of fluid. In tabes the Wassermann is positive in the blood in from 60 to 70 per cent. of the cases, and in the spinal fluid it is positive in from 5 to 10 per cent. with the original method, and in 100 per cent. with the modified method. In cerebrospinal lues the reaction in the blood is positive in from 80 to 90 per cent. of the cases; in the spinal fluid it is positive in about 10 per cent. with the original method, and always positive with the modified method.

A year's experience with these tests convinces me that when the results are negative there can be no stronger evidence for the exclusion of syphilis or syphilogenetic disease, and that when the tests are positive, no stronger evidence for the presence of these diseases.

ABSTRACT OF DISCUSSION

Dr. M. Neustaedter, New York: As Dr. Ball stated, these reactions *per se* cannot be taken into account unless as a complement to clinical symptoms. For example, besides the diseases he mentions I find quite early in experimental poliomyelitis a positive globulin reaction and a lymphocytosis. In tuberculous meningitis I find the same thing and, unless the clinical symptoms appear early, it is impossible to differentiate by laboratory findings.

Dr. W. B. Cornell, Hathorne, Mass.: Is the differential count in poliomyelitis different from the differential count in the parasyphilitic diseases?

Dr. M. Neustaedter, New York: It makes little difference whether the differential count is 90 or 89 per cent., because it varies even in poliomyelitis. The presence of a high number of lymphocytes together with a globulin reaction is really the criterion.

Dr. A. L. Skoog, Kansas City, Mo.: I have found cases of brain tumor and tuberculosis which were not syphilitic, although they gave decidedly positive Wassermann reactions both in the blood and cerebrospinal fluid. Therein is indicated the necessity of conjoint clinical examination. I had a case of glioma which was diagnosed as inoperable, and the patient died in a few days. I did lumbar puncture and obtained a very positive Wassermann, and other findings were indicative of specific disease, yet on autopsy there was found a glioma involving the corpora quadrigemina and extending into the upper occipital lobe.

Dr. A. C. Brush, Brooklyn: I had a case of undoubted tumor in which the Wassermann reaction was negative. The patient was put through a very vigorous course of antisyphilitic treatment and in a month he was walking around the wards of the hospital, previously having been a quadriplegic. It frequently happens that one cannot keep the patient free from the effects of iodid and mercury long enough to test the Wassermann reaction. In institutions in which we can keep patients for months, that is true, but when they come into the office and require immediate relief, as in the case of a tumor, one has to go ahead with the clinical symptoms and history, regardless of the findings of the Carnegie or some other laboratory.

Dr. William W Graves, St. Louis: During the last three years I have done a great many lumbar punctures and have had many Wassermann tests made, both in the blood-serum and in the spinal fluid, and have almost invariably utilized the four reactions. I would not emphasize the value of any one of these reactions. Each is absolutely essential in diagnosis and differential diagnosis and we cannot use one without the others. Just as it is necessary in making an examination of the nervous system to consider it in its entirety, so in our studies of syphilis must we consider the whole individual and utilize every laboratory test which will throw light on the problem before us. Any single laboratory or clinical sign of syphilis may fail; hence the necessity for utilizing everything known in diagnosis. It is quite likely that the Wassermann reaction in itself is a variable one—present to-day, absent to-morrow—depending, perhaps, on the varying resistances of the individual. There are not a few cases in which clinical signs point unmistakably to a former syphilitic infection and in which the Wassermann is absent in the blood but is present in the spinal fluid even when 0.2 c.c. are employed; and there are cases in which it is positive only when greater quantities are utilized. But as far as the Wassermann reaction is concerned, it must not only be tested for in blood-serum and spinal fluid, but when spinal fluid is used variable quantities according to Hauptmann's method are absolutely essential. There is no single clinical sign which is always present; neither is there any laboratory test thus far known in medicine which is present in every case. Just as in our clinical examinations we try to utilize every point in diagnosis, so we must utilize each of the four reactions in any case of suspected syphilis.

Dr. C. R. Ball, St. Paul: In obtaining spinal fluid, there is great danger of error from the presence of an exceedingly small amount of blood. I have found that when I have had any difficulty in getting into the spinal canal, so that perhaps I have a little blood in my needle, rather than let the first fluid that comes out run away, I had better postpone the puncture or take another needle, because the slightest presence of blood might give a globulin reaction where it really did not exist. A Wassermann reaction might be regarded very much as we look on a Widal. A man comes to us in perfect health and we make a Widal of his blood and find it positive. We know he has not typhoid fever at present, but do know that he has had it some time in the past because of the presence of this reaction. I wish to emphasize that in the uncomplicated cases of specific endarteritis we sometimes get a negative Wassermann with all quantities of fluid up to 1 c.c. That is important to remember, either with or without treatment Whether the treatment had any influence on the reaction in the two cases which I have reported I do not know, but Hauptman calls special attention to this fact. We constantly see in the statistics on this subject, Wassermann positive in 100 per cent. of the cases of general paresis. Consequently, if we do not take into consideration the important factor of treatment, whether by potassium iodid, salvarsan or mercury, we are apt to err in our diagnosis, if we depend on a negative Wassermann for excluding general paresis The Wassermann reaction in the spinal fluid is not so easily influenced by treatment as that in the blood, and in my two cases of general paresis in which the reaction in the blood was made negative by antispecific treatment, the spinal fluid in both seemed to be uninfluenced and remained uninfluenced over a period of months and is at the present time positive. I think for our diagnosis in nervous diseases we can depend more surely on the Wassermann in the spinal fluid than in the blood

A CASE OF EXTENSIVE BRAIN DISEASE FROM ENDARTERITIS PROBABLY OF SYPHILITIC ORIGIN*

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The following case offers evidence of some interest in the occurrence of a diplopia explainable only on the functional activity of a small remaining portion of one visual field and of the retention of a very limited word-hearing capacity, in spite of the destruction of practically all of the left cortical auditory arrival-platform and the surrounding auditopsychic skirt. From the history there can be little doubt that the condition was luetic and yet the microscopic examination failed to reveal evidence of the specific nature.

History.—The patient, a man of 32 with a negative family history as far as could be ascertained, was born and raised in Brookline, Mass. His childhood was uneventful. He proved to be a student of average ability, but left school at the third grade of the high school. After one year as an errand boy in a large department store he went into the leather business and rose rapidly to the position of assistant manager. At the outbreak of the Spanish War he enlisted with the Naval Reserve and was assigned to duty on the U. S. S. *Prairie* and served throughout the war. He was a moderate though not constant drinker. In April, 1903, he had a sore on his penis followed by a bad sore throat lasting two months and a rash lasting two weeks, and was under treatment for syphilis for one year.

On discharge from the navy he was in poor physical health and showed some irritability. In July, 1904, one year and three months after the primary lesion, he experienced some difficulty in using his right leg. This was transitory and was diagnosed as a rheumatic disturbance. Two weeks later he had a "shock" while at his place of business, which was followed by some loss of power in both legs. At this time it was noted that his memory and judgment lacked their former accuracy. The shock did not give rise to unconsciousness, but left a diplopia which necessitated the closing of one eye to cut out the second image. Later he lost the use of his right arm for a short period. Early in September he had a general epileptiform convulsion and was sent to the Boston City Hospital where the diagnosis of cerebrospinal syphilis was made and where he remained six weeks under active iodid treatment. From the middle of October, 1904, to Jan. 1, 1905, he remained at home and during this time he had a general convulsion, which was very severe, lasting three hours, and which was followed by aphasia. He deteriorated rapidly during this time, was often confused and disoriented, and finally became aphasic and filthy.

Jan. 1, 1905, he was committed to the Boston State Hospital where he remained until transferred to this hospital, March 28, 1905.

Examination.—On admission he was quiet and showed a dementia-like reaction. He showed partial word-deafness, paraphasia and jargon aphasia, would not obey requests, was unable to name objects, exhibited paralexia, paragraphia and continually closed his left eye in attempting to read or observe objects. A note at this time suggests that a hemianopsia was already present. On physical examination on the day after admission, the patient was quiet with expressionless features; talked freely without slur or tremor of words, but was markedly paraphasic and appeared demented. Many of the tests of special senses could not be applied on account of failure of cooperation. Reaction to pin-prick was prompt and equal on the two sides. The knee-jerks were exaggerated, especially on the right. Babinski was present on right; no ankle-clonus. The pupils reacted very sluggishly to both light and accommodation. He was unable to walk without support. The hand-grasp was weak, especially on right. The left angle of mouth was a little depressed. The right nasolabial fold was obliterated. There was no wrinkling of forehead on right. Ophthalmoscopic examination quoted as showing a probable subsiding neuritis with commencing consecutive atrophy.

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City June, 1912.

* From the Laboratory of the Worcester State Hospital, Massachusetts

Course of Disease.—During his residence in the hospital (a period of six years and four months) he remained for the most part quiet, either in bed or in a chair, though occasionally he was noisy, and on a few occasions he apparently reacted to hallucinations. He was filthy at all times. He fed himself spontaneously and used the spoon correctly and when attempting to write used the pencil correctly with his right hand, showing no evidence of apraxia, though further tests of this could not be carried out owing to the dementia and lack of cooperation. His attention was easily held and at times he seemed to recognize the physicians and attendants. He was unable to give the alphabet and could not name the days of the week or count spontaneously. At times he was able to give his surname when asked and would recognize his given name when spoken to and generally would react to his name, and on one occasion produced a coherent sentence in response to the imitation of cats' mewing. He was unable to name pictures with one exception (dog) or geometrical figures and would obey only the simplest commands. Spontaneous drawing produced symbols of no likeness to the figure requested, while copied drawings were crude. One note records that when asked to read from print the word growler with the right eye closed it was read as clapper, with the left eye closed he spelled out the letters r-o-w-l.

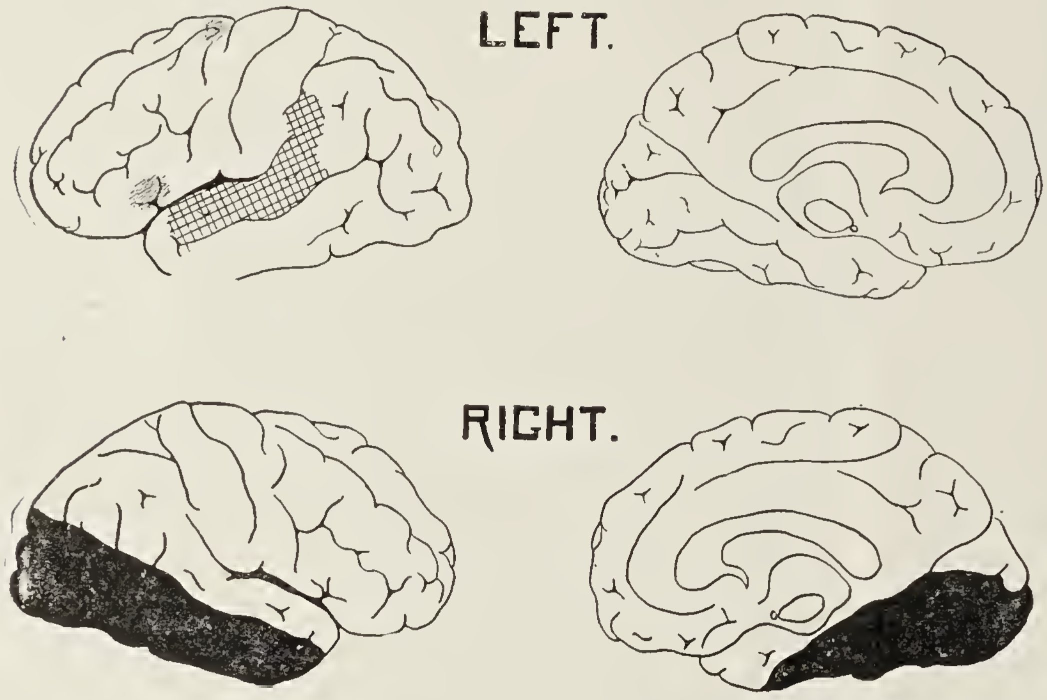

Diagram of the lateral aspect of each hemisphere. Solid black, cyst of softening; cross-hatching, cortical atrophy with glial replacement; light shading, pial thickening.

Under emotion he would occasionally produce a coherent sentence, and an attempt to stimulate the Babinski reaction or a threatening movement toward the eyes from the sound side would often provoke a coherent and fairly fluent flow of profanity.

During the six years of his residence the records show a total of over 300 epileptiform convulsions. Many of them have been well recorded and included tonic spasms only, as well as tonic spasms of one or more extremity (not constant in origin), spreading to general tonic involvement followed by clonic spasm, frothing of the mouth, unconsciousness and involuntary evacuations.

Necropsy.—The autopsy was performed six hours after death.

In the trunk organs there was noted marked sclerosis of the coronary arteries, fibrous adhesions at the apex of the left lung, moderate excess of fluid in dependent portions of the lungs and slight mitral and aortic endocarditis. The microscopic examination added evidence of a slight bronchopneumonia, an early interstitial nephritis and a marked thickening of the vessel walls in the heart, spleen and kidneys.

On removing the calvarium the dura proved thickened, opaque and adherent. The pia was thin and fairly translucent, and contained a marked excess of clear serous fluid. The cerebrum weighed 1,055 gm., the cerebellum, medulla and pons 145 gm. In the right temporo-occipital region was a large cyst of softening filled with clear fluid (illustration, solid black). Externally the cyst was covered with pia while in those parts overlying the ventricles its floor consisted of ependyma only. It occupied all of the lateral surface of the temporal pole except the first temporal gyrus and all of the lateral surface of the occipital below a line of prolongation of the first temporal sulcus. On the mesial surface the anterior or recurved portion of the first temporal gyrus and the pyriform lobule were the only parts of the temporal area not involved. In the occipital field on the mesial surface the upper boundary of the cyst was formed by the common calcarine trunk and the calcarine sulcus proper, thus involving all of the visuosensory or visual arrival-platform cortex of this hemisphere, except the cuneus.

On the left hemisphere the first temporal gyrus was very much narrowed and of a softer consistence than the adjacent gyri (illustration, cross-hatched). This alteration was most marked in the midportion, but involved the gyrus from a point beneath the anterior sylvian trunk to the posterior end of the main sylvian fissure, including a portion of the supramarginal gyrus. There was a suggestion of regression below the general cortical level with some pial thickening in two areas of about 2 cm. in diameter, one over the foot of the third left frontal convolution (Broca's area) and the other at the foot of the first left frontal (illustration, light shading).

In the floor of the left lateral ventricle was a wedge-shaped area of softening 1.5 cm. in size lying in the head of the caudate nucleus and extending down into close relation with the anterior limb of the internal capsule.

The basilar artery showed areas of opacity and had a tendency toward irregularity of course though with no definite varicosity. The anterior and middle cerebrals and the left posterior cerebral were similar. The right posterior cerebral was very much thickened and its lumen, which stood open, was very small. Both the anterior and posterior temporal branches were very narrow at their points of origin from the posterior cerebral. The occipital branch in its course along the pial roof of the cyst bore several small opaque yellowish nodules.

The microscopic examination of the cortex from a variety of areas not involved in the gross lesions showed no evidence of alteration of any type, except a moderate thickening of the walls of the arterioles, a slight satellitosis and a slight marginal gliosis. The vascular thickening here was in the main unassociated with perivascular exudate though an occasional vessel could be found which showed a few lymphocytes. Sections from Broca's area showed apparently normal structure.

The atrophic first left temporal convolution was practically a glial cast of the original gyrus with no nerve cells or fibers in the cortex and only a portion of the fibers in the white matter. These intact fibers of the white core were, I take it, the fibers of communication from other cortical areas whose cells were uninvolved.

The cyst of softening showed at its margin the usual close glia meshwork associated with long standing softened areas and a few adjacent vessels showed some perivascular exudate with pigmented phagocytes and a very few plasma cells.

Levaditi stains for the *Spirochæta pallida* in the large cerebral vessels proved negative.

Sections from the right posterior cerebral artery showed an interesting condition. The much contorted elastic lamina of the original vessel had apparently withstood the degenerative changes which had been at work and remained as a loose, ill-fitting jacket around a very small vessel built up within the lumen of the orginal. In other sections a marked thickening of the subintimal connective tissue had occurred giving rise to thick masses of fibrous tissue rich in fibroblasts, markedly narrowing the lumen but giving nowhere microscopic evidence of a specific process.

Unfortunately no Wassermann test was done at any stage of the process. The occurrence, however, of lesions of this type in a man of 32 with a definite history of a recent active syphilitic infection leaves little room for doubt that the process was a syphilitic endarteritis.

The similarity of the gross findings and that part of the microscopic picture pertaining to the involved areas to the organic dementias opens a question of how great the etiologic rôle of syphilis may be in this group. Certain it is that in this case in which syphilis may be fairly safely accepted as the cause, one could not attempt a diagnosis from the histologic picture, and it is entirely conceivable that many of the organic dementias which are similarly negative as regards microscopic evidence might likewise be luetic.

The reflex alterations and paresis of the right side are explained by the area of softening in the left lenticular nucleus and internal capsule, and the hemianopsia, on the basis of the loss of the greater part of the right calcarine cortex. The occurrence of diplopia, however, which necessitated the closing of the left eye, indicates the occurrence in consciousness of two unfused images. The cuneus was the only remaining part of the receptive cortical visual field on the right, and this must then have been the area of reception of the confusing image. The isolated observation recorded above suggests that the right eye, i. e., the left hemisphere, approached more nearly a true image of the object viewed than did the other. One is tempted to explain the occurrence of the confusing image by the comparatively intact group of association fibers leading from the cuneus to the adjacent posterior association field, i. e., parietal cortex, and the diplopia to interference with the interhemispheric association fibers crossing in the corpus callosum, many of which seem to have been lost.

The aphasic disturbance was of the sensory type and must be explained on the basis of the temporal lobe lesions. The method of serial total sections in these cases yields the only accurate localization of the lesions, but renders impossible careful histologic study of the nerve-cells, and in cases studied by this method one must discount the possible occurrence of wide-spread focal or stratigraphic cell losses in fields, which in the total sections are apparently normal, and yet which stand in close functional relation to the areas which have been destroyed. In choosing between these two methods one must take into consideration the clinical findings, and I feel inclined to reserve the total section procedure for those cases showing the least complication, while applying the histologic studies to those whose clinical expression has been complicated, or in which record is incomplete. In the present instance the concurrence of aphasia, hemianopsia, diplopia, alexia and agraphia, together with the difficulty of carrying out many tests because of the dementia, has seemed to warrant the use of the second method.

On the left hemisphere the temporal-lobe lesion occupied all of the cortex of the first temporal gyrus from a point below the anterior sylvian fissure around the end of the main sylvian and including a portion of the supramarginal gyrus. All the superior surface of the temporal lobe covered by cortex of the auditosensory type, i. e., transverse temporal gyri and adjacent cortex with the exception of a small portion of the second transverse temporal gyrus near its union with the convolutions of the insula, was also involved. Microscopically, this cortex belonged to the border-line between auditosensory and insular types.

This lesion had not resulted in complete softening but in an atrophy of the cortex with glial replacement. The white core of the gyri still contained a considerable number of fibers which took the stain well, while the losses in the more deeply lying white matter were apparently small in amount.

The lesion of the right temporal lobe was practically complementary to that on the left, i. e., it had obliterated all of the temporal lobe except the superior and transverse gyri.

The patient recognized his given name when addressed and at times would carry out very simple commands, so that if we accept the cortex of the transverse temporal gyri as the arrival-platform for auditory impulses we must either grant a functional capacity to the small practically isolated island of cortex of mixed auditosensory and insular type, or accept a very limited word-hearing capacity reaching the cortical centers of the left hemisphere by way of the right auditory arrival-platform and commissural tracts.

The dementia was of comparatively sudden development and not of the gradually advancing type usually following loss of the word-hearing capacity. This disturbance is better explained perhaps on the tremendous loss in the right hemisphere than on the smaller and probably more slowly progressive lesion of the left temporal lobe. Spitzka has put forward the suggestion that the right hemisphere is the predominant sensory hemisphere as the left is the predominant motor. The left hemisphere in right-handed persons has been accorded the centers for origination of motor-speech impulses and such localization seems to be definitely proved, but this in no way reacts against the possibility that the right temporal field may be an important storehouse of the auditory memories, which probably form in most persons the basis for internal speech.

The Mental Factor in Functional Diseases.—The general practitioner should have in mind the mental factor in the many forms of symptom-complexes under his care. He should further bear in mind that at least 75 per cent. of the patients that come to him for treatment are psychopathic in character, psychosomatics or psychoneurotics in one form or another. The general practitioner should learn to diagnose the psychic origin of many a symptom-complex apparently physical in its manifestations. Not only will the patient benefit by a medical scientific treatment, but there will be less occasion for the many mystical, occult cults, Christian Science, New Thought, as well as prize-fighter treatments, absurd food cures, quasi-scientific and pseudohygienic doctors and mental healers who, like poisonous weeds, have overrun our country from ocean to ocean and threaten to undermine the health and to deteriorate the intelligence of the nation.—Sidis in *Archives of Diagnosis*.

CARDIOSPASM WITH SACCULATION OF THE ESOPHAGUS, WITH SPECIAL REFERENCE TO THE PERSISTENCE OF THE SAC*

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Since reporting, two years ago,[1] a series of ten cases of cardiospasm with sacculation of the esophagus, we have had the opportunity of studying four additional cases and of observing the after-results in eight of the fourteen cases treated. The clinical and *x*-ray observations of the results in these cases have ranged over periods of from one to four years after the cessation of treatment. It is to these observations especially that we wish to call attention here.

When our original paper on this subject was presented, insufficient time had elapsed following the treatment of the cases to justify any absolute statements as to the ultimate results, but based on the pathologic findings we ventured the statement that while a fairly complete symptomatic cure was possible, an anatomic cure seemed most improbable in those cases in which sacculation existed to any marked degree. We believed that even after complete stretching and paralyzing of the cardia, it was questionable whether any of these patients in whom sacculation existed would be found entirely free from symptoms; that they would always have to exert more or less care in the amount and character of food taken, and the manner of ingesting it; furthermore, that the more marked the distention of the esophagus the less complete would be the cure and the more pronounced the after-symptoms. Since that time we have been able to observe three of our patients for periods of four years or more, and five for periods ranging from one to three years, and have been able to verify in them the belief expressed at that time.

We may accept as a fair example of these patients those who received treatment four years ago and who to all intents and purposes are well, are experiencing little or no difficulty in swallowing, and yet are made to realize that they are not normal individuals. Without exception they state that their condition is so much better than prior to the treatment that they pay little or no attention to the existing minor ailments, yet they must exert care in eating and must not eat rapidly or swallow their food in large masses, some finding it best to avoid very cold fluid and solid articles of diet. Some of these patients have observed that the foods which are light enough to float on water cause more difficulty than those which are heavier, a fact which is to be readily accounted for through our observation that fluid secretions collect in the sac as the result of the negative pressure which exists there, and that very light articles of food are kept afloat within the sac. In spite of the brilliant results obtained through the forcible divulsion of the cardia through hydrostatic pressure, we have been unable to find a single case of advanced cardiospasm with sacculation in which these mild symptoms did not exist, and we believe that others who may later report the after-results in their cases will have met with practically the same experience.

PERSISTENCE OF THE SAC AFTER CURE OF CARDIOSPASM

The reason for the persistence of the symptoms has been clearly shown by us to be due to the persistence of the sacculation, which seems to undergo but little shrinkage after the spasm has been overcome, and to the consequent loss of the normal peristalsis of the lower third or two-thirds of the esophagus.

In our attempts to demonstrate the persistence of the sac in all of the cases that we were able to keep under observation, we resorted first to the introduction into the esophagus of a stomach-tube with an intragastric, thin rubber bag attached, somewhat similar to that which has been described by others. Into this the water was gradually injected by means of a large glass-metal syringe until the patient experienced great discomfort as a result of the distention. It was found invariably that almost as much fluid could be injected into the sac four years following the "cure" as could be introduced just prior to the commencement of the treatment. In other words, we could introduce into the sacculation that persisted as long as four years after the treatment, from 200 to 400 c.c. of fluid. This led to the observation of these cases before the fluoroscopic screen, using bismuth suspension in soured milk.

Figure 1 shows the radiograph of Patient 4 of our original series taken with over 300 c.c. of bismuth suspension injected into the bag. This patient subjectively and objectively seems perfectly well, and carries on his work as bank clerk with practically no discomfort. His weight is now 168 pounds as compared with 138 pounds prior to his treatment four years ago. He experiences no obstruction whatever, but has learned by experience that he is most comfortable if he eats slowly and avoids coarse foods and cold drinks. He finds, too, that a small quantity of fluid secretion collects in the sac, and he is made aware of its presence through its regurgitating into his mouth and nose during the night. To avoid this he empties the sac at night by bending forward with his head low and forces this fluid out through an expulsive movement. The expelled fluid never contains food particles, but is composed of a frothy, mucoid solution, evidently largely saliva.

Figure 2 is the radiograph of Patient 5 of our original series. This patient though well, manifests similar minor symptoms, but the sac easily contains 350 c.c. of bismuth suspension. These are fair examples of the *x*-ray observations made in all the cases we have been able to follow. The persistence of the sac was demonstrable in every case, the only variation being in the size of the sac.

In order to determine to what extent the normal esophagus can be stretched, a series of normal persons were observed in a similar manner, and in no case were we able to inject into the intragastric bag within the esophagus more than 40 to 60 c.c. of fluid without causing the patient the most intense discomfort. Figure 3 represents the radiograph of the normal esophagus stretched to the utmost.

The technic of this work is perfectly simple, the tube with intragastric bag being readily introduced either with or without a mandrin. The fluid is then injected by means of a large glass-metal syringe.

If these patients be placed before the screen and be given bismuth-pap mixture, it is seen to drop rapidly to the cardia, where it halts for a second and then enters the stomach. In other words there is no food retention in the sac as is the case prior to treatment.

In spite of the recent excellent literature on the subject of cardiospasm, it is evident that the condition is not being recognized by the majority of practitioners, and especially not until far advanced and irreparable damage, such as that described above, has been done. It will not be amiss, therefore, to call attention again to the symptom-complex of this interesting phenomenon, and to review briefly the means of diagnosis.

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* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] Myer, J. S.: Cardiospasm with Dilatation of the Esophagus, The Journal A. M. A., Oct. 29, 1910, p. 1544.

Believing firmly that the spasm is the primary manifestation and sacculation secondary to it, we are convinced from these studies that the earlier the condition is recognized, the more complete will be the cure, and the longer the condition remains untreated, the more incomplete both the clinical and the anatomic cure.

SYMPTOMS OF CARDIOSPASM

In some of the cases which came under our observation gastric symptoms had existed for a considerable period before definite symptoms of spasm were evident; in several of the cases the onset was sudden and unaccompanied by previous gastric symptoms. The earlier manifestations, in the cases of gradual onset, had almost invariably been treated as milder forms of indigestion, usually as nervous dyspepsia, being characterized by a "lump in the stomach," a feeling of fulness after eating, burning sensations in the epigastrium, and in some cases pains radiating from the epigastrium toward the hypochondriac regions. We have been impressed with the frequency with which patients have complained of pains radiating from the region of the cardia apparently along the diaphragm toward both sides and more especially the right side. The complaint of a "lump in the stomach" and a feeling of great discomfort at the moment the food enters the stomach is a common one. Within a comparatively short period these patients begin to experience difficulty in the process of deglutition, and are treated for hysteria. We feel that if the stomach-tube were used more systematically as a diagnostic measure in all cases of indigestion, more cases of early cardiospasm would be discovered through the obstruction offered to the passage of the tube. At this stage the patient begins to complain that food "lodges under the end of the sternum," and endeavors to force it through by swallowing air, or following each mouthful with a sip of water. Each act of deglutition is now accompanied by more or less obstruction as the food passes the cardia, and then soon follows the stage of definite obstruction, when the patient finds it impossible to swallow coarse articles of food, such as meat, bread, etc. He voluntarily resorts to soft or liquid foods, such as eggs, purees, cereals and the like. As the obstruction becomes more complete many of the soft foods are also discarded, and only liquids taken.

Up to this time the wall of the esophagus has been undergoing hypertrophy in its effort to overcome, through increased peristalsis, the obstruction at the cardia, and there now occurs, as is usual in obstructed, hollow viscera, a dilatation or sacculation. After sacculation occurs, the patient is somewhat relieved of the actual pain that he has been experiencing. Up to this time he may have been spitting up mouthfuls of food from time to time, but now begins to eructate large quantities. This process must be differentiated from actual vomiting, for these patients find it practically impossible to vomit, since the cardia will not relax sufficiently to permit the return of the food that has entered the stomach. At this stage the patient is often compelled to get up from the table and empty the esophagus, and then return and eat more. As the sac increases in size, he may even retain an entire meal before eructating any of the food, all the while, however, experiencing a feeling of great discomfort and pressure

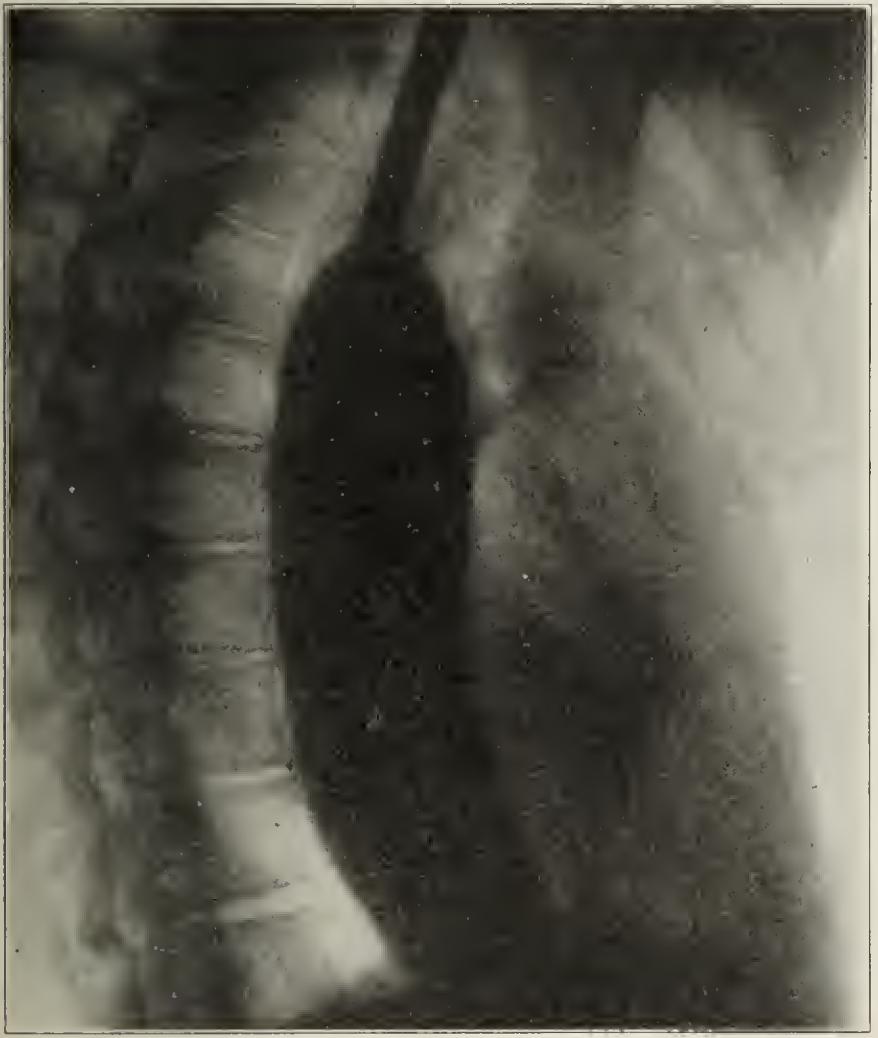
Fig. 1.—Radiograph showing the persistence of the sac four years after the successful treatment for cardiospasm. Capacity over 300 c.c. of bismuth suspension. Recumbent, oblique position. Intensifying screen.

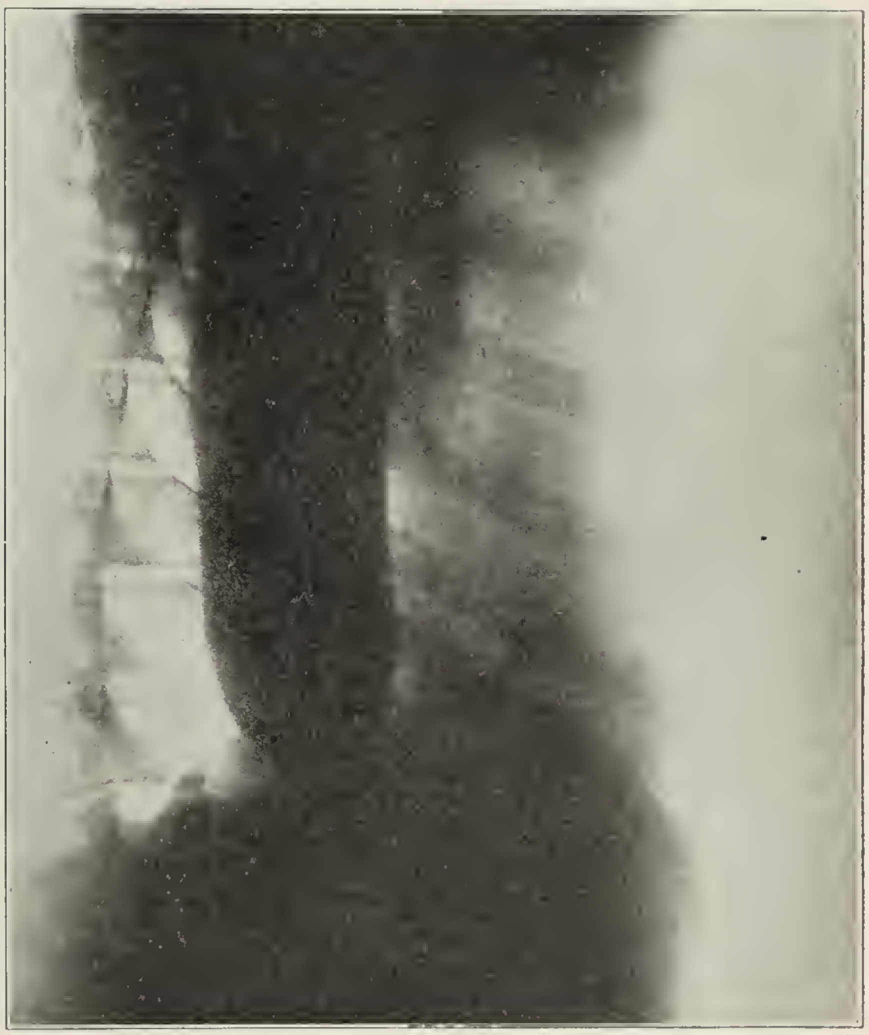
Fig. 2.—Radiograph showing persistence of the sac several years after successful treatment of cardiospasm. Capacity over 350 c.c. of bismuth suspension. Recumbent, oblique position. Intensifying screen.

under the sternum. He learns to eat slowly, chew his food thoroughly, and to stop after each act of deglutition to "tease the food through." Coarse and ice-cold foods are the most difficult of deglutition, warm soft foods and liquids being the easiest to dispose of. The patient is often surprised to find that at one time he is able to swallow with considerable ease, because of a temporary relaxation of the spasm, and that within a few moments he is unable to force anything through. A small quantity of solid contents and fluid secretions can practically always be found in the sac, and at night will in certain positions of the patient, flow from the mouth during sleep, soiling the pillow, sometimes flowing into the nose and occasionally into the trachea, causing fits of coughing and strangulation. One patient, for instance, found that when he turned to his left side the contents of the sac always gravitated into his mouth.

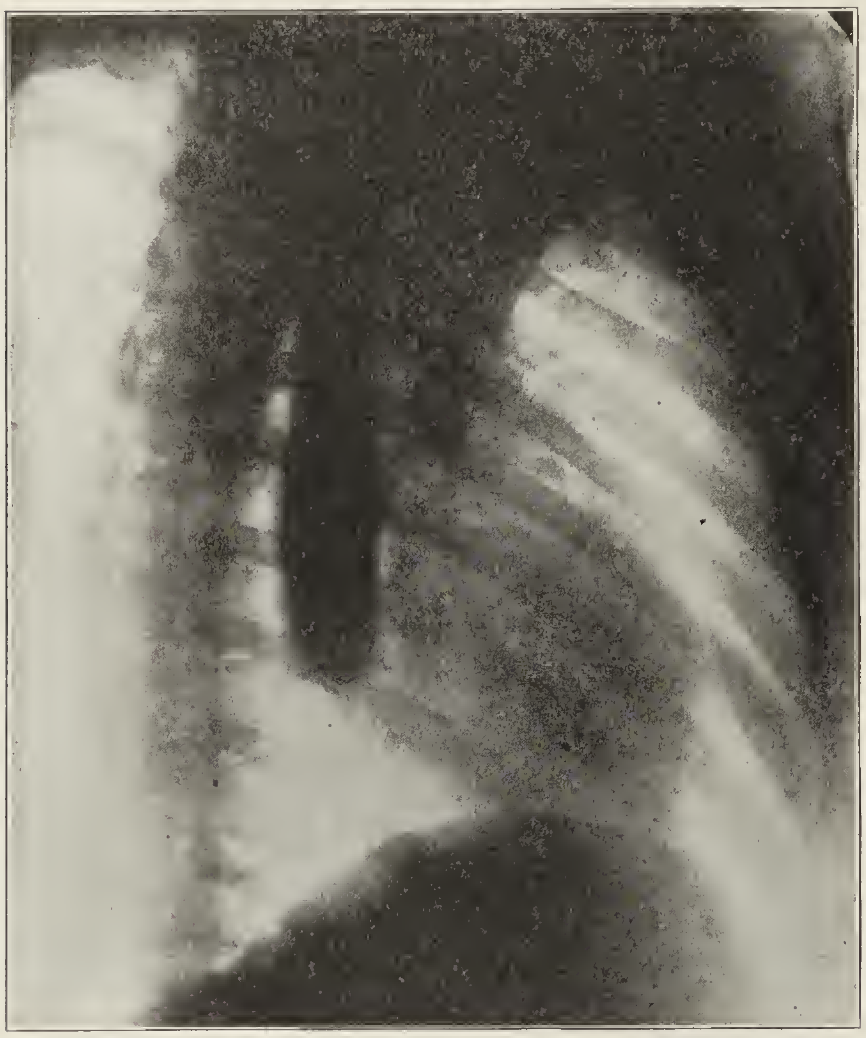

Fig. 3.—Radiograph showing degree to which the normal esophagus can be stretched by means of a thin rubber bag. Capacity 40 to 60 c.c. of bismuth suspension. Recumbent, oblique position. Intensifying screen.

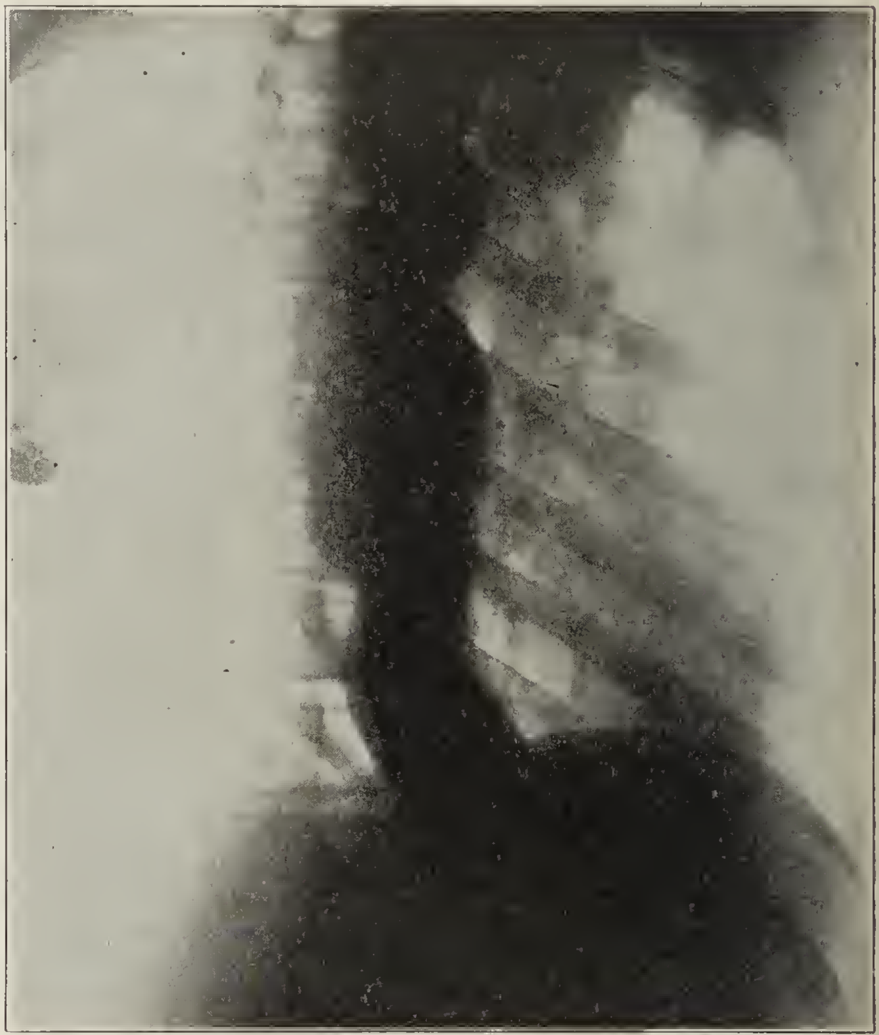

Fig. 4.—Radiograph in a case of untreated cardiospasm showing the act of swallowing a bismuth mixture; the enormous size of the esophagus and its efforts at peristalsis may be noted. Recumbent, oblique position. Intensifying screen.

With such a clinical picture as this, the diagnosis of cardiospasm should at once be suspected, even without further examination, but instrumentation and chemical analysis of the contents should always be resorted to in order to make an absolute diagnosis.

METHODS OF DIAGNOSIS

On the introduction of bougies or stomach-tubes an obstruction is met about 40 to 45 c.m. from the teeth which is sometimes readily overcome, but at others very resistent. The soft tube may be more or less misleading in determining the existence of an obstruction, unless a mandarin is used, for the tube, instead of passing the cardia, may double up in a large sac in such a way as to give the impression that it has entered the stomach. The blunt, paraffin-silk bougies are preferable for determining the existence, location and degree of obstruction. It must be borne in mind, however, that during a moment of temporary relaxation even a large bougie may pass readily.

In order to determine the presence and the size of the sacculation, a stomach-tube with intragastric bag attached, as described before, should be employed. This is introduced to the point of obstruction and water gradually injected until the patient complains of considerable discomfort, when the water may be withdrawn and measured, and a fair idea of the degree of sacculation obtained.

One of the most important diagnostic measures is the chemical analysis of the contents of the esophagus as compared with that obtained from the stomach. In order to obtain the stomach contents and esophageal contents separately, we have found it well to introduce a small stomach-tube or nasal tube containing a mandrin directly into the stomach, removing the mandrin and obtaining the stomach contents, then withdrawing the end of the tube into the esophagus, and through siphonage or suction obtaining the contents of the sac itself. The character of the gastric and esophageal contents is different; those from the stomach are well chymified and finely divided, with the typical odor, contain free hydrochloric acid but as a rule no lactic acid, show traces of sugar, have normal peptogenic power and contain yeast cells, etc.; whereas the esophageal contents are coarse, flocculent and poorly chymified, contain much mucus and salivary admixture, are practically odorless, are slightly acid in reaction, containing lactic acid but no hydrochloric acid and have no peptogenic power; sugar is present in considerable quantity because, as we have stated previously, there is present here every factor necessary for carbohydrate digestion and sugar production. For demonstration purposes one may introduce fluids of different colors, for instance, carmin and methylene-blue, one into the stomach and the other into the esophageal sac, and afterward may obtain these fluids separately.

Both fluoroscopy and radiography are great aids in the diagnosis. If the patient in the oblique position before a screen be given a bismuth suspension or pap, it is seen gradually to collect just above the diaphragm and form a large shadow depending on the size of the sac. A small quantity may be seen to trickle gradually through the cardia into the stomach. It is especially interesting in these cases to employ the intragastric bag partially filled with bismuth suspension and observe it in relation to the heart-beat, respiratory movements, the process of deglutition, the act of vomiting, etc. The sac lies practically in direct contact with the heart, and when distended shows the indentation of the right auricle and ventricle, each pulsation causing a wave on the surface of the bismuth suspension. It is surprising that there are not more marked cardiac symptoms manifested as a result of the direct pressure of a large quantity of contents in this sac, especially when we take into consideration the cardiac symptoms that may be produced as a result of slight pressure from beneath the diaphragm.

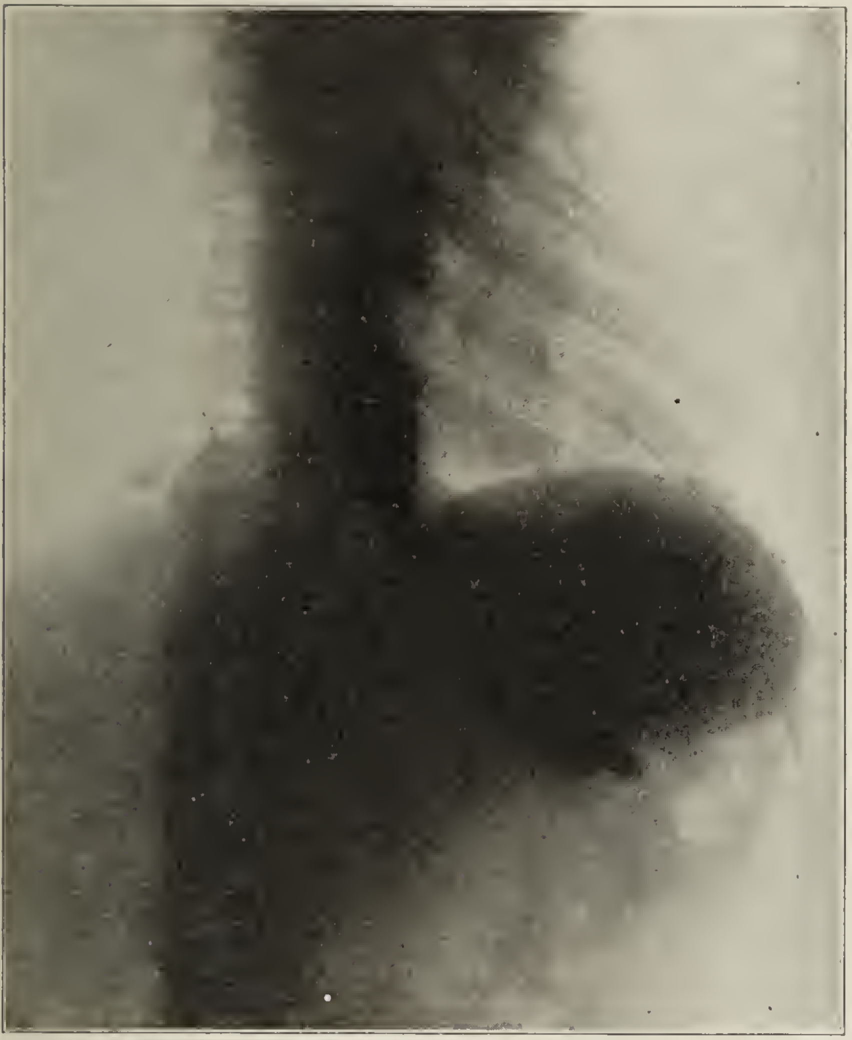

Fig. 5.—Radiograph of a case of untreated cardiospasm, by means of a large, thin, rubber bag, part of which is in the stomach and part in the esophagus, showing the point of constriction at the cardia. (The bag ruptured in the stomach at the moment the exposure was made.)

It is a fact, however, that these patients experience little or no cardiac disturbance. This is to be accounted for, it seems, through the accommodation of the heart to the gradual development of the sac. So far as our observations go, the heart is not perceptibly displaced through the filling of the sac. Radiographs taken immediately after a bread and bismuth meal show the sacculation nicely, but not so satisfactorily as when the intragastric bag is used.

The chief value of the esophagoscope in these cases lies in the differential diagnosis between cardiospasm, carcinoma and stricture of the esophagus, due to scars, the result of chemical or mechanical insults. In doubtful cases one may take sections by means of the biting forceps for microscopic examination. In our experience, however, this is seldom necessary, for a careful history together with a demonstration of an enormous sacculation of the esophagus is usually sufficient for diagnosis. Advanced carcinoma could not easily be mistaken for cardiospasm, nor could advanced cardiospasm be readily mistaken for carcinoma. It is only in the early manifestations of both conditions that one may be left greatly in doubt. Carcinoma of the esophagus seldom results in such dilatation as is found in cardiospasm. If there is any doubt, however, as to the existing condition, the esophagoscope only can clear up the diagnosis promptly and definitely. The interior of the esophagus, as seen through the esophagoscope, is quite different from the normal; the walls are flaccid, and the mucosa is thrown into small rugæ or convolutions and is edematous in appearance, presenting a state of esophagitis. At the cardia occasionally may be seen small erosions or ulcers. The cardia itself presents a rather smooth, regular, whitish appearance in contradistinction to the reddish, granular, cauliflower appearance of the carcinoma, the angry, injected appearance of the ulcer or the white, glistening, irregular outlines of scar tissue.

It is not our intention to enter into any details here concerning the technic of treatment more than to repeat that divulsion by means of a silk-rubber bag from 3 to 3.5 cm. in diameter by hydrostatic pressure gives most satisfactory results. Either the water-pressure with manometer attached may be used, or the large, glass-metal syringe, which in our hands has given quite as satisfactory results.

The etiology is still a dark chapter, and we are not prepared to present any more definite information on this point than that contained in our original article.

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ABSTRACT OF DISCUSSION

Dr. H. S. Plummer, Rochester, Minn.: In looking through the literature one finds a tendency to associate diffuse dilatation of the esophagus with a congenital or acquired neurosis. Among the ninety-one patients coming under my observation with diffuse dilatation of the esophagus without anatomic stenosis there were only a few of a neurotic type. Mild cardiospasm without diffuse dilatation of the esophagus occurs, as a rule, in neurotic persons. Cardiospasm may accompany such gross gastric lesions as syphilis, ulcer, carcinoma, etc.; diffuse dilatation of the esophagus does not often follow the spasm in the latter group of cases. There are many reasons why these conditions have been so frequently overlooked. A stomach-tube or sound may pass the cardia without encountering any resistance at a time when neither liquids nor solids will pass the cardia. Frequently the tube coils in the sac and the contents are withdrawn without the operator having any suspicion that the tube has not entered the stomach. In some instances the history is much like that of a gastric neurosis. With a few exceptions the seventy-three cases which I have reported as cures are absolutely free of any evidence of dysphagia. I have not as yet been able to determine the ultimate fate of the dilatation of the esophagus. In three patients whom I examined approximately three years after the last dilatation, the esophagus had returned to normal size and as far as I could determine to normal function.

Dr. G. W. McCaskey, Fort Wayne, Ind.: I wish to discuss cardiospasm in its relation to malignant disease. I have had under observation about fifteen cases of cancer of the cardia.

In six or seven of these there occurred prolonged attacks of cardiospasm. In some of these the complete closure of the cardia which occurs with the advancing growths of the neoplasm was undoubtedly partly spastic in character, as it fluctuated materially and would permit the passage of food or instruments at one time and not at another. Temporary improvement in deglutition has followed mild instrumental dilatation in some cases. This is best explained on the assumption of spasm relieved by divulsion. Of course this improvement is only transient, and too slight to be entitled to any serious consideration excepting in its bearing on the pathology of cardiospasm, and the question of differential diagnosis in the earlier stages. In cases of cardiospasm of recent evolution, the possibility of the existence of cancer of the cardia as the etiologic factor should be considered, and every means utilized to make an accurate differential or complete diagnosis.

Dr. J. W. Weinstein, New York: I fully agree with Dr. Myer that cardiospasm is not often recognized, and masquerades under a variety of names, chiefly neuroses, because the stomach-tube is not used often enough. I must say, however, that the diagnosis is often difficult even if the aid of the stomach-tube is invoked. The main difficulty is the differential diagnosis of cardiospasm and carcinoma of the cardia. Of course, in the typical cases the diagnosis is easy. Thus I have now on hand a patient who has complained of dysphagia for the past four years. His general appearance is not bad. On passing a bougie I find that it meets with an obstruction at the cardia. By using a little force I make the bougie pass through into the stomach. The *x*-ray examination shows a slight pouch above the cardia. A case of this order means nothing else than cardiospasm. On the other hand, if a patient of cancerous age comes with a history of short duration, with loss of flesh and strength; if the introduction of a bougie invariably meets with obstruction at the cardia and causes bleeding, and if a fetid odor emanates from the tip of the stomach-tube or bougie, a case of this kind is a carcinoma of the cardia. A large number of cases, however, do not come under those headings at all. Thus a patient was referred to me recently by his physician for diagnosis with a history of dysphagia for the past eight months. The *x*-ray showed a stenosis of the cardia with a small pouch above it. The general condition was good and the diagnosis of cardiospasm was made. The patient kept on improving in all respects for about six weeks, when he suddenly developed a metastatic tumor in the cecum. Dilatation of the esophagus above the seat of obstruction is by no means characteristic of cardiospasm. I have seen that repeatedly in carcinoma of the cardia. Even the gastroscope is not proof against error, for it happens from time to time that the carcinoma of the cardia will be covered over by normal mucous membrane, and the gastroscope will reveal in such cases a normal appearance of the esophagus concealing the cancer underneath from view.

Dr. Franklin W. White, Boston: I wish to emphasize two points that have been mentioned: First, while, according to statistics, cardiospasm is comparatively a rare disease, much less common than cancer of the esophagus, I do not believe this. I feel sure that many cases that have been diagnosed as simply nervous dyspepsia are really cases of early cardiospasm before the sacculation has developed. Remember that the chief symptom of cardiospasm is distress immediately after eating. Second, the spasm is intermittent. It contracts and relaxes. At one moment we may get a normal *x*-ray picture of the esophagus and a few minutes later during spasm, a clear picture of a filled and dilated esophagus. Recently I have had several such experiences.

Dr. Anthony Bassler, New York: There seems to be a subconscious understanding that cases of cardiospasm are due to closures of the cardiac orifice of the stomach because of a constriction of the circular fibers surrounding it. *X*-ray plates of cardiospasm suggest that the area of spasm is at the level of the diaphragm within its esophageal opening. The esophagus extends about an inch and a half below this before it reaches the cardiac orifice. Careful fluoroscopic observation in these cases shows that a spasm is never located in this abdominal portion of the esophagus which runs in back of the liver or at its opening in the stomach. According to a series of observations that I have made, there is reason for the belief that cardiospasm is not due to spasm of the circular fibers of the esophagus but to spasm of the esophageal opening of the diaphragm. I shall report my observations when I have a large enough series of cases. Further, cardiospasm, like pylorospasm, may occur reflexly. We know that gallstones, gastric or duodenal ulcer and chronic appendicitis are commonly found as exciting causes in pylorospasm; so in cardiospasm, pathologic processes above or below the dome of the diaphragm may cause this spasm in not a few of those which have been looked on as neurotic cases. I have done post-mortems in a few cases in which cardiospasm was a feature during life. In practically all of them, lesions of a chronic nature were found in the chest, if not in the abdomen. Among the causes which must be added as productive of cardiospasm are firm adhesions of the pleura, mostly of a tuberculous nature, particularly those present at the bases of the lungs. Normally the lower end of the esophagus is funnel-shaped, or at least has parallel walls. The opening is not completely closed as a rule even during normal digestion. It is probable that during the process of gastric digestion, the cardiac orifice of the stomach prevents regurgitation of food into the lower end of the esophagus, not by closure of the esophageal opening of the diaphragm or the circular fibers at the esophagogastric junction, but by the peculiar arrangement of the rugæ extending from the esophagus into the stomach, which act like flaps of a valve when pressed on from below.

Dr. Jesse S. Myer, St. Louis: I should say to Dr. Plummer, concerning the cause of the obstruction met by the tube in these cases that it is not always possible to determine whether this obstruction is offered through the contact of the tube with the walls of the sac, or whether it is due to the spasm at the cardia. There is no doubt in my mind, however, that the obstruction is often the result of the spasm. I have often been able to demonstrate this by introducing a sound to the point of obstruction, when without any manipulation it will often suddenly slip through. I do not want to convey the impression, however, that there is constantly present a tonic spasm in these cases. With regard to the persistence of the sac, and the persistence of minor symptoms, it is unfortunate that Dr. Plummer has not been able to follow more of these patients after successful stretching of the cardia. Of course the reason for this is that they have been so decidedly relieved that there was no occasion for returning for further treatment; but from my own observation, I feel reasonably sure that it would be possible to demonstrate that in all of the severe cases the sac has persisted for years after the major symptoms have been relieved. I agree with Dr. Weinstein that the diagnosis is sometimes difficult to make; nevertheless, one would seldom take a case of advanced cardiospasm for carcinoma, or an advanced case of carcinoma for cardiospasm. It is in the early manifestations of these two conditions that one is most likely to be misled. A case which I had under observation for over two years, and which I had considered one of cardiospasm, proved to be a slowly developing scirrhous growth involving the cardia and a portion of the fundus. One seldom sees so marked a dilatation of the esophagus in carcinoma at the cardia as is observed in this case.

Feeding Children After Anesthesia.—A breast-fed infant can be put to the breast two hours after coming out of the anesthetic. He should be nursed for only half the usual time; if all goes well, next time he may be nursed his full nursing period. A bottle-fed infant can be fed two hours after coming out of the anesthetic with his regular bottle-feeding diluted one-half with water; if all goes well, his next bottle-feeding should consist of his usual food. A child can be given something to eat not sooner than two hours after coming out of the anesthetic. This food consists of hot broth; in throat cases the first food should consist of cold broth.—Kilmer in *Archives of Pediatrics*.

BLOODLESS SURGERY OF THE LIVER

AN EXPERIMENTAL STUDY OF THE POSSIBILITY OF EXCISION OF MAXIMUM AMOUNTS OF LIVER TISSUE, WITH THE USUAL INSTRUMENTS AT HAND IN ANY HOSPITAL*

JOHN R. McDILL, M.D.
MILWAUKEE, WIS.

The object of this research is to contribute something to the development of practical methods of dealing with the most severe injuries of, and with the wounds resulting from, extensive operations on the liver, employing only the means at hand in the usual surgical armamentarium.

Although hundreds of operations, since Lin's successful partial resection in 1886 on the liver, have been reported with a steadily decreasing mortality it can still be said that surgery of the liver is an imperfectly developed field. From the beginning liver surgery has been feared and shunned on account of hemorrhage, and to-day, notwithstanding the numerous and ingenious methods of hemostasis devised, the only remaining obstacle to the general application of surgery of the liver carried to its physiologic limit is hemorrhage. The many hemostatic methods invented and the combinations of them were born of a necessity of treating special lesions in different parts of the liver. Consequently few if any procedures or combinations of them are applicable to all lesions.

THE PHYSIOLOGIC LIMIT TO RESECTION OF LIVER TISSUE AND THE EFFECT OF TEMPORARY ARREST OF CIRCULATION IN THE ORGAN

Glück in 1890 found that one-third of the liver could be sacrificed without detriment, and in 1889, 1890, 1895, Ponfick's experiments showed that about 40 per cent. of his animals could live after seven-eighths of the organ was removed. Ponfick was the first to recognize the marvelous vegetative power of the liver. After removing three-fourths of it he observed that it would regenerate to four-fifths of its normal weight, and in some cases to its full weight, in a few months; also that the secretion of bile was not affected to any noticeable extent. Among the 100 unreported liver abscess cases in my Philippine service, the following illustrates this power of regeneration in man:

R. P. H., aged 24, cook, light battery D, Sixth U. S. Artillery, was operated on in Manila for a large solitary abscess of the liver in September, 1900. Until the end of November the amount of mucopus, full of motile amebas, which was discharged daily was almost incredible; the very voluminous dressings became saturated every eight hours; the discharge would overflow into the bed and at times soak through the mattress and drip onto the floor. Through the large anterior opening a sound 26 cm. (10 inches) long could be waved about in the cavity in all directions, showing that there was but a mere shell of liver tissue left. The temperature from the beginning ranged irregularly from just above normal to between 102 and 103 F., until the end of November, when it occurred to Surgeon Douglas Duval, U. S. A., to suggest the use of a 1:1,000 quinin solution to irrigate the cavity. The patient had become waxy in appearance, and was quite helpless from debility, but improved immediately after the quinin irrigations were begun, and was able in one month to go on the hospital ship on a voyage of recuperation, from which he returned in two months apparently well, with a regenerated liver, and returned to duty a few weeks later. The army records show that this man was finally honorably discharged Dec. 23, 1901, in good health.

J. Hogarth Pringle[1] reported in 1908 that he employed digital compression of the portal vein at the foramen of Winslow, which completely arrested all bleeding from an extensive laceration of the liver, and in pursuing the subject was surprised to find that Ponfick and others had had disastrous results from obstructing the hepatic and portal vessels in their experimental animals, and that Langenbuch stated that the death of the animal occurred almost at once, from collapse in some, or within a few hours in others, apparently owing to stagnation of blood in the portal area. Pringle, employing rabbits anesthetized with chloroform, as Ponfick had done, clamped the portal vessels with narrow pressure forceps, the blades of which were covered with rubber tubing, for from one hour in one case to long enough in three others to permit amputation of a lobe. The circulation was completely controlled, and the only change that occurred in the intestines by the end of the hour was that in color they were possibly a little darker than when the abdomen was first opened. All of the four animals recovered and developed no untoward symptoms; they were killed on the fourth day and nothing abnormal was found. After his experiments Pringle had two clinical cases with liver rupture and controlled the circulation by digital pressure during the operations. Ponfick proposed and Langenbuch seconded a plan of avoiding dangerous congestion of the intestines following temporary obstruction to the portal circulation, of preliminary temporary ligature to the superior and inferior mesenteric arteries. This procedure is surely impractical in all severe traumatic cases, and experience so far does not show the necessity for it in other cases.

In some experimental work on animals, the first three dogs, under ether anesthesia, recovered from an arrest, lasting from twenty to thirty minutes, of all circulation in the liver; they were killed ten days later and the postmortem examinations showed no lesions; a few other dogs died at once or within a few hours, but no particulars were given, except that the operative conditions were very unsatisfactory.

During the application of the clamp, the intestines of the first three dogs within a few minutes became slightly bluish in color, which color deepened with increasing portal congestion until at the end of twenty and thirty minutes the color was dark and small subperitoneal extravasations of blood appeared especially on the stomach; the liver became markedly softer and paler in color. On the removal of the clamp the liver rapidly regained its normal color and consistency, and the congestion of the gastro-intestinal canal subsided. Many carefully observed experiments under ether should be made along this line before we can lay down any rules or be at all sure of our premises in employing this radical procedure.

THE PRESENT METHODS OF HEMOSTASIS

Hemostatic procedures to meet special conditions are too well known to need more than mention and consist of the cautery and steam, which are unsatisfactory; mass ligatures; vessel ligation; rubber gauze and silk ligatures as constrictors; suturing of the liver to the abdominal walls and into the abdominal wound; omentum plastic; compression clamps; tampon, and the combined cautery, tampon and suture.

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* Read by invitation at the 1912 Annual Meeting of the American Surgical Association, at Montreal, Canada.

[1] Pringle, J. Hogarth: Traumatic Hepatic Hemorrhage, Ann. Surg., 1908, xlviii, 541.

Kousnetzoff and Penski, in 1894, introduced a decided improvement on former methods, which consists in passing a double thread on blunt needles back and forth through the liver some distance above the line of resection leaving the suture slack between the points of insertion. These threads are cut and the ends tied producing gentle pressure, controlling hemorrhage. The larger vessels in the cut surfaces are then ligated or circumstitched; for wounds of excisions of a portion of a surface, Kousnetzoff and Penski recommended a continuous suture with a gauze packing below.

Ceccherelli and Bianchi introduced their whalebone strips and later decalcified bone plates on the upper and lower surfaces of the liver, and then sutured through them, compressing the wound margins, leaving the suture ends long and ligating them over the cut surfaces. Carl Beck in 1902 dropped back into the abdomen strips of abdominal wall left attached at one end from each side of the abdominal wound and used them as supports for the suture material. Kocher in 1902 used compression forceps, crushing the liver substance, and removing them in twenty-four hours. In 1905 Cullen used overlapping mattress sutures 1 cm. from the line of section including all of the liver tissue. Payr and Martina[2] in 1905 introduced their absorbable magnesium plates through which catgut sutures were passed back and forth—a measure of practical value but not usually on hand. Dr. Jacob Frank in 1905 developed a plan of converting the broad raw surfaces left by the V-shaped resections, into troughs by taking out of each a wedge-shaped piece; the flaps of each side were then sutured together, leaving a notch where the V-shaped piece was removed. Dr. William J. Gillette,[3] controlled hemorrhage by passing sutures from within entirely through the liver substance and then through the abdominal wall, making exit between the ribs after the manner of a staple and tied them firmly on the cutaneous surface; gauze packing he found did not stay where placed.

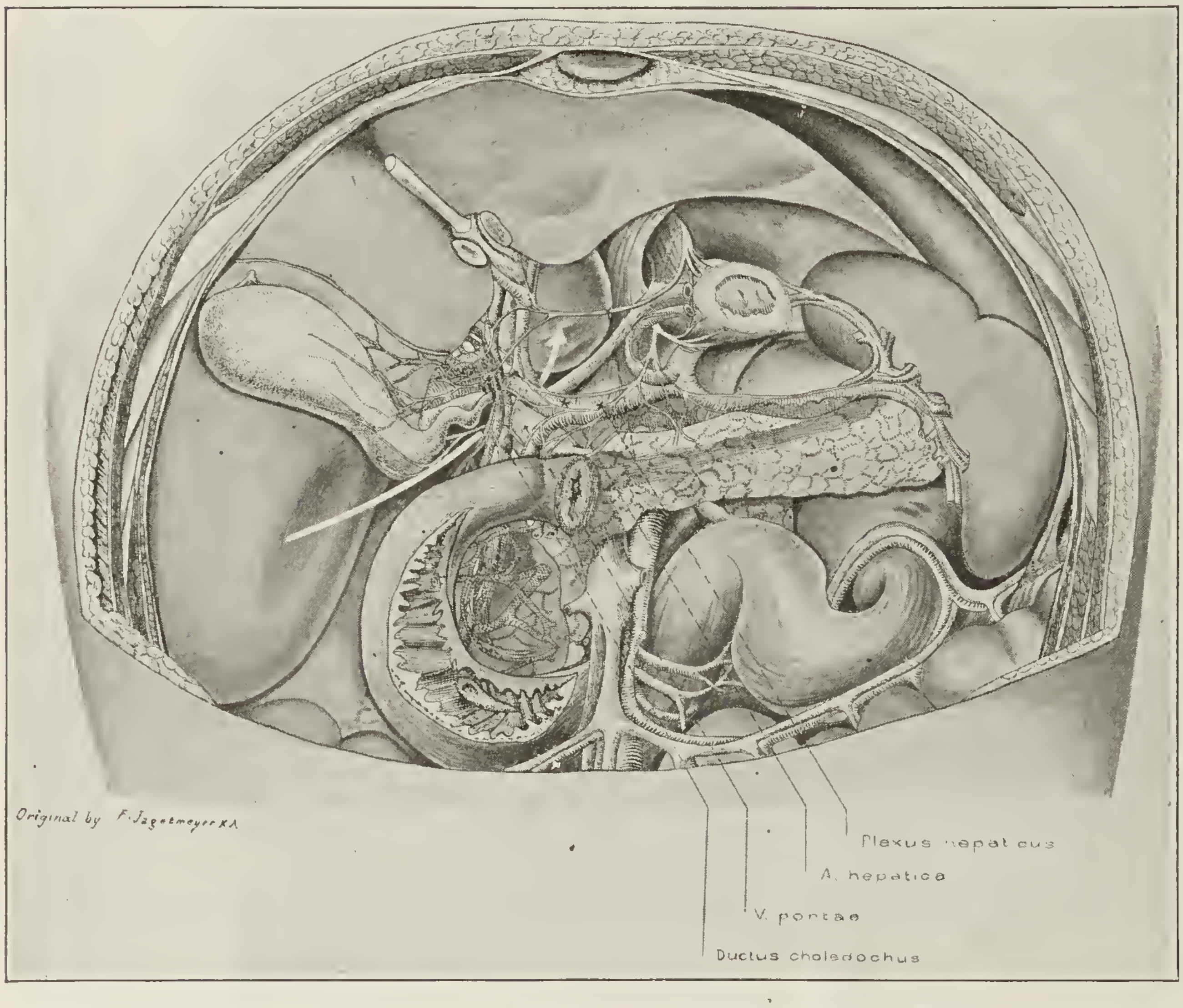

Fig. 1.—Showing the structures in the anterior wall of the foramen of Winslow. The stomach with most of the lesser omentum has been removed. The arrow passes through the foramen of Winslow. After Bardeleben and Haeckel.

Dr. M. Stamm[4] used cartilage plates from the scapula of the calf for liver and spleen suture. Stamm began using his plates in 1891 when Connell and Senn introduced the decalcified bone plates in intestinal surgery. They are taken from the cartilaginous portion of the scapula of the calf, which can be made ready at once and can be easily cut in any shape desired. William E. Schroeder[5] in 1906 reviewing completely the progress of liver hemostasis, reports cases, resections, sutures, etc., to that date. Reference should be made to Schroeder's article for full particulars as to the technic of the various operations; each procedure is carefully described and fully illustrated. Thomas S. Cullen[6] in 1907 claimed great value for the Kousnetzoff blunt liver needles which push the vessels to one side. The ordinary probe with an eye in one end answers the same purpose.

Professor Garré, Breslau,[7] writing in 1907, states that no method can be introduced into practice unless it can be executed with the usual means, which every operator has at hand. He calls attention to the loss of time and blood in relying on the cautery, steam, etc., and to the facts that the vessel walls are firm enough for isolated ligature and that, as Auvray showed, they are elastic enough to be drawn out 1 cm. He believes that it is a mistake, when the liver is normal or soft and the blood-pressure low, to tie sutures too tightly. He prefers fine silk to catgut for ligations and large catgut for deep sutures. Garré has cut into the liver 10 to 14 cm. (4 to 6 inches) from the edge, in some of his resections; he always closes the abdomen and attributes great importance to this step. He is very careful not to stretch the vessels in cutting through the liver so that they will not retract into the liver substance and make hemostasis difficult; to vessels cut obliquely he applies circular suture.

J. Hogarth Pringle[1] in 1908 employed sutures passed far from the margin of the wound, pulled them tight cutting through the liver tissue until they were resisted and held by the coats of the vessels. Pringle notes that this method of mass ligation was originally described by Kousnetzoff and Penski.[8]

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[2] Payr, E., and Martina, A.: Arch. f. klin. Chir., lxxii, No. 4,

[3] Gillette, William J.: Surg., Gynec. and Obst., 1905, i, 361.

[4] Stamm, M.: Surg., Gynec. and Obst., 1905, i, 529.

[5] Schroeder, William E.: Surg., Gynec. and Obst., 1906, ii, 52.

[6] Cullen, Thomas S.: Surgery of the Liver, Surg., Gynec. and Obst., 1907, iv, 573.

[7] Garré (Breslau): Surg., Gynec. and Obst., 1907, v, 331.

Jacob Frank[9] in 1910 calls attention to the success of his methods in man which he established experimentally in animals. He resects by clean-cut incisions with careful regard to coaptation of the raw surfaces; he says that no raw surfaces or edges should be left and the coaptation should leave no dead spaces and closes the abdomen.

Boljarski,[10] in 1910, in a communication from the surgical department of the Petersburg Obuchow-Hospital describes sixty-five injuries of the liver, all of which were operatively treated; twenty-six cases were fatal. The sixty-five cases comprised fifty-five stab-wound injuries, thirty-two simple, twenty-three complicated, one complicated gunshot, one simple gunshot injury, eight subcutaneous ruptures of the liver, one complicated. The thirty-two simple stab-wound injuries gave a mortality of only 12.5 per cent. Boljarski says that the only correct treatment is immediate operation. The more quickly this is done after the injury occurs, the more favorable the prognosis will be. After two or three hours, there is 15 per cent. mortality; after four or five hours, 40 per cent.; after nine or ten hours, 66.6 per cent.; after twelve or fourteen hours, 83 per cent. mortality. The surgeon's main task in an injury of the liver is to control the bleeding. Suturing would be the best, were it not that frequently failures have to be recorded, because of the cutting through of the sutures. In sixty cases tampon was applied, and in three cases was combined with the suture. When tampon was used, the healing of the wound progressed very slowly; Boljarski believes that a thoroughly useful method is the one recommended by Loewy, namely isolated omentum plastic. This method was employed in five cases with advantageous results. Boljarski has also made experiments with this treatment, which, he asserts, show that combination of isolated omentum plastic with suture is among the most reliable hemostatic methods in the surgery of the liver. Isolated omentum plastic stops the bleeding and prevents secondary hemorrhage. While tying the suture the omentum protects the sutures from cutting through, and in case they should cut through, the spot will immediately be covered by the omentum. Halstead of Chicago in a personal communication stated that he had drawn the omentum through a large perforating wound of the liver with excellent result.

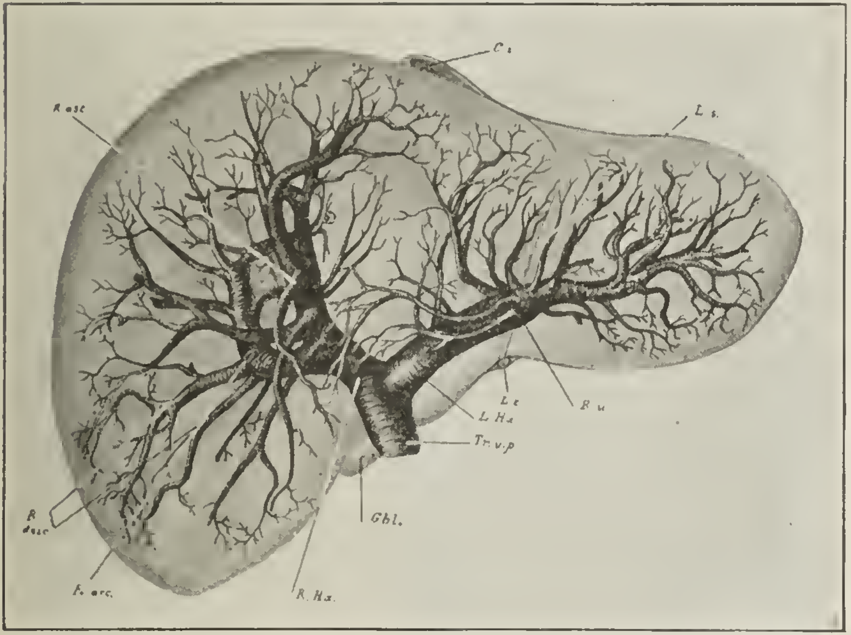

Fig. 2.—Corrosion specimen of the portal tree in man. The injection was made with the liver in position. G bl, gall bladder; Lt., ligamentum teres; Ls, ligamentum suspensorium; Ci, vena cava inferior; Tr. v.p. trunk of the vena porta; R. Ha; L. Ha, right and left main branches; Ru, recessus umbilicalis; R. arc, ramus arcuatus; R. desc, ramus descendens; R, asc, ramus ascendens. From Mall after Rex.

PROPOSED TECHNIC OF THE BLOODLESS OPERATIONS

When bloodless excision of a portion of the liver is determined on, avoiding harmful pressure, clamp the pedicle of the organ containing all of its blood-vessels, in the following manner: After the abdomen is freely opened anteriorly, through a 2.5 cm. (1 inch) skin incision just below the costal margin in the right axillary line, tunnel with forceps into the abdominal cavity, and through the opening pass a single enterostomy clamp 21.5 cm. (8½ inches) or 25.5 cm. (10 inches) long as required, armed with rubber tubing. Insert one branch into the foramen of Winslow behind and the other in front of the vessels and ducts far enough to include the hepatic artery and its occasional branch to the left, or about 5 cm. (2 inches). When the foramen is closed or narrowed by adhesions it is easily dilated. The blades of the clamp should not be very rigid and the ends should touch before the forceps is closed down. The nearer the compression is made to the duodenum the better, because here the vessels lie close together. This procedure gives absolute command over the liver circulation, which can now be turned on or off partially or completely as the operator desires. This clamp has exactly the proper curves and length for the purpose and the interval between the unlocked blades is a reduced outline of a cross-section of the pedicle of the liver; the handles and lock are outside of the body; the blades lying below the liver are out of the operator's way and it can be manipulated as desired or as directed.

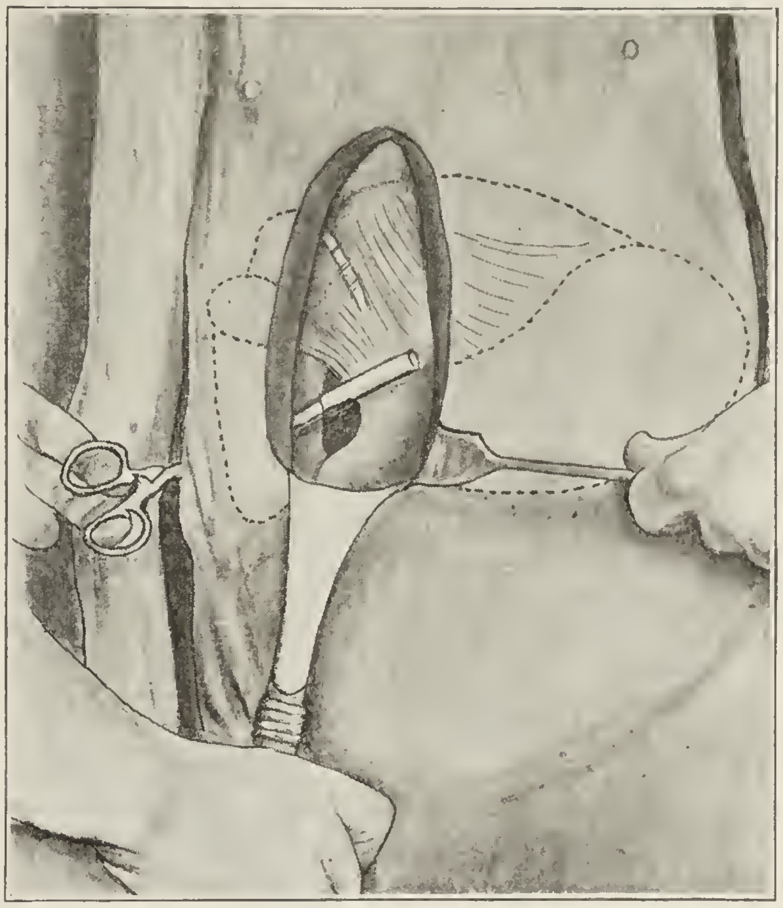

Fig. 3.—Showing the enterostomy forceps passed through the lateral abdominal wall and acting as a compression forceps on the hepatic vessels.

Ordinary limited resections and suture of wounds of the accessible portions of the liver can now be performed on a bloodless organ. More extensive resection and wound suture of the ordinarily inaccessible parts of the liver may require mobilization of the organ, and this is practicable, according to Ponfick and Langenbuch, by dividing its attachments to the diaphragm and posterior abdominal wall. Such access may be obtained in some cases by Langenbuch's division of the ligamentum falciforme hepatis and the right lateral ligament, which allows free dislocation of the liver forward into the abdominal wound. In cases in which the gall-bladder and ducts must be sacrificed, division of the ducts adds greatly to the mobility of the liver. Pringle suggests dividing some of the ribs in order to free and hold up a flap of ribs and diaphragm to gain room.

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[8] Anschütz: Resection of the Liver.
[9] Frank, Jacob: Surg., Gynec. and Obst., 1910, xi, 418.
[10] Boljarski, N.: Injuries of the Liver in Clinical and Experimental Relations, with a Special Consideration of Isolated Omentum Plastic, Arch. f. klin. Chir., 1910, xciii, No. 2.

If the wedge of tissue excised is very large, and tension on the sutures, after approximating the resulting defect, threatens to result in their cutting through, I propose a support for them by means of a Martin gum bandage passed around the liver, as follows: A piece of thin, ordinary gum elastic bandage 5 cm. (2 inches) wide and 50 cm. (20 inches) long, is prepared by tying a long heavy silk ligature about its middle. The clamp with closed blades is passed through the small lateral abdominal incision, through the foramen of Winslow, across the lesser peritoneal cavity and on until by depressing the handle the end of the clamp is made to point and perforate to the left of the liver through the pars condensa omenti minoris, or the thinned-out extreme left end of the gastro-hepatic omentum, in front of the esophagus, then on through the ligamentum triangulare sinistra, or left lateral ligament of the liver; this ligament is composed of two layers of peritoneum with some fat, glands and a few unimportant vessels between.

The blades of the clamp are then opened to grasp one end of the rubber band, which is then drawn back behind and beneath the liver and out of the foramen of Winslow until the silk ligature can be reached and withdrawn outside of the foramen; the ligature is led outside of the body through the small lateral incision, alongside of the clamp. The rubber band is then slid back until the knot of the long silk ligature around it is at about the center of the lesser peritoneal cavity. One blade of the clamp is then placed behind and one in front of the pedicle as above described, ready to interrupt the hepatic circulation when desired. The object of the band, if needed after the excision, the hemostasis and the suturing are completed, is to support the sutures and assist hemostasis. If not needed it can be easily withdrawn; if, however, it is required, the end to the left which is passed through the gastrohepatic omentum, the left lateral and the falciform ligament are adjusted to the other end, and are then clamped together at the abdominal wound where they can be tightened or loosened as necessary. The silk left out through the opening in the side of the body is to facilitate the removal of the band; traction on it is exerted in a straight line on the left half of the band and should deliver it outside of the foramen of Winslow, after which the ligature is cut short and by traction on the right half the entire band may be brought out of the anterior abdominal wound.

CONCLUSIONS

1. Extensive liver resection for disease is limited to primary, single or closely grouped, accessible conditions; size may be no contra-indication, unless too near the portal vein or hepatic arteries. In all primary growths Tuffier's caution, carefully to determine glandular involvement along the vessels at the base of the liver, should be observed.

2. All procedures can probably with safety be made entirely bloodless for at least eight or ten minutes. By opening and closing the forceps the circulation can be turned partially or entirely on or off to avoid the danger of a too prolonged interruption. This controlled bloodstream also favors hemostasis by slowly filling up cut vessels and stitch-wounds with coagula; compresses to cut or wounded surfaces during a reëstablishment of circulation would prevent undue loss of blood and allow of ligation or circumstitching of venous channels.

3. Great congestion of the gastro-intestinal branches of the portal system, blueness of the intestines, and subperitoneal ecchymoses while using the clamp indicate a dangerous degree of back pressure. The shorter the time of complete temporary arrest of circulation, the better.

4. The variability of the liver tissue and of degrees of portal pressure should be remembered; a marked chronic portal congestion should contra-indicate extensive operations.

5. Traumatic rupture of the liver occurs without any external evidence. Owing to structural arrangement, tearing of large vessels may result in continuous hemorrhage which is partially checked by reflex muscular rigidity and intra-abdominal tension; relief of this pressure on opening an abdomen allows of increased bleeding, unless immediate digital compression of the hepatic vessels is effected.

6. In favorable cases liver tissue can be removed to the physiologic limit under practically bloodless conditions, but further experimental work is necessary.

7. Chloroform is always contra-indicated in liver operations on account of the danger of sudden fatty degeneration and of necrosis and hemorrhage, due to the elimination of fibrinogen by the chloroform and inefficient coagulation, because fibrinogen is either formed wholly in the liver or is wholly dependent on liver activity for its production.[11] Use moderate ether anesthesia only because when the portal vein is clamped or dragged on respiration is embarrassed.

8. The clamp can be left *in situ,* open, to control a possible secondary hemorrhage.

9. The instruments required for this liver surgery are in the usual hospital armamentarium.

Note.—The excellent anatomic figures, Nos. 1 and 2 reproduced from drawings already published, were prepared under the direction of Mr. Elbert Clark, associate professor of anatomy in the University of the Philippines, and Fig. 3 was arranged by Dr. George Kleinschmidt of Milwaukee.

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[11] Whipple and Hurwitz: Jour. Exper. Med., xiii, No. 1.

Medical Fees.—An old story has it that once on a time a man called at the home of a physician in a small country town and asked him how much he would charge to go to a point five miles in the country. On receiving the reply that the fee would be $2.50, he told the physician all right, but to be in a hurry. The physician hastily dressed, hitched his horse and, taking the man in the buggy, drove in a lope the entire five miles. On arriving at their destination the man paid the physician the $2.50, informing him that no one was sick and that the liveryman would have charged $5 and would not have made such good time. The truth of the point of the story is driven home when we remember that we will drive across town and administer to the sick cheaper than a taxicab company would send a car with a $7 a week chauffeur.—J. C. Ayres in *Memphis Med. Jour.*

A SIMPLE APPARATUS FOR ADMINISTERING SALVARSAN INTRAVENOUSLY

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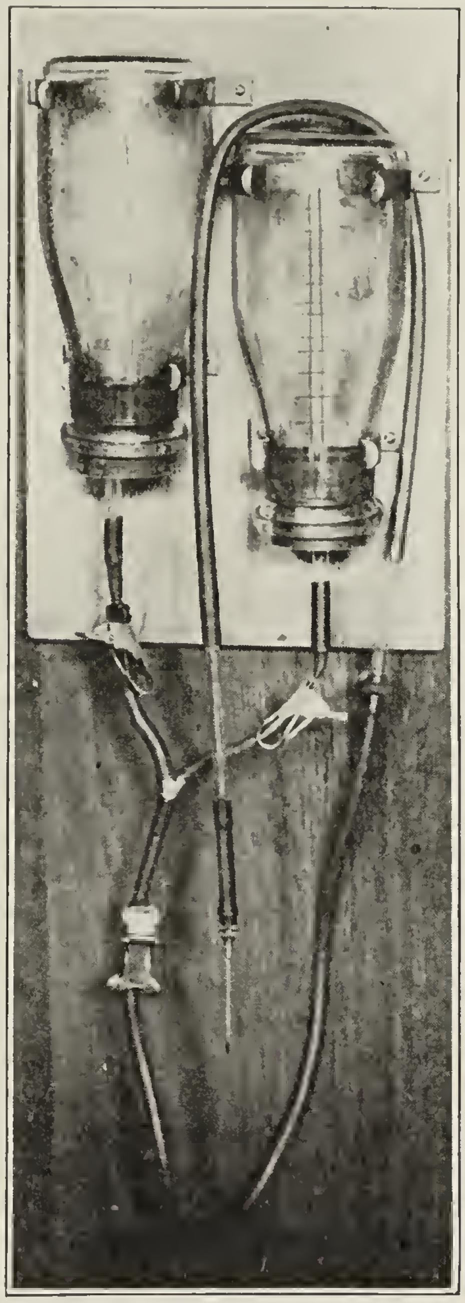
PROVIDENCE, R. I.

The intravenous method of administering salvarsan has come to be generally adopted as best and most efficient, but under the most favorable circumstances is rather troublesome. Anything which may contribute toward simplifying the methods will be most welcome.

I have devised a gravity apparatus which has some advantages in simplicity and cost over many others that have been described and it permits the introduction of salt solution both before and after the salvarsan is injected without any change in the connections. This apparatus has been successfully used in administering the drug in a good many cases at the Rhode Island Hospital and is now used by most of the operators there in preference to the syringe.

No provision is made for keeping the solutions at blood temperature during the administration. The fluid, however, is kept warm until ready to pour into the bottles. No discomfort to the patient has been noticed, though at times I have known the temperature of the fluid to be below 37 C.

This apparatus, as seen in the accompanying illustration, consists of two bottles and connections. The bottles are graduated upward from the neck (as the bottles are to be inverted), beginning at a point where the stopper ends in the neck of the bottle. One glass tube is inserted through the rubber stopper to within a quarter of an inch of the bottom of the bottle, to give vent. Another glass tube is inserted through the other hole in the cork to the internal surface of the stopper and allowed to protrude externally 2 inches. To the glass tubing protruding from the stoppers, a rubber tubing about 6 inches in length is attached. Thumb stop-cocks or metal clips are attached to the tubing. The distal ends of the tubing are attached to the Y-shaped glass tube. To the other end of the Y, rubber tubing is attached. Any convenient length may be used, preferably about a foot and a half. A thumb stop-cock or metal clip is attached to this tube. To the distal end of this rubber tube a glass tube about 3 inches in length is attached. A small piece of rubber tubing must also be attached to the needle which is to be inserted into the vein.



Gravity apparatus for the intravenous administration of salvarsan.

TECHNIC OF THIS METHOD

The whole apparatus is wrapped in towels (the bottles in one towel, the stopper and tubing in another) and sterilized. The apparatus, which consists of a square piece of board to which are attached two metal spring clamps, is hung on the head of the bed. The table is covered by a sterile sheet.

The salvarsan is mixed in a graduated cylinder in the usual way, warm sterile water and salt solution being used. The amount to be given is then poured into one of the bottles, and 0.9 per cent. salt solution is poured into the other bottle. The three thumb stop-cocks are closed. The rubber stopper is inserted into the bottle and the thumb held firmly over the air-vent on the stopper while the bottle is inverted and placed in the holder.

The holder of the salt-solution bottle is at a higher elevation than the one which holds the salvarsan bottle. The reason for this will be seen below.

The stop-cock on the tube below the salt-solution bottle and the stop-cock below the salvarsan bottle are opened. The salt solution runs by gravity through the tubing and forces the air into the salvarsan bottle. A few cubic centimeters of salt solution are allowed to flow until all the bubbles are out of the tube; then the thumb-clamp below the salvarsan bottle is shut off. The thumb-clamp below the Y is opened, the salt solution permitted to flow out, and the whole system is clear of air. The thumb-clamp below the Y is shut off.

The needle is inserted into the vein and when the blood flows freely from the tube the thumb-clamp below the Y is opened and while the salt solution is flowing the glass tube is inserted into the rubber tube attached to the needle. The salt solution is allowed to run into the vein until the operator is sure that the needle is in the vein. If the needle is not in the vein or the vein has been "buttonholed" a tumor mass will form by infiltration of the salt solution in the tissues around the vein. The salt solution is shut off, the other stop-cock opened, and the salvarsan flows into the vein.

As soon as the salvarsan reaches the level of the stopper, the cock is pinched off. The fluid should not be permitted to disappear below the glass tube protruding from the stopper. The salt solution is allowed to flow again until all the salvarsan is flushed out of the tubing into the vein, and while the salt solution is flowing the needle is pulled from the vein.

ADVANTAGES OF THE APPARATUS

1. The cost is low and the apparatus can be improvised by anyone.
2. It is practically a closed system. The vent in the rubber stopper is for all practical purposes a negligible quantity.
3. The flow of saline and salvarsan into the venous system is regular, steady and uninterrupted.
4. It can be manipulated by one person.
5. It is durable and not easily broken.
6. Air bubbles can be quickly and easily excluded from the system.

Rhode Island Hospital.

Pleasant Environment for the Tuberculous.—It is not difficult to make segregation of the tuberculous attractive. And, as part of the successful treatment of those segregated, it is necessary that it should be attractive. Real out-of-door life is well established as the basis of effective treatment, and it is not difficult to picture an out-of-door existence in a properly planned environment.—Urie in *Jour. Outdoor Life.*

THE TREATMENT OF CHRONIC INFLUENZA

GLENN I. JONES, M.D.
WASHINGTON, D. C.

Early last year I presented a brief monograph on "Chronic Influenza and Its Relation to Neuropathy."[1]

My interest in the subject of influenza as a chronic infection or intoxication has been increased by the study of an epidemic of influenza at Fort McDowell, California, during the winter of 1910 and 1911. The epidemic, probably imported by recruits *en route* to the Philippines from other depots, lasted several months. Involvement of the accessory sinuses was not uncommon. Singularly or perhaps naturally the cases in which sinus infection occurred presented evidences of general infection or intoxication for a period of one year during which they were observed. Two cases were followed closely and gave typical pictures of chronic influenza and one case was undoubtedly the source of endemic or sporadic influenza. Both cases showed a persistence of Pfeiffer's bacillus in the nasal and bronchial excretions during the time they were observed and had irregular acute exacerbations.

It is my purpose to emphasize what has probably been appreciated and practiced for many years by many of us, namely, therapeutic conservatism and caution in the treatment of acute conditions with the purpose of conserving the vitality and resistance as natural agents against chronic infections.

As early as 1900 Huchard[2] in the discussion of a similar subject said:

> Among the mild forms of influenza there are afebrile types without inflammation, yet with such profound influence on the nervous functions as to cause much moral, physical and intellectual depression. As influenza is one of the most powerful factors in lowering the resisting power of the body, these mild types should be recognized. The skin, liver and kidneys must be kept active, the stomach and intestines being treated by alimentation rather than by drugs. The mouth and nose should be cleansed by a solution of formol, menthol or phenol (carbolic acid). .

Filatow[3] recognized two types of the chronic form of influenza: "(1) a type characterized by permanent fever of a remittent or intermittent character, that is, prolonged for several months, and followed by (2) a return of the disease for brief periods of time."

The most constant and striking influence following epidemics of influenza is the marked impairment of vitality and resistance with great increase in mortality and morbidity statistics from diseases directly attributable to influenza for many months and years after the epidemic. The protean manifestations of influenza as a chronic disease can well be appreciated by reference to the volumes of cases in the medical literature. Chronic influenza is more protean in its manifestations and less frequently recognized than any disease condition. It has become a habit, even a pernicious custom with some of us to treat disease empirically or by symptomatic eclecticism. This has in no one disease been more pernicious than in influenza in which the numerous "algias," widely distributed throughout the body accompanied by great mental depression, seem to demand attention only to the immediate relief of symptoms. It is not remarkable that influenza should become a chronic infection, followed by innumerable complications and sequelæ, lowering the vitality of its victims, productive of neuralgia, neurasthenia, psychasthenia, insanities, more or less serious, organic, pulmonary, cardiac, abdominal and pelvic disorders, so long as "grip" continues to be a disease entity without a full appreciation of its gloomy prognosis.

Antipyrin, acetphenetidin, salophen, salicin, aspirin and the host of similar antineuralgics have no virtue in the treatment of acute influenza, but rather tend to the production of complications and sequelæ, markedly increasing the tendency toward chronic infection. Hexamethylenamin, another "therapeutic fad" in the treatment of influenza, I have found in this disease as well as in its complications to be without merit. The relief of the neuralgias of influenza by the local stimulation of the circulation by hydrotherapy proves the correctness of Romberg's saying that, "pain is the prayer of the nerve for better blood." Depressant phenetidin and coal-tar derivatives increase the volume of the toxic agent causing the pain, and further impoverish the physiologic effect of good blood. Burney Yeo[4] justly protests against "the reckless use of such drugs as salicin and antipyrin" on the ground that "tedious convalescence and cardiac debility are encouraged." The German committee which was formed after the epidemic of 1892 concluded that drugs had been abused in the treatment of influenza and that "rest in bed, the shunning of drastic agents, and above all, curbing the desire to leave the sick-room" until the noxious organism and its toxins are entirely eliminated from the system are rational procedures.

During acute influenza it is of first importance that our patients should be given the best possible chance to recover from the acute manifestations of the disease with the minimum amount of prostration and depression and to avoid as far as possible the occurrence of complications. Influenza is in its incipiency admittedly an inflammatory infection of the upper air-passages caused by a specific organism.

I am convinced that depressant antineuralgics have no place in the treatment of influenza, that their effects are harmful and tend to the production of great general depression and lowered vitality in a disease which is characterized primarily by great cortical and bulbar depression, and which tends to become chronic in proportion to the degree of immediate resistance.

The first step in the treatment should be the removal of the immediate cause, namely destruction of the organism via the avenues of invasion. At all times the symptomatic treatment of the disease should be made subsidiary to the destruction of the bacillus of Pfeiffer by local treatment of the air-passages and conservation of vitality and resistance by environment and natural agents, i. e., ventilation, alimentation and elimination.

The following procedure has proved satisfactory in the local treatment.

In the morning:

1. Thoroughly cleanse the nose and throat with a spray of Dobell's solution or 1 to 400 phenol solution at a temperature of 85 to 90 F.

2. Swab the nose and throat with

℞.	gm. or c.c.		
Balsami peruviani	.6		gr. x
Ichyolis	.3	or	gr. v
Glycerini qs. ....ad	60.		℥ii

In the evening:

1. Repeat the spray of Dobell's or phenol solution.

2. Have the patient inhale for one-half hour creosote, 8 c.c. to a quart of water.

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[1] Am. Jour. Med. Sc., February, 1911.

[2] Huchard, H.: Bull. de l'Acad. de méd., March 5, 1900.

[3] Filatow: Ann. de méd. et chir. inf., April 1 and 15, 1899.

[4] Burney Yeo: Lancet, London, March 2, 1895.

3. Swab the nose and throat with epinephrin.
4. Fifteen minutes later swab with argyrol, 10 per cent.

This procedure will probably be rejected by the busy practitioner or objected to by the patient. In my opinion it is the failure to treat the local infection in acute influenza that has resulted in the frequent complications and sequelæ producing chronic infection.

The evidence in favor of chronic invasion in influenza is so conclusive that we must cease to underestimate the malign effect of this disease on the public health and take radical measures to effect complete recoveries in patients suffering from acute "grip."

Hydrotherapy is of inestimable value in all cases of chronic influenza, acting as tonic, stimulant, eliminant and by enhancing phagocytosis. The observation of Winternitz[5] confirmed by Alois Strasser[6] in health and disease that, "after all thermic and mechanical procedures acting on the whole surface, as in cold sheet baths, plunges, half baths, all kind of douches, hot-air baths followed by cold procedures, Scotch douches, and cold full baths, there is an increase in the red blood-corpuscle count." "The leukocytes almost without exception also increased, as did the hemoglobin." Strasser[7] formulates the results of observations to determine the effect of hydriatic procedures on elimination and assimilation as follows:

> "Hydriatic procedures constantly increase the assimilation of nitrogen, the increase differing in intensity in different individuals; a diminution of body albumin does not necessarily occur if the nutrition is sufficient, but on the contrary even during the procedure albumin may be added." "Reaction does not seem, in the majority of cases, after a duration of three days' treatment, to exceed the effect of stimulation." "Nevertheless a larger number of clinical observations have established the fact indubitably that *assimilation is decidedly and enduringly enhanced* by water treatment provided, the latter is sufficiently prolonged."

I believe that we have in hydrotherapeutic measures a valuable agent in the treatment of chronic influenza, provided as much care be taken in prescribing the temperature, pressure and duration of baths of any kind as is taken with the minute instructions to the patient for medicinal agents.

Patients with prolonged indisposition and great depression accompanied by persistent cough, excretion of Pfeiffer's bacillus and irregular recurrence of fever with exacerbation of acute attacks, should be recommended to a climate which shows slight changes in extreme alterations of high and low temperature and barometric pressure and where relatively clear and sunshiny days predominate. Tropical or subtropical climates are bad for influenza by lowering resistance and increasing local congestion.

EXTENSIVE DERMATITIS MEDICAMENTOSA, FOLLOWING THE USE OF MIDOL (PYRAMIDON)

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Clinical Assistant in Dermatology, New York Skin and Cancer Hospital; Assistant Dermatologist, Roosevelt Hospital Dispensary.

A note[1] on the entrance of pyramidon in the "patent medicine" field, under the name of Midol, recalled to my mind the following interesting case, on file among my records:

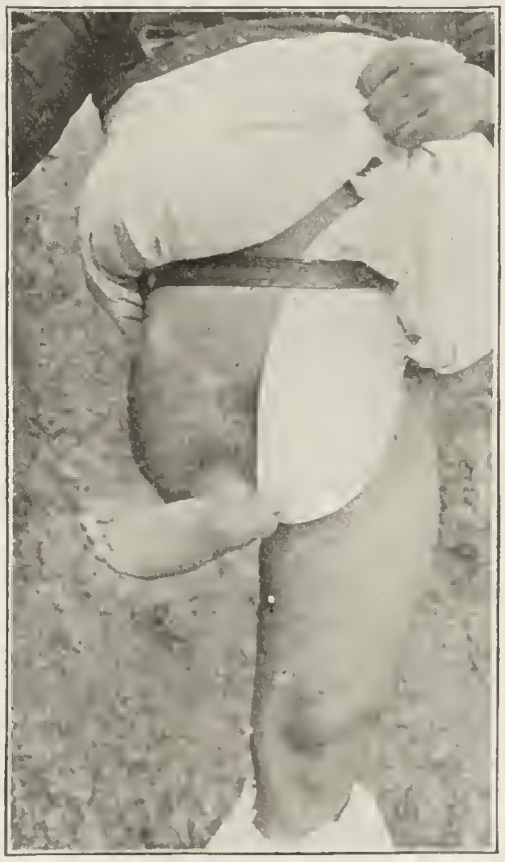
The patient, a man aged 52, with a tabes dorsalis of fifteen years' duration and a marked accentuation of the lightning-like pains, had been taking acetanilid for several years. He claims to have taken at times as much as 40 grains in the twenty-four hours. He has also occasionally taken morphin, but finds that acetanilid gives him more relief. For some weeks there occurred a considerable amelioration in the pains, during which time all medication was discontinued. Several weeks later and about a week before the case came under observation, the pains recurred with increased severity. After taking one or two doses of acetanilid with little or no relief, he began taking Midol in full doses for four days, at the end of which time he began to have considerable pruritus and irritation back of the ears and on the neck, which within a few hours involved the trunk. The itching was very severe, the patient's sleep being disturbed. This condition progressively increased, until when seen three days after the onset of the trouble, he presented a severe dermatitis medicamentosa. The lower lip was enormously swollen and edematous, rendering speech difficult. There was an extensive erythematopapular eruption on the face, chest and back; the papules were very large. There were also several very itchy wheals, some of which were over an inch in diameter. The patient complained of an intense pruritus of the scalp, but nothing other than scratch-marks could be seen. The skin was markedly hyperesthetic. A large number of purpuric spots were observed on the anterior aspect of the legs and feet. I immediately forbade further use of the Midol, and prescribed an alkaline, laxative mixture. For external use the patient was given a lotion of magnesia and zinc, with some ichthyol. Within three days the eruption cleared up entirely, only the purpuric spots remaining, but these eventually disappeared after a few weeks. This case proves that pyramidon can as easily cause a drug eruption as the other better-known coal-tar derivatives.

40 East Forty-First Street.

CONGENITAL DEFECT IN AN ARMENIAN

A. R. Hoover, M.D., Talas, Cesarea, Turkey

The subject of the accompanying photograph is a strong young Armenian lad of 19 years. He is one of a family of five, two members of which were twins who died in infancy; the others are alive and well. There is no history of consanguinity or physical defect as far back as the grandparents; the earlier family history is not known. I have known the patient for one year; he is in regular attendance at school, and seems to be in exceptionally good health.



Congenital deformity in an Armenian.

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5. Winternitz: Bl. f. klin. Hydrotherapie, February, 1893.
6. Strasser, Alois: Bl. f. klin. Hydrotherapie, November, 1893.
7. Strasser: Hydrotherapy, Baruch.
1. The Journal A. M. A., August 10, p. 461.

ANURIA FOLLOWING THE INTRAVENOUS ADMINISTRATION OF SALVARSAN

George R. Livermore, M.D., Memphis

C. S., white, man, aged 19, had a chancre in May, 1911. Mucous patches appeared in the mouth one month later. He was treated in Birmingham for six months, with protoiodid of mercury pills, but has had no treatment for the past month, and no further symptoms. Examination showed no evidence of syphilis, except general adenopathy. The heart, eyes, lungs and kidneys were normal.

An intravenous injection of 0.55 gm. salvarsan was given in a hospital at 9 a. m., July 2, 1912. Temperature was 98.6; pulse, 60 and respiration 20. At 10 a. m. the patient complained of headache and vomited 8 ounces of yellow fluid. He slept for one hour; then had large soft bowel movement. Temperature was 105; pulse, 106 and respiration 34. The temperature gradually fell to 101 at 6 p. m. The bowels moved at 6 p. m. and again at 12 midnight. The patient voided urine both times, but only a small amount at midnight. The bowels moved again at 6 a. m. the next day, but no urine was passed. At 9 a. m. the temperature was 101.4; pulse, 100 and respiration 34. The patient seemed drowsy and said he felt sick all over. He was given 8 ounces of saline per rectum; nitroglycerin 1/100 grain hypodermatically, and a hot-water bottle was applied over the kidneys; also plenty of hot water by mouth. At 2:30 p. m. temperature was 102; pulse 108 and respiration 30, and the patient had voided no urine. He was given strychnin 1/30 grain and nitroglycerin 1/100 grain hypodermatically every four hours, and a hot pack for ten minutes, with hypodermoclysis of 1 pint of saline solution. At 4 p. m. the patient vomited a large amount of dark green fluid. The hot pack was repeated at 6 p. m., and potassium bicarbonate (30 grains in one-half glass of water) was given. At 9 p. m., he vomited 10 ounces of greenish fluid. Saline solution by the Murphy method was begun at 9 p. m., and continued through the night. At 9 a. m. July 3, calomel one-half grain every half hour, for six doses, and theobromin sodium salicylate with essence of pepsin every four hours were given. Patient vomited 12 ounces of greenish fluid at 9:30. Murphy drip was continued. The bowels moved at 11 a. m. and again at 12 m. At 2 p. m. the patient was catheterized, and 5 ounces of urine were obtained. Murphy drip was continued through afternoon and night. At 8 p. m., 6 ounces of urine were obtained by catheter. The patient vomited several times during the night, and the bowels moved three times. From this time on, he voided urine in sufficient quantity, and made a good recovery. The first urine contained a large amount of albumin, and all kinds of casts. Subsequent specimens have improved till now they contain no albumin and few hyaline casts.

The only explanation for the suppression of urine is an idiosyncrasy for arsenic. The technic employed was the one I always use. The solutions were made with pure distilled, sterile water, and the patient's urine was normal in every respect before salvarsan was given.

NON-ADHERENT MEMBRANOUS PATCH IN PERICOLITIS

Victor F. Marshall, M.D., Appleton, Wis.

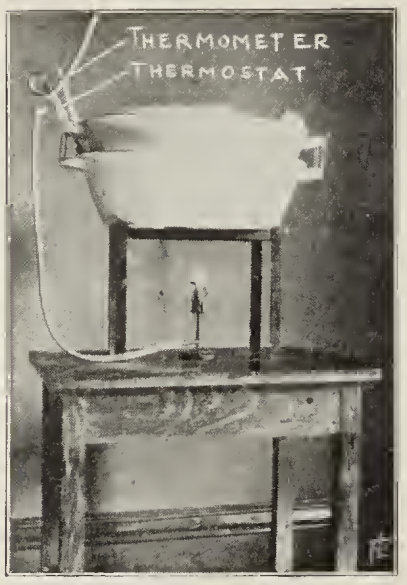
The literature is replete with numerous contributions by various authors concerning membranous pericolitis, Jackson's membrane and other terms designating the same condition, with many theories as to its etiology. I cannot add anything to the present conception of this condition, but wish merely to report the following with the hope that it may serve to throw light on the pathology of this rather obscure condition.

Miss M., aged 19 years, was operated on at Theda Clark Memorial Hospital, Neenah, Wis., Aug. 17, 1912, for right-sided pain confined to the right hypochondriac and ileocecal region. The attack was of two days' duration. Temperature was 99.5 F., pulse 90. Constipation and some anorexia were present, but no vomiting. There was rigidity of the right rectus muscle. The urine was normal. A diagnosis was made of an appendicitis or a pericolitis with bands or perhaps both together. Through a right rectus incision the appendix, which was slightly congested, was removed. The pericolitic condition was very pronounced and several bands running transversely over the ascending colon and cecum, producing constriction, necessitated division. On further investigation the left side of the abdomen proved to be negative, but a very pronounced patch several inches in area of this membrane was noted on the peritoneal surface to the left of the umbilicus. It was non-adherent to the adjacent underlying viscera.

A HOME-MADE INFANT INCUBATOR

Fred E. Leavitt, M.D., St. Paul

Many improvised infant incubators have been devised, but for simplicity of construction and uniformity of heat, one made by Dr. D. D. Turnacliff of the Midway General Hospital, and shown in the accompanying illustration, has proved as satisfactory as any we have used, not excepting the more elaborate and expensive sort in common use.



A home-made infant incubator.

A table, a metal stand, rubber gas-tubing, a thermometer, a piece of string and two infant bath-tubs were all the parts used, except an ordinary gas-regulating glass tube and an incubator lamp from the laboratory. The lower tub was partly filled with water in which rested the upper or outer tub with the baby. The thermostat was regulated to keep the water at a uniform temperature of 40 C. (104 F.). Where neither gas nor the thermostat are to be had, the water may be kept warm by means of a small kerosene lamp, a night lamp, or even by a tallow candle.

The apparatus is so simple and so easily extemporized that its use need not be limited to premature infants, but will be of service whenever a delicate or feeble child needs artificial heat constantly applied.

A PECULIAR CASE OF COMMON SALT POISONING

O. H. Campbell, M.D., St. Louis

The patient, R. G., was a healthy boy of 5 years. Parents were living and well. Patient had had mumps at 4 years and measles at 3 years; no other illness. This summer he had not slept well and the mother believed that the child might have worms. On the advice of a friend the mother decided to administer a salt enema. The suggestion had been to use one tablespoonful in a quart of water, but she misunderstood and used one pound of salt in a quart of water.

The enema was given at 5 p. m., July 13. In from five to ten minutes the child cried, with severe pains in head, became intensely thirsty, vomited violently, and soon began to purge violently; within thirty minutes he became unconscious and had one convulsion after another. I saw him at 6:30 p. m. and found him unconscious and unable to swallow, with one clonic spasm quickly following another. The temperature was 99.2, pulse 150, bowels moving often, passing blood and mucus. At 8 p. m. the temperature was 102.5, pulse 170; the eyes were crossed, and all of the symptoms seemed worse. At 9 p. m. the temperature was 104.6, pulse about 200. All of the symptoms seemed worse and continued to increase in severity until 10 p. m., when the child died. I was unable to have a post-mortem examination. I have searched the literature carefully but can find no parallel case.

3542 Washington Avenue.

COMMON SALT AND CONSTIPATION

L. S. Hine, M.D., Oakalla, Texas

The use of common salt in constipation is not new, but the remedy appears to have been neglected. This is doubtless owing to improper technic in its administration. I have tested the following method of giving it and have prescribed it to a considerable number of patients, many of whom were seriously constipated. The solution should be taken on an empty stomach, preferably before breakfast; in some cases it is desirable that the patient should also have omitted supper. A pint of sterilized water, hot as hot coffee, with the addition of a couple of teaspoonfuls of table salt, constitutes the morning dose.

Instruct the patient to sit down by the steaming bowl and sip the solution by the tablespoonful, to take time for it, not to be in a hurry, and to breathe deeply. This last is a stimulus to peristalsis. This dose is followed by an evacuation within a short time—from one-half to one hour. The passages are watery, but differ from those produced by saline cathartics in that the common salt carries off scybalous matter and plugs of débris which the colon is so prone to retain. This method is effective not only with young people but also with those of advanced years. It is also useful as an occasional laxative.

Therapeutics

FIRST AID IN THE FAMILY

A discussion of first aid in the family does not concern the treatment of serious injuries like drowning, overheating, sunstroke, epileptic convulsions, apoplexies, etc., but should be restricted to slight disabilities or ailments. It certainly is unwise, and is not advocated in this article, to encourage a layman with a small, if any, amount of medical knowledge, to treat a patient for even twenty-four hours before the physician is summoned.

If it is advisable in cities, or if it is a necessity in a small community remote from immediate medical aid, for a family to be prepared to treat simple injuries; fainting; simple gastro-intestinal disturbances as vomiting, constipation or diarrhea; beginning colds of the nose, throat or bronchial tubes; or some sudden rise of temperature, it is well to outline what the family may safely use and should have in some cabinet or closet.

This family cabinet might well contain such articles as a graduate, medicine-droppers, water-bags, a fountain syringe, a Davidson syringe, some simple antiseptic for external use (as advised by the family physician), simple laxatives and cathartics, a pure castor oil (with instructions as to the best method of administering it), boric acid, hydrogen peroxid solution if frequently renewed, tincture of iodin in an air-tight bottle and not too long kept, some simple emetic as mustard or syrup of ipecac, some simple antiseptic, a soothing ointment (as suggested by the family physician), good whisky or brandy, aromatic ammonia in an air-tight bottle, smelling-salts, pure sodium bicarbonate, perhaps essence of peppermint, oil of cloves for a sore gum or an aching tooth, some simple mouth-wash or gargle, etc.; in other words, simple external and harmless internal drugs or preparations. The cabinet should contain several sorts and sizes of bandages and simple appliances for minor injuries. Printed instructions should describe the best "first" treatment for a burn, and picric acid should not be part of this emergency treatment. Picric acid can do a great deal of harm when misused on burns, and the exact way it should be used, and the amount, should be determined by the character of the burn and what the surgeon deems advisable. Picric acid should not be a household remedy.

The family should not have or use, without a physician's instructions to some certain person for some specific reason, any strong cardiac, narcotic or soporific drug. Some of these preparations may do harm; others are useless, and the laity should not be encouraged to have faith in a preparation or drug that is worthless. It is much better to teach them a mental science cure, or give them psychic treatment.

SOME PREPARATIONS WHICH SHOULD NOT BE HOUSEHOLD REMEDIES

The following "don'ts" apply to drugs which have at times been recommended to families for use in emergency, or have become household remedies through their having been frequently ordered by physicians; it is as good a rule for the layman as for the physician never to do any harm whatever else may be done:

1. It is unjustifiable to allow a layman to use a drug like aconite in any form, especially in the form of a strong tincture of the root, to say nothing of the fact that the solution might become stronger by evaporation of alcohol if long kept, or might deteriorate in other respects. If a physician thinks that a given family should have an aconite or cold tablet preparation, he can furnish it with his pet "rhinitis" or "cold tablets," with full instructions how they shall be taken. The only possible use to which the family could put, or should put, aconite would be in a beginning cold. No one would advise its use by a layman in a possible beginning pneumonia.

2. The same discussion under aconite will apply to gelsemium. The only possible excuse for a family having gelsemium would be that a member of it had recurrent pain in a nerve and gelsemium had been found to be of value. This then is not a family remedy, but a specific one for an individual.

3. A frequently used substance is sweet spirit of niter. In the first place, it more or less rapidly deteriorates, depending on the temperature and the frequency with which the bottle is opened. To be of value as sweet spirit of niter, it must be freshly prepared. When freshly prepared, this solution is neutral to litmus paper, but when long kept, especially if exposed to the air and light, it acquires an acid reaction. It readily loses its nitrous ether, and then could have no action for good, even if its activity when pure and fresh is considered efficient.

While many physicians believe that sweet spirit of niter has valuable diaphoretic and diuretic activities, others believe that such action is largely a matter of hereditary belief. If pure, it certainly does no harm, and may do some good. Small doses given frequently in hot water or hot lemonade, with the patient warmly covered up or in a warm room, certainly tend to promote sweating. Whether the hot lemonade would not work as well is a question for each physician to decide. On the other hand, if it is given in larger doses, at less frequent intervals, in ice-water, with the patient in a cool room and kept cool, diuresis may be caused. Whether this also has much to do with the action of the drug, or is due to the ice-water and the rest of the treatment is another question for the physician to decide. Certainly, as a remedy to retain in the household cabinet it is inadvisable. It should be freshly obtained from a trustworthy druggist.

4. A much landed preparation for use in various upset conditions of the stomach is the official mixture of

rhubarb and soda. While it can do no harm, it seems unwise ever to recommend it for family use.

The official mixture of rhubarb and soda contains:

	gm. or c.c.			
Sodium bicarbonate	3	5		gr. lxiv
Fluidextract of rhubarb..	1	5		♏ xxx
Fluidextract of ipecac....	0	3	or	♏ vi
Glycerin	35	0		fl.ʒ xii
Spirit of peppermint.....	3	5		♏ lxxii
Water, enough to make..	100	0		fl.℥ iv

This is a mixture that has for many years been largely used in most hospitals. The young doctor starts out in his individual practice with an enormous amount of faith in this disagreeable-tasting preparation. No one can question that the ingredients are valuable, and if any physician wishes to use this preparation in preference to some other gastro-intestinal treatment, nothing can be said against his decision. On the other hand, some patients are nauseated by it, largely because of the glycerin, perhaps; the rhubarb may be too active, or inefficient, and another laxative must be given; and the amount of alkali may be totally insufficient for what is desired. The scientific physician, who thinks it is as wise to fit his prescription to his patient as it is to make scientific examinations positively to determine his diagnosis, will rarely find it advisable to use this mixture. If the patient needs a cathartic, he needs it at once. If he needs a laxative (three times a day, or more frequently, as the above is generally administered), the mixture is generally unsatisfactory. As such it either does not act at all, or it causes too frequent movements. If it does not act at all and is useless, why have the disagreeable-tasting rhubarb in the preparation? The minute does of fluidextract of ipecac, each teaspoonful or 5 c.c. containing but 0.015 gm., or about one-fourth minim, makes its addition an absurdity, and it is quite probable that most physicians who order this mixture have forgotten that it contains a fluidextract of ipecac. But why continue to use a mixture, or why require its officialization in the Pharmacopeia, when it contains ingredients that have no activity, especially in the dose presented?

If a gastro-intestinal condition requires an alkali, it is better to give it in an amount that is of value, possibly combined with a bismuth.

That glycerin is of value as a laxative and as an antiseptic, and that peppermint is a good carminative, there can be no question; but glycerin is rarely ordered except in a mixture to be taken internally, perhaps not frequently enough. Probably few physicians remember that the mixture of rhubarb and soda is really a glycerin medication.

The matter resolves itself into the following sequence of events: The patient requires some gastro-intestinal treatment. He is given a cathartic, his diet is regulated and a prescription is written for the mixture of rhubarb and soda. The patient improves or recovers, and the physician is sure the rhubarb and soda mixture did it. As a matter of fact, it is probably the glycerin, or at least the treatment did him no harm. In other words, it is the prescription plus faith and glycerin.

This digression in the discussion of household remedies is not to ridicule either the preparation or the treatment, but is to urge the physician to analyze the mixed preparation that he orders to see what its actual value is, and to decide if that mixture is really just what he desires for his patient, and to urge him not to order by hospital routine.

5. Another much-lauded home remedy, even carelessly recommended by physicians to the laity, is "Sun cholera mixture." This preparation is frequently bought and used indiscriminately, and often does harm. It is generally inadvisable to stop a diarrhea immediately, as it shuts up in the intestines a lot of putrefactive and fermentative material that should be evacuated. In other words, it may cause a prolonged diarrhea and actual enteritis unless the bowels are relieved. Therefore in the first stage of a diarrhea Sun cholera mixture would generally be positively contra-indicated. In the second stage when retardation of intestinal peristalsis is often advisable, the physician who prescribes Sun cholera mixture is prescribing a nostrum, and 0.1 grain of morphin used infrequently, or paregoric if one prefers, will act as satisfactorily.

While there may be several formulas of Sun cholera mixture, the following is one:

Laudanum
Spirits of camphor
Tincture of capsicum
Essence of peppermint
Tincture of rhubarb, equal parts

It does not seem necessary to use the above mixture, or to advise its retention as a household remedy.

6. Favorite cough syrups with druggists and with physicians, and therefore used by many people for coughs and colds, are the compound syrups of white pine, of which there are a number on the market. Some contain sedatives, as heroin or codein; others do not. All are sweetish, stomach-disturbing mixtures. It cannot be too frequently repeated that the presence of a cough is no reason for upsetting a patient's stomach by sweet, syrupy cough mixtures, and it is always inadvisable. If ammonium chlorid is needed it should be given in a sour mixture or administered in lemonade. If terpin hydrate is advisable, it should be given in sufficient dose to be of value; the dose in liquid preparations is insufficient for adults. Terpin hydrate is very insoluble, and no teaspoonful of liquid can contain more than 0.12 gm., or 2 grains, if it contains that. The adult dose is 0.3 gm. (5 grains) every four hours. As it is tasteless, it can be administered in a tablet, to be crushed, or in powder. It is a question whether there is any real good pharmacologic or therapeutic reason for administering a syrup of white pine.

7. Turpentine in some form is often used by the laity. A rectified oil of turpentine might be kept on hand for preparing hot stupes for applications to the abdomen or other parts of the body. It might be added to weaker liniments to make them more irritant; but if used carelessly it can cause blistering, and it really seems hardly necessary to have it in an emergency cabinet to be used without instructions from the physician.

8. Narcotics, such as morphin, codein or heroin, are rarely advisable for a household to possess. If one of these drugs is needed in a special family, for a special patient, for a special reason, the family physician should decide which it should be, and the strength.

It is rarely advisable for a family to possess a hypodermic syringe, and then only for some specific reason. Every family will have pain somewhere sometime. If that pain recurs, a patient might ascertain that not only the morphin, but the combination of the hypodermic and the morphin will quickly stop it, and the habit be readily acquired.

Even in small doses, and even used just for a cold, heroin is inadvisable for household use, and should never be in tablet form or in cough mixture form, unless the physician prescribes it.

9. A clinical thermometer in the family is generally inadvisable. The watching of the rise and fall of any child's temperature is something to be deprecated, unless the mother is particularly sensible, or her physician at a distance.

EMERGENCY TREATMENT OF SIMPLE DISORDERS

Now, specifically, what could well be in such an emergency cabinet? First we may discuss acute colds, and the family (and this means the mother) should understand the value of diminished food or total abstinence for a short time; the administration of some simple hot drink, as hot lemonade; the value of a hot bath and putting the patient to bed, and the value of a simple cathartic as the proper dose of licorice powder, castor oil, some preparation of cascara, a compound aloin tablet, a Seidlitz powder, or an effervescent sodium phosphate. The household could well have a few tablets, with proper instructions, of the family physician's rhinitis formula. Hydrogen peroxid in proper dilution and boric acid in saturated solution may be recommended by the family physician for gargles in the strength and frequency which seem to him advisable for use until he sees the patient. Some simple throat or mouth wash, as an alkaline antiseptic tablet (Seiler's formula) in solution or the Liquor Antisepticus Alkalinus N. F., diluted, are pleasant, efficient sedative preparations to have on hand. The composition of Seiler's antiseptic tablets is as follows:

	gm.		
Sodium bicarbonate	30	00	℥ 1
Borax	30	00	℥ 1
Sodium benzoate	1	30	gr. xx
Sodium salicylate	1	30 or	gr. xx
Eucalyptol	0	70	gr. x
Oil of wintergreen.............	0	25	gr. iii or iv
Menthol	0	35	gr. v

Mix and make into tablets of 1 gm. (15 grains) each. (From Hager's "Handbuch der pharm. Praxis," 1903, p. 502.)

The mother should be taught that an acute diarrhea, with or without vomiting, should first be treated with a cathartic, and that no food, except possibly milk if deemed necessary, is advisable, with the administration of possibly some bismuth subcarbonate and phenyl salicylate (salol) powders, in such doses as the family physician deems best for the family to have on hand. The family should understand that with or without vomiting diarrhea gets well quickest when the patient is kept in bed and the abdomen kept warm.

If there is vomiting for any reason, the greatest sedative is large draughts of hot water until the vomited liquid is clean; then give nothing, except possibly an alkaline effervescent like vichy, possibly pieces of ice to suck, possibly one of the bismuth powders perhaps with a little sodium bicarbonate as previously named, and perhaps a mustard paste or paper on the abdomen.

If there is much fever with or without any of the above-mentioned causes, the mother should be taught that a purgative, the withholding of food, sponging of the patient with first hot water then perhaps later with tepid water, the sucking of ice and the taking of cool drinks are the only ways of reducing temperature that she should undertake without the orders of her physician.

The most frequent physical disorder of the American people is constipation, and it is the most mismanaged of all disturbances. The mother should know that the way to cure constipation is to prevent it, and the children should be taught (particularly girls) that one special time of day should be allotted to the movement of the bowels, preferably after breakfast. The child or adult should attend to this matter whether there is immediate desire or not. It is not the purpose of this article to discuss the various causes of constipation; it is sufficient to state that the articles of food which are distinctly laxative should be listed for the mother, and then she may administer or withhold these depending on the condition of the child's bowels. The various simple fruits, especially taken at supper-time, or an apple or orange at bedtime, are conducive to a movement of the bowels in the morning. Plenty of cold water on arising or while dressing in the morning is conducive to the movement of the bowels after breakfast. The consequences of troublesome and prolonged constipation should be stated to the mother of the family and the importance of proper care of the bowels urged. Young children will take sufficient exercise, but older persons with constipation often do not have sufficient exercise, and exercise, even walking, will lessen constipation. The family should distinctly understand that it is a serious mistake to take a cathartic frequently, and that it is to be regretted when a laxative must be constantly taken. This is more especially true with the young; it means that soon they will be wedded to the habit. Later it is not serious if a laxative tablet must be taken daily, provided that this represents drugs which do not make the condition worse or cause a necessity later for larger doses. The women of the family should be told that long corsets are not conducive to proper evacuation of the bowels, and that to obtain the best position for normal bowel movements the individual must be able to lean over and not sit upright.

The best laxatives are vegetable drugs, and of these aloes and cascara sagrada are the most valuable from all points of view. Cascara varies enormously in its activity and its purity, and the family physician should aid in deciding which preparation is the best for the family to keep on hand. Aloin represents very well the activities of crude aloes, and the addition of other drugs to it, to prevent griping, makes a tablet that has long proved itself of great value. A very good formula for an aloin tablet, in dose sufficient for an adult who has long been constipated, and a tablet that will not necessitate increase of the dose, is as follows:

	gm.		
Sulphate of strychnin...........	0	0015	gr. 1/40
Aloin	0	02	gr. ⅓
Powdered ipecac	0	03	gr. ½
Extract of belladonna...........	0	006	gr. 1/10

Inflammation of the eyes or ears, and especially pain in the ears, should immediately call for advice from the family physician. Of all neglected parts of the body, the ear is probably the most neglected or mismanaged. Even the family physician should quickly recognize that the ear needs the treatment of a specialist.

A swollen joint, or even a pain in a joint should be tampered with only a few hours by the family. Such a condition calls for the diagnosis of a physician.

It is presumed that with the general education of mothers as to proper ventilation, proper clothing, proper diet, etc., for her children, she is also taught how to care for the mouth and teeth. Cleanliness and care of the teeth constitute not an emergency, but a daily promoter of the general health.

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[*For other information see second page following reading matter*]

SATURDAY, OCTOBER 5, 1912

IS FAT AN INDISPENSABLE DIETARY COMPONENT?

The proximate principles — proteins, carbohydrates and fats — are so indelibly associated with the nutritive requirements of the animal organism that it almost awakens a sense of the ridiculous to inquire whether these foodstuffs are all in truth indispensable to the body. Life without protein is equivalent to life without nitrogen, a manifest impossibility. Perhaps, in view of the recent feeding experiments of Abderhalden,[1] in which the completely digested fragments of protein, the amino-acids, have been used with apparent success for nutritive purposes, we ought rather to speak of proteins or their constituent amino-acid complexes as essential for prolonged existence. The effect of a lack of carbohydrate is familiar to the physician in the manifestations of acidosis and ketonuria by which it is accompanied. The exclusion of starch and sugar from the diet for even a day or two leaves unmistakable evidences of pathologic consequences in otherwise healthy individuals.

How about omission of fats? This question seems scarcely to have been asked. Technically it is a difficult one to approach in an experimental way; for practically every familiar food material which enters into the customary dietaries contains some modicum of fat or fat-like material, which can be removed completely only with the expenditure of considerable effort and skill. These inherent difficulties probably explain why this apparently fundamental question in nutrition has not been answered before.

Osborne and Mendel[2] have lately approached the problem in feeding experiments with mixtures of isolated food substances conducted on rats. They succeeded in inducing adequate growth in these animals over periods of many weeks on diets of fat-free foods. So far as one can judge the results were quite as successful as in the growth which follows the ingestion of the natural diet of the animals. Incidentally it may be noted that their dietaries were essentially "lipoid-free," so that the vexed question of the rôle of the "lipoids" is again opened for discussion. It is interesting to speculate on the chemical character of the tissue-fat which must have been manufactured out of non-fat precursors in the experiment of Osborne and Mendel. After all, the results need not surprise us when the well-known use of skimmed milk as an almost exclusive ration in the case of certain growing animals is brought to mind.

PARABIOSIS AS AN EXPERIMENTAL PROCEDURE

Although the possibility of the successful permanent union of two animals of the same race has been known for many years, it received no serious attention as a method for the investigation of pathologic problems until 1908.[1] Sauerbruch and Heyde introduced the word "parabiosis" to designate the outcome of the surgical union of two individuals, with a resultant mutual anatomic independence. To Sauerbruch and Heyde and to Morpurgo, in particular, we owe the development of the technic by which two animals are united either by means of bridges of skin, by union of certain muscles, such as those of the abdomen, or by a direct union of the two peritoneal cavities so that a free communication is permanently established between them. A few comparable parabiotic human twins are known in medical literature.

A fundamental point to be established before animals in parabiosis can be satisfactorily employed for the investigation of biologic, pathologic or clinical problems concerns the extent to which, if at all, there is any interchange of blood and humors between the bodies of the two partners which have grown together. Obviously if their relationship is solely one of contiguity, little physiologic influence could be expected to be exerted on one organism through procedures directed toward its partner. The question as to whether vascular anastomoses actually become established between the parabiotic partners has been much debated. The consensus of evidence points to the possibility, although one would scarcely expect larger blood-vessels to be developed between the two individuals in any event. That communication can be established through lymph-channels is more than likely; and when the peritoneal cavities are directly connected, an open path for the transference of fluids from one organism to the other is inevitable. In any case the processes of diffusion are possible between the conjoined tissues.

Experiments in successful cases of parabiosis have shown that foreign compounds, such as iodids or bromids, introduced into one of the united individuals, are excreted by the partner, leaving no chance to doubt that a humoral exchange is developed. The great difficulties which attend the successful production of lasting parabiosis have raised the inquiry as to whether an exchange between the proteins of the two individuals does not lead to a degree of hypersensitiveness which is most unfavorable to the health of one or both of the partners. The phenomena of anaphylaxis suggest themselves at once.

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[1] Compare Abderhalden, E.: Synthese der Zellbausteine in Pflanze und Tier, Berlin, 1912.

[2] Osborne, T. B., and Mendel, L. B.: Feeding Experiments with Fat-Free Food Mixtures, Jour. Biol. Chem., 1912, xii, 81.

[1] For the literature on this subject consult Heyde, M.: Ueber die Parabiose, Ergebn. d. Physiol., 1912, xii, 564.

By a study of parabiotic animals it has been hoped to solve some of the vexed questions of internal secretion, the compensatory action of organs, the kidney functions and the production of edema. Extirpation of the kidneys of one partner has been followed by a compensatory hypertrophy of the renal organs of the other. The vicarious action of one set of kidneys, as a rule, sooner or later fails; for the nephrectomized individual usually shows symptoms of decline in due course of time. This fact, among others, has led anew to the suggestion that the failure is attributable not to any deficiency in the elimination of tissue waste, i. e., urinary products, but rather to the lack of an internal secretion of the kidney essential for nutritive equilibrium. We are not prepared at present to defend the theory of an internal secretion of the kidney. The illustration cited is intended to exemplify the type of problem for which parabiosis has furnished a mode of attack.

In pancreatic diabetes evidence for the existence of a circulating internal secretory product has been sought by recourse to parabiosis. When the pancreas is extirpated from one partner, the sound individual can apparently delay the onset of the diabetes in the companion operated on or modify its severity to some degree. The influence of the presence or absence of the sexual glands on the development of secondary sexual characters has been drawn into the scope of the inquiries associated with parabiosis. Likewise the intimate interrelation of healthy and infected organisms has been called on to throw light on the mechanism of immunity. It is too early to report progress in any of these fields of application, but a new method of research usually justifies the promise of new light on the subject.

THE NEW SALVARSAN

There has always been more or less inconvenience connected with the administration of salvarsan. It has to be dissolved and the solution neutralized immediately before its use, a somewhat difficult procedure for the ordinary physician. The manufacturers have now introduced a new product — neosalvarsan — which they describe as being practically identical with salvarsan in its effects, but which dissolves in water to form a neutral solution and which can therefore be injected directly without further manipulation. Neosalvarsan, like its predecessor, is a patented product, so that the duration of proprietary control of Ehrlich's discovery is extended a year or so to the commercial advantage of the promoters, as usual. In this new preparation the basis of salvarsan (3-diamino-4-dihydroxy-1-arseno-benzene) is not combined with hydrochloric acid to form the hydrochlorid, but with the radical of sodium formaldehydsulphoxylate or sodium methanalsulphoxylate $(CH_2O)OSNa$, to yield the compound present in neosalvarsan. Approximately two parts of this modified salvarsan (sodium-3-diamino-4-dihydroxy-1-arseno-benzene-methanalsulphoxylate, $NH_2.OH.C_6H_3.As:As.C_6H_3.OH.NH(CH_2O)OSNa$), mixed with one part of inert material constitute the preparation now on the market under the name of neosalvarsan.

Sodium formaldehydsulphoxylate is an interesting chemical compound. It was discovered in 1906 by Bernthsen, head chemist of the Baden Anilin and Soda Works, formerly professor of chemistry at Heidelberg. Asserting that the product was of value in etching colored textiles and as a reducing agent in calico printing with indigo, the Baden Anilin and Soda Works secured a patent on a process for making this product; and about six months later the Farbwerke vorm. Meister Lucius und Brüning — the firm which makes salvarsan — patented a different process for making the same substance. This is a good example of the process-patent — the German method of protecting new discoveries.

Bernthsen believes that this is a salt of formaldehydsulphoxylic acid; he assumes that the latter is a condensation product of formaldehyd, CH_2O, and an acid, H_2SO_2, which appears to be the hyposulphurous acid formerly discussed in chemistries as theoretically possible. As Bernthsen believes this acid to possess the structure $\text{H-}\underset{\underset{\text{O}}{\|}}{\text{S}}\text{-O-H}$, he calls it sulphoxylic acid to show the relation of its radical $\text{-}\overset{\overset{\text{O}}{\|}}{\text{S}}\text{-O-H}$ to the carboxylic group $\text{-}\overset{\overset{\text{O}}{\|}}{\text{C}}\text{-O-H}$, commonly found in organic acids, sulphur having taken the place of carbon.

Not only is the composition of neosalvarsan most interesting, but also its evolution illustrates the advantages possessed by large factories, for here it has been found possible to utilize the chemical introduced as an aid in calico printing to convert the patented chemical salvarsan into a new body, in which not only the new body but also the substances used to make it are protected by patent. Naturally if neosalvarsan proves equal to salvarsan without the drawbacks of the latter, it will come into general use in place of salvarsan, and the additional patent will keep its manufacture in the control of the makers more securely than in the case of salvarsan.

THE PRESENT POSITION OF SALVARSAN IN SYPHILIS

The various papers and discussions on salvarsan therapy which appear in this number of The Journal call attention to the shifting position of that debated remedy. The fact is evident from current literature that salvarsan has not lived up to the early promises for it for it does "not effect a complete cure of syphilis in the sense Ehrlich anticipated." Enthusiastic advocates report cures in a certain number of early cases based on negative Wassermann findings over periods ranging up to two years; but clinical and serologic results alike prove that the remedy can no more be credited with definite cure in routine cases of syphilis than can mercury. As Dr. Howard Fox says, "It would be possible for a prejudiced observer to prove his case in favor of either mercury or salvarsan." The most incontrovertible evidence of the incompleteness of the action of salvarsan is the fact that mercury is now universally called in to its aid. In view of the early sensation caused by salvarsan and the condition even now of the lay and to a great extent of the professional mind in regard to it, the most important thing to hold to at present is that, as a general fact, salvarsan does not cure syphilis. To rely on it to do so is to court disaster. If the practitioner uses salvarsan, he should combine with it established measures of treatment, and patients should still be treated in the way which long experience has shown to be of most benefit.

Of the value of salvarsan as a symptomatic remedy in syphilis there is unanimity of opinion. It causes syphilitic lesions to disappear, some with great rapidity, others less rapidly. Indeed, its effect on many syphilitic lesions is so definite that there would be no doubt of its permanent addition to the routine means of treatment of syphilis were it not for the uncertainty as to its dangers, for it is of the dangers of salvarsan that we know least. This we do know: its use is not free from grave accidents, especially to the nervous system, and from occasional deaths. It is quite probable that serious results, particularly deaths following the intravenous injection of salvarsan, are much more frequent than would be inferred from the literature, even with the innumerable accidents which are recorded. Thus, in the discussion of the papers in the symposium on salvarsan published in this issue, four cases of encephalitis occurring in the knowledge of one man within twelve months and one case of optic atrophy following salvarsan were cited. Ehrlich and his school have exercised great ingenuity in explaining away many of these accidents; in fact, to account for large groups of them the whole past study of syphilis has been indicted as incompetent and the statement made that these sequelæ are part of syphilis, hitherto unrecognized or usually overlooked. Nevertheless the serious accidents from salvarsan cannot be overlooked. The dangers from its use, however, would be as nothing if it cured syphilis; no one, for example, questions the obligation to use anesthetics, even if an occasional death occurs from them.

In the final analysis of the question of salvarsan therapy at present we are brought down to the following situation: It cannot justly be said that salvarsan cures syphilis any more than it can be said that mercury cures syphilis. That being the case, is it of sufficient value in syphilis to overbalance its untoward effects? In certain conditions there can be no doubt that it is of much value; but whether this will prove true of its use as a routine remedy in syphilis will not be established until we become familiar with its dangers, both immediate and remote.

PATHOGENIC YEASTS

Biologically a rather close relationship exists between yeasts and bacteria. The action of certain yeasts in brewing, bread-making and various other fermentative processes is so commonplace an occurrence that it is too often forgotten that, as in the case of bacteria, the processes which are beneficial and harmless under some conditions may become virulent and destructive under others. Since Gilchrist first described yeast-like organisms in sections from a skin lesion in 1894, it has been known that certain yeasts could become pathogenic for man. A considerable literature has grown up describing lesions produced by yeasts on skin and mucous membranes. American observers have been foremost in this work, and of these Ricketts, Hektoen, Ormsby, Hyde, Montgomery and Pusey deserve special mention.

The clinical picture of dermal and mucosal yeast infections, variously named blastomycosis, oidiomycosis, saccharomycosis, or best, simply mycosis, is fairly constant, although at least four distinct types of yeast fungi have been found. Apparently the clinical picture is the same for all four types and for the numerous transition forms between them. The infection typically pursues a chronic course, rarely tending toward spontaneous healing, and produces little or no constitutional or lymphatic reaction. The skin lesions may ulcerate or subcutaneous abscesses and tubercles may form. Any part of the body may be affected. A septic condition with invasion of the circulation and wide metastasis may occur and be fatal, even with no skin lesions. In 1908 Montgomery and Ormsby[1] reported a considerable number of cases of systemic blastomycosis. In their experience the systemic affection was serious and offered a grave prognosis. They found, however, that with early diagnosis it was often possible to arrest and cure the condition with potassium iodid, tonics and hygienic control, possibly including change of climate. Mycosis is more commonly seen in the tropics, where it is apt to be mistaken for tinea or atypical frambesia. In temperate climates it is more easily confused with tuberculous nodules, syphilids or epithelioma. The most successful treatment has been by the use of disinfectants and the Roentgen ray locally, and the administration of potassium iodid internally.

A recent paper by Dr. Lorena M. Breed[2] presents some interesting clinical cases of yeast infection, and calls attention to the possible significance of yeast organisms in the sputa in doubtful lung cases. Dr. Breed reports sixteen cases of anomalous and indeterminate lung conditions in which repeated examination failed to show tubercle bacilli, and in which a yeast infection was demonstrated morphologically and by culture. One case of a resistant vaginal discharge in a child was due to a yeast. One patient with typhoid fever died after two months' illness, and cultures from the feces showed, in addition to typhoid bacilli, a yeast organism similar to the one identified in the other cases. One patient with a diphtheroid tonsillar membrane showed no Klebs-Loeffler bacilli but a pure yeast culture, and did not react to diphtheria antitoxin. One patient, with a history of ulcers on various parts of the body for eight months, showed yeast organisms in the pus. The same yeast, a saccharomycete, was identified in all these cases, usually mixed with other organisms. In a few cases, disappearance of the organism was definitely followed by alleviation and disappearance of the symptoms. Autogenous vaccines from this yeast gave some improvement in three cases, and exacerbated the condition in one. An extract from it gave a mild skin reaction in two of the cases. In four cases the blood-serum gave a positive agglutination test for the yeast. In treatment, large doses of potassium iodid gave most benefit. Dr. Breed's observation on the possible relation of pathogenic yeasts to anomalous lung conditions in which no tubercle bacilli can be found, opens an interesting field. Further investigation is necessary of persistent and obscure cases of bronchitis, asthma, atypical pulmonary tuberculosis, atypical lobar pneumonia, and extreme susceptibility to coryza and sore-throat in which other causative agents cannot be found. It would also be desirable to have exact clinical descriptions of such cases, and whenever possible, complete post-mortem findings.

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[1] Montgomery and Ormsby: Systemic Blastomycosis, Arch. Int. Med., August, 1908, p. 1.

[2] Breed, Lorena M.: Clinical and Experimental Observations with a Saccharomycete, Arch. Int. Med., August, 1912, p. 108.

Current Comment

POISONING FROM COMMON SALT

A case reported in this issue[1] calls attention to the well-known yet not always sufficiently recognized fact that sodium chlorid, while the least toxic of the group of similar metal chlorids, is a poison which may be abused with fatal results. So far as we can learn, the only parallel in literature to this case is that reported by Brooks,[2] in which a strong stock solution of sodium chlorid, carelessly substituted for physiologic solution in the enema ordered after an appendicitis operation, produced, as in Campbell's case, thirst, fever, purging, convulsion and death. In Brooks' case the patient received about 9 ounces of sodium chlorid. While the amount of salt which was supposed to have been administered in a quart of water to Campbell's patient was even larger (a pound), it may be noted that in all probability the patient received less than 5 or 6 ounces, since, unless the solution was prepared long before use, it had not become fully saturated. Although accidents such as those which resulted in these two deaths may be rare, the lesson which they enforce is of almost daily practical importance, since they emphasize the harm that may be done by the indiscriminate use of salt solution. Evans[3] reports two cases in which the postoperative use of physiologic saline solution resulted fatally. It is possible that, as indicated by Evans, mortality records from "shock," "hemorrhage" and other postoperative complications may be raised by the use of carelessly prepared solutions which are not isotonic with the blood-plasma, or even by thoughtless use of the correct solution in conditions for which it is not adapted. Evans, Trout,[4] Wood[5] and others agree in recommending caution. Wood says that its employment in toxemic cases with the idea of hastening elimination is based on an erroneous conception. Evans especially condemns the use of physiologic saline solution in "toxemia due to acute infections accompanied by marked diminution or absence of chlorid excretion, even though the functional capacity of the kidney is unimpaired," as for instance, in lobar pneumonia.

THE HYGIENE CONGRESS

The Fifteenth International Congress on Hygiene and Demography, held last week in Washington, was, as predicted, a notable event in the history of public health in our nation. Not only on account of the large number and high scientific character of those in attendance, but also on account of the interest manifested by the public and the amount of space devoted to its proceedings by the daily press, this congress must be regarded as one of the most successful and influential ever held in this country. The opening session, an account of which has already appeared in The Journal,[1] was impressive and inspiring. The presence on the platform of official representatives of twenty-three nations gave promise of greater international cooperation for the advancement of public health. The sections were well attended and the programs in the great majority of cases were thoroughly creditable. While some of the difficulties necessarily attendant on international gatherings were apparent, the week's program was in every way worthy of the time and effort required and should have been attended by every state or municipal health officer, as well as by all those interested in the advancing public health campaign. The health exhibit was particularly creditable. Those who had the opportunity of seeing it must have appreciated the immense amount of time, thought and labor that was necessary to bring it to a successful completion. It was vast in extent and almost bewildering in variety, yet of enormous educational value. In spite of a few criticisms, unavoidable in an undertaking of this magnitude, the exhibition was a marked success, the credit for which belongs to the director, Dr. J. W. Schereschewsky. For the first time in such an exhibit the material was classified. Instead of being arranged according to geographical location or by the character of the organizations making the exhibits, the material was divided into thirteen classes. These were: Food, Infant Hygiene, Child Hygiene, School Hygiene, Oral Hygiene, Physical Education, Hospitals and Communicable Diseases, Housing, Industrial Hygiene, Sewage Disposal and Water-Supply, Sex Hygiene, Mental Hygiene and Vital Statistics. This plan produced a unity impossible under the older and more haphazard methods. The congress was a success in every sense and the United States will profit enormously by the impetus which it will give to interest in public health problems.

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[1] Campbell, O. H.: A Peculiar Case of Common Salt Poisoning, p. 1290.

[2] Brooks, Harlow: A Case of Fatal Sodium Chlorid Poisoning, Arch. Int. Med., November, 1910, p. 577.

[3] Evans, George H.: The Abuse of Normal Salt Solution, The Journal A. M. A., Dec. 30, 1911, p. 2126

[4] Trout, Hugh H.: Proctoclysis; Some Clinical and Experimental Observations, The Journal A. M. A., May 4, p. 1352.

[5] Wood, H. C.: Therapeutic Value of Physiologic Salt Solution, The Journal A. M. A., April 17, 1909, p. 1277.

[1] The Journal A. M. A., September 28, p. 1207.

THE HYGIENIC EXHIBIT AND ITS LESSONS

The hygienic exhibit made in connection with the International Congress on Hygiene and Demography at Washington was one of unusual interest and suggestiveness to the thoughtful observer. Probably never before has it been made so apparent that the control and suppression of preventable diseases is becoming more and more a social rather than a scientific problem. In former generations, the relations between physician and patient were almost entirely individual. Only with the development of modern medicine has either the individual physician or the combined profession attained a distinct social function and responsibility. In former generations, owing to meager knowledge of diseases and their causes, the social responsibility for a large share of humanity's ills was not recognized. To-day, as soon as science discovers the cause of a disease, its method of transmission and the means for its prevention, the disease ceases to be a problem from a scientific point of view. It then becomes an additional social responsibility, since, in the majority of cases, our recently acquired knowledge shows that preventable diseases exist largely because of social sins, and that their prevention involves the reformation of some long-standing evil. As illustrations of this general principle it is only necessary to point out that any one of several neglected factors — a polluted water-supply, a filthy milk-supply or an inadequate system of garbage-disposal — may be responsible for a prevalence of typhoid fever in any civilized community; that tuberculosis thrives where insanitary tenements, factories and workshops are permitted; that typhus fever is found where large numbers of persons are crowded together under insanitary conditions; that yellow fever is the price paid for stagnant mosquito-breeding waters, and that the removal of all these causes, as soon as they become clearly evident, is a duty of society and not of the medical profession alone. This fact, clearly realized, is a sufficient answer to the question, repeatedly and often insincerely asked: "If physicians know how to save 600,000 lives a year in this country, why do they not go ahead and save them, without waiting for a national department of health?" The reply is obvious. Scientific men can discover causes and devise methods of prevention. Only the people themselves can save themselves from the results of their own sanitary sins or ignorance. Such graphic presentations of our present knowledge regarding disease and its causes as the exhibit displayed in Washington are of the greatest value as public educators.

THE PSYCHOLOGY OF HEALTH EXHIBITS

When going through the hygienic exhibit at Washington, the careful observer must have been repeatedly impressed with the lack of consideration shown by some exhibitors for the fundamental principles of psychology and pedagogy. In several instances, in a desire to economize space or to increase the material in the exhibit, placards or diagrams containing many details were placed high above the eye of the reader, or so low down as to make considerable stooping necessary to read them. Only the occasional visitor, one who is already interested in the subject of the exhibit and familiar with it, will take the necessary time and pains to examine carefully exhibits which lie above or below the ordinary line of vision. Another mistake, in a few instances, was over-elaboration of exhibits. A national organization, for example, which is doing excellent work in the field of sex hygiene, presented one of the largest exhibits to be found in the hall; yet the very elaborateness of this exhibit, to a certain extent, defeated its own purpose. The great number of charts and diagrams, presenting almost every possible phase of the sex hygiene problem, tired and bewildered even the trained observer, while to the layman it must have presented a veritable maze of information, without any of the essential features being made to stand out from the background. In preparing any exhibit for the public, a few essentials should be kept clearly in mind. Each card or exhibit should teach some one important and essential fact; it should be as impossible for the visitor to depart without this fact being impressed on his mind as it is for a passenger to escape from a street-car without an impression of the incomparable merits of Smiles' Sunshine Shaving Soap or Blithers' Boston Baked Beans. This means that complicated diagrams, charts with large amounts of fine figures or lettering, exhibits in which an attempt is made to combine several unassociated facts, are much less valuable for educational purposes than simple, plain, easily understood charts or diagrams. A study of the methods of modern advertising would be of benefit in preparing these exhibits. The advertising specialist has learned that the ordinary reader or observer will grasp no more than a certain amount of new material at a time. He consequently aims, through a few carefully selected words or phrases, to impress one fact at a time on the mind of the reader, leading him gradually from a familiar fact to a new statement by short but certain steps. In order to succeed in our efforts to educate the public on health matters, we must recognize and observe some of these fundamental psychologic principles.

PUBLIC EDUCATION A DUTY AND A RESPONSIBILITY

The education of the people on public health matters is not only a responsibility but also an unavoidable duty. The people are interested in public health questions to-day as never before. They want knowledge and they are going to have it. If the medical profession does not give it to them, they will procure it elsewhere as best they can. The duty and necessity of professional activity in this direction have been generally recognized. It must also be recognized that the assumption on our part of this responsibility carries with it an obligation to abstain, both individually and collectively, from anything which may impair our usefulness in this particular. It is of the first importance that the public, if it is to look to us for instruction on health matters, must be able to place reliance in any statements we make, either as individuals or as organizations. For this reason, the utmost care should be exercised as to the accuracy of all exhibits and statements made for the public's use. Exaggerations or unwarranted assumptions should be avoided carefully. The place for the discussion of theories, unproved hypotheses, evidence of doubtful value and general statements lacking positive proof to support them is in professional circles and before scientific audiences. Only those facts which are proved beyond question, those theories which have been tested in every possible way, and those opinions which have been accepted by the majority of scientific men have any place in public exhibits or demonstrations. Exaggerated statements, deductions based on incomplete evidence and favorite theories or pet hobbies of one person or another are out of place in such exhibits. The mass of the people, however interested they may be in health topics, have not the necessary training or knowledge of scientific data to enable them to distinguish between demonstration and assumption in scientific matters. We can best secure the confidence of the people by using the utmost caution and conservatism in presenting scientific truths, and by avoiding overstatement, exaggeration, inaccuracy or unwarranted enthusiasm in any material which is placed before them.

LOUISIANA'S GOOD WORK

It is a commendable thing to clean up a whole state. It is still better by so doing to set a shining example whose rays extend to the uttermost parts. Such an example is furnished by the work of the energetic head of the Louisiana State Board of Health and his able assistants, an engaging and interesting account of which is given in that terrifying stirrer-up of the animals, *Collier's Weekly*.[1] The thorough and intensely practical work in sanitation in Louisiana has been good for that state. The evangelistic work done by Dowling in taking his health train from coast to coast has been good for the whole country. The best effect of the sanitary work done by the State Board of Health in Louisiana has been the educational effect. It was a brilliant conception to spread the gospel of health in the manner in which it has been done and it has benefited all of us. Education in everyday sanitation is the need of the hour throughout the length and breadth of the land. A work that is strong enough to attract the attention and enlist the support of *Collier's* deserves the reenforcement which its exploitation by that publication will furnish.

A NEW PUBLICITY LAW

A law is now in effect requiring all newspapers to publish, twice a year, a sworn statement giving the names of their owners and chief stockholders. It also requires them to label as advertisements all editorial and news matter for which they receive pay. Needless to say some newspaper publishers are going to fight this law in the courts. They hold that it is unconstitutional. It is always unconstitutional to require large vested interests to give to the public unpleasant facts regarding their inner workings! The new law interests physicians as it will tend to do away with one gross abuse against the public health. No longer will such papers as *Leslie's Weekly*, for instance, be able to publish "special articles" praising such frauds as the Viavi "treatment" or eye-quack Oren Oneal without letting their readers know whether or not such stuff is paid for. No longer will the newspapers be able to print as departmental matter "Health and Beauty Hints" in which recommendations for nostrums of the "prescription-fake" type are skilfully concealed. No longer will canned editorials sent out by the Proprietary Association of America be acceptable "copy" to those newspapers whose income is largely derived from advertising "patent medicines." Altogether the law is a good one, to which no reputable newspaper need object. The only criticism we would make of it is that it is not sufficiently inclusive. Scientific periodicals are exempt from its requirements. This is a pity. We should particularly like to see the law made applicable to medical journalism. Not only would it be most interesting to learn the sources from which the financial support of many medical journals is derived, but it would be enlightening to see the "reading notices" and many "original articles" with the tell-tale suffix "[Adv.]." We trust that the time will come when the new law will be so extended as to take in scientific periodicals as well as newspapers. Such an extension would do much to eliminate the "underground work" of the manufacturers of "ethical proprietaries."

Medical News

ARKANSAS

New Officers.—Pulaski County Medical Society (colored) at Little Rock; president, Dr. J. Thornton; secretary-treasurer, Dr. J. O. Hickman, both of Little Rock.

Personal.—Dr. Theodore Freedman, Argenta, local surgeon for the Iron Mountain System, is ill with gastritis in St. Vincent's Infirmary, Little Rock.——Dr. Leonard R. Ellis, Hot Springs, has been elected surgeon general of the United Spanish War Veterans.

New Infirmary at State Hospital.—The building originally erected as a dairy barn on the ground of the State Hospital for Nervous Diseases, Little Rock, has been converted into a model infirmary for the use of infirm white women. The building has been remodeled along sanitary lines and has been completely equipped and will accommodate one hundred and fifty-two patients and the nurses required for their care.

Colored Physicians of State Meet.—The Arkansas Medical Association (colored) held its annual meeting in Little Rock, September 17-19 and elected the following officers: president, Dr. J. G. Thornton, Little Rock; vice-presidents, Drs. J. S. House, Sherrell, and R. Q. Canfield, Little Rock; corresponding secretary, Dr. A. A. Womack, Little Rock, and treasurer, Dr. D. L. Williams, Forrest City. Hot Springs was selected as the next place of meeting.

Railway Surgeons Organize.—The Arkansas Association of the St. Louis, Iron Mountain and Southern Railway Surgeons met for organization at Little Rock, September 17. Dr. W. F. Smith was elected temporary chairman and Dr. M. E. McGaskill, Little Rock, temporary secretary. Drs. W. B. Lawrence, Batesville; J. S. Eastland, Judsonia, and W. H. Abington, Beebe, were appointed a committee to draw up a constitution and by-laws, and Dr. C. S. Holt, Fort Smith; Robt. Lee Smith, Oklahoma, and Dr. F. L. Watson, Little Rock, were appointed a committee to nominate officers for the permanent organization.

CALIFORNIA

Lepers Attempt to Escape.—Health Officer Dr. R. G. Brodrick has requested the supervisors of San Francisco County to direct that the fences around the leper division of the isolation hospital be raised high enough to prevent the inmates from climbing out and escaping.

Health Department to be Reorganized.—Sweeping changes in the organization of the Oakland Health Department are proposed by Commissioner F. C. Turner of the Department of Public Health and Safety. The chief feature of the plan is the establishment of the office of health director with a salary of from $3,000 to $3,600 a year. The health director will be under civil service regulations and will be expected to devote his entire time to the work. A centralized force is also provided which will attend to the clerical work of all branches of the department. The new system, it is estimated, will cost only $1,500 a year more than the system at present in force.

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[1] Child, Richard Washburn: Collier's Weekly, Sept. 28, 1912.

Hospital Notes.—The third annual report of the Red Cross Hospital, San Mateo, gives the detailed plans for the immediate construction of a building, south of the present hospital building, to be erected at a cost of $100,000. The new building will contain three stories and a basement. On the first floor will be offices, waiting-rooms and laboratories and four wards. On the second floor there will be private rooms with baths and a solarium. The third floor will be devoted entirely to operating-rooms.——The Westlake Hospital is planned to be erected in Los Angeles at a cost of $200,000. The first wing, which is at present under construction, will be four floors in height and eighty-four by thirty-six feet, of brick, fireproof construction and will contain twenty-two rooms for patients. Dr. O. C. Welbourn is president of the corporation and Dr. C. H. Erwin secretary.——Plans for the projected Methodist Hospital of Southern California on South Hope Street between Twenty-Eighth and Twenty-Ninth Streets, Los Angeles, have been completed. The institution will be of reinforced concrete construction and fireproof. The completed project will represent an outlay of more than $250,000. The building will be five stories in height in the shape of the letter "H" and will consist of an administration building, 100 by 42 feet, and two flanking buildings, each 150 by 36 feet.

CONNECTICUT

Gift to Medical School.—Yale Medical School has recently received $25,000 from the estate of Cyprian S. Brainerd of Haddam, Conn. It is stated also that subsequently the school will receive $40,000 in addition on the death of the life beneficiary.

Personal.—Dr. William J. Shehan, Jr., New Haven, has been appointed a member of the resident staff of Providence Hospital, Detroit.——Dr. Dupue, a member of the staff of the Norwich Hospital, is reported to be ill in Binghamton, N. Y.——Dr. and Mrs. William C. Wile, Danbury, celebrated their silver wedding anniversary August 31.——Dr. F. D. Ruland, Westport, is reported to be seriously ill with appendicitis, and is under treatment in a New York hospital.——Dr. J. Hobart Egbert, Willimantic, formerly city physician, is traveling in Nicaragua.

GEORGIA

New Officers.—First District Medical Society at Savannah: president, Dr. J. L. Jackson; secretary-treasurer, Dr. Charles Usher, both of Savannah. The session concluded with a banquet at Tybee Island.

New Health Publications.—The Brunswick Board of Health has decided to issue a monthly bulletin to be devoted entirely to health matters of the city to instruct the people regarding the benefits to be derived from observing health regulations.

Personal.—Dr. and Mrs. W. S. Elkin, Atlanta, have returned from Europe.——Dr. J. L. Walker, Waycross, has been appointed a member of the State Board of Health.——Dr. James C. Oakshette, Atlanta, has been appointed health officer of Fulton County.——Dr. John Wade Chambliss, Americus, fractured his right arm while cranking his automobile, September 18.

ILLINOIS

Staff Examinations for State Institutions.—Examinations will be held at the Elgin State Hospital, October 12, for various state charitable institutions.

Sanatorium Planned for Bellville.—An ordinance has been submitted to the Council of Bellville providing for the conversion into a tuberculosis sanatorium of the present city hospital which is located on a tract of fourteen acres, three miles south of the city and on the highest point in St. Clair County.

Personal.—Dr. Flint Bondurant, Cairo, was severely injured in an automobile accident, near Mound City, September 23, and is under treatment in the Bondurant Hospital.——Dr. William L. Ballenger, Chicago, who received an injury to his foot while returning from England a few weeks ago, has recovered.——Dr. John M. Lang has been appointed an instructor in clinical gynecology at the Illinois Post-Graduate Medical School, Chicago.

Chicago

Information Regarding Anterior Poliomyelitis.—The Department of Health of Chicago has issued for distribution to physicians and others interested a leaflet on anterior poliomyelitis or infantile paralysis, outlining the safeguards against the spreading of the disease.

Entertainment of European Visitors.—The first part of this week the medical profession of Chicago has been entertaining the group of physicians who are making a tour of the United States under the auspices of the German Central Committee for Physicians' Study Travels. The names of the members of the party were given in General News in The Journal, August 31, their itinerary was outlined August 24, and the history and objects of the organization were sketched September 7. Their visits to New York and Philadelphia have been chronicled. From Chicago they go to New York via Niagara Falls, Montreal and Boston. They have been kept busy in Chicago with clinics, visits to hospitals and public buildings, a trip through the famous stock yards, automobile drives about the parks and boulevards, and various social functions including a Kommers and a banquet.

KANSAS

Sanatorium Site Selected. — The Advisory Commission appointed to select a site for the State Sanatorium for Tuberculosis, has reported its approval of a tract of 240 acres, two and one-half miles west of Newton. The last legislature appropriated $50,000 for the sanatorium.

Personal.—Dr. A. H. Fabrique was given a banquet in honor of his seventy-seventh birthday anniversary at the Wichita Club, September 9.——Dr. W. J. Murphy, National Military Home, has resigned as surgeon of the Soldiers' Home, Leavenworth.——Dr. S. C. Emley, Kansas City, who was recently operated on at Rochester, Minn., is reported to be making progress toward recovery.——Dr. W. E. Dixon, Derby, is reported to be seriously ill with septicemia due to an operation wound.——Dr. H. W. Horn, Wichita, has been appointed chief surgeon of the Kansas City, Mexico and Orient Railway.——Dr. P. W. Darrah, Leavenworth, has been appointed local surgeon for the Missouri Pacific System.——Dr. George R. Little, Wichita, has been appointed city physician, vice Dr. Lloyd P. Warren, resigned, who has started for Europe.——Dr. R. Claude Young, Arkansas City, is ill with an infected wound of the ankle.

MARYLAND

Action Taken to Check Typhoid.—The State Board of Health has taken action to check the typhoid outbreak at Towson, the county-seat of Baltimore County, by closing wells and dairies, etc., as there were thirty-six cases in the town.

To Inspect Sanitary Conditions.—A committee of the Baltimore County Medical Society has been appointed to inspect the sanitary conditions of its towns and report to the State Board of Health. The committee consists of Dr. Marshall B. West, sanitary officer of Catonsville, Drs. Henry Naylor, Pikesville, and Hugh Young, Baltimore.

Baltimore

Personal.—Dr. Adolph Meyer gave a dinner, September 28, in honor of Dr. von Fraenkel of Vienna, one of the guests of the hygiene congress.

Remsen to Remain at Hopkins.—Owing to the difficulty of finding a suitable occupant for the post, Dr. Ira Remsen will remain at the head of the Johns Hopkins University for the ensuing session, or part of it at least.

Hospital Notes.—Plans for the Charles L. Marlburg Memorial Building at the Johns Hopkins Hospital have been completed. The original fund of $100,000 contributed by the heirs of Mr. Marlburg in 1907 has been added to by one of them, Mr. William A. Marlburg. This building, which is for private patients, will be four stories in height and will contain fifty-four private rooms and twenty baths.——At the meeting of the trustees of the South Baltimore Eye, Ear and Throat Hospital, September 26, $2,000 were subscribed by them toward the building fund, making $125,000 in all. When $200,000 is raised the work of the building will begin.

MISSOURI

Hygiene Exhibit at State Fair.—The exhibit on hygiene and sanitation, to which The Journal recently referred, was one of the features at the state fair at Sedalia. The exhibit was under the auspices of the Missouri State Medical Association and was in charge of Dr. E. J. Goodwin, St. Louis, secretary of the association. The exhibit was a notable success in spreading knowledge among the people regarding the methods of safeguarding health.

Personal.—Dr. David H. Bokhof has resigned as head resident of the Thomas H. Swope Settlement, Kansas City.——

Dr. and Mrs. Flavel B. Tiffany, Kansas City, sailed from New York, September 18, on a trip around the world.——Dr. Horace H. St. John, Edina, was attacked by two vicious bulldogs, September 7, and severely injured.——Dr. R. E. Castelaw has succeeded Dr. L. W. Luscher as superintendent of the Kansas City General Hospital.

St. Louis

New Isolation Hospital Located.—Despite the opposition of residents of the vicinity, it has been decided to erect the new Municipal Isolation Hospital on Arsenal Street, between the city sanatorium and the city infirmary.

Personal.—Dr. Victor A. Bles has been appointed assistant physician and assigned to duty at the Elgin (Ill.) State Hospital.——Dr. Senter Gettys was struck by an automobile, September 1, and sustained painful injuries.

Masonic Infirmary Dedicated.—The new Masonic Infirmary on the grounds of the Masonic Home of Missouri was dedicated with formal ceremonies, September 24. The building has been erected at a cost of $125,000 and is a hospital intended for the care of sick and afflicted Masons. It will have accommodation for 140 patients.

MONTANA

Donation to Sanatorium.—A donation of $25,000 toward the State Tuberculosis Sanatorium, Warm Springs, has been made by the Anaconda Mining Company.

Sanatorium Contract Awarded.—The State Board of Examiners has awarded the contract for the buildings of the State Tuberculosis Sanatorium near Warm Springs to a Butte construction company for $25,467.

Personal.—Drs. Patrick H. O'Malley and Clarence J. Latta, Chinook, have leased a large house in the business district and will equip it as a private hospital.——Drs. J. W. and R. R. Frizzell, Great Falls, have made an automobile journey from Wooster, Ohio.——Dr. C. B. Miller, Helena, has moved to his ranch in Flathead County.

NEW JERSEY

Health Department Erects Building.—A permit has been granted by the Newark Building Department to the Department of Health to erect a four-story office building, to cost $85,000.

Diphtheria in Camden.—Because of fifty cases of diphtheria and three deaths from that disease, several public schools, a public library and a number of Sunday schools in the east section of Camden have been closed until the disease is under control. The City Council appropriated $1,000, September 26, to fight the epidemic. It is the belief that the source of the disease is in the very insanitary condition of this section.

Physician Nominees.—Dr. Hyman I. Goldstein, Camden, candidate for member of the board of education; Dr. John K. Bennett, candidate for mayor of Gloucester; Drs. William H. Kensinger, Walter S. Bray and Sylas Quint, candidates for membership in the city council of Camden; Dr. E. B. Rogers, candidate for state assemblyman; Dr. Duncan Blake, Jr., Camden, candidate for surrogate of Camden County.

Personal.—Dr. J. Henry Clark, Newark, has returned after a three-months' trip abroad.——Dr. Alexander McAlister, Camden, has been appointed a member of the State Board of Medical Examiners.——Dr. G. A. Schoening, Trenton, is a patient at the German Hospital, Philadelphia.——Dr. John B. McGill, Jersey City, is ill at his home.——Dr. James Betts, Camden, was seriously injured while cranking his automobile, recently.

NEW YORK

Medical Reserve Planned.—Bills have been prepared for presentation at the next legislature providing for the creation of the office of surgeon-general and the organization of a medical reserve in the national guard. It is reported that Governor Dix has expressed his approval of a medical reserve similar in organization to that of the regular Army.

New York City

Medical College Opens.—The College of Physicians and Surgeons of Columbia University was opened on September 25 by Dr. Nicholas Murray Butler. Dr. Theodore C. Janeway spoke on "The Importance of Pathologic Theory for Practical Medicine."

Oysters Fattened in Polluted Water.—The investigation by the board of health into the cause of certain cases of typhoid has confirmed the suspicion that the oysters were contaminated by being fattened in polluted water. In consequence of this the board of health issued an order prohibiting this procedure and the sale of oysters that have been so fattened.

More Street-Car Accidents.—The number of street-car accidents, according to the report of the Public Service Commission, occurring during the month of August was 6,528 as compared with 5,884 and 5,195, respectively, for the corresponding months of 1911 and 1910. The number of deaths caused by the accidents was, however, smaller than in August, 1910, and but three more than in August, 1911.

To Check Opium Smoking.—Judge Hough of the United States District Court, in sentencing Frank R. Cooper to six months' imprisonment and a fine of $250 for selling opium, expressed his determination to do his utmost to suppress opium smoking. He said that only about 70,000 pounds was annually imported for medical purposes while he was satisfied that the illicit importation amounted to 250,000 pounds a year.

Lack of Nurses at Bellevue.—The results of an investigation made by a committee of four of the nursing staff of Bellevue Hospital disclose the fact that of 357 nurses only about 200 are actually in attendance on the sick, the remainder being engaged in clerical duties. In the entire institution, which has accommodations for 1,300 patients, there are only 130 nurses on duty in the daytime. At night, seventy nurses are on duty in all the wards.

Personal.—Dr. S. S. Goldwater, superintendent of Mount Sinai Hospital, and municipal expert in hospital construction in the Department of Bellevue and Allied Hospitals, has been appointed by the Association for Improving the Condition of the Poor to supervise the construction of the new Seaside Hospital for the treatment of children suffering from tuberculosis of bones and joints. On the completion of the hospital it will become the property of the city of New York.——Dr. Albert H. Brundage has returned to Brooklyn completely restored to health and has resumed practice.——Dr. Alwyn Knauer of the Psychiatrische Klinik, Munich, Germany, who has been one of the lecturers at the extension course which has been in progress at Fordham University, has been engaged to remain in this country and conduct a course of experimental medicine at the university.——Dr. and Mrs. A. S. Corwin and Dr. Ward I. Pierce have sailed for Europe.

Italian Hospital Finished.—This hospital has been erected partly at the expense of the Italian government; Italy was induced to give $60,000 provided an equal sum was raised in the states. This was raised within two years. Signor Forni, the consul general of Italy to New York, Signor Pagliani, representative of the Italian government to the International Congress on Hygiene and Demography; Celestina Piva, president of the Italian Hospital; Dr. A. Griganti, chairman of the medical board; Luigi Solavi, president of the Italian Chamber of Commerce, and many others made addresses. This new building will accommodate 100 patients and occupies an entire block on the river front.

NORTH CAROLINA

New Hospital in Charlotte.—Plans have been completed for the erection of the new Mercy General Hospital in Charlotte at a cost of $80,000. The hospital is to be in charge of the Sisters of Charity.

Personal.—Dr. Morris M. Caldwell, Wilmington, was dangerously injured in an automobile accident, September 14.——Dr. John McCampbell has been reelected superintendent of the State Hospital for the Insane, Morganton.——Dr. F. O. Hawley, city physician of Charlotte, is ill at his home as the result of a cerebral hemorrhage.——Dr. and Mrs. J. M. Belk and daughter, Monroe, have returned from Europe.——Dr. Oren Moore, Charlotte, has been appointed assistant division seurgeon of the Seaboard Air Line.

PENNSYLVANIA

Collection for Sanatorium.—The fourth annual collection day for the Neversink Mountain Tuberculosis Sanatorium, September 19, netted the Berks County Antituberculosis Society nearly $6,000 for the institution.

Personal.—Dr. Charles B. Forcey, a member of the staff of the State Hospital, Shamokin, has resigned and will practice in the city.——Dr. E. R. Walters, director of the Department of Health and Charities in Pittsburgh, who is ill with small-pox in the Municipal Hospital, is reported to be out of danger.——Dr. Charles E. Cooner, Picture Rocks, who had a slight cerebral hemorrhage, is reported to be improving.——Dr. W. G. Wilson, New Castle, is reported to be seriously ill with cerebral hemorrhage.——Dr. Sarah Morris, Madison, Wis., has been appointed physician to the female students of the University of Wisconsin, Madison.

Philadelphia

Small-Pox on Steamer.—The steamship *Barbarossa*, from Bremen, which was detained at the State Quarantine Station, Marcus Hook, September 17, on account of suspected small-pox, was released a day later after all the passengers had been vaccinated.

Flower Day for Hospital's Benefit.—September 28 was "Flower Day" for the new children's ward of the West Philadelphia Homeopathic Hospital and 200 young women, selling dahlias at Franklin Field and at the Knights Templar review at Belmont, raised $1,800.

Diphtheria Increase.—According to the records of the Bureau of Health for the week ending September 28, fifty-one new cases of diphtheria with eight deaths were reported, an increase of thirteen over the preceding week.——The epidemic of typhoid shows some abatement; twenty-four new cases were reported as compared with thirty last week.

Clinical Study for Women Students.—The Woman's Hospital of Philadelphia offers to women medical students of the senior class in regular medical colleges of Class A the privilege of serving as student assistants to the interns throughout the year. During the year 1911, 1,956 patients were treated in the hospital, 439 babies born in the maternity; 261 abdominal and 1,733 miscellaneous operations were performed, 18,432 visits were made to the clinics and 1,198 visits made in the out-practice departments.

Personal.—Drs. John Albert Kolmer, Albert P. Francine, S. Lewis Ziegler and Ralph Pemberton have returned from Europe.——Dr. W. M. L. Coplin has resigned the position of medical director of the Jefferson Medical College Hospital in order to devote his entire time to his work in pathology. No successor has yet been appointed.——Drs. Howard Hansell and A. A. Bliss have returned from Europe.——Governor Tener reappointed Dr. Charles S. Turnbull a trustee of the Home for the Training of the Speech of Deaf Children before they are of school age.

Lunacy Committee to Investigate Blockley.—Conditions in the insane department of the Philadelphia Hospital that led to the recent suspensions of employees will be investigated by members of the lunacy committee of the board of public charities and they are determined to have an examination conducted into the entire management of the institution, though no date has been set for the conference. The members of the lunacy committee are Judge Isaac Johnson, Media, chairman; P. C. Boyle, Oil City; George W. Ryan, Shamokin; Edward K. Rowland, Philadelphia; Dr. C. B. King, Pittsburgh, and Dr. Frank Woodbury, secretary.

Home for Feeble-Minded.—Dr. Joseph S. Neff, director of public health and charities, awarded, September 17, a contract for the erection of two buildings for the feeble-minded and one building for the care of idiots on the Worthington tract, which constitutes a part of the 800 acres of land owned by the city at Byberry. Later a new institution for the insane and a tuberculosis hospital are to be erected there also. The contract awarded was for $213,000, with a bonded guarantee that the building shall be erected within 200 working days. Toward the establishment of what is believed to be the first municipal institution for the care of the feeble-minded in this country, the city has appropriated $250,000 and the state $200,000.

Medical Colleges Begin Work.—Jefferson Medical College held its eighty-seventh annual opening September 23. Dean Holland introduced the president of the board of trustees, Hon. William Potter. The formal address of welcome was delivered by Dr. Albert R. Brubaker, professor of physiology.——On the same evening the Medico-Chirurgical College held its formal opening. President Henry F. Walton presided and addresses were made by Dr. Seneca Egbert, dean, Professor Brunell, dean of the dental school, Dr. W. J. Strumer, dean of the department of pharmacy and Dr. George H. Meeker, head of the department of chemistry.——Hahnemann Medical College began its sixty-fifth year September 23 and addresses were made by the Rev. Dr. Floyd Tomkins, Dr. D. Bushrod Jones and the dean, Dr. William B. VanLennep. Following the session, the annual alumni banquet was held.——The opening exercises of the one hundred and seventy-third year of sessions of the University of Pennsylvania were held September 27. After the regular chapel services, Dr. Edgar Fahs Smith, the provost, made the address of welcome.

RHODE ISLAND

Personal.—Dr. H. L. Kristjanson has resigned as assistant superintendent of the Providence City Hospital.——Dr. John W. Mitchell has been reelected president of the corporation of the Providence Lying-In Hospital, and Drs. George L. Collins and R. H. Carver, trustees of the institution.

State Society Meeting.—The fall meeting of the Rhode Island Medical Society was held at the State Hospital, Howard, on invitation of the Board of State Charities and Corrections. The members inspected the hospital and the last new building of the state hospital group which has accommodation for 300 patients. Dinner was served at the institution in the evening, and several cases of pellagra were presented by the medical staff of the hospital.

SOUTH CAROLINA

New Officers.—Second District Medical Society at Blackville: president, Dr. J. S. Matthews, Denmark; secretary-treasurer, Dr. Sophia Brunson, St. Matthews.

State Board of Medical Examiners.—At the annual meeting of the State Board of Medical Examiners at Columbia, organization was effected. Dr. Harry H. Wyman, Aiken, was elected chairman and Dr. A. Earl Boozer, Columbia, secretary. The other members of the board are Drs. J. J. Watson, Columbia; H. L. Shaw, Fountain Inn; P. G. Ellesor, Newberry; J. T. Taylor, Adams Run; W. W. Fennell, Rockhill, and A. M. Brailsford, Mullins.

Personal.—Dr. W. J. Dunn, Camden, fell August 30, fracturing his arm at the shoulder joint. He was taken to New York for treatment.——Dr. H. A. Odom, Springfield, who has been seriously ill at Spartanburg, is reported to be improving.——Dr. J. O. Wilhite, for fifteen years chairman of the Board of Health of Anderson, has resigned.——Dr. W. S. Moore has been elected mayor of Health Springs.——Dr. J. P. Duckett has been elected chairman of the Anderson Board of Health, vice Dr. J. O. Wilhite, resigned.

SOUTH DAKOTA

Personal.—Dr. O. W. Phelps, Lemmon, has converted the upper story of his building into a hospital which will be ready to receive patients, October 1.——Dr. George H. Richards, Chamberlain, sustained severe losses by the recent fire in Chamberlain.——Dr. F. A. Spafford, Flandreau, has sailed for Europe.

New State Board Members.—The governor has appointed as members of the State Board of Medical Examiners, Drs. L. G. Hill, Watertown, F. W. Fryberg, Mitchell, and Frank S. Howe, Deadwood.——Dr. W. E. Daniels, Madison, has been appointed a member to fill the vacancy caused by the expiration of term of Dr. S. H. Graves, Hurlen.

TENNESSEE

Contribution to Tuberculosis Work.——Dr. H. P. Coile, Knoxville, president of the East Tennessee Sanatorium Board, has received a check for $500 from the Brookside Cotton Mills.

Personal.—Dr. J. B. Steele, city physician of Chattanooga, is ill with neuralgia in the city hospital.——Dr. and Mrs. G. McChesney Hogshead, Chattanooga, have returned after an automobile tour of the Eastern states.——S. J. Desha, assistant inspector and chemist in charge of the state laboratories in Nashville, has resigned.

TEXAS

Appropriations Desired for State Hospitals.—The Austin State Hospital has asked for an appropriation of $628,860 for the next biennium, an increase of $105,690.——The Southwestern Insane Asylum, San Antonio, has asked for an appropriation of $728,670, an increase of $299,700 for the biennium.

Epileptic Colony Asks Larger Sum.—The State Epileptic Colony, Abilene, has sent in its estimate for maintenance and improvements for the two years beginning September 1, 1913. The amount required is $315,300 or more than $100,000 more than the appropriation for the last biennium. The contemplated improvements include $75,000 for building and equipping four cottages for patients.

Personal.—Dr. W. A. King has been appointed a member of the San Antonio Board of Health, vice Dr. T. T. Jackson.——Dr. Benjamin O. Works, Sherwood, has been appointed physician at the Carlsbad Tuberculosis Colony.——Dr. Theodore Dorsett, Gonzales, who was operated on for appendicitis recently in San Antonio, is reported to be rapidly improving.——Dr. J. E. Gilcreest, Gainesville, was operated on recently for the removal of gall-stones, and is reported to be convalescent.——Dr. S. R. Weaver, Sherman, who was operated on early this month at St. Vincent's Sanatorium, Denison, is reported to be making good progress toward recovery.——Dr. R. J. Gauldin, Dallas, has returned from Europe.——Dr.

L. L. Shropshire, San Antonio, has been appointed city health officer, vice Dr. S. Burg, resigned.

WYOMING

State Medical Meeting.—The Wyoming State Medical Society held its fourteenth annual meeting in Sheridan, September 17, and elected the following officers: president, Dr. Amos W. Barber, Cheyenne; vice-presidents, Drs. R. W. Hale, Thermopolis, O. B. C. Kinney, Thermopolis, and E. S. Lauzer, Rock Springs; delegate to the American Medical Association, Dr. M. A. Newell, Sheridan, and alternate, Dr. Charles H. Solier, Evanston. The society was entertained at a banquet at the Sheridan Inn by the Sheridan County Medical Society. Cheyenne was selected as the next place of meeting.

GENERAL AND FOREIGN

Carnegie Foundation at Rome.—According to the terms of the hero fund recently given by Andrew Carnegie to Italy "no action is more heroic than that of the physicians and nurses who voluntarily offer their services in cases of epidemics."

Extensive Gastro-Intestinal Epidemic.—It is stated that over 1,200 persons at San Giovanni, in Sicily, were taken sick at the same time recently with intestinal disturbances and high fever. The drinking water was found to contain abnormal amounts of nitrites, ammonia and colon bacilli, but no specific germs were found.

Gift for Science in Spain.—The Spanish commission organized to promote scientific research has recently received a gift of $2,400 from Prof. A. Gutierrez of Buenos Aires to found three scholarships for scientific research, in honor of Ramon y Cajal. The latter is president of the commission, and Gutierrez is a native Spaniard although for many years professor of surgery at the University of Buenos Aires.

Dr. von Klein's Translation of the Papyrus Ebers.—Dr. Carl H. von Klein asks us to announce that he has received 700 subscriptions for his English translation of the "Papyrus Ebers," but that he cannot attempt the printing and publishing of the book unless he receives 1,000 advance subscriptions. The book, he says, will consist of approximately 650 pages, and the price will be $5. Subscriptions can be sent to Dr. Carl H. von Klein, Crerar Library, Chicago.

Military Surgeons Meet.—At the meeting of the Association of Military Surgeons of the United States held at Baltimore, October 1-4, Denver was chosen as the next place of meeting. The following officers were elected: president, Surgeon-General William C. Braisted, U. S. Navy; vice-presidents, Surgeon-General Charles Adams, Illinois, Lieutenant-Colonel Jefferson R. Kean, U. S. Army, Surgeon-General Rupert Blue, U. S. P. H. S.; secretary, Major Samuel C. Stanton, Illinois; treasurer, Major Herbert A. Arnold, Pennsylvania.

Mississippi Valley Medical Association.—The thirty-eighth annual meeting of this association, which is to be held at the Hotel Sherman, Chicago, promises to be very successful. The preliminary program, which has just appeared, figures symposiums on obstetrics, nervous diseases and surgery, intestinal surgery and genitourinary diseases. The president's address and the addresses on medicine and surgery will be given October 23 at a meeting held jointly with the Chicago Medical Society. The entertainments thus far provided include a dinner followed by a dance October 22, a smoker October 23, and for the ladies a tea at the Art Institute on October 22 and an automobile ride with luncheon at the South Shore Country Club October 23. The clinics committee, of which Dr. A. J. Ochsner is chairman, has arranged a schedule of clinics beginning October 14 and continuing, with the exception of the days of the meeting, until October 26. The schedule of clinics may be obtained on application to the Secretary of the Committee of Arrangements, Room 1604, 159 N. State Street, Chicago.

Wanted for Embezzlement.—Information has just been received from Adrian, Mich., concerning one William A. Maynard, alias C. H. Maynard, alias C. W. Wilson, who was employed as manager of a collection agency, known as the "Mercantile Law Company." He claims to have engaged in the same business in Buffalo, Boston, New York City and other places. The report states that he comes to a town, rents fine offices, buys elegant furniture on instalment, visits business and professional men, largely physicians; solicits accounts for collection; has a printed contract which customers sign, providing that collector is to hold all money collected for a period of ninety days, and then settle with creditors; he does a large business, collects large amounts, holds them, and leaves the field of operation just before the expiration of the ninety days, rent unpaid, furniture unpaid and all money gone. He may also be found selling books, cheap jewelry, or engaged in similar business. He registers in hotels sometimes from Boston. Maynard is about 49 years old, about 5 feet 6 inches tall, weighs about 160 pounds, is smooth-faced and dark-eyed, and has straight black hair with traces of gray. His four upper front teeth are missing; may wear plate. L. L. Knowles, sheriff of Lenawee County, Adrian, Mich., holds a warrant for this man's arrest and a reward of $50 is to be paid on his conviction. Anyone finding the man is requested to have him arrested and to wire Sheriff Knowles, collect, and an officer with warrant will be sent for the man.

LONDON LETTER

(From Our Regular Correspondent)

London, Sept. 21, 1912.

Death Under an Anesthetic Administered for an Operation Necessitated by a Crime: A Question of Murder

The death of a woman, aged 24, under an anesthetic has raised a curious legal point at the inquest. In April, 1912, the patient's husband cut her throat with a razor. He was tried for attempted murder but convicted of the lesser charge of feloniously wounding, and was sentenced to four years' imprisonment. His motive was that she had left him. The woman recovered from the wound and left the hospital in good health. It was afterward discovered that a nerve in the neck had been severed and an operation to unite the ends was undertaken, during which the patient collapsed and died. Dr. Spilsbury, pathologist, gave evidence that death was due to heart failure, the result of disease of the cardiac muscle. The woman had suffered from rheumatic fever three years previously and there was valvular disease. The coroner said that in this very peculiar case it was for the jury to say whether the husband was criminally to blame for his wife's death. The operation was not a means of preserving life following the injury. If the operation had not been performed, there was the possibility that the woman might have lived. If the jury decided to set aside the question of murder and consider that death was unnatural, they might bring in a verdict of misadventure. This they did and thus the husband escaped the capital charge.

Accidents in Workshops and Factories

The annual report of the chief inspector of factories and workshops, which has just been issued, shows an increase in the number of accidents, which is attributed to increased industrial activity. The number for 1911 was 148,945, as compared with 129,550 for 1910 and 124,325 for 1909. The fatal accidents for these years were 1,182, 1,080 and 1,179, respectively. In the textile trades some of the accidents were due to persons carelessly starting machinery before assuring themselves that others were clear of danger. Attention is drawn to the frequency with which blood-poisoning follows minor wounds; to the desirability of providing factories and workshops with sterilized dressings. A relation between dust and tuberculosis was observed in cotton-waste factories and in lace-making. But in some of the dusty trades sickness has largely disappeared, owing to improved methods of ventilation, the introduction of exhaust apparatus, and in cement works, owing to the use of the rotary kiln. It is noteworthy that among the cement workers of Great Britain there is nothing like the amount of sickness and acute lung disease observed in Germany. The number of accidents in electric generating stations was seventy-four, of which four were fatal, against fifty-eight for 1910, while the number of electrical accidents in factories other than electrical stations was 290, of which seven were fatal, as against 276 with five deaths in 1910. Exposure to poisonous gases was responsible for a number of casualties. Carbon monoxid heads the list—sixty-four casualties and six deaths; nitrobenzin is second—twenty-one casualties and no deaths; sulphuretted hydrogen is third—eight casualties and two deaths. Each annual report shows that progress is being made in extending the use of leadless paints and in substituting wet rubbing-down of painted surfaces for dry sand-papering.

The National Insurance Act

The British Medical Association and the government are no nearer to coming to terms than was stated in my previous letters to The Journal, though the medical benefits of the act come into force in January, 1913. Although no public announcement has been made, it is stated that the government is taking active steps to prepare for the situation which will then present itself. It is not unlikely, says a government organ (*The Daily News*), that more than one method will be adopted. In some areas it is alleged that a panel of physicians willing to serve according to the terms of the act will be formed. In areas in which a panel cannot be created, two courses will be open. The first is to administer medical benefit through a whole-time physician; the second is to return the capitation grants so that a committee of the insured can make their own arrangements. It is not improbable that the act will prove only a step to a state medical service which will deal with the health of the public as education is already dealt with. On the other side, there is no sign that the profession has weakened in its practically unanimous opposition to the act. Though the pledges to resign all contract practice do not come into force until January, 1913, it is announced by the Leeds branch of the association that all members holding friendly society appointments will resign them at the end of the present month. In the Pudsey district the physicians resigned a month ago and there are 8,000 friendly society members without a physician. Some are paying for medical attendance in the ordinary way. The rest banded themselves together and engaged a physician from one of the small islands off the coast of Scotland, but at the last moment he changed his mind and declined to come.

PARIS LETTER

(From Our Regular Correspondent)

Paris, Sept. 13, 1912.

Physicians and the Classics

Much regret is being expressed at the lowering of the educational level through neglect of the classics and concentration along special lines. A League for French Culture has been organized to influence public opinion toward restoring the study of the classics. In the latest publication of the league, by Dr. Grasset of the Montpellier University, the classics and a broad training in literature and philosophy are considered essentials in the education of a physician. Dr. Grasset has no patience with those who differentiate scientific physicians from practical physicians; there ought to be but one category, in which the physician is at once scientist and practitioner. With the advance of medical science its use by the practitioner becomes daily of more importance. A physician should not depend on intuition, for the battle against disease demands a keen mind, well trained and methodical. With the advance in medicine this necessity becomes all the more pressing. Formerly diagnosis was based on ascertaining the anatomic condition of diseased organs, in being able to localize a heart sound or a pulmonic râle. To-day it is far more complicated; above all it is necessary to make a good clinical diagnosis, to take account of the function of an organ. But for this it is not sufficient to interpret obvious signs. It is necessary to collate a series of symptoms, to judge absolute and relative values, to classify and to coordinate them. Psychology is necessary in the education of the future physician not only for the study and treatment of mental and nervous diseases but also for all diseases; the mental condition of the patient must be considered, and the physician must have familiarized himself with the methods, processes of observation and general discipline of psychology. Humanity, according to Dr. Grasset, has a fundamental need for good physicians in the deepest sense of the word. A bad or indifferent physician may do mischief and is a menace to society.

Communal Medical Service

According to a decision of the municipal council of the Commune of Grossiat, in the Department of the Ain, any French person who has lived there a year will have the right to consult any physician without charge; the price of the consultation, 2 francs (40 cents), is represented by a voucher deposited with an official by the patient and given to the physician afterward. Each person, in case of necessity, may be visited at home by any physician, the town paying two-thirds of the price of the visit, 4 francs (80 cents), to the physician, the patient promising to pay the remainder. The agreement is recorded and if the patient does not pay, he will forfeit further medical privileges. Consultation and visits include also minor operations like extraction of teeth, opening surface ulcers, analysis of urine, etc. If the visit is at night the additional fee is paid by the patient, and similarly when there is consultation with another physician, or deliveries, accidents or surgical operations. Societies, corporations and persons, such as paupers, who have already the right to free treatment are excluded from the privilege. Physicians save the vouchers and present them for payment by January 15 of each year.

Progress of Medical Service Among the Natives in the Colonies

On the Ivory Coast, which is the newest French colony, medical service is making rapid progress. The negroes are giving up more and more their opposition to the introduction of European medicine. The average number of consultations during recent years was 100,000, while the total this year was 261,000, exclusive of vaccinations. In addition to the enforcement of sanitary laws, no opportunity is lost to familiarize the natives with medical treatment. Government officials on their rounds are accompanied by native attendants from the hospitals, who vaccinate the negroes and give them medical treatment under the direction of physicians.

Death of Professor Schmitt

Dr. Joseph Schmitt, professor of clinical medicine at the Faculté de médecine de Nancy, is dead at the age of 57. He had been *agrégé* professor since 1883 and had been professor of therapeutics and of materia medica. In 1910 he succeeded Professor Bernheim in the chair of clinical medicine.

Paul Bourget and Psychiatry

I have already mentioned the great esteem that Paul Bourget expresses for mental medicine (The Journal, Nov. 21, 1908, p. 1793). He believes firmly in the almost unlimited future of this science and is persuaded that in particular the literature of observation, in which he includes history, criticism, the novel and the drama, will be enriched by it. Bourget dedicates his latest book, called "L'Envers du Décor" to Dr. Dupré, one of our most distinguished psychiatrists. While recognizing that there is in art an element which does not exist in science, Bourget believes that science ought to be the basis even of art. So far as literary art in particular is concerned, he is convinced that novelists and dramatists *quand ils inventent vivant* cannot be in contradiction with psychiatry, for instance. The name of psychiatry and the science which it designates did not exist, he says, when the great creators of souls conformed themselves to the laws that this science was one day to formulate. In conceiving Othello, Shakespeare gives him all the traits of the delirium of jealousy, classed to-day among the progressive degenerative psychoses. With profound intuition he has even taken the care to mark his creation with a neuropathic taint. In Argan, Molière draws a type of melancholic neurasthenia, the clinical picture of which might have place in a treatise of mental disease without a feature changed. According to Bourget these examples suffice to show that the effort of genius consists simply in discovering by intuition the laws that scientists discover by a humble and more patient method. The artist, indeed, adds movement to them. He sees these laws in action and on this condition alone he is an artist. Bourget himself, in spite of the present reaction against the abuse of intellectualism, persists in believing that Sainte-Beuve and Taine were right when they called on writers to submit their minds more and more to severe scientific discipline.

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, Sept. 14, 1912.

Personal

Professor Hess, of Würzburg, has accepted the appointment as successor of Eversbusch at Munich.

Professor Kaup has received a call to the chair of the newly established professorship for hygiene, especially trade hygiene, medical statistics and social hygiene at Munich.

Professor Leube, the distinguished clinician, celebrated on September 14 his seventieth birthday. Leube has been living at Stuttgart since last year, at which time he resigned his position as director of the Würzburg medical clinic. His importance in internal medicine is so well known that it is scarcely worth while to discuss it, but attention may be briefly called to the fact that credit is due to him for the introduction of Kussmaul's stomach tube into medical technic; and that he and Ewald have advanced in marked degree the therapy of gastro-intestinal diseases. Even at present his treatment of this subject in Ziemssen's "Handbook of Pathology and Therapy" is still a model. In connection with these studies his work on nutrition is prominent. The meat solution introduced by him and the physiologist Rosenthal is well known. His "Diagnosis of Internal Diseases" is one of the most prominent works of medical literature of the world. Of late years Leube has busied himself extensively with the epidemiology of tuberculosis.

Professor Soltmann, director of the university pediatric clinic at Leipsic, died suddenly September 11, at the age of

67. He has published numerous physiologic and clinical works on the entire field of pediatrics. In the early part of his academic career he devoted himself largely to the nervous diseases of childhood.

The International Congress on Gynecology and Obstetrics

The sixth international congress of gynecologists met at Berlin from September 9 to 13, under the presidency of the Berlin gynecologist, Professor Bumm. About 250 German and foreign gynecologists took part. The chief interest of the proceedings was furnished by two reports, namely, the treatment of peritoneal wounds, and the surgical treatment of uterine hemorrhage in pregnancy, labor and the puerperium; these reports brought out a very lively discussion.

TREATMENT OF PERITONEAL WOUNDS

Professor Franz, of Berlin, who made the leading report on the treatment of peritoneal wounds, considers the infection of the peritoneum as positively avoidable, even if a part of the infections of the peritoneum are not attributable to infection from the outside, but to the autogenous germs of the patient. To avoid this, he knows yet of no remedy, although the further development of the technic may be of assistance. The prophylaxis of peritonitis, which can be accomplished in animal experiments by several methods, is not to be recommended for human beings, as it is not free from danger. Macnaughton Jones of London reported on the basis of question-blanks filled out and returned by sixty-seven leading obstetricians and gynecologists of the United Kingdom. The dry handling of the peritoneum was preferred by most of the operators. He discussed further extensive asepsis, material for sutures and ligatures, the importance of previous gonorrhea, which demands special therapeutic and preventive measures, and the use and value of vaccine treatment. Resinelli, of Florence, discussed the tolerance of the peritoneum for physical, chemical and biologic irritations. The importance of these lesions lies in the great extent of the peritoneal surface, in its power of absorption, and in its immediate connection with the most important of the internal organs. In operations, therefore, the operation field must be isolated from the rest of the peritoneal cavity as completely as possible. Kouwer, private physician of Queen Wilhelmina of Holland, emphasized the importance of correct operative technic to diminish as much as possible the possibility of infection from the already infected organs. In contrast to asepsis in operation, chemical, thermic and mechanical asepsis is of minor importance. It is closely connected with the personality of the operator, which must be taken into consideration in estimating results. Von Mars, of Lemberg, refers the differences in the results of the authors to the varying quality of the operation material and the varying organization and equipments of the hospitals. Lecène, of Paris, refers the progress of the last ten years to the better choice of the time, kind and extent of the operation, to the employment of sterilized rubber gloves, strict asepsis, and proper indications and better maintenance of drainage of the peritoneum. Josephson of Stockholm spoke of the prophylaxis of the operation, especially of cancer of the neck of the uterus, and expatiated on the preventive action of camphorated oil, according to the plan of Pfannenstiel and Hoehne, the use of which deserves further trial. Hoehne, of Kiel, discussed, on the basis of clinical experience in 271 cases, the irritative treatment of the peritoneum by means of camphorated oil for the prevention of peritonitis. In the care of wounds in abdominal radical operations on the uterus, Hannes recommends a separate drainage of the pelvic cavity and the peritoneal cavity.

OPERATIVE TREATMENT OF UTERINE HEMORRHAGE

Professor Couvelaire, of Paris, and Professor Jung, of Greifswald, delivered the addresses on the surgical treatment of uterine hemorrhage during pregnancy, delivery and childbed. Couvelaire limited himself to an explanation of the present position of principles and practice among French obstetricians. By surgical treatment is meant the removal of the uterus or cesarean section, abdominal or vaginal. In hemorrhages which are the result of the low position of the placenta, French clinicians only rarely resort to operation, as by pure obstetric methods in 534 deliveries the mortality of the mothers has only been 8.2 per cent., in which number cases brought to the clinic in a hopeless condition are included. Only 1.2 per cent. died from hemorrhage. However, the mortality of the newborn is very high by this method, but it is the result of their low vitality. Only in the specially complicated cases, particularly in infections, the French clinicians resort to operations. The method of the French obstetricians is different in hemorrhages before the delivery of the normally placed placenta, in which, in severe cases, there is still a mortality of 40 per cent. In hemorrhages in the uterine walls, extirpation of the uterus is indicated. In other cases the method to be applied is determined by the condition of the individual case. The reporter closed his address with the statement that with the exception of those cases in which surgical treatment is to be preferred, progress will depend more on the earlier attendance of the physician on the pregnant woman and on the better training of physicians in obstetrics.

Jung of Greifswald presented the more active surgical position usual in Germany. He considered the various individual processes which are necessary against hemorrhage. In abortions surgical measures are necessary only in extremely rare cases; in general, manual removal of the débris is sufficient. In complications of pregnancy by bleeding myoma or carcinoma, surgical removal is always indicated, provided that the cancer is operable. During delivery in the case of premature separation of a normally placed placenta, the indication is to deliver as quickly as possible, if necessary by surgical operation. In the milder cases of a low-lying placenta the introduction of a hydrostatic bag secures the desired result. In ruptures of the uterus, abdominal section is indicated, while in so-called atonic bleedings, caused by imperfect contraction of the uterine muscles, remedies to arouse contraction should first be applied. In the puerperium, Jung advocates more expectant management of hemorrhage. In the conclusion of his report he describes the various methods of compression of the aorta, which are applicable for temporary arrest of the bleeding until further surgical aid is possible. The best method at present is that proposed by Momburg by passing a tube about the body. A report on operative treatment of uterine hemorrhage was made by Davis of Philadelphia, who declared himself in favor of surgical treatment of placenta prævia in the form of cesarean section, as the only life-saving method for mother and child; as a proof of this he introduced numerous examples from his clinic. Zweifel of Leipsic called attention to the fact that in Germany pregnant women with severe hemorrhage during labor are taken to the hospital in a different stage of delivery from that customary in France. In Germany the chief danger of bleeding is removed by the customary version of the fetus, but this often has an injurious effect on the child. The hospital must take the child more into consideration and apply the new surgical methods; this position Zweifel only recently began to advocate. He limits cesarean section to cases of placenta prævia totalis, with a full-time fetus, and in the absence of any infection. La Torre of Rome recommends the compression of the aorta, according to Momburg, while Mayer of Tübingen calls attention to the danger of this in case of diseased kidney. Pankow of Düsseldorf is opposed, on the basis of anatomic investigations in placenta prævia, to any method which takes no account of the laceration and imperfect power of contraction of the neck of the uterus. For this reason he recommends cesarean section which avoids this over-extension and saves both mother and child, provided that patients with premature hemorrhage are brought to the clinic as early as possible. Jolly and L. Hirsch of Berlin made suggestions regarding the treatment of atonic hemorrhages. The former removes atony of slight degree by the introduction of a bag filled with compound solution of cresol; the latter recommends the injection of ergotin into the muscles of the uterus.

Illegible Prescriptions

One of the bad habits prevalent among physicians is the writing of illegible prescriptions. The Berlin police authorities have thought it necessary to call attention to this evil in a letter addressed to the executive committee of the Berlin medical chamber. In this letter it is noted that of late mistakes have again occurred due to the fact that pharmacists either could not read the prescriptions of physicians on account of the poor chirography, or else misunderstood them and filled them incorrectly. The danger resulting from this was lately increased through a circumstance not previously observed, namely, that physicians in increasing numbers fail to add explicit directions to their prescriptions, even in cases of active and poisonous remedies, and therefore deprive the pharmacists of an important aid. It has already happened that medicines for external application have been given to the public in place of remedies intended to be taken internally. An illustration of such an occurrence is the following case which recently came to trial. An apothecary, C. B., who was employed in a large Berlin pharmacy, read and dispensed atropin in place of morphin which was written on the very illegible prescription. The result was that the patient, in this case the wife of a physician, suffered a syncope on taking the medicine. The apothecary was accused on the ground of criminal carelessness. However, the court acquitted him because the evidence showed that the writing on the prescription was so illegible that atropin in place of morphin might have been read very readily.

VIENNA LETTER

(From Our Regular Correspondent)

Vienna, Sept. 5, 1912.

The Results of Salvarsan in Two Thousand Cases

Dr. Woldovar, in a paper read before the Army Medical Society, reported the results of injection of salvarsan in 2,000 cases of syphilis in all stages. He used the monacid solution and gave always intramuscular (gluteal) injections. The dose was generally 0.5. As regards the after-effects, a rise in temperature was noted in about 30 per cent. of all patients, which lasted from one to four days, without any ill effect. In about 0.5 per cent. of all injected cases an arsenic intoxication occurred, as shown by diarrhea, vomiting or nausea, dryness of the mouth and loss of appetite. A curious incident was a troublesome paralysis of the peroneus muscle, which happened seven times; it was most likely due to too deep injection which injured the peroneal fibers of the sciatic nerve. In 0.5 per cent. of the cases nervous relapses appeared after the injection but not a single death happened in the series. The author kept the patients over two months under observation, which is easily effected in the army. The therapeutic results were excellent, especially as regards primary and secondary lesions and manifestations of syphilis on the mucous membranes, but a definite cure, that is, absolute freedom from spirochetes, has not yet been proved, owing to the short time of observation.

Marriages

John Albert Kolmer, M.D., Philadelphia, to Miss Bessie Cecelia Herron of Freeland, Pa., in New York City, September 18.

Smith Fuller Hogsett, M.D., Pittsburgh, to Miss Clara Heaton Gans of Uniontown, Pa., at Swissvale, Pa., recently.

Chesney Macauley Ramage, M.D., Fairmont, W. Va., to Miss Blake Lemley, at Cassville, W. Va., September 18.

Raymond T. McGurk, M.D., to Miss Mamie Belle Robinson, both of Stockton, Cal., in San Francisco, September 15.

Louis Daniel Joseph, M.D., Bradford, Pa., to Miss Mirian Davis of Titusville, Pa., at Buffalo, N. Y., September 2.

H. G. Difenderfer, M.D., Beaverdale, Pa., to Miss Millie M. Shiffer of Expedit, Pa., in Philadelphia, September 25.

Harrison Benjamin Kern, M.D., Slatington, Pa., to Miss Elizabeth Hopkins of Lancaster, Pa., September 12.

Theodore Fletcher Mead, M.D., New York City, to Miss Lena Ruth Fahnestock of Ithaca, N. Y., June 10.

Alexander Donald Ferguson, M.D., to Miss Dorothy Williams, both of Chicago, September 25.

Robert Allen Davis, M.D., to Miss Julia Mae Calvert, both of Clifton Forge, Va., September 18.

Charles Chauncey Winsor Judd, M.D., to Miss Mildred Rife, both of Baltimore, September 21.

Ralph H. Loomis, M.D., Sidney, N. Y., to Miss Fanny P. Stowell of Rockford, Ill., September 11.

William E. Neal, M.D., to Miss Susan Witten, both of Huntington, W. Va., September 11.

Haskill M. Cohen, M.D., Denver, to Mrs. Jeannette L. Joseph, in California, recently.

Clyde Jeffrey Smiles, M.D., to Miss Grace Weir, both of Ashland, Wis., September 6.

Edgar J. Huenekens, M.D., to Miss Helen Fish, both of Minneapolis, September 21.

Richard S. Weiss, M.D., to Miss Anna Newman, both of St. Louis, September 23.

Carl G. W. Jungk, M.D., to Miss Helen Ball, both of St. Louis, September 12.

Jacob Hall, M.D., to Miss Lula Marcee, both of Kansas City, Mo., recently.

Deaths

Thomas Jefferson Mitchell, M.D. University of Pennsylvania, Philadelphia, 1852; a member of the American Medical Association and president of the Mississippi State Medical Association in 1904-1905; treasurer of the American Medico-Psychological Association; surgeon of the Thirty-Ninth Mississippi Infantry, C. S. A., throughout the Civil War; superintendent of the Mississippi State Insane Hospital, Jackson, from 1878 to 1910; widely known as an expert on nervous and mental diseases and insanity; died at his home in Jackson, September 15, from senile debility, aged 82.

Charles Nelson Ballard, M.D. Rush Medical College, 1890; a member of the American Medical Association; formerly of Chicago and associate professor of gynecology in the College of Physicians and Surgeons, Chicago; assistant surgeon to the Marion Sims Hospital and attending gynecologist to the Westside Free Dispensary; who moved to Oklahoma four years ago locating in Oklahoma City; died at his old home in Logansport, Ind., September 21, a short time after a surgical operation, aged 43.

Jacob Baxter, M.D. New York University, New York City, 1854; Bellevue Hospital Medical College, 1866; Trinity Medical College, Toronto, 1891; a member of the Ontario legislature from 1867 to 1898 and speaker of that body from 1887 to 1891; thereafter registrar of Haldeman County, Ont.; died at his home in Cayuga, July 23, aged 80.

William B. Lawrence, M.D. Vanderbilt University, Nashville, Tenn., 1905; a member of the State Medical Association of Texas; for several years secretary of the Kerr-Kendall-Gillespie-Bandera County Medical Society and local surgeon for the San Antonio and Aransas Pass Railroad; died at his home in Comfort, June 21, aged 31.

Daniel B. Street, M.D. University of Georgetown, D. C., 1874; a member of the Medical Association of the District of Columbia; dean of the staff of Sibley Hospital, Washington, D. C.; a veteran of the Civil War; died at the home of his daughter in Moose Jaw, Sask., September 18, from heart disease, aged 70.

Francis M. Daily, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1878; a member of the American Medical Association; professor of surgery in the University of Kansas; local surgeon at Beloit for the Missouri-Pacific System; died at his home in Beloit, September 14, from heart disease, aged 58.

John Lawrence Hughes, M.D. College of Physicians and Surgeons, New York City, 1899; a member of the American Medical Association and health officer of Mount Vernon, N. Y.; died in a hospital in New Rochelle, N. Y., September 20, from the effects of an automobile accident, aged 35.

Herbert W. Davis, M.D. University of Buffalo, N. Y., 1883; a member of the Medical Society of the State of New York; for more than twenty years a practitioner of Falconer, but for two years a resident of Jamestown; died at his home in that city, September 17, from cerebral hemorrhage, aged about 50.

George Gleim, M.D. University of Pennsylvania, Philadelphia, 1865; a member of the Medical Society of the State of Pennsylvania; for twenty-one years physician to the Cornwall estate, and thereafter a practitioner of Lansdowne; died at his home in that place, September 21, aged 69.

Christian N. Bishoff, M.D. Eclectic Medical College of Pennsylvania, Philadelphia, 1871; for two terms a member of the Kansas State legislature; for thirty-five years a practitioner of Eudora Township, Douglas County, Kan.; died at his home near Eudora, September 22, aged 74.

Harry Allison Roscoe, M.D. Medico-Chirurgical College of Philadelphia, 1903; Hahnemann Medical College, Philadelphia, 1904; a member of the Medical Society of the State of Pennsylvania; died at his home in Pittsburgh, September 22, as the result of an automobile accident.

John W. Cowden, M.D. Reform Medical College of Georgia, Macon, 1855; for more than half a century a practitioner of Petersburg, N. C.; died at his home, September 20, from the results of injuries sustained in a runaway accident, aged 76.

Francis Hosea Fisk, M.D. Eclectic Medical Institute, Cincinnati, 1857; a Confederate veteran; at one time editor of the *Eclectic Medical Journal* and a professor in a St. Louis medical college; died at his home in Nashville, September 13, aged 76.

William Higgison Aplin, M.D. State University of Iowa, College of Homeopathic Medicine, Iowa City, 1883; a member of the Missouri State Medical Association; died at his home in Hamilton, September 13, from appendicitis, aged 65.

George Washington Opie Maupin, M.D. Bellevue Hospital Medical College, 1869; a member of the Medical Society of Virginia and a Confederate veteran; died at his home in Portsmouth, September 17, from cerebral hemorrhage, aged 67.

Edmund F. Steckel, M.D. Jefferson Medical College, 1862; assistant surgeon of volunteers during the Civil War; revenue assessor of Lehigh County, Pa., for several years; died at his home in Allentown, September 18, from uremia, aged 71.

Augustus Sargent Bolster, M.D. Dartmouth Medical School, Hanover, N. H., 1890; a member of the American Medical Association; died at his home in Worcester, Mass., September 3, from left hypernephrosis, aged 45.

Robert Drakely Gardner, M.D. Eclectic Medical Institute, Cincinnati, 1855; for more than half a century a practitioner of Decatur County, Iowa; died at his home in Leon, September 13, from senile debility, aged 86.

Frank Edward Lewis, M.D. Cleveland University of Medicine and Surgery, 1886; vice-president of the New York State Homeopathic Medical Society; died in his home in Albany, N. Y., September 10, aged 57.

John Stark Rhodes, M.D. University of Louisville, Ky., 1888; a member of the State Medical Association of Texas; died at his home in Prairieville, July 4, from chronic nephritis, aged 54.

Edwin Weston Trueworthy, M.D. University of Vermont, Burlington, 1865; a member of the Massachusetts Medical Society; died at his home in Lowell, Mass., September 13, aged 73.

Thomas A. Hays, M.D. Hospital College of Medicine, Louisville, 1875; for several years a lecturer in his alma mater; died at his home in Louisville, September 17, from pneumonia, aged 58.

William Mitchell, M.D. Eclectic Medical Institute, Cincinnati, 1881; for twenty-seven years physician of Washington County, Ohio; died at his home in Marietta, September 2, aged 61.

James Thomas Grace, M.D. Jefferson Medical College, 1900; formerly of Kalamazoo, Mich.; died at his home in Cleveland, Okla., September 13, from the effects of a kick of a horse.

James Leonard Vineyard, M.D. Reform Medical College of Georgia, Macon, 1849; of Simpson, Ga.; died at his old home in Rock Mills, Ala., about September 16, aged 85.

A. M. Gould, M.D. University of Pennsylvania, Philadelphia, 1877; died at his home in Wildwood, Cleveland, Tenn., September 18, from cerebral hemorrhage, aged 75.

Frank H. White, M.D. Kansas Medical College, Topeka, 1905; died at his home in Effingham, Kan., September 23, from acute dilatation of the heart, aged 37.

Brock Mayfield, M.D. Missouri Medical College, St. Louis, 1890; died suddenly at his home in Lynnville, near Jacksonville, Ill., September 13, aged 54.

Edmund Henry Graham, M.D. Western Pennsylvania Medical College, Pittsburgh, 1901; died at his home in Stahlstown, Pa., July 31, aged 47.

John Fields Place, M.D. University of Michigan, Ann Arbor, 1874; died at his home in Binghamton, N. Y., September 14, from heart disease, aged 61.

Jefferson Cary, M.D. Medical School of Maine, Brunswick, 1878; of Caribou, Me.; died at his summer home at Round Pond, August 25, aged 71.

Daniel J. Harmon (license, Tennessee, 1889); died at his home in Morristown, about September 12, from cerebral hemorrhage, aged 70.

James Joseph Stanford Doherty, M.D. New York University, New York City, 1874; died at his home in New Haven, Conn., July 5, aged 61.

William C. Manley, M.D. American Medical College, Eclectic, St. Louis, 1879; died at his home in Franklin, Ill., September 11, aged 63.

Harold Townsend Prentiss, M.D. Baltimore Medical College, 1893; died recently at his home in Holyoke, Mass., aged 43.

William A. McClain, M.D. Medical College of Ohio, Cincinnati, 1888; died recently at his home in Detroit, Mich., aged 54.

William J. Johnston, M.D. Queens University, Kingston, Ont., 1891; died recently at his home in Merrickville, Ont.

William W. Giesy, M.D. Willamette University, Salem, Ore., 1881; died at his home in Aurora, Ore., September 18.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

THE PROPRIETARY EVIL

How the New York "Sun" Views It

The evils connected with the prescribing of "ethical proprietaries" are, as we have repeatedly said, a menace not so much to the medical profession as to the public. It is not surprising then, in view of the present wide-spread interest of the layman in all things medical, that the "proprietary" evil is beginning to be recognized as something entirely distinctive from the "patent medicine" curse. As The Journal has said time and again, the abuses in the proprietary medicine world will continue just so long as the medical men will tolerate medical journals whose revenue is largely derived from the advertising of fraudulent proprietaries. The public is waking up to this fact. We reproduce here in full an editorial that appeared in the *New York Sun* for September 21, under the caption "A Serious Menace to the Medical Profession." It gives the medical profession an opportunity to see itself as others see it:

"The absence of cooperation among physicians in the promotion of their interests is a matter of frequent observation. It is therefore gratifying to record an instance exemplifying the recognition of a danger menacing both the public and the profession, and the action taken by at least one organization to meet it.

"The State Medical Association of Missouri has adopted a resolution which pronounces it 'derogatory to the best interests of members to publish articles in medical journals whose advertising pages contain fraudulent or questionable advertisements.' The lay reader cannot realize the importance of this enactment, not for the doctor alone but also for the interests of the public, which is the unsuspecting victim and the greatest sufferer from the abuses this resolution is aimed to correct, the prescription of secret nostrums and other proprietary drugs by physicians. It is not generally known that there are numerous drugs which have never been shown to possess the slightest palliative, much less curative, properties, but which by reason of skilful and persistent advertising have come to be credited with more or less valuable properties; and there are other drugs more or less efficient as palliatives, the manufacture of which is secret, which are exploited under various designations, names or devices. Some persons say they have been benefited, others that they have been actually cured by these secret nostrums; just as many declare they have obtained similar benefit from all kinds of treatment, magnetic cures, healers, masseurs, etc.

"The Journal of the American Medical Association has for some time bravely urged the importance of checking the use of these nostrums which have unfortunately become popular among doctors who are incapable or too indolent to devise their own formulas. And they are encouraged, indeed actually taught, in their uses by certain medical journals of otherwise good repute, which thrive on large incomes from the advertisements of the manufacturers. It is so much easier to write a prescription for X's Nerve Tonic than even to write the ingredients of which it pretends to be composed and the properties of which are well known. Worse than this is the prescribing of preparations for the composition of which and their curative value the physician must trust to the manufacturer, whose chief interest lies in their financial success. The ingredients if stated are not mentioned in the text-books on drugs. A glib tongued agent calls at the doctor's office, thrusts on him samples and so-called literature, laudatory and alluring by titled names of which he has never heard. The headache medicine, for instance, is prescribed; it alleviates probably because it contains a coal-tar preparation. Instead of prescribing the latter himself he gives the next patient this nostrum. The result is that on the next similar occasion the patient buys the nostrum from the druggist without visiting the doctor; not rarely he recommends it to others. The druggist alone reaps the benefit, while the doctor and the patient suffer losses they little suspect.

"The credulity of the unthinking doctor is not a whit beneath that of the misguided layman, but it is far more contemptible. For this reason the public needs to be warned against doctors who prescribe drug preparations bearing some definite name or title rather than a regular prescription. There never was a time when drugs were so universally and freely used by lay persons, and the chief reason may be found in the recklessness with which named proprietary medicines not mentioned in the text-books are prescribed by doctors. The Latin prescription, though antiquated, is at least not so easily duplicated.

"If respectable medical journals would refuse advertisements to secret or semi-secret nostrums they would not be used by physicians. Since these medical journals derive their principal revenue from advertisements, it is not in human—commercial—nature to adopt this suicidal course. The remedy lies in the adoption of the course pointed out above by the lay public and the unwavering disciplining of physicians who lend their influence by publishing articles in these journals which carry advertisements of nostrums. The American Medical Association owes it to the medical profession, the best types of which it represents, to emulate the action of the Missouri Medical Association and thus protect the professional interests which are seriously menaced and also protect the public against indolent and ignorant doctors."

PHENACETIN AND ACETPHENETIDIN

A physician-pharmacist writes: "If a prescription calls for 'phenacetin,' should the pharmacist dispense 'phenacetin-Bayer'—that is, the phenacetin manufactured by the original patentee—or would he be justified in dispensing the official acetphenetidin, manufactured by any reliable chemical or pharmaceutical house?"

Unless the pharmacist happens to know that the physician in writing the prescription desired the Bayer brand, he would be justified in dispensing acetphenetidin, U. S. P. As a general thing, physicians use the word "phenacetin" without intending to prescribe any particular brand or make, simply because they are familiar with this word and are not familiar with the official term "acetphenetidin." They will doubtless continue to use the term "phenacetin" and we know of no sufficient reason for doing otherwise. During the life of the patent the word "phenacetin" became a familiar one, and the product became generally known by this term. But a coined name for a patented article loses its proprietary character and becomes the common name of the article when the patent expires. In other words, when the patent expires, not only the product but also the name itself becomes common property. This principle has been recognized by the courts. Those who formerly controlled the product and the name "phenacetin" evidently recognized this principle, for they have taken no steps to prosecute a firm in this country which sells the product openly under the name "phenacetin." It might be added that the preparation is official in most foreign pharmacopeias under the name "phenacetin." In agreement also with this principle the Council on Pharmacy and Chemistry (The Journal, April 27, p. 1298) lists in New and Nonofficial Remedies such products as "lanolin," "phenacetin," "sulphonal" and "trional" as non-proprietary names applied to Adeps lanæ hydrosus, U. S. P., Acetphenetidinum, U. S. P., Sulphonmethanum, U. S. P., and Sulphonethylmethanum, U. S. P., respectively.

In view of these facts—and also bearing in mind the findings of the Association's Chemical Laboratory (The Journal, March 16, p. 801) that the preparations on the market under the title "acetphenetidin" are of equal quality with the preparations sold under the name "phenacetin"—the pharmacist should recognize that acetphenetidin is identical with phenacetin, and that he may dispense the former when phenacetin is prescribed, provided, of course, that no special brand of phenacetin is ordered.

It is the physician's privilege, of course, to specify the goods of a particular manufacturer, but in view of the fact brought out above that all brands of this chemical have tested up to the U. S. P. standard, it is placing an unnecessary burden on the pharmacist to require him to have on hand many different brands of one substance. The physician should save this privilege for use when prescribing some product that differs materially in its various forms on the market, as for example in the case of certain fluidextracts.

Physicians will doubtless find that the above comments will interest their local pharmacists. It is of mutual value for physicians to talk these matters over with their pharmacists.

Correspondence

Priority of Employment of the Roentgen Ray in Studying the Physiology and Pathology of the Digestive Tract

To the Editor:—In June, 1896, an article appeared in the *Boston Medical and Surgical Journal*, page 609, entitled "Photography of the Human Stomach by the Roentgen Method," by John C. Hemmeter. This report, although not published until two months after it was sent to this journal (for I received acknowledgment of its acceptance April 10, 1896), is printed under the date of June 18, 1896.

This antedates any other publication on this subject in the English language. Wolf Becker (*Deutsch. med. Wchnschr.*, March 26, 1896) at about the same time had experimented on the stomachs of animals by filling them with solutions of lead acetate (sugar of lead) after laparotomy, and in doing so he tore the walls of the stomach, which were sewed up again, but not so tightly as to prevent leakage. The solution therefore leaked out into the abdominal cavity and only a diffuse, badly defined photograph was obtained by the *x*-rays. In April of the same year Carl Wegele (*Deutsch. med. Wchnschr.*, July, 1896) had advised experimentation with a spiral metallic electrode introduced into the stomach. His paper was merely a suggestion—he did not report that he had produced any real skiagrams of the stomach; in fact, by this method it was impossible to make them. One might photograph the electrode, but not the stomach. Becker from his own statements worked only on animals and Wegele could produce no photographs whatever of the stomach.

In 1896 I had already made skiagrams of the entire stomach by the method described in the *Boston Medical and Surgical Journal*, June 18, 1896. The work was done in the physical laboratory of the State Normal School in Baltimore with the assistance of the professor of physics at that time, Prof. A. Hammer, and my associate, Dr. Harry Adler. The work was elementary and there were failures that were unavoidable with the apparatus available sixteen years ago. It cannot be denied, however, that *x*-ray photography of the digestive canal was originated as pioneer work then and there, and the work of Rieder, Haudek, Holzknecht and other meritorious clinicians in Germany and this country came after mine. It has occasionally been asserted even by American writers that the *x*-rays were not employed in the diagnosis of precisely stated conditions of the digestive tract until 1907, and then only by Germans. It has been acknowledged by Ewald and Boas as well as Haudek and the entire school of clinical medicine in Vienna, where most of this special kind of clinical radiology is now done, that the first employment of *x*-rays for the diagnosis of ulcer of the stomach was conceived and undertaken by me.

In fact, I possess letters of appreciation and congratulation from my friends, Professors Ewald and Boas of Berlin, in which they compliment me and my co-workers as being the pioneers of this special type of radiology. The main reason why they are so conversant with the history and character of the radiologic work of my clinic is to be found in the fact that I published the first complete account of it in a German journal (Neue Methoden zur Diagnose des Magengeschwürs, *Arch. f. Verdauungskr.*, 1905, xii, No. 5, p. 357; also Experimente welche die Möglichkeit demonstrieren Läsionen der gastrischen Mucosa durch X-Strahlen sichtbar zu machen, *ibid.*, p. 360; also Demonstration des Magengeschwürs beim Menschen mittelst der Bismuth Subnitricum und X-Strahlen Methode, *ibid.*, p. 362, 1906).

Since then I have added nothing new to the first method, for all later advancement has consisted in the improvement of apparatus—unless one is willing to accept as an advancement the use of calcium carbonate and calcium phosphate or of aluminum silicate instead of bismuth salts as first used by me. Leading German, Austrian and French clinicians have in the friendliest terms conceded to my clinic the historic priority of the methods of special radiology mentioned in the preceding. Furthermore, in the German article of July, 1906, (*Arch. f. Verdauungskr.*, xii, p. 363), I pointed out that the method was useful in the diagnosis of carcinoma of the stomach but that it had failed in two cases of cholelithiasis in which the gall-stones were later removed at operation.

Prof. Harry Adler and Dr. Robert Bay have repeated my experimental and clinical work in gastric radiology and Dr. Adler published his first results, which are confirmatory, in The Journal ("The Diagnosis of Ulcer of the Stomach and Duodenum by the Roentgen Ray," Nov. 12, 1910, p. 1725). Adler in this article also reported a number of cases of duodenal ulcer recognized by radiology and found later at operation.

It has sometimes been erroneously stated that Jolasse preceded me in employing radiology for the diagnosis of gastric ulcer. A scrutiny of Jolasse's publication (*München. med. Wchnschr.*, 1907, No. 29) will clearly prove that it appeared more than a year after my contribution to the *Archiv für Verdauungskrankheiten* (July, 1906). The most recent German text-books on diseases of the stomach (Hans Elsner, "Lehrbuch der Magenkrankheiten," p. 286, and also the new edition of Boas) have stated correctly the chronologic sequence of this radiologic endeavor. Other publications by my associates are by Adler and Ashbury (Am. Roentgen Ray Soc., September, 1910; also Adler and Ashbury, *New York Med. Jour.*, Oct. 7, 1911).

John C. Hemmeter, M.D., Phil.D., LL.D., Baltimore.

Queries and Minor Notes

Anonymous Communications will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INFLUENCE OF POTASSIUM IODID ON THE WASSERMANN REACTION

To the Editor:—Does potassium iodid have any influence on the Wassermann reaction? The only literature which I have been able to find on this subject is a report by Reasoner, of the United States Army, and Matson, of Portland, Ore. (The Journal, June 17, 1911, p. 1804).

In running Wassermanns I have observed a frank negative often when clinical symptoms were strong for active constitutional syphilis, potassium iodid alone being used. I mean syphilis without cerebral or cord lesions. P. C. West, Seattle, Wash.

Answer.—In the reports referred to above, the medication which was followed by negative Wassermann reactions is described as "protiodid," and was, therefore, presumably a combination with mercury. It is of course well known that negative Wassermann reactions are met in early secondary syphilis, as well as in the parasyphilitic affections, such as tabes. It is generally accepted that the action of the iodids in syphilis depends on the promotion of absorption of connective tissue. The focus of infection thus becomes more accessible to the action of mercury. In some cases of syphilis with gumma in which a negative reaction was obtained, the use of iodids alone has been followed by the appearance of a positive reaction. In large doses, iodids have been found to have some antispirochetal action in experimental syphilis in apes (Neisser), but the dose required was equivalent to from 120 to 250 gm. in man. In general it seems unlikely that moderate doses of iodids alone would cause a negative seroreaction in the presence of symptoms of active syphilis, for even in those cases thoroughly treated with a course of mercury or mercury and iodids, a positive reaction is often obtained after all symptoms have disappeared.

In instances such as those cited in the query, the possibility of error in performing the test must also be considered. In addition to the many obvious sources of error, the giving of iodids might affect the test in the following way: When iodids are given to normal animals, there occurs a slight increase of complement in the serum (G. F. Dick). If the test were made with such a serum, containing excess of complement without previous heating and without proper controls, all the complement might not be fixed, but enough left free to complete the hemolytic system, thus giving a negative test with a positive serum. Such a combination seems possible, though in practice unlikely to occur.

HARMFUL EFFECTS FROM PYRAMIDON

To the Editor:—In New and Nonofficial Remedies I note that pyramidon is claimed to be devoid of harmful influences on blood, heart or kidney. Do you think it safe to prescribe it for migraine? Can you tell me how it relieves the headache if it is not a depressant? D. W. Wells, M.D., Boston.

Answer.—Exceptional claims are made by the manufacturers for the safety of pyramidon. The literature contains some instances of collapse and alarming symptoms following the administration of this coal-tar product. For instance, there is in this issue a paper by Bechet on "An Extensive Case of Dermatitis Medicamentosa Following the Use of Midol (Pyramidon)." While these are insufficient to justify a condemnation of the remedy, they indicate the necessity for caution in its use as well as in the use of all remedies in this class. Consequently, the Council on Pharmacy and Chemistry, in preparing New and Nonofficial Remedies, has stated under the title of Acetphenetidin the general nature of these remedies with a caution as to their use, and under the specific articles a general reference is given to that caution by the statement "See Acetphenetidin." There is no doubt that the occasional use of an analgesic of this sort for the relief of headache, neuralgia, etc., is beneficial and safe. It is the habitual and uncautious use which must be condemned. We do not feel that there is a warrant for the positive statement that pyramidon is safer than other remedies of this class, although the manufacturers present considerable clinical evidence to sustain their position. Those using pyramidon, therefore, should watch carefully to determine its relative advantages or disadvantages. So far as we know, no satisfactory explanation of the analgesic action of these remedies has been offered.

Of interest in this connection is the article that appeared in the Propaganda for Reform Department of The Journal (August 10, p. 461), dealing with "Midol" and "Nurito." These two nostrums, which are widely advertised to the public as "headache cures," contain pyramidon as their essential constituent.

COMPLEMENT FIXATION AND VACCINE DIAGNOSIS OF GONORRHEA

To the Editor:—Please refer me to literature on the technic of the serum diagnosis of gonorrhea. D. G.

Answer.—Our correspondent's letter does not make it clear which method of diagnosis he refers to by the "serum diagnosis of gonorrhea," but following is a list of references which include articles on both the complement-deviation test and the vaccine test originated by Dr. Irons:

Teague, O., and Torrey, J. C.: Study of Gonococcus by Fixation of Complement, *Jour. Med. Research*, December, 1907; abstr. in The Journal, Jan. 25, 1908, p. 315.
Watabiki, T.: Complement Fixation in Gonorrheal Infections, *Jour. Infect. Dis.*, January, 1910; abstr. in The Journal, Feb. 12, 1910, p. 568.
Swinburne, G. K.: Complement-Fixation Test in Gonorrhea, *Arch. Diagnosis*, July, 1911.
Köhler, R.: Vaccine Diagnosis and Treatment in Gonorrhea, *Wien. klin. Wchnschr.*, Nov. 9, 1911.
Value of the Complement-Fixation Test in Gonorrhea, Queries and Minor Notes, The Journal, March 23, 1912, p. 881.
Irons, Ernest E.: A Cutaneous Reaction in Gonococcal Infections, The Journal, March 30, 1912, p. 931.
Gonorrheal Complement Fixation Reaction, abstract of a discussion, The Journal, April 27, 1912, p. 130.
Eising, E. H.: Diagnostic Use of Gonococcus Vaccine for Gonorrheal Infections, *Med. Record*, June 1, 1912.

THE VIAVI FRAUD

To the Editor:—I have lately learned that some of my friends have been using a "patent medicine" called "Viavi" put up by Dr. Law of San Francisco. According to the statement of one it is a "sure cure" for cancer! She is taking it for that purpose. Thinking that you have made an analysis of the article I take the liberty of writing and asking you for information; besides, it may do something for one of the deluded ones.

Edwin Bloor, Wauwatosa, Wis.

Answer.—The Viavi fraud was exposed some time ago by the *California State Journal of Medicine*. This matter has been reprinted in pamphlet form by the American Medical Association; price 4 cents. The matter also appears in the book "Nostrums and Quackery."

SALVARSAN IN PREGNANCY

To the Editor:—Please give references or information regarding the administration of salvarsan to the pregnant syphilitic mother and its effects on the future offspring. O. D. P.

Answer.—In reviewing the results recorded in several other articles, Jeannin ("Des résultats donnés par le salvarsan en obstétrique," *Presse méd.*, Jan. 6, 1912) concludes that salvarsan has a good effect on syphilitic lesions in the mother and leads to no more serious results in the pregnant than in the non-pregnant. No case of abortion has been caused by it so far as known and as to premature birth, either with or without the previous death of the fetus, a definite answer cannot be given at present.

With reference to the question whether salvarsan may cause the death of the fetus *in utero*, Jeannin finds that three deaths have been reported among thirty-nine births, or 7.7 per cent. This fetal mortality is less than that occurring in syphilitic infants in which no treatment has been given. The infant may be free from syphilitic lesions; on the other hand, other cases have occurred in which the infants after salvarsan treatment of the mother before birth, have developed serious lesions a short time later. The number of cases so far investigated is insufficient to determine how much curative effect can be expected from antenatal treatment.

Among other articles on the subject are the following:

Girauld and Tissier: Arsénobenzol et grossesse, *Bull. Soc. d'obst. de Paris*, 1911, xiv, 101. Bar, P.: Quatre observations de femmes syphilitiques traitées par le salvarsan, ibid., Feb. 16, 1911.

Lemeland: Le salvarsan en obstétrique, *L'Obstétrique*, April, 1911, p. 441.

Jeanselme: Le salvarsan injecté à une mère en période d'allaitement; peut-il influencer la syphilis de son nourrisson? *Ann. de gynéc. et d'obst.*, July, 1911, p. 394.

HOW TO TELL WHEN SALVARSAN NEEDLE IS IN LUMEN OF VEIN

To the Editor:—Recently in administering salvarsan intravenously I observed a point which has helped me considerably and which I feel certain is not generally known. Having seen both arms infiltrated with our solutions, and veins thereby obscured and incisions made in difficult cases, I was greatly pleased to find an absolutely sure sign that my needle was in the lumen of the vein. The apparatus I have been using is about the same as was described in the last issue of the *Yale Medical Journal*, consisting of two irrigating-bottles originally devised for nasal irrigation, connected with a two-way glass stop-cock by 6 inches of rubber tubing; about 4 feet more of rubber tubing; a couple of pieces of glass tubing inserted to permit observation for air bubbles, and then the barrel of a small Luer syringe onto which fits the Schreiber needle. Fitting the Luer syringe onto the needle is the important point. As soon as the needle enters the lumen of the vein which has been distended by constriction, the blood flows in a good stream back into the syringe. Then it is safe to allow the salvarsan to flow without first testing with saline and the latter is used only to wash out the last of the drug from the tubing. This flow of blood takes place because of the elastic walls between our shut-off and the needle and the greater pressure within the veins than within the rubber tubing. J. F. O'Brien, M.D., Meriden, Conn.

Comment.—The flow of blood through the needle has been made the test as to whether the needle is in the vein by Weintraud, as described by Montgomery (The Journal, Feb. 18, 1911, p. 501). Boehm objects to allowing blood to flow through the needle, fearing the clotting (The Journal, March 11, 1911, p. 732).

POSTGRADUATE WORK ABROAD

To the Editor:—I am planning a course in surgery, probably in Vienna. Please give me information in regard to clinics, method of procedure, courses, cost, conditions of living, etc.

E. L. Garner, M.D., Welland, Ont.

Answer.—The Journal, April 8, 1911, contained about a page and a half devoted to graduate work in the hospitals and clinics of England, Berlin, Paris and Vienna, giving the addresses of men from whom further information could be obtained, and citing a number of articles which had appeared in the literature. The following additional articles may be of interest:

Kutner, R.: Postgraduate Medical Instruction, Its Present Status and Future Objects, *Post-Graduate*, March, 1910.

McMorrow, F.: Postgraduate Work for Americans at Budapest, The Journal, July 29, 1911, p. 407.

Paling, Albert: A Long Vacation, *West. Canada Med. Jour.*, November, 1911.

Leavitt, F.: Rambles Through Hospitals Abroad, *St. Paul Med. Jour.*, October, 1911.

Cole, G. L.: European Observations, *South. Cal. Pract.*, February, 1912.

Beck, Carl: Surgery of To-Day in Germany, Austria and France, *Surg., Gynec. and Obst.*, March, 1912.

McMorrow, F.: Postgraduate Work in Vienna and Budapest, *New York Med. Jour.*, March 30, 1912.

HEXAMETHYLENAMIN AS A URINARY ANTISEPTIC

To the Editor:—In The Journal, April 20, 1912, under "Therapeutics," you describe hexamethylenamin and state that "part of the drug is excreted unchanged, but during the course of its excretion, under the influence of acids or acid salts, a large part is decomposed and formaldehyd liberated."

Now, if this is so, why should not a drug be given to acidify the urine in those cases in which its beneficial effect is supposed to be exerted on the genito-urinary tract? I have in mind a case in which the urine remained alkaline after several days of persistent use of the drug. I can find nothing in the literature which takes up this point. William Cain, M.D., Birmingham, Ala.

Answer.—Our correspondent will find in The Journal, July 6, 1912, p. 38, an editorial discussion of some of the conditions which modify or limit the successful use of hexamethylenamin as a urinary antiseptic. The drug owes its efficiency in this respect to the formation of formaldehyd. In an alkaline urine none is formed and in consequence the antiseptic action is *nil.* In neutral or faintly acid urines a small amount, probably not exceeding 1 per cent., according to Jordan (*Biochem. Jour.*, 1911, v, 274), is split up and the action is feeble. The percentage of formaldehyd, and with it the antiseptic power, increases with the acidity. When the latter reaches a degree slightly above normal no organism will grow in the urine, which therefore remains indefinitely sterile. There is reason to believe that at this point about 10 per cent. of the hexamethylenamin has been converted into formaldehyd. The process of conversion into formaldehyd is a simple chemical one, which occurs in all solutions of hexamethylenamin under conditions of dilution, temperature, acidity and time which are identical with those obtaining in the body.

The acidity of the urine can be raised by administration of acid sodium phosphate, NaH_2PO_4. This is not the salt commonly employed as a mild laxative, the latter being the dibasic phosphate Na_2HPO_4. Various circumstances which cannot be enumerated here must limit the possibility of administering such a salt along with the hexamethylenamin. A dose of 30 grains three times a day of the acid phosphate along with 10 grains of the drug has been found to produce a urine that remained practically sterile on standing a few days.

LITERATURE ON SALVARSAN

To the Editor:—I am using salvarsan and wish to read more articles on the subject. Would it be too much to ask you to send me a list of the articles, editorials, etc., which have appeared in The Journal? C. R. T.

Answer.—In The Journal, Jan. 20, 1912, p. 216, in Queries and Minor Notes, we gave a list of articles on the subject which had appeared in The Journal since Oct. 1, 1910. The following have appeared since January:

Friedlander, A.: Salvarsan in Pernicious Anemia, The Journal, Feb. 10, 1912, p. 406.

Nichols, H. J.: The Present Status of Salvarsan Therapy in Syphilis, The Journal, March 2, 1912, p. 603.

Trowbridge, E. H.: Subcutaneous Injections of Salvarsan in General Paresis, The Journal, March 2, 1912, p. 609.

Longley, J. R.: Syphilis, Diabetes and Salvarsan, The Journal, April 20, 1912, p. 1194.

Cranston, W. J.: Salvarsan in Pellagra, The Journal, May 18, 1912, p. 1509.

Collins, Joseph, and Armour, Robert G.: The Treatment of Syphilitic Diseases of the Nervous System by Salvarsan, The Journal, June 22, 1912, p. 1918.

Levin, Harold J.: Salvarsan in Pregnancy, The Journal, Aug. 24, 1912, p. 622.

Suggett, O. L.: New Simple Apparatus for Intravenous Administration of Salvarsan with Saline Solution Preceding and Following, The Journal, Aug. 10, 1912, p. 440.

PREFERABLE METHOD OF GIVING SALVARSAN

To the Editor:—1. All things considered, which is preferable, the intravenous or intramuscular administration of salvarsan? Is the intramuscular administration of salvarsan as little liable to damage the patient as any other method of administration?

2. Is it true that the most eminent syphilogists of Chicago and other large medical centers are administering salvarsan by the intravenous method in an ordinary consultation office? M. E. L.

Answer.—1. The intravenous injection of salvarsan is regarded as the more efficient. When none of the solution escapes into the tissue around the vein the method is not followed by the inflammatory complications of the intramuscular injection. On the other hand, the intravenous method is more likely to cause toxic symptoms and more deaths have occurred from it.

2. Some practitioners give intravenous injections of salvarsan in their offices, but it is questionable whether this is wise, in view of the occasional untoward results. See the editorial on salvarsan in this issue.

Society Proceedings

COMING MEETINGS

American Association of Railway Surgeons, Chicago, Oct. 16-18.
Clinical Cong. of Surgeons of North America, New York, Nov. 11-16.
Delaware State Medical Society, Wilmington, Oct. 8.
Indiana State Medical Association, Indianapolis, Oct. 9-11.
Kentucky State Medical Association, Louisville, Oct. 29-31.
Medical Association of the Southwest, Hot Springs, Ark., Oct. 8-10.
Mississippi Valley Medical Association, Chicago, Oct. 22-24.
Nevada State Medical Association, Reno, Oct. 8-10.
Southern Medical Association, Jacksonville, Fla., Nov. 12-14.
Vermont State Medical Society, Montpelier, Oct. 10-11.
Virginia Medical Society, Norfolk, Oct. 22-25.

INTERNATIONAL CONGRESS ON HYGIENE AND DEMOGRAPHY

Fifteenth Meeting, held at Washington, D. C., Sept. 23-28, 1912

(Continued from page 1209)

THE EXHIBIT

Under the able direction of Dr. J. W. Schereschewsky, of the U. S. Public Health Service, the exhibition, which contained thousands of exhibits showing the public health work of various states and cities of the Union, was opened September 16 and continued until October 4. About 5,000 persons attended the opening. The exhibit was divided into thirteen sections. In the child hygiene section the visitor found a series of photographs illustrating the physical defects which lead to mental deficiency in children. Here also was shown a model child's hospital, and experts were in charge to describe the proper care of the child in the different stages of the various diseases of children.

In the industrial section were shown maps and lantern slides illustrating the work being done by the health welfare departments of great industrial corporations. In the sex hygiene section were two Washington exhibits. The first exhibit was from the United States Army Museum, and the other by Dr. Eluora C. Folkmar of the Woman's Clinic. This exhibit consisted of 200 beautiful lantern-slides showing how to teach children the story of the origin of life in plants, fishes, insects, birds, animals and man.

In the section on mental hygiene there were photographs illustrating forms of insanity. In other sections the importance of pure water, wholesome food and the disposal of sewage were strikingly illustrated.

In connection with the school section the department of education showed a number of model schoolhouses of pasteboard for rural districts.

AMERICAN MEDICAL ASSOCIATION PRIZE CARTOON SERIES, 1912-NO. 12.

STARTING RIGHT

In the section devoted to the communicable diseases the American Medical Association presented a strong exhibit against "patent medicines," showing some of the features of its Propaganda for Reform Department.

A section devoted to the hygiene of physical exercise was illustrated by photographs.

In the naval hygiene section a hospital room in a modern American battleship was rigged up to illustrate how the sailors on United States war-ships are cared for.

In the state and municipal section every state and practically all of the large cities of the country had prepared exhibits in the fight against diseases. Trinity Church, New York, had a unique exhibit showing model tenement buildings which give the greatest health and comfort possible to tenants. The exhibit was said to be a model of the 366 tenement buildings owned by the church, housing 882 families.

A single electric light was used to illustrate the death-rate among the infants of the world. Every ten seconds the light flashed, indicating, according to the statistical board accompanying the light, that an infant under the age of 1 year had died somewhere in the civilized world. This light indicated that 8,640 infants die every twenty-four hours.

Besides the various moving pictures showing the public-health work in various sections of the country, lectures were given by prominent physicians and hygienists. This exhibit was one of the most interesting, instructive and attractive features of the congress.

THE FINAL GENERAL MEETING

The final general meeting of the congress was held Saturday morning, September 28, at 9:30, and was called to order by President Walcott.

With the adoption of a series of resolutions, all bearing on important phases of hygiene, national and international, followed by brief expressions of thanks and appreciation from the delegates of the foreign nations represented at the meeting, the Fifteenth International Congress on Hygiene and Demography passed into history.

DR. JOHN S. FULTON, secretary-general, called on the delegates from the thirty-three nations represented. Official representatives of the following governments briefly expressed their thanks for the hospitality accorded them in the United States and their appreciation of what has been accomplished at this congress: Hungary, Brazil, Cuba, Denmark, France, Germany, Great Britain, Italy, Japan, Mexico, the Netherlands, Norway, Russia, Spain, Sweden, Venezuela, Bolivia, Greece and Australia.

PRESIDENT WALCOTT read the following resolutions, submitted by the Permanent International Commission of the Congress on Hygiene and Demography, which were adopted:

1. *Resolved*, That the congress approves the proposal made by the Section on Microbiology and Applied Parasitology that an international committee be appointed to consider the methods of investigation, classification and differentiation of the organisms of the colon typhoid group, with a view of securing greater uniformity in such methods and of adopting a provisional standard of certain tests which shall be recommended for the investigation of organisms belonging to this group.

2. *Resolved*, That for the important object of securing the highest degree of practicability in the notification, tabulation and analysis of the official returns of occupational diseases it is recommended that such notification and returns shall be made in a uniform manner by international agreement.

3. *Resolved*, That such nations and states as do not as yet provide for compulsory notification of occupational diseases be urgently requested to do so at the earliest possible opportunity.

4. Whereas, The medical departments of the several navies of the world have no uniform methods of expressing morbidity and mortality statistics and no uniform nomenclature for the causes of disability or any compilation and tabulation of returns; and

Whereas, The international classification of causes of death and sickness should form a basis for securing uniformity in all naval vital statistics; therefore be it

Resolved, That the secretary-general of the Fifteenth Congress on Hygiene and Demography is directed to communicate with the governments of France, Russia, Great Britain, Japan, the United States and such other nations as publish naval medical returns. That it is the sense of the congress that each navy should designate naval medical representatives to confer and recommend uniform methods and tables for expressing international naval vital statistics.

5. *Resolved*, The congress desires that in every country statistics of births, deaths, marriages and divorces be published periodically and, if practicable, annually. The congress believes that states or large cities which publish demographic statistics need registrars or similar officers sufficiently trained in medicine and demography to interpret demographic statistics, especially those of the causes of death.

6. *Resolved*, The congress believes that provision for the training, opportunity and appointment and retention of such men is of fundamental importance to public health work.

7. *Resolved*, The congress desires that family statistics, including both of children born and living, be gathered periodically in connection with the census.

8. *Resolved*, The congress desires, in connection with the registration of births, information giving the order of births in families. The congress desires, further, that in every country these statistics be published periodically and, if possible, annually.

9. *Resolved*, The congress desires that a commission be appointed to report on the subject of uniformity in criminal statistics, and especially uniform nomenclature.

10. *Resolved*, The congress desires that the International Statistical Institute, at its meeting to be held in Vienna in 1913, be invited to cooperate in the examination of this subject. Furthermore, the congress urgently desires that all demographers of the several countries pay special attention to mortality statistics.

11. *Resolved*, That the Fifteenth International Congress on Hygiene and Demography instruct the permanent international commission to take all necessary steps for the creation of a permanent bureau for these international congresses in the future.

12. *Resolved*, That the disinfectants used in different countries should be controlled by a simple bacterial test, capable of being easily effected, and that a committee from this congress confer with the committee of the International Congress on Applied Chemistry to define such tests.

13. *Resolved*, That the permanent international commission be requested to appoint a committee of not less than five members to represent this congress for that purpose.

Invitations were extended from Brazil, San Francisco and from the Russian delegation, each asking for the next congress. The next place of meeting will be announced later.

Before declaring the congress adjourned, President Walcott thanked the participants for their interest and emphasized the importance to Americans of having been brought into contact with the great men of the world in hygiene.

CONTINUATION OF THE SCIENTIFIC PROCEEDINGS

In addition to the papers abstracted in The Journal last week, papers were read at the meeting on the following subjects:

The Social Diseases and Their Effects On the Community

Dr. Howard A. Kelly, Baltimore: White slavery is the worst plague spot on the social body to-day. It is a worse scourge than cancer and all infectious diseases put together. In money it costs America three billion dollars a year. In shortened lives, ruined homes and blasted careers the loss occasioned by this scourge simply cannot be estimated. Where white slavery flourishes, all forms of aberrant vice, the contamination of public officials, and to some extent the breakdown of our system of law and justice are found. All classes profit from this vice, and its effects are likewise observable in all classes; not less than 500 new-born infants die of social diseases in Baltimore every year, as a result of the transgressions of their parents. The same proportion exists in Washington as in Baltimore, and all over the world conditions are the same. As a result of years of investigation into this problem, I have arrived at some definite conclusions regarding the cause of white slavery. It is not due to the inherent profligacy of women. In fact, the white slave, who is nearly always coaxed, dragged or cajoled into her life of shame, is really the poor suffering victim of our civilization. Neither is the man altogether at fault who lives off the earnings of those women, nor does the fault lie altogether with the keepers of the white slave dens or with the public officials and judges who wink at their existence, contaminated though the latter are in many large stations. All this vice is a reflex of social conditions—of poor housing and poor wages. In Baltimore we find that as many as 80 per cent. of the women employees in department stores receive less than a living wage; but even this circumstance is not the fundamental cause of white slavery. I am absolutely convinced that the fault for this traffic in women lies with the people at large. More than to anything else, it is due to the indifference of the public and the churches. The evil could be definitely eradicated by men and women of high character going into the crusade against white slavery as a life-work. The problem should be attacked simultaneously from all sides and at all times. This is church work, and unless the churches take hold it cannot be done. Social workers must drive the church out of its comfortable club-like rooms, and—let me not be misunderstood—out of its miserable self-contentment and its anthems. The church must be recalled to its real work among the poor of the city and then we must all join hands together—the churchman, the scientist and the social worker—when purity of our civic life will be assured.

DISCUSSION

Dr. William H. Welch, Baltimore, presented a resolution of thanks and gratitude to Dr. Prince A. Morrow, New York, for his pioneer work in fighting white slavery, which was passed by the Section.

Prof. M. A. Bigelow, Columbia University: Sex education will not enforce universal morality in conformity with our accepted code, but it will help in many decisive battles with sex instinct. To all those who see nothing in the movement because it will not solve all the sex problems which have created a demand for special instruction, we may reply by simply pointing to the effect that general education makes some more efficient and better citizens, but many times fails to give the desired result.

Dr. Charles B. Davenport, Cold Spring Harbor, N. Y., in discussing social application of modern principles of heredity, emphasized the need of stopping the reproduction of the unfit.

Mr. Henry H. Goddard, New Jersey, declared that there are definite limits to the achievement of sex education in the school. We may teach sex hygiene ever so well, but there are likely to be in any school one or two boys or girls who cannot be reached by teaching, and who will do far more harm to a hundred others than all the lecturing on sex education can ever achieve.

American Hookworm

Dr. Charles Wardell Stiles and **Dr. W. L. Altman**, Washington, D. C.: We have examined and studied 12,980 hookworms passed in 102 cases of infection with *Uncinaria americana* with a view to testing Leichtenstern's suggestion that a determination of the proportion of males and females passed during treatment gives a practical indication of the completeness or incompleteness of the cure. Without denying Leichtenstern's view, as applied to *Ankylostoma duodenale*, we conclude that it does not apply to infection with *Uncinaria americana*, and therefore does not offer an additional practical factor in hookworm eradication in the United States.

Etiology of Poliomyelitis and Prophylactic Remedies

Dr. Netter, Paris, France: Poliomyelitis has not occurred as frequently in France as in the Scandinavian Peninsula, the United States, Germany and Austria. Cases occurred with anomalous frequency in 1893 and 1898 before the appearance of an epidemic in 1905 and 1910. We have noticed that in France as well as in other countries several cases occurred in the same family, in the same house and in houses adjoining each other. We have been able to prove that schools play some part in the spreading of this disease; also that it is transmitted by healthy people coming in contact with a person afflicted with it. We were among the first to employ the neutralizing qualities of the serum obtained from old patients, to ascertain the specific nature of attenuated forms and confirm the fact that sporadic classic infantile paralysis was identical with epidemic poliomyelitis.

Experimental pathology taught us the part played by nasal and buccopharyngeal secretions in the propagation of poliomyelitis. Kling, Wernstedt and Patterson have confirmed undisputably the virulence of these secretions as well as the intestinal contents, whereas Osgood and Simon Flexner proved the persistency of these virulent agencies in the throat and upper part of the nose even after the patient had recovered. If we add to these theories those of resistance of contagion to desiccation and also the possibility of its being transmitted by flies, we have all the essential data we need about prophylaxis.

The point that appears to interest us most specially is the study of the conditions as to how the disease makes its presence felt, whether in an isolated (sporadic) form or in a pronounced expansive (epidemic) form. In the same country, we find divergencies of 0.91 per cent. (Paris and surrounding country) to 11.76 per cent. (Yonne and Aube); 28.08 per cent. (Vienna) and 38.2 per cent. (Upper Austria); 7.7 per cent. (Devonshire and Cornwall) and 78.5 per cent. (Stokes River). This difference in diffusion should be attributed to a difference of virulence of the pathogenic agency. The proof of the virulent character of the products of human secretion furnished almost exclusively in Sweden in 1911, could not be verified in France nor America.

The appearance of cerebrospinal meningitis in 1909 and 1910 in France in the neighborhood of Paris was preceded by a small epidemic in 1898 and at this time we found this latter succeeded by an abnormal prevalence of poliomyelitis.

Epidemic Poliomyelitis in Norway

Dr. Francis Harbitz, Christiania: Acute poliomyelitis has been known in Norway for not quite a century, the first cases having been described in 1820. Epidemics occurred from time to time, and in 1905 an epidemic broke out with 952 cases and a mortality of 10 per cent. The next year, 1906, the disease again came to an outbreak with 466 cases and with the same percentage of mortality. During the years 1907-1910 only a few sporadic cases and small groups of cases occurred. In 1911, however, the epidemic character of the disease again was in evidence; it ravaged large tracts of the country and also districts where it never before had been known. There were this year about 1,250 cases with a mortality of 8 to 10 per cent.

The outbreak occurs at times suddenly and simultaneously in several districts. It frequently happens that the epidemic starts with cases here and there and to all appearances not connected with each other. At times it is evident that the disease starts from a local point and spreads following the lines of communication as the highways, railroads, along the coasts and fjords, by way of steamers and boats. This mode of infection is clearly by outbreaks in isolated sparsely inhabited places. Again, comparatively small epidemics have had their starting point from a school, a country-store, public meetings, weddings, etc., or can be traced to tramps, gypsies who have passed through the district, and lastly it has occurred as local house epidemics. Measures to be taken consist of (1) immediate notification to the board of every case, abortive cases included; (2) isolation of the sick; (3) careful disposition of the patients' excretions and secretions, particularly from mouth and throat; (4) thorough disinfection after termination of the disease; (5) particular attention to the lighter abortive cases and to the possibility of the disease being carried through the intermediary of healthy persons.

Sanitary Measures for Poliomyelitis

Dr. Karl Landsteiner, Vienna: The following measures should be carried out: Obligatory report of cases to the board of health; isolation of the sick persons, as far as it is possible; restriction of social intercourse, especially of those pupils who are in close contact with those afflicted with the disease; disinfection of the secretions and of the stools. As the virus has been detected in the dust of the homes of such sick people, special stress must be laid on the disinfection of homes, apartments, etc. It is advisable at times of epidemics to pay special attention to the inflammatory affections in the region of the nose; an antiseptic treatment of this region is probably very useful.

Poliomyelitis, Etiology and Mode of Transmission

Prof. Axel Holst, Christiania, Norway: In 1898 Harbitz examined three cases of poliomyelitis and expressed the opinion that they were due to a virus entering from the throat and intestines. In 1911, there were 1,450 cases among a population numbering only two millions and a half. The death-rate ranged from 10 to 20 per cent.; 75 per cent. of the cases were in children, and 25 per cent. in adults. We see in Norway abortive cases. One family consisting of nine members, husband, wife, sister, nurse and five children, was attacked with this disease in two weeks, one case following the other in rapid succession. Seven cases were abortive. The symptoms were stiffness of the neck and limbs, some diarrhea, vomiting and some fever. Most of the cases occur in country districts, and often in sparsely populated districts. Comparatively few cases occur in the crowded quarters of a town or city. We isolate all notified cases in Norway. Since 1860 we have had a law of compulsory notification of this disease which is strictly enforced.

Dr. Simon Flexner, New York City: The question, I believe, is still an open one as to the precise manner in which the distribution of the virus takes place. It does not necessarily follow that the virus takes any one course of introduction into the body of a human being. It is proved it can go into the body of animals very rapidly through the upper respiratory tract. It can be introduced by direct or indirect inoculation into the blood, and that this is a less certain means of producing infection than that of direct inoculation on the mucous membrane. Still, we must remember that monkeys are relatively insusceptible animals to this disease, which is peculiarly a disease of human beings; that human beings are relatively susceptible as individuals. It is not a disease that attacks everybody right and left during any epidemic, but it takes and chooses usually children, and children of very tender age, and usually one or two in a group, but sometimes many, so that there must exist many individuals who are highly susceptible to the disease. On the other hand, a large number of people are insusceptible to the disease which is the chief means at present of preventing its wide spread. I am convinced that with such knowledge as we now have it is imperative that strict measures of isolation be carried out in cases of this disease and with those persons who come in direct relation with these patients.

Transmission of Poliomyelitis

Prof. Alfred Pettersson, Stockholm, Sweden: Large amounts of the virus of poliomyelitis were found by me in the secretions from the mucous membrane of the nose, pharynx, trachea and intestines. In the acute cases there was distinct paralysis, as well as in some of the abortive cases, and even in healthy persons in the neighborhood there were a few cases with paralysis. I was able to demonstrate the virus of the disease by inoculating monkeys. There is nothing against the hypothesis that epidemics are spread by direct or indirect transmission of the virus from person to person. However, there is a good deal against the supposition of the transmission of the virus by insects to such a degree as to cause epidemics of the disease. The epidemics of poliomyelitis in Sweden show no connection with the changes of season and insect life.

Dr. Mark W. Richardson, Secretary State Board of Health, Boston: The disease is less transmissible than typhoid, scarlet fever and diphtheria. The disease is distinctly one of suburban or rural communities rather than cities. This observation is based on 2,138 cases. Country children are exposed very much more strongly to the disease than the children of cities, for the reason that country children are more subject to the bites of insects than city children and may become infected in that way. In the homes of eighty-eight patients in seventeen cities and towns ordinarily stable flies were present in or about the house of every infected individual. Experiments were made on monkeys with the bites of these flies, with the result that during the first year the experiments were negative. In 1912 similar experiments were repeated with greater success. There were a number of cases in which patients suffered from a second attack of the disease months or even years after the first attack. Between attacks these individuals may be persistent carriers of the disease and be responsible for the development of cases in other people. Hexamethylenamin is used as a prophylactic measure with very good results. One boy in a school developed the disease, and to the other pupils hexamethylenamin was administered, with the result that no other case of the disease developed. Functional recovery occurs in 25 per cent. of the cases examined at the end of four years. Herpes zoster may be due in some instances to the virus of poliomyelitis.

Dr. M. J. Rosenau, Boston: In reference to the transmission of poliomyelitis by the biting fly, we were led to focus our attention on this biting fly (*Stomoxys calcitrans*) as an intermediate host in the transmission of a particular infection referred to by Dr. Richardson. When I first began to study the disease, I regarded it probably as one which is spread by direct contagion, by contact, either directly or indirectly, from person to person. The first circumstance which shook my faith that we were dealing with a contagious disease was the fact that we had eighteen negative results in attempting to prove the presence of the virus in the secretions from the nose and throat. I could not help asking at the time if it were not possible to find this virus, which is so potent, in the secretions of the nose and throat of persons who have the disease and those who are convalescing from the disease. These results were confirmed at the same time by Strauss, of New York, who had negative results in a longer series and by Newstaedter's recent results and by other results, all of the examinations having proven negative excepting the one recently reported by Kling, Patterson, and his associate at this congress, and in the literature recently.

A second circumstance which led me to believe we were not dealing with a contagious disease was the fact brought out by Dr. Richardson. Children in all stages of this disease were crowded into schools, institutions, tenement districts and other places where there was every chance for the spread of the disease, but it did not spread there, but it continued to spread in the rural, thinly scattered districts where one would not expect to find contagious disease. There was a resemblance to rabies. All those who have worked with this virus in laboratories were at once struck with the resemblance between poliomyelitis and rabies. The latter being a wound infection, there is some analogy between it and poliomyelitis, and poliomyelitis might be transmitted through some sort of wound. I was fortunate enough to have had experience with yellow fever, both in the investigation of it and with sanitary measures against it, before the mosquito period, and I was much struck with many analogies which came to me between that disease and certain features of poliomyelitis.

The work I bring to your attention consisted of taking a number of flies—*Stomaxys calcitrans*—caught in a net and bred for the purpose. You can catch several hundred of these flies in a stable in a very short time. We placed these flies in a large cage and exposed monkeys to their bites, the monkeys having been purposely infected with the virus of poliomyelitis. Care was taken to place the monkeys in the cages in all stages of the disease, before and after. In fact, a monkey would be exposed to the bites of the flies on the same day he was infected, so that the flies could drink the blood of the monkey during all stages of the period of incubation of the disease, for we do not yet know in what stage of the infection the virus appears in the blood at its maximum, or the best period for infecting these flies. Following this we exposed healthy monkeys to the bites of the same flies, and after several weeks' time these healthy monkeys came down with a disease which in all essential respects resembles anterior poliomyelitis. Out of twelve healthy monkeys so exposed, six of them now have symptoms of the disease, three of them in the virulent form. Of the other three monkeys, two are coming down, but one seems to have a milder infection than the other. This mild infection consists of trembling and weakness of the hand, and some weakness of the jaw which lasted about a week or so and then passed away. We cannot be sure whether that is true poliomyelitis or not until we are able to test the monkey subsequently. If it were poliomyelitis, that monkey will be immune. In three of the six cases that came down with the disease, having been bitten by flies, there was some diarrhea. The disease in the monkey resembles more closely that which we see in children rather than the disease we produce purposely experimentally by bringing the virus in direct association with the central nervous system. Of course, that may be only a coincidence, but it is interesting.

These stable flies exist everywhere. They are more common in the country districts than in city districts. They are vicious and voracious. When they are hungry they can go through the skin of the back of a horse or a cow. They can go through a woolen garment such as is worn and bite in that way. This fly leads a life very much like the common house fly, but contrary to the common house fly, it is a rather wild or semi-domesticated insect. This fly does not enter houses so much by preference, but is found more especially on the outside, around stables, etc., but sometimes it comes into the house.

The method by which these experiments are carried on is of some importance for those who would like to repeat them in order to corroborate or disprove the results that we have obtained. The method is very important in order to get the results. I am not quite sure whether the disease is conveyed by the bite of a single fly or not, because all the monkeys exposed have been bitten by a number of flies. A point of importance in conducting these experiments is that the flies should be let alone. They should not be taken from the first infected monkey and conveyed to bite a healthy monkey. But the monkeys should be handled. The flies do not stand handling so well. They do not like to be in a cage. The cage should be large and roomy. This cage is three or four feet from the ground, so that the flies do not injure each other in flying as they would do in small cages. They need nothing else than blood which they should have every day or two. If given blood they will not visit the water. We have tempted them with all sorts of fruits, but they do not seem to take anything but blood. These flies breathe in organic matter from manure, rubbish and even the soil, and resemble more or less the tsetse fly.

I have purposely refrained from drawing any conclusions. It is clear we have had infection which has been transmitted through the agency of these flies from monkey to monkey. It requires several weeks before the fly is able to infect every monkey so far as we are able to tell at the present time. What reference this has to the human cases I am not able to say. If I were a health officer of a community and poliomyelitis prevailed, I should institute a fly campaign.

Prof. George H. Nuttall, Cambridge, England: Dr. Rosenau's remarks are extremely striking, and I look forward with the greatest interest to the confirmation of these experiments. But we know how many pitfalls there are in connection with work of this kind, as pointed out in the work of the sleeping sickness commission, but Dr. Rosenau is very cautious in coming to conclusions. It looks very much as if he has proved his point. It will be interesting now to follow up the biology of this fly. I have been carrying on investigations for many years in connection with this fly as bearing on the transmission of other infections. It would be interesting to find out how this period of incubation is affected by temperature and how long it lasts.

With regard to the food of the fly, I have kept it alive for weeks, feeding it on blood, but have also fed it on grape juice. It will be interesting to note in connection with these experiments how the virus of poliomyelitis remains in an esophageal diverticulum and not in the alimentary canal. The experiments by Dr. Graham Smith in Cambridge tended to show that in some cases the flies feed on certain bacteria, which they retain for a long time in their bodies, storing them in the esophageal diverticula. These flies in England are known as rain flies, because they come into houses after rain. I should like to know if there is any connection with the rains and this fly. During the rainy season with us in England these flies rush into houses, and I have observed this for the last fifteen years. It is quite a characteristic habit of these creatures, and it may have a definite bearing in relation to the incidence of the disease.

PROF. DR. LOEFFLER, Germany: There seems to be a difference of opinion on the part of those who have addressed the Congress in regard to the causal agent of poliomyelitis. Professor Pettersson says that the disease is transmitted by an agent which does not at all involve the fly, for the reason that cases of this disease come under his observation in the winter months when there are no flies. On the other hand, Dr. Rosenau has stated that he believes the disease is transmitted by flies, or, at any rate, he shows the possibility of the disease being transmitted by these insects. These differences of opinion need to be reconciled. They require solution.

DR. FRONCZAK, Buffalo: As Health Officer of the city of Buffalo, I will say that it has more cases of infantile paralysis than any other city except Los Angeles. Up to yesterday noon we have had 264 cases this year, of which 124 occurred in August, 71 in September, with 35 deaths. There are one or two theories we cannot reconcile. First, the theory of hot weather and dust. Last August was sub-normal, cold and rainy. As a matter of fact, there was not a single day during the entire month of August in which there was not either rain or cloudiness. It was the same in the early part of September. We have waged war on flies. For the last four or five weeks there have been twelve men in the city of Buffalo studying the disease. As to the fly theory, cases of poliomyelitis have occurred in sections of the state where there are no stables, and in August and the early part of September when the weather was sub-normal; it was chilly and rainy all the time, and there was no dust.

DR. WILLIAM S. THAYER, Baltimore: I should like to ask Dr. Rosenau if in his experiments he was able to form a definite opinion as to the incubation period of the disease in the six monkeys and as to the length of time the flies were kept before they were allowed to bite the monkeys. In the work which Dr. Pettersson has brought to our attention, I am rather struck with the similarity between the seasonal relations of this disease as set forth and the seasonal relations of malaria, a disease known to be transmitted by a blood-sucking insect. It is striking that in the first half of the year, from January to June, cases of poliomyelitis are extremely rare. They began in May, reaching the number of eighty-eight and in June eighty-three. In July the number of cases suddenly increased, and the number reached its height in August, September and October, falling off rapidly in the fall, although in November and December there are still a considerable number of cases. I must say, it is rather strikingly like the curve of malaria which we believe to be due to the bite of anopheles in temperate climates. Of course, it is conceivable that the incubation period both in the fly and in the human being may be longer in colder regions, and while it would be hardly prudent to attempt to argue in favor of a hypothesis, with regard to which we have only had a preliminary announcement, yet from the figures which have been presented we ought not to feel that it is not a possibility as yet, even in a cold climate.

DR. ROSENAU: When we began the work last summer we tried all sorts of mechanical and other devices to have the flies bite the monkeys without injuring them or the flies and this was not such an easy matter, as both are pretty lively. I will tell you a little trick which we have used, and which has served a good purpose, so that those who desire to repeat this experiment, may find it useful. We simply wrap the monkey up in a little piece of chicken wire, with a mesh about three-quarters of an inch, wrapping him tightly but not hurting him, so that he cannot move. Then you have him in a package and he cannot do a thing. Put him in the cage, the flies find him and in a little while the flies feed. When you think the monkey has been bitten enough, take him out without disturbing the flies. At first we had three or four monkeys exposed at the same time, and almost all the flies would select one particular monkey, so that other monkeys would escape being bitten, or only be bitten by a few flies. Noting that fact, we went slowly in our experiments, so that now we expose one monkey at a time. The fly picks up the infection on the mouth parts of one monkey and carries it to the healthy monkey, the same as you would transfer infection with a hypodermic syringe.

As to Dr. Thayer's question, I cannot answer it completely. I can only say that the shortest period which we can now give is about twenty-one days, as I remember it. I have not my notes with me. How much of that twenty-one days was in the extrinsic period of incubation in the fly and how much in the intrinsic period in the monkey, I am unable to say, but by analysis of the figures I may be able to learn more about it. That, as well as many other points, we hope to work out.

Dust and Fumes, The Foes of Industry

SIR THOMAS OLIVER, Newcastle, England: Mine owners have experimented in many ways to prevent the ignition of coal dust. I am convinced that the explosions in the mines are largely due to the absorption of oxygen by the coal dust. The explosions generally occur in the summer months, when a barometric change is likely to ignite the dust. I have found that the dust absorbs more oxygen in the dark, and also that dust sprinkled with water absorbs little less oxygen than the dry dust. Some of the dust was treated with a chemical agent and I found that it was practically non-absorbent as compared with coal dust in other forms. I congratulate Congress and the President on the passage of the act prohibiting the use of white phosphorus in the manufacture of matches, which led to a general phosphorus necrosis of the jaw bones of employees in match factories.

Accidents and Disease of Miners and Tunnel Workers

DR. WILHELM LINDEMANN, Bochum, Germany: Owing to the technical progress of mining, fatal accidents have been reduced. The actual number of accidents shows an increase which, however, is lower than the figures which the statistics give. The increase is mainly caused by the rapid development of mining and the consequent employment of unskilled laborers. The danger of accidents in mining demands that each mine be supplied with the necessary means for giving first aid and the establishment of central rescuing stations. Emphysema is due primarily to the hard labor in mining; technical progress in mining decreases this disease. Anthracosis is an inhalation disease; severe cases are prevented by the use of irrigation (spraying) methods, by the non-employment of children in mines, and by the beneficiary pension-system for the miners. The coal dust is no hindrance to the development of tuberculosis or carcinoma; it does not favor the development of acute pulmonary diseases. The number of rheumatic diseases is greatly exaggerated. The nystagmus of miners is the result of overwork and of the dazzling effect of the light on the eyes in mining; it does not prevent the miner from accurately recognizing on the benzine-safety lamp the proportion of fire damp in the atmosphere of the mine.

Injuries Caused by Electricity

SIR THOMAS OLIVER, Newcastle-on-Tyne, England: Contact with a live wire or an unprotected portion of machinery may kill a person immediately, it may injure him so severely that he dies a few hours afterward, or he is severely burned and recovers slowly. Death in electric shock resembles death caused by lightning. It is difficult to say what pressure electrical current or voltage is within the limits of safety. Of the two kinds of current the alternating is more dangerous than the constant, when the values are not too high. Currents of 100 to 150 volts are generally regarded as within the limits of safety, 200 to 300 as coming within the danger sphere and anything above 600 is likely to be fatal. There is no absolute certainty in this statement, however. Mode on contact, duration of contact and whether made with one or both poles, the condition of the skin at the time, e. g., moist or dry, state of boots a workman is wearing and whether the soil is moist or dry, are circumstances which determine the consequences of exposure to electrical currents. The skin of the body offers resistance to the penetration of the current. When an electrical current penetrates the skin, none of its energy is lost; it is simply transformed into mechanical, thermal, chemical and electrolytic action. The injuries caused by electricity can hardly be regarded as burns, since they are not wholly due to extension from the surface but to internal heat. Prevost and Battelli of Geneva found that currents of low tension caused death by the heart becoming paralyzed; with currents of high tension the breathing is first arrested, the animal is killed outright by inhibition of the respiratory center. Grange is of the opinion that hemorrhage into the medulla oblongata causes death by pressing on the origin of the pneumogastric nerve. Jellinek found on lumbar puncture evidence of high cerebrospinal pressure in death after electric shock. In many experiments heart and respiration cease together, or respiration may be first arrested.

Industrial Plumbism

Dr. Alice Hamilton, Chicago: A comparison between the lead trades in Europe and in the United States in respect to the dangers of industrial lead-poisoning among the working people brings to light many differences. Certain dangerous lead trades in Europe are not lead trades in the United States; for instance, file making, jewel polishing, the making of cheap kitchenware. A point in favor of the United States is the increasing use of lead substitutes. Anilin dyes are beginning to supplant chromate of lead in textiles, wall-papers, artificial flowers and paints; cut glass is usually finished with acid instead of lead powder; the sulphate of lead has largely taken the place of the basic carbonate in the manufacture of rubber, and is used more and more as a substitute for white lead in the manufacture of paints. These substitutions or adulterations may not always be creditable commercially, but they are an advantage to the workman.

All these advantages are more than offset by an ignorance of the hygiene of lead industries in the United States such as is not seen in any of the northern European countries, and an almost complete lack of legislative control. In the white and red lead industries, in paint grinding, coach and carriage painting, the making of storage batteries (electric accumulators) in the typographic trades, and in lead smelting, conditions are almost always more dangerous in factories in the United States than in Europe.

There is no legislation in the United States, except in Illinois, which obliges the employer to remove poisonous dust or to provide adequate equipment for personal cleanliness. The results of the admirable legislative control in Europe, on the one hand, and of the lack of legislative control in the United States, on the other, can be shown by statistics gathered in a few lead trades which have been intensively studied; viz., the making of white and red lead, of pottery, of glazed tiles and the porcelain enameling of sanitary ware.

Examination of Employees for Tuberculosis

Dr. Theodore B. Sachs, Chicago: Early detection of tuberculosis in an employee gives him the best chance of recovery, his co-workers the best chance of protection from infection, and the employer a working force free from the undermining influences of undetected sources of infection. A system of medical examination of employees in a working place is essential to early detection of tuberculosis in individual cases. The essentials of such a plan, in a general way, are as follows: (1) Examination of all employees at the time of their engagement and, later, at the time of illness or when indicated by suspicious symptoms; (2) institutional treatment of the majority of "open" and "active" cases of tuberculosis; (3) education of entire working force, particularly the "predisposed" in a régime of life tending to increase physical resistance; (4) employment of physician to examine the employees, to instruct the sick, the predisposed and those in average health, to instruct foremen and others in charge of employees in the recognition of suspicious symptoms; (5) employment of nurse to assist the physician, to study the home conditions and régime of employees, and to supervise the correction of the same under the direction of the physician.

Infant Mortality in Relation to Factory Labor

Dr. George Reid, Stafford, England: I conducted an inquiry for the Home Office Department of the English Government which, among other objects, had for its purpose the determination on a more acute basis of the effect, if any, of married women factory labor on the infantile mortality. The twelve months' life history of about 5,000 infants born in families of the artisan class in the pottery towns of North Staffordshire in 1908 was inquired into, with the result that the infantile mortality among the class of working mothers exceeded that of the domestic class by 43 per cent. Classifying the whole of the infants according to method of feeding, it was found that the mortality among those partly artificially fed exceeded that of the naturally fed class by 79 per cent., while the mortality among the wholly artificially fed showed an excess of 157 per cent.

Ventilation of the Steel Sleeping-Car

Dr. Thomas R. Crowder, Chicago: The steel car has come into extensive use in this country. These cars are all ventilated by the exhaust method, and they have some minor changes of construction tending to increase the volumetric air supply. Following the method I employed in some previous work, a study of thirty-six cars has been made, involving the analysis of some 1,400 samples of air. The comparative results show that the volumetric air supply, as indicated by the CO_2 determinations, is actually somewhat increased over that of the older type of cars similarly equipped as to ventilating devices. It was determined that the older type of car, ventilated by the natural or deck sash method, receives an average of about 28,000 cubic feet of air per hour; the same car ventilated by the exhaust method about 41,000 cubic feet per hour; and that the steel car receives about 53,000 cubic feet per hour. The air supplies to the lower berth are, respectively, about 1,400, 2,000 and 2,200 cubic feet per hour; and to the upper berth, respectively, about 1,300, 1,900 and 2,000 cubic feet per hour. The air supply, under the influence of exhaust ventilation, finds its way in chiefly through crevices about doors and windows, and is very evenly distributed throughout the car.

Sanitation of Street Cars

Mr. J. C. Halleck, Newark, N. J.: Municipal authorities, in regulating their street railways, have shown a disposition to maintain comfortable rather than sanitary temperatures, with no provision for removing the heated air, after it becomes vitiated by an unusual crowding of the car.

Disinfection of Water-Supplies

Professor Gaertner, University of Jena: The chlorin process of sterilizing water has three special advantages, namely, it is certain, rapid and economical.

(To be continued)

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS

Twenty-Fifth Annual Meeting, held at Toledo, Ohio, Sept. 17-19, 1912

(Concluded from page 1212)

Indications and Technic in Gastric Resection and Gastro-Enterostomy

Dr. George W. Crile, Cleveland: My assistants and I have performed 420 operations for gastric and duodenal lesions. Of these, 208 were performed for cancer; 204 for benign obstructions and ulcers, and eight for traumatic perforations. Summarizing our experience, I can say that all duodenal ulcers are cured; congenital stenoses are cured; acute gastric ulcers treated by gastro-enterostomy in the lesser curvature and the cardia are often disappointing, but resection cures. In cancer the cures depend on the status of the lesion. Resection of gastric ulcer of the saddle type is not only safe, but the results are clinically good. Transfusion of blood in cases of hemorrhage; the mastery of the cobbler stitch in all parts of the operations; the performance of shockless operations on the principle of anoci-association has now given an almost complete control over the operative results in gastric surgery.

Ileo-Sigmoidostomy for Colonic Stasis

Dr. Charles L. Bonifield, Cincinnati: I have performed this operation in six cases, with one death. Judging from the very smooth recovery of the other five patients, this is not what the rate will be when the series of cases is larger. I believe that any other intra-abdominal operation would have led to that patient's death. In a comparatively small number of severe cases this operation will bring relief that cannot otherwise be obtained.

Early Operation for Fibroid Tumor of the Uterus

Dr. Rufus B. Hall, Cincinnati: The profession at large is prejudiced against early operations, and through it the patient and the patient's friends, thereby making it more difficult to get the consent of these patients for operation early in the disease. After a fair trial with palliative treatment for two or three months, if the symptoms subside and the patient is relieved and apparently a well woman, the case is not one for operation now, but should be carefully watched. On the contrary, if the symptoms continue after this preliminary treatment, and after making certain that they are due to the activity of the tumor, not that the tumor is enlarging rapidly or that secondary changes are taking place in it, but in the sense that it has not become quiescent, non-active, clinically well, and is pursuing the usual course in these cases, the patient should be operated on in the near future.

Potential Cancer of the Breast

Dr. Miles F. Porter, Fort Wayne, Ind.: Benign tumors and such pathologic changes in the breast as result from chronic inflammation, abnormal involution (fibrous and glandular hyperplasia with retention cysts), and trauma, are potentially cancerous. Actual cancer, as demonstrated by microscopic examinations, may be present without palpable tumor formation. The only way to differentiate between potential cancer and actual cancer is by microscopic examination. All potential cancers require excision, and all demonstrable cancers require radical removal.

Metrorrhagia Due to Atheroma of the Uterine Vessels

Dr. Arthur Thomas Jones, Providence, R. I.: Metrorrhagia is essentially a symptom of some pathologic condition, either general or local. One should determine the pathology, then apply treatment. The routine curetting of all cases, regardless of pathology, without the most careful examination of the scrapings, is to be deprecated. Many cases of suspected malignant disease are found on operation to be cases of sclerosis of the uterine vessels. Patients are usually nearing the climacteric, when we may be on the lookout for malignant diseases; or their general arterial system may give evidences of early arterial changes. That we do find definite changes with hardening of the uterine vessels both grossly and microscopically is a fact. That this change is, strictly speaking, a sclerosis rather than a true atheroma is shown by microscopic findings. Medication internally or topically is of no avail. Hysterectomy is the only rational treatment, and that should be performed as soon as the diagnosis is made and before the uterine vessels have become so brittle that ligating is unsafe.

Ureteral Injuries

Dr. Herman E. Hayd, Buffalo: These injuries are of frequent occurrence, and particularly when operating through the vagina. These injuries often produce no symptoms until a late slough occurs, and then their presence is made known by urinary dribbling. Two courses are open to the surgeon, namely, early ureteral implantation into the bladder and nephrectomy.

A New Surgical Procedure for Retrodisplacement of the Uterus

Dr. Samuel H. Buteau, Oakland, Cal.: The uterus is held in position by muscles, not by ligaments. These muscles correlate in function, and thus all are concerned in maintaining the uterus in the normal position. All must be considered in dealing with displacements. Treatment consists of correcting the causes, replacing the uterus, and giving rest to the muscles. Rest is best accomplished by an artificial round ligament of kangaroo tendon.

Conservative Operations on the Ovaries

Dr. William H. Humiston, Cleveland: Of 112 cases in which conservative operations have been performed, but seventy patients have been heard from; nineteen of these have given birth to twenty-one children. Only three have returned for a second operation. If a similar ratio of percentages of pregnancies occurred in those patients not heard from, it would increase the per cent. to about 28. In the 19 per cent. out of the 112 cases we have a showing that is convincing to a judicial mind that conservative operations are worthy of general adoption.

Stenosis of the Pylorus in Infancy

Dr. John W. Keefe, Providence, R. I.: I would advocate in cases of pyloric spasm, after a fair trial of food regulation and resorting to other medical measures with no relief, opening the abdomen and relieving the spasm of the pylorus by making a small longitudinal incision through the peritoneal and muscular coats of the pylorus down to the mucosa and uniting the incision in a transverse direction. The medical measures that may be adopted in cases of pyloric stenosis are attention to the character of the food, the time of feeding and the quantity at each feeding, stomach lavage, opium, poultices to epigastrium, saline and nutrient enemas. Prolonged medical treatment increases our operative risk and we may lose valuable time. The chief cause of death may be attributed to delay in operating. Partial pylorotomy or pyloroplasty alone, or either aided by gradual dilatation with sounds passed through an opening in the stomach and the pylorus after the hypertrophied muscle has been incised, separated from the mucosa and a portion equal to about one-half of the circumference of the pylorus removed, should be the operation of choice. The results have been shown to be excellent and the parts are restored to a practically normal condition.

The Selection of the Anesthetic for Abdominal and Pelvic Surgery

Dr. Roland E. Skeel, Cleveland: There is a form of mixed ether-nitrous oxid-oxygen anesthesia which gives the maximum of safety with the minimum of discomfort. The patient is first rendered unconscious with gas, as in the well-known gas-ether sequence, but instead of discontinuing the nitrous oxid it is continued, and a very small quantity of ether added to the nitrous oxid-oxygen mixture. By this method the danger of prolonged asphyxia at the outset is avoided while the very small amount of ether used is productive of no danger to the bronchi or kidneys and violent ether sickness is not frequently seen. Muscular rigidity is also avoided and the patient is saved the excruciating pain which follows pure gas and oxygen anesthesia since she dozes for some time after the anesthetic is discontinued, instead of awakening immediately as after gas alone.

Cesarean Section

Dr. John Norval Bell, Detroit: I discuss the points of interest in a series of seven cases. Is placenta prævia centralis an indication for abdominal cesarean section? I am firmly convinced that it is, believing that the dangers attendant on this operation are far overbalanced by perforation of the placenta, turning, and bringing down a leg, which is the routine procedure in these cases. The results were ideal in the seven cases, both mother and child making perfect recoveries. I would strongly advocate a more frequent adoption of this operation, and would include impacted face presentations among the indications.

Dr. Asa B. Davis, New York, described the technic of the high median operation, and presented a summary of cases. He also reported a case of acute dilatation of the stomach following cesarean section.

Book Notices

Syphilology and Venereal Disease. By C. F. Marshall, M.D., M.Sc., F.R.C.S., Surgeon to the British Skin Hospital. Cloth. Second Edition. Price, 10 shillings, 6 pence net. Pp. 560. London: Baillière, Tindall & Cox, 8 Henrietta St., 1912.

While the title of this work would seem to indicate that it covers the whole subject of syphilis and the venereal diseases, it is really a treatise on syphilis, for of the 544 pages of text, 470 are given to syphilis and seventy-four to gonorrhea. The subject of chancroid is not considered, "venereal disease" apparently meaning gonorrhea and not comprehending the most venereal of all venereal diseases, the soft sore. The venereal diseases, therefore, aside from syphilis, are not adequately considered; but as a treatise on syphilis the work is entitled to high commendation. The author considers the subject from a broad point of view and successfully undertakes the exposition of syphilis as it occurs in all of the tissues of the body. The work is not simply a treatise on syphilis as a venereal and cutaneous disease, but covers thoroughly this disease in all of its manifestations. Indeed, if any criticism is to be made of the breadth of the author's treatment of the subject of syphilis it is that he has a tendency to attribute to it a wider influence in the causation of other diseases than is warranted by established facts.

From the point of view of clinical medicine the work is a delight, in the present day of laboratory guides to syphilis. It is written on the basis of a large clinical experience and is practical, sane and dependable, especially in the field, so uncertain to-day, of treatment. The recent additions to syphilis—the microbiology, serum diagnosis and arsenical treatment of syphilis—are taken up in three chapters at the end of the book, and they constitute, perhaps, its most satisfactory part. These subjects are given adequate and very satisfactory consideration. The author's wisdom and sanity particularly stand out in his estimation and statement of the values of serum diagnosis and arsenical treatment.

Handbuch der Serumtherapie und Serumdiagnostik in der Veterinär-Medizin. Herausgegeben von Dr. M. Klimmer und Dr. A. Wolff-Eisner. (Band 2 vom Handbuch der Serumtherapie.) Paper. Price, 18 marks. Pp. 495. Leipsic: Werner Klinkhardt, 1911.

Protective inoculations against animal diseases have received much attention and considerable progress can be noted. This book is probably the most exhaustive treatise on the subject. The various chapters are written by authors who rank high as experts.

The chapters on tuberculosis merit special mention. The diagnostic values of tuberculin preparations are discussed with conservatism, and attention is given to combating the disease by protective inoculation and appropriate legislation. The following diseases of animals are subjects for the chapters: hog cholera, pleuropneumonia of hogs, hog erysipelas, anthrax, symptomatic anthrax, foot-and-mouth disease, diseases of calves, contagious abortion of cattle, fowl cholera, distemper of dogs, braxy, pleuropneumonia of cattle, cattle fever of South Africa, glanders, rabies and African horse disease. In addition the theories of immunity, on which protective inoculations are based, are discussed, including agglutination, precipitation, complement fixation, and hypersusceptibility. Finally methods of exterminating mice and rats by bacterial cultures are discussed.

The work is of great value and is to be recommended to students of veterinary medicine.

The Wassermann Reaction. Its Technic and Practical Application in the Diagnosis of Syphilis. By John W. Marchildon, B.S., M.D., Assistant Professor of Bacteriology, St. Louis University, School of Medicine. Cloth. Price, $1.50. Pp. 103, with 11 illustrations. St. Louis: C. V. Mosby Company, 1912.

It is in the field of serology that the laboratory diagnostician finds exact technic most necessary. Practice must be frequent in order that this technic may be perfected and proper interpretations given to such tests as that of Wassermann. Marchildon believes that the Wassermann reaction should be more widely used in general practice and says that his purpose in this monograph is "to give the reader complete information that will enable him to get the material and to make the Wassermann reaction, providing he has a certain amount of laboratory training and skill."

That this laudable object has been attained is evident on perusal of the work. The subject-matter is divided into twelve chapters, each of which is clear and concise. The instructions for preparing the various reagents used are sufficiently adequate for general purposes. The original Wassermann test is advocated, the technic of the test being clearly outlined. The newer modifications are practically disregarded as unnecessary. The chapters dealing with the Wassermann reaction in diseases other than syphilis, and discussing the effect of antisyphilitic treatment on the Wassermann reaction, are especially interesting. Although it is doubtful if the general practitioner will ever be able to obtain satisfactory results with this test, we can commend this excellent little work to those who may wish to become more independent of the larger laboratories and to place themselves in a position better to understand and perform this most important diagnostic test.

Salvarsan in Syphilis and Allied Diseases. By J. E. R. McDonagh, F.R.C.S.; Surgeon to Out-Patients, London Lock Hospitals. Cloth. Price, $3 net. Pp. 152. Oxford Medical Publications. New York: Oxford University Press, 1912.

This supplementary volume to Power and Murphy's excellent "System of Syphilis" is by one of the earliest and most enthusiastic English advocates of salvarsan. It treats of salvarsan in the now familiar manner of its ardent propagandists, never underestimating its merits and explaining away with tenuous theories its failures and its accidents.

The author's ecstatic enthusiasm is indicated by the closing sentences of the book: "Ehrlich has done mankind a service which takes rank along with those of Lister and Jenner. To him the thanks will come . . . when his fellow men are worthy to understand him. . . ." The last sentence—that all will be well when we have become more worthy—has a curious resemblance to the Christian Scientist's attitude toward the unbeliever. To compare with Jenner's or Lister's unrestricted and inestimable gifts to mankind a patented remedy whose value is debated, but which sells for $175 an ounce, is to our mind almost profane.

Recent Methods in the Diagnosis and Treatment of Syphilis (The Wassermann Serum Reaction and Ehrlich's Salvarsan). By Carl H. Browning, M.D., Lecturer in Clinical Pathology, University of Glasgow, and Ivy McKenzie, M.A., B.Sc., M.B., Ch.B., Director, Western Asylums' Research Institute, Glasgow. In Collaboration with Others. Cloth. Price, $2.50 net. Pp. 303. Philadelphia: Lea & Febiger, 1912.

This is one of the flood of books on these subjects which have appeared since Ehrlich struck the rock. It is a book on the serum complement reaction and Ehrlich's treatment, written from the laboratory. The subject of serum complement fixation is fully and satisfactorily considered. The salvarsan part of the book takes up about eight pages and is less valuable; but that is not to be wondered at, for it must have been written more than a year ago, and that subject is changing so fast that any complete statement of it must be out of date before it can be put into print. The book is an excellent one of its kind—laboratory treatises on syphilis—but too many of the kind are being written. The knowledge of syphilis has not yet reached such a point that its complete mastery can be obtained by study of it *in vitro*.

Poison Ivy and Swamp Sumach. By Annie Oakes Huntington. Boards. Price, $0.75. Pp. 58, with illustrations. Jamaica Plain, Mass.: Published by the Author, 1908.

This is a well-written description of those wretched troublemakers, poison ivy and poison sumach. While the book is not large, it contains the essentials—all that it is necessary for one to know about the subject. The descriptions of the plants are clear and easily understood; these with the illustrations make it easy to recognize the plants at any season of the year. The suggestions for treatment are sensible. The book, though written for the layman, will be found of practical interest to the physician.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, October 7-8. Sec., Dr. John Wix Thomas.

GEORGIA: Regular, Atlanta, October 8-10. Sec., Dr. C. T. Nolan, Marietta.

KANSAS: National Hotel, Topeka, October 8. Sec., Dr. H. A. Dykes, Lebanon.

MICHIGAN: Capitol Bldg., Lansing, October 8-10. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MISSISSIPPI: Capitol, Jackson, October 22-23. Sec., Dr. W. W. Smithson.

NEW JERSEY: Capitol Bldg., Trenton, October 15-16. Sec., Dr. H. G. Norton.

NEW MEXICO: Santa Fe, October 14. Sec., Dr. W. E. Kaser, East Las Vegas.

OKLAHOMA: Muskogee, October 7-9. Sec., Dr. John W. Duke, Guthrie.

UTAH: Salt Lake City, October 7-8. Sec., Dr. G. F. Harding, 310 Templeton Building.

WYOMING: Riverton, October 9-11. Sec., Dr. A. B. Tonkin.

Reregistration of Physicians in Virginia

The new medical practice act secured recently in Virginia requires that on or before March 12, 1913, every physician practicing in the state must register in the office of the circuit or corporation court of the county or corporation in which he resides, presenting a certificate issued to him by the Medical Examining Board of Virginia, in order to be a legal practitioner.

This requirement was necessary in order that the licensing board might know what physicians had the legal right to practice. Under the former practice act physicians who had paid a license tax to any commissioner of revenue prior to Jan. 1, 1885, were not required to secure a certificate of license nor even to register. As a consequence there was no complete list of those who had the legal right to practice and it was also very difficult to convict impostors for practicing illegally.

A fee of only 50 cents is charged for the verification certificate and the practitioner must present satisfactory evidence that he was a reputable practitioner of medicine prior to 1885, or if an osteopath, prior to 1903. Those not securing verification certificates prior to March 13, 1913, will be subject to a penalty.

There are three states, Texas, Pennsylvania and now Virginia, which have secured practice acts requiring a reregistration of all physicians whereby the public may be protected from the uneducated, incompetents, quacks and impostors. There are other states which do not have complete lists of those licensed and which would do well to secure a similar requirement.

New Mexico July Report

Dr. W. E. Kaser, secretary of the New Mexico Board of Health and Medical Examiners, reports the written and oral examination held at Santa Fe, July 8-9, 1912. The number of subjects examined in was 12; total number of questions asked, 100; percentage required to pass, 75. Only one candidate was examined and he failed. Eighteen candidates were licensed on presentation of satisfactory credentials. The following colleges were represented:

LICENSED ON PRESENTATION OF SATISFACTORY CREDENTIALS

College	Year Grad.	Total No. Examined
Gross Medical College	(1899)	1
University of Colorado	(1911)	2
Coll. of Physicians and Surgeons, Los Angeles	(1906)	1
Northwestern University Medical School	(1901)	1
Louisville Medical College	(1893)	1
Tulane University of Louisiana	(1894) (1907)	2
Maryland Medical College	(1905)	1
Harvard Medical School	(1902)	1
University Medical College, Kansas City	(1893)	1
St. Louis University	(1904)	1
Missouri Medical College	(1898)	1
University and Bellevue Hospital Medical Coll.	(1900)	1
University of Pennsylvania	(1909)	1
Jefferson Medical College	(1899)	1
University of Tennessee	(1908)	1
Milwaukee Medical College	(1912)	1

FAILED	Year Grad.	Per Cent.
Keokuk Medical Coll., Coll. of Phys. and Surg.	(1907)	72.6

Maine July Report

Dr. Frank W. Searle, secretary of the Maine Board of Registration of Medicine, reports the written examination held at Augusta, July 16-17, 1912. The number of subjects examined in was 10; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 52 of whom 44 passed and 8 failed. Two candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Yale Medical School	(1911)	88
Medical School of Maine	(1912)	81, 84, 84, 87, 87, 88, 90
Baltimore Medical College	(1903)	87
Maryland Medical College	(1911)	76
Harvard Medical School	(1900) 85; (1909) 90; (1912)	86
Tufts College Medical School	(1909) 81; (1911) 83, 85; (1912)	75, 78, 81, 82, 84, 87.
Boston University School of Medicine	(1912)	85, 89
College of Physicians and Surgeons, Boston	(1910) 79, 89; (1912)	77, 77, 78, 81, 83.
Columbia University College of Phys. and Surgs.	(1908)	89
University of Pennsylvania	(1911) 85; (1912)	86, 90
Jefferson Medical College	(1908) 78; (1910) 85; (1912)	85, 89
University of Vermont	(1912)	81, 84
McGill University, Montreal, Quebec	(1907) 94; (1912)	85
Laval University, Montreal, Quebec	(1912)	76

FAILED

College	Year Grad.	Per Cent.
Kansas Medical College	(1895)	*47
University of Louisville	(1912)	72
Maryland Medical College	(1912)	†76, †77
College of Phys. and Surgs., Boston	(1911) 74; (1912)	*69, 73
Laval University, Montreal	(1910)	71

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Hahnemann Med. Coll. and Hosp., Philadelphia	(1895)	Delaware
University of Vermont	(1912)	Vermont

* An official communication received from the school indicates that this candidate is not a graduate.

† Fell below the required average in one subject.

Porto Rico License Report

Dr. M. Quevedo Báez, secretary of the Porto Rico Board of Medical Examiners, reports that since January 1, 1912, 8 candidates have been licensed to practice medicine. The following colleges were represented:

College	Year of Grad.
Kentucky University	(1904)
Detroit College of Medicine	(1911)
Syracuse University	(1911)
Jefferson Medical College	(1911)
Woman's Medical College of Pennsylvania	(1911)
Medico-Chirurgical College, Philadelphia	(1912)
Central University of Venezuela	(1909)
University of Barcelona, Spain	(1896)

Medicolegal

Liability of Corporations for Medical Services Rendered to Injured Persons—Power of Subordinate Employees to Employ Physicians

(Rich vs. Edison Electric Co. (Cal.), 123 Pac. R. 230)

The District Court of Appeal of California, Second District, reverses a judgment rendered in favor of the plaintiff for $827, remanding the case for a new trial, on the ground that the verdict must be deemed excessive as including services rendered without instructions. The court says that the evidence tended to show that an employee of a water company was injured by coming into contact with electric wires belonging to the defendant electric company. The employee of the defendant in charge of the wires called the plaintiff to the scene, and the injured man was then taken to the plaintiff's hospital, where a leg was amputated and other operations performed to save the man's life. About the time these operations were concluded, nothing remaining to be done, except to apply some dressing, the chief surgeon of the defendant arrived, made a cursory examination of the injured man's condition, recommended that certain things be done, and directed the hospital authorities to give the patient every possible care. A payment of $70 on account was subsequently made by the assistant to the president and general manager of the defendant, which assistant told the hospital authorities, within a day or two after the accident, to take every care of the patient, and that the defendant would see to their compensation. The court distinguishes in liability on the part of the defendant between the services rendered before the representative of the general manager or chief surgeon of the defendant arrived on the scene, and those rendered afterward.

The court says that there was evidence in the record ample to support the verdict as to the hospital charges. It mattered not whether any legal or moral obligation rested on the defendant to care for this injured man; it was sufficient that his injury was occasioned through instrumentalities employed by the defendant, and that officers and agents of the defendant with ostensible authority directed the hospital authorities to continue the service. The evidence was undisputed that a medical department of the defendant, under the charge of the chief surgeon mentioned was maintained, by authority of the corporation, for the purpose of looking after persons who were injured on the system, and that the chief surgeon had been authorized to make arrangements for their care in outside towns, when injuries occurred. In addition to this, the assistant to the president of the company, who was also its general manager, had authority to look after the interests of the company where such special attention could not be given by the general manager at the time; and it must follow that, where he acted in the line of his employment, he was the representative of the general manager, and in an emergency of the kind here presented possessed the authority, in behalf of the company, to look after this injured man, even though technically no liability attached to the company on account of the injury. The rule, to the mind of this court, is well established that even subordinate employees of a corporation, who, under ordinary circumstances, are not empowered to bind the corporation by contract, nevertheless possess power, where an urgent necessity exists for immediate employment by reason of injuries incident to the operations of the corporation, to employ medical help to alleviate the condition of persons so injured. The plaintiff in this case had the right to assume that the representations stated of the heads of their respective departments possessed the authority which they assumed; and, it appearing that the general manager of the company had knowledge of the conditions, and took no action personally in the premises, his acquiescence and that of the corporation must be presumed.

A different question, however, was presented as to the surgical services performed before any instructions were given by the officers of the corporation. It may be true that, had the record disclosed the fact that the injury to the man was occasioned through the negligence of the defendant company, from which would arise a legal obligation imposed by law, and surgical services were rendered to save the life of the injured one, thereby lessening the damages which would thereafter result to the corporation in the event of death, the corporation would not be heard to say that such services, rendered for its benefit, were unauthorized, and thus avoid payment. But an examination of the record in this case failed to disclose that any legal liability existed on the part of the defendant corporation by reason of this injury. It was true that a stipulation was found in the record to the effect that the injured man brought suit against the company, and that subsequently the same was settled and dismissed through the payment of $4,500. But the mere settlement of an action for damages brought against a defendant does not of itself establish the matters involved in the question of legal liability. It may be, and often is, the case that actions of this character are settled and dismissed, where no liability exists; other considerations entering into the transaction. The court thinks that, if the negligence of the defendant occasioned the injury in this case, it should have been established, in order that it might be made to appear that the plaintiff performed a duty devolving by law on the defendant, and for which, in equity and good conscience, he should be compensated. For aught that appeared in this record, the surgical services were voluntarily performed, and that no legal duty rested on the defendant corporate to compensate the plaintiff therefor.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Southern Medical Journal, Nashville

September, V, No. 8, pp. 511-582

1 *Cinematograph as Aid to Medical Education and Research. R. Matas, New Orleans.
2 Comparative Observations on Biologic Characters of Sp. Pallida and Sp. Pertenuis. H. J. Nichols, Washington, D. C.
3 *Treatment of Hemorrhagic Malarial Fever Without Use of Quinin. D. S. Brockway, Livingston, Ala.
4 *Malarial Hot-Bed Within Sight of National Capitol. T. W. Jackson, Fort Washington, Md.
5 *Malaria as It Concerns General Practitioner. E. D. Holland, Hot Springs, Ark.
6 Fever; Malaria; Quinin. A. Hand, Shubuta, Miss.
7 Tuberculosis Among United States Troops Serving in Tropics. I. W. Brewer, Ithaca, N. Y.
8 *Association of Kidney Infection with Chronic Infection of Appendix and Large Bowel. E. M. Williams, Patterson, La.
9 *Forbidden Food for Epileptic. H. Crenshaw, Atlanta, Ga.
10 Ulcero-Membranous or Vincent's Angina. E. S. Tenney, Mindanao, P. I.
11 Pistol-Ball Penetration of Left Ventricular Cavity Without Hemorrhage; Treatment of Heart Wounds. H. B. Gessner, New Orleans.
12 Suprapubic Versus Perineal Prostatectomy. J. M. Wilson, Mobile, Ala.
13 *Pellagra as It Exists in Alabama. M. B. Cameron, Eutaw, Ala.
14 Feeding in Typhoid. M. S. Davie, Dothan, Ala.

1. Abstracted in The Journal, Jan. 6, p. 59.

3. **Treatment of Hemorrhagic Malarial Fever.**—The treatment is summed up by Brockway in four words: Elimination, prompt, quick, heroic. The more recent studies of the bacteriologist show the perils lying in retention of toxins in the body. Failure of renal elimination spells death. The one thing needed above all else is free and speedy purgation, and there is no therapeutic agent in Brockway's experience equal to the sulphate of magnesium on account of its greater osmotic action and speedy results. When first called to treat a patient suffering from hemorrhagic malarial fever, he gives a large dose of calomel, 20 grains or more, to arouse the glandular secretions, and for fear a sufficient amount of the saline will not be retained to produce the desired effect. Cover the patient with blankets, place hot water bags or heat by other means around the body in order to produce free and prolonged diaphoresis.

Beginning an hour after giving the calomel Brockway gives a tablespoonful of sulphate of magnesia every two hours until the desired effect has been produced. If the salts cannot be retained he gives the following prescription, which he has found to agree with the most delicate stomach:

℞	gm. or c.c.		
Magnesii sulphatis	8		ʒ ii
Acidi tartarici	4		ʒ i
Tincturæ cardamomi compositæ	16	or	ʒ iv
Aquæ q. s. ad..............	120		℥ iv

Sig.: Two tablespoonfuls every two hours till the desired effect is produced.

If there is a copious flow of urine from the beginning and throughout the attack, he says the patient will rapidly recover and the urine will clear up in from thirty-six to forty-eight hours; but if the urine is scanty from the beginning and continues so, although it may clear up and be perfectly normal in appearance, yet the patient is in great danger, and a fatal termination may be looked for.

Copious draughts of very hot water will have the effect of washing out the superabundance of bile that often finds its way into the stomach and enables the patient to vomit with less strain, and renders him more comfortable, at least for a while; this can be repeated as often as necessary. The nausea will often subside after there have been several movements from the bowels. If the nausea still persists the hypodermatic injection of 1/4 gr. (0.015) of morphin sulphate will often have a magic effect in allaying the irritability of the stomach and will enable the patient to retain a sufficient amount of salts to have the desired effect.

4. Abstracted in The Journal, July 27, p. 1299.

5. **Malaria As It Concerns General Practitioner.**—Holland says that if doctors will only use their microscopes they will

be surprised at the number of complicated and obscure diagnoses which can be spelled *m-a-l-a-r-i-a*.

8. **Association of Kidney Infection.**—It is held by Williams that the pyelitis and bacilluria so frequently met with in infants and young children is not an ascending infection; that it is not due, as has been supposed, to uncleanliness in management of the patient during enterocolitis, but is rather the result of a hematogenous infection which is caused primarily by an inflammatory lesion of the bowel mucous membrane which permits the migration of bacteria into the blood. This tendency of bacteria to work their way into the intestinal structures when an atrium of inflammatory desquamation or ulceration is made for them is well known. A very considerable number of instances of infection of the kidney occur in subjects who are chronically constipated; who have attacks of appendix colic in which concretions are found within the appendix; who have a membranous pericolitis, chronic diverticulitis, or, in brief, any obstinate intestinal lesion which favors stasis of the fecal current, minute abrasions or ulcerative lesions of its mucous membrane and migration of bacteria into the blood-stream. The possibility of migration of bacteria directly through membranous and pseudomembranous formations surrounding the bowels, has been clearly demonstrated. Some cases of primary tuberculosis of the kidney may be due to the same cause. As a first cause may always be expected to act, even after the removal of its symptoms, it is wise to look closely into cases of relapsing infection of the kidney, with the possibility in mind of a large intestine lesion, which should be eradicated if found, thus lessening the chances of further difficulty.

9. **Forbidden Food for the Epileptic.**—Crenshaw insists that the epileptic taboo red meat, coffee, tea, etc., alcohol in any form, common salt and overindulgence in the great game of gastronomics.

13. Abstracted in The Journal, May 11, p. 1472.

California State Journal of Medicine, San Francisco

September, X, No. 9, pp. 357-398

15 Collection Bureau Plan of Los Angeles County Medical Association. G. H. Kress, Los Angeles.
16 Standardization of Reagents for Wassermann Test. W. V. Brem, Los Angeles.
17 Progress in Diagnosis and Treatment of Syphilis. E. D. Chipman, San Francisco.
18 Abortive Treatment of Syphilis. H. Morrow and L. S. Schmitt, San Francisco.
19 Fallibility of Salvarsan. L. J. Roth, Los Angeles.
20 Salvarsan in Various Medical Disorders Associated with Wassermann Reaction. W. F. Cheney, San Francisco.
21 Barany's Investigation of Localization in Cerebellum. K. Pischel, San Francisco.
22 General Anesthesia in Contract Work. V. H. Hulen, San Francisco.
23 Radiologic Investigation of Diseases of Stomach. C. M. Cooper and G. L. Painter, San Francisco.
24 Diagnosis of Latent Gonorrhea in Female. W. S. Johnson, San Francisco.
25 Clinical Features and Neurologic Findings in Poliomyelitis. T. J. Orbison, Los Angeles.
26 Necrosis of Hyoid Bone. A. B. Baer, San Francisco.
27 Salvarsan in Europe. C. D. Lockwood, Pasadena.
28 Salvarsan vs. Mercury. V. Vecki, San Francisco.

Philippine Journal of Science, Manila

April, VII, No. 2, pp. 67-128

29 *Infantile Beriberi. V. L. Andrews, Manila.
30 *Effect of Tropical Sunlight on Men, Monkeys and Rabbits and Proper Clothing for Tropical Climate. H. D. Gibbs, Manila.
31 Typhoid in Philippine Islands from Sanitary Standpoint. V. G. Heiser, Manila.
32 Some Common Siphonaptera of Philippine Islands. C. Fox, Manila.

29. **Infantile Beriberi.**—Andrews claims that the high infant mortality in Manila is due to infantile beriberi. This high death-rate of infants is due primarily to the quality of the mother's milk. The mother's milk lacks something which is essential for the growth and development of the nerves of the child. The disease is not due to an infection or toxemia of either the mother or the child. Another link has been added in the chain of evidence showing that beriberi is a nutritional disturbance. As a prophylactic measure, the dealers handling rice should be required to keep on hand the undermilled variety, and a campaign of education should be carried on for the purpose of enlightening the poorer classes, especially the pregnant women.

30. **Effect of Tropical Sunlight.**—In this paper the measurements of the skin temperatures in the tropical sun, of a number of different races, the temperatures under the hair and under various kinds of clothing, and the subcutaneous temperatures of monkeys and rabbits together with some observations of the physiologic effects of sunlight are described. Gibbs found that in the shade, the skin temperatures of human beings remain constantly below blood temperature. In the sun the temperatures of the lighter-colored skins sometimes rise more rapidly than those of the darker colors, but, after the initial rise, the darker colors maintain higher maxima than the lighter, provided the exposure of the lighter-colored skins is not too long. Usually temperatures of the darker-colored skins rise more rapidly. In the case of too long exposure an irritation of the sensory nerve-endings, nerve-endings in the vessel walls, or of the vessel walls themselves, produces a flushing of the skin due to a greater quantity of blood and a more rapid flow. This effect is absent in the darker skins, the pigmentation of which is undoubtedly a protection in this regard.

While the darker skins absorb heat more rapidly, the radiation is more rapid than from those of lighter colors, and, since, in full sun, the proportion of the body exposed is less than the proportion in the shade, the darker-skinned races may for this reason be somewhat better prepared to withstand the sun. In the sun, hair temperatures above 40 F. and a maximum of 50.1 F. are recorded. Gray-haired monkeys showed normal subcutaneous temperatures in the shade and were quite comfortable, while in the sun the temperatures rose above 48 F. and death ensued.

All measurements of temperature were made by means of thermocouples, and the subjects, men, monkeys and rabbits, were protected from air currents. Clothing for human beings for protection from the sunlight, should afford the greatest shade without obstructing air currents carrying off evaporated moisture. The superiority of white over colored materials as a reflector of the sun's rays is demonstrated by the experiments with rabbits and a few measurements under clothing. The ideal condition is attained by the shade of a white umbrella lined with green cloth and supplemented by as little clothing as possible. A broad-brimmed, light-weight, white helmet, the band of which is so arranged that the frame of the hat does not touch the head and allows the free passage of air currents, is the best substitute for an umbrella.

Texas State Journal of Medicine, Fort Worth

September, VIII, No. 5, pp. 133-156

33 Anoci-Association; New Principles in Operative Surgery. G. W. Crile, Cleveland.
34 Diagnosis of Malaria. W. Shropshire, Yoakum.
35 Enlargement of Prostate. C. Johnson, Fort Worth.
36 Is the Examination of Feces of Practical Value? M. A. Wood, Houston.
37 Value of Early Mixed Feeding in Infancy. G. M. Decherd, Austin.

Canadian Medical Association Journal, Toronto

September, II, No. 9, pp. 751-858

38 *Typhoid Pleurisy. F. G. Finley, Montreal.
39 Deep Injections of Alcohol for Trifacial Neuralgia; 102 Cases. D. A. Shirres, Montreal.
40 Action of Drugs on Uterus. N. C. Sharpe, Toronto.
41 *Two Cases of Typhoid Which Show Uncommon Lesions Due to Bacillus Typhosus. M. W. A. McNaughton and L. J. Rhea, Montreal.

38. **Typhoid Pleurisy.**—Finley's paper is based on a study of the literature of the subject and an analysis of nineteen cases which have occurred at the Montreal General Hospital in 2,200 cases of typhoid treated from 1897 to June, 1912. He concludes that pleurisy occurs in from 1 to 2 per cent. of cases of typhoid, although in some epidemics a much larger proportion may occur. Most cases of pleurisy in typhoid are due to the typhoid bacillus, and there is a preceding lesion of the lung in many cases. Typhoid pleurisy is usually a benign condition, and does not materially add to the danger of the disease.

41. **Two Cases of Typhoid.**—One of the patients reported on in this paper developed an acute purulent pericarditis, the other an acute hemorrhagic pleuritis. Both patients died.

Journal of Arkansas Medical Society, Little Rock

September, IX, No. 4, pp. 91-112

42 *Testing Efficiency of Collateral Circulation as Preliminary to Occlusion of Great Surgical Arteries. C. W. Allen, New Orleans.
43 Bacterins and Bacterin Therapy. A. L. Carmichael, Little Rock.
44 *Surgical Side of Pediatrics. E. E. Barlow, Dermott.

42 and 44. Abstracted in The Journal, June 29, p. 2048.

Journal of Medical Research, Boston

September, XXVII, No. 133, pp. 1-114

45 *Filterable Viruses, a Summary. S. B. Wolbach, Boston.
46 Chronic Ulcers (Ulcus Tropicum) from Gambia. S. B. Wolbach, Boston, and J. L. Todd, Montreal.
47 Congenital Atresia of Esophagus with Esophagotracheal Fistula. F. R. Zeit, Chicago.
48 Microscopic Demonstration of Fats in Tissue Sections. H. H. Bullard, New Orleans.
49 Differentiation of Cultures of Streptococcus. D. H. Bergey, Philadelphia.
50 Effect of Injection of Bovine Bile Into Rabbits. C. Frothingham and G. R. Minot, Boston.
51 Parasitology of Trypanosomiasis. S. B. Wolbach and C. A. L. Binger, Boston.
52 *Relative Importance of Bovine and Human Types of Tubercle Bacilli in Different Forms of Tuberculosis. W. H. Park and C. Krumwiede, New York.

45. **Filterable Viruses.**—An investigation of the properties and behavior of the filtered viruses by Wolbach shows that a somewhat significant grouping is possible. One group is transmitted by intermediate hosts: biting insects of some sort. The mosquito transmits African horse sickness, yellow fever and dengue fever. Sand-fly fever is transmitted by a midge, and typhus fever by a body louse. Experiments have proved almost beyond doubt that the swamp fever of horses and the catarrhal fever of sheep are transmitted by an intermediate host as yet undiscovered. All of these diseases are essentially blood infections: diseases in which the parasite is primarily a blood parasite. It is quite possible, in the light of recent experimentation and statistical studies, that poliomyelitis requires an intermediate host for its transmission. One group of diseases requires entrance of the virus directly into the tissue through an abrasion or injury to the surface of the body. These are rabies, molluscum contagiosum, verruca vulgaris, chicken sarcoma and probably trachoma, though it is possible that the last may secure a hold on a normal conjunctiva. One group is transmitted by contact, which of course means contamination with infected material, such as discharges from the eyes, respiratory tract, surface lesions and excreta.

One rather striking feature of the diseases with filterable viruses is the nature of the immunity. In nearly every instance, immunity is complete and of long duration, and in many instances artificial immunity has been secured through protective inoculations. In nearly every case successful passive immunity has not been obtained, which would indicate that, unlike most bacteria, these viruses produce but little in the way of toxins. Bacteria play an important secondary part in some diseases caused by filterable viruses; it is even probable that the typical disease picture is produced only by the combined effect of the filterable virus and bacteria, as in scarlet fever.

52. **Bovine and Human Types of Tubercle Bacilli.**—In the authors' series of non-selected fatal cases under five years of age bovine infection constituted 12½ per cent. They had nine patients from a foundling asylum, under 6 years of age, who were exclusively cow's milk fed. Of these, five were bovine infections. If the fatal cases in this series are deducted from the total cases, the bovine infections comprise about 10 per cent. In a non-selected series of fatal cases from the Babies' Hospital 6⅓ per cent. were due to bovine infection. On the whole, bovine infection causes somewhat less than 10 per cent. of the total deaths in young children.

Journal of Medical Society of New Jersey, Orange

September, IX, No. 4, pp. 167-220

53 *Common Diagnostic Errors. R. C. Cabot, Boston
54 *Analysis of Refracting Optician Evil; Appeal to General Practitioner. L. Emerson, Orange.
55 Cyclic Vomiting in Childhood. F. R. Sandt, Paterson.
56 *Opportunities. W. A. Wescott, Berlin.
57 *Sphygmomanometer as Aid in Diagnosis, Prognosis and Treatment of Few Important Diseases. J. D. Lippincott, Newark.

53, 54, 56 and 57. Abstracted in The Journal, August 10, pp. 477 and 479.

Interstate Medical Journal, St. Louis

September, XIX, No. 9, pp. 739-816

58 Rationalization of Mental Medicine. W. A. White, Washington, D. C.
59 Wassermann Reaction in Diseases Other Than Syphilis. J. W. Marchildon, St. Louis.
60 *Case of Primary Carcinoma of Lung. R. T. Gilchrist, Wauwatosa, Wis.
61 Laboratory Methods of Diagnosis of Typhoid. L. M. DeWitt and F. L. Evans, St. Louis.
62 Radiophalangeal Reflex in Lesions of Pyramidal Tract. M. W. Hoge, St. Louis.
63 *Triple Bismuth Meal for Gastro-Intestinal Fluoroscopy. E. H. Skinner, Kansas City, Mo.

60. **Primary Carcinoma of Lung.**—About Nov. 1, 1910, Gilchrist's patient, aged 64, experienced pain and swelling in the upper left side of the chest accompanied by loss of weight, loss of appetite, inability to sleep, slight cough and expectoration of mucopurulent material. There had been no chills, sweats nor fever. The pain had not been very severe, was not influenced by respiration. but was made much worse by moving about. The patient was emaciated, of medium stature, with dry skin and palpable arteries. The pupils were equal and reacted to light and accommodation. The cervical lymph-nodes were not enlarged, the thyroid was of normal size, and there was no tracheal tug. The chest was symmetrical, except for a bulging in the left infraclavicular region, the tumor mass extending from above the first rib down to the third and from the left sternal border to the midclavicular line. The mass was of firm consistence, slightly elastic, intimately connected with the ribs and slightly tender. The skin and pectoral muscles were freely movable over the swelling. There was no pulsation, no discoloration of the skin, and no change of temperature.

The percussion note over the tumor was resonant. The breath-sounds at the apices were slightly harsh and a few piping râles were heard over the front of the chest. The area of cardiac dulness extends 10 cm. to the left of the midsternal line and 4.5 cm. to the right in the third interspace. There was a systolic blow at the apex, and the pulmonic second sound was slightly accentuated. Posteriorly, the physical findings in the chest were negative. The area of liver dulness extended from the sixth interspace to a point 5 cm. below the costal border in the mammary line. There was no splenic enlargement. No masses were palpable in the abdomen. There was an incomplete inguinal hernia on the right side and slight enlargement of the inguinal lymph-nodes. The testicles were normal. The examination of the prostate was negative. The deep reflexes were normal and active. Repeated examination of the urine showed a specific gravity of from 1.024 to 1.028, a trace of albumin, no casts, no albumose and no sugar. The chemical test for blood was positive once. There was a moderate cough together with expectoration of a frothy mucopurulent sputum. Repeated examination of the sputum revealed no tubercle bacilli and no blood. There was no reaction to the injection of tuberculin. The Noguchi test was found positive.

A fluoroscopic examination showed the tumor mass continuous with the left border of the sternum, obscuring the anterior ends of the second and third ribs, denser than the ribs or sternum, and apparently lying in the chest wall. During his stay in the hospital, the patient steadily grew weaker, emaciation increased, the tumor mass increased in size and became more nodular. A second hard nodular mass appeared at the sixth right costochondral articulation. Death from exhaustion occurred forty-one days after entering the hospital. An autopsy performed three days later showed a primary carcinoma of the left lung, metastases to ribs, kidneys, mesenteric glands, adrenals, heart muscle and omentum; fatty liver, arteriosclerotic kidney, fibrous myocarditis, incomplete inguinal hernia.

63. **Triple Bismuth Meal.**—Since 1908 Skinner has used no opaque material for the fluoroscopic inspection of the gastro-intestinal tract other than bismuth oxychlorid, which is a rather expensive purified product. He has had absolutely no

untoward effects from this salt. It does not constipate like the subnitrate of bismuth, nor does it turn the stool black. In fact, it seems to pass through the alimentary tract unchanged, being a practically insoluble salt. The patient eats the first bismuth meal at 10 a. m. on the day previous to the examination. The second meal is eaten at 4 a. m. of the next day, and then the patient reports at 10 a. m. at the Roentgen-ray laboratory the same day. The usual meals intervene. There will be a twenty-four-hour bismuth meal in the colon, and a six-hour bismuth meal in the stomach, small intestine and cecum. From this first inspection one judges the motility and peristalsis of the alimenary tract. If there is a residue in the stomach after the six-hour interval, Skinner immediately suspects pyloric obstruction, or interference with the exit of food. If there is much residue in the ileum, he looks into the possibility of an ileal kink. After the thorough inspection of the disposition of these two meals, a third bismuth meal is administered which gives the position, the outline and peristalsis of the esophagus and stomach. Each bismuth meal consists of 2 ounces of bismuth oxychlorid thoroughly mixed into 8 to 12 ounces of thin porridge. It is eaten with cream and sugar or fruit juices, and is easily tolerated even by timid stomachs. A smaller meal of 4 to 6 ounces will suffice if the patient refuses to eat or retain more Where the patient prefers to drink, or he is unable to swallow small masses, Skinner advises the thorough mixing of 2 ounces of bismuth oxychlorid in about 14 ounces of milk fermented with the Bulgarian ferment.

Denver Medical Times and Utah Medical Journal

September, XXXII, No. 3, pp. 103-156

64 Too Limited Range of Medical Education. J. K. Miller, Greeley, Colo.
65 Relation of Hospital to Public. E. Stuver, Fort Collins, Colo.
66 Ether vs. Nitrous Oxid and Oxygen Anesthesia J. W. Seybold, Denver.
67 Case of Meningeal Hemorrhage in Newborn Infant, with Recovery. M. H Krohn, Denver.
68 Some Newer Conceptions of Infection and Immunity. E. C. Hill, Denver.

Journal of Biological Chemistry, Baltimore

September, XII, No. 3, pp. 317-522

69 Animal Calorimetry; Small Respiration Calorimeter. H. B. Williams, New York.
70 *Idem: Metabolism of Dog Following Ingestion of Meat in Large Quantity. H. B. Williams, J. A. Riche and G. Lusk, New York.
71 Guaninehexoside Obtained on Hydrolysis of Thymus Nucleic Acid. P. A. Levene and W. A. Jacobs, New York
72 Cerebronic Acid. P. A. Levene and W. A. Jacobs, New York.
73 Cerebrosides of Brain Tissue. P. A. Levene and W. A. Jacobs, New York.
74 *Amino-Acid Nitrogen of Blood. D. D. Van Slyke and G. M. Meyer, New York.
75 Structure of Thymus Nucleic Acid. P. A. Levene and W. A. Jacobs, New York.
76 Guanylic Acid. P. A. Levene and W. A. Jacobs, New York.
77 Preparation of Glucosides. W. A. Jacobs, New York.
78 Removal of Phosphotungstic Acid from Aqueous Solutions. W. A. Jacobs, New York.
79 *Protein Metabolism in Experimental Diabetes. A. I. Ringer, Philadelphia.
80 Organic Phosphoric Acid Compound of Wheat Bran. R. J. Anderson, Geneva, N. Y.
81 Studies in Bacterial Metabolism. A. I. Kendall and C. J. Farmer, Boston.
82 Idem. A. I. Kendall and C. J. Farmer.
83 Rôle of Gliadin in Nutrition. T. B. Osborne and L. B. Mendel, New Haven, Conn.
84 Chemistry of Gluconeogenesis; Quantitative Conversion of Proprionic Acid Into Glucose. A. I. Ringer, Philadelphia.
85 Methyl Guanidin in Urine of Parathyroidectomized Animals. W. F. Koch, Ann Arbor, Mich.

70. **Metabolism After Meat Ingestion.**—A dog weighing 13.5 kgs., the heat production of which was 22.3 calories during an hour previous to food ingestion, was given 1,200 grams of meat at noon. The heat production rose to 36 calories in the second hour and 42 in the third. It was maintained above 40 calories per hour through the tenth hour. In the fourteenth hour, it had fallen to 37 calories and then remained at 30 calories up to the eighteenth hour, falling rapidly to 25 calories in the twenty-first hour. Ingestion of 700 grams of meat by the same dog caused an increase in metabolism which was less than that caused by 1,200 grams, but in the two cases the increase was proportionate to the quantity ingested. The increased metabolism was proportional to the nitrogen elimination, except in the second and third hours. In the second hour the metabolism rose almost to its maximum although the urinary nitrogen reached only a third of its maximum. Since the non-protein respiratory quotient for this period was often above 90, it appears that carbohydrate and not additional protein was oxidized during this hour. On this is based the argument made by the authors that the incoming amino-acids, in proportion to their mass action, stimulate the protoplasm to higher oxidation.

74. **Amino-Acid Nitrogen of Blood.**—With the finding of amino-acid nitrogen in the normal blood the authors hold that the hypothesis that the amino-acids formed in digestion are synthesized into blood protein while passing the intestinal wall, becomes superfluous. The increase in amino-acid nitrogen of the blood, noted during digestion of protein, is, furthermore, positive evidence that amino-acids as such do normally pass the intestinal wall and enter directly into the blood-current. The fact that the amino-acid content decreases but little during passage of the blood from the mesenteric vein out to the femoral artery indicates that the amino-acids are not held back or destroyed by the liver before reaching the other tissues. On the contrary, it seems that the amino-acids absorbed from the intestine circulate through the entire organism and are offered directly to the body cells in general. The fact that the amount of amino-acids normally present in the circulation is small, is accounted for by the rapidity with which the tissues take up amino-acids from the blood as soon as they become unusually abundant therein. This is illustrated by the disappearance of intravenously injected alanin from the blood-stream. The experiments here reported are preliminary to a more complete investigation of the problem of protein assimilation and of the effect of different physiologic and pathologic conditions on the amino-acids of the blood.

79. **Metabolism in Experimental Diabetes.**—Experiments were performed by Ringer which showed that in phlorhizin glycosuria the protein metabolism rises in part because of the hypoglycemia that is present in that condition. The giving of small quantities of glucose to phlorhizinized animals results in a sparing of protein, although all of the glucose is eliminated in the urine and none of it is burnt. This lends support to Landergren's hypothesis, which assumes that in starvation, a certain fraction of protein is metabolized for the formation of glucose, and that this fraction can be spared by carbohydrates and not by fat. The protein metabolism above the starvation requirement in pancreatic diabetes does not rise as high as in phlorhizin diabetes. The giving of glucose to a dog with pancreatic diabetes does not spare any protein. It is suggested that the protein metabolism is lower in pancreatic than in phlorhizin diabetes because of the hyperglycemia which prevents the catabolism of the so-called "dextrose protein."

Pennsylvania Medical Journal, Athens

September, XV, No. 12, pp. 925-998

86 Liberal Feeding in Typhoid. B. Kohn, Philadelphia.
87 Recurrent Anuria Due to Calculus Which Acted as Ball-Valve in Ureter of a Single Functionating Kidney. S. E. Tracy, Philadelphia.
88 Eclampsia in a Primipara Aged Forty-Five. J. O. Arnold, Philadelphia.
89 Practical Experiences With Spinal Anesthesia. L. W. Kohn, Scranton.
90 Medical Inspection of School Children. S. G. Dixon, Bryn Mawr.
91 Results of Examination of School Children of Meadville and Its Importance. C. C. Laffer, Meadville.
92 Red Bank Physicians' Protective Association from Beneficent, Ethical, Economical and Protective Standpoint. C. W. Coulter, Oil City.
93 Life History of Some American Insects That Carry Disease. H. Skinner, Philadelphia.
94 Placenta Prævia from Standpoint of a Country Practitioner. C. M. Coon, Laquin.
95 Gangrene of Bowel; Ovarian Cyst; Perforation of Stomach and Duodenum. H. J. Donaldson, Williamsport.
96 Relation of Refractive Errors and Nasal Abnormalities to Headache. N. S. Weinberger, Sayre.

Surgery, Gynecology and Obstetrics, Chicago

September, XV, No. 3, pp. 245-364

97 *Results of Permanent Intubation of Thoracic Aorta. A. Carrel, New York.
98 *Central Dislocation of Femur. G. T. Vaughan, Washington, D. C.
99 Treatment of Ununited Fracture. E. Martin, Philadelphia.
100 Surgery of Arteries. A. Vander Veer, Albany, N. Y.
101 Case of Non-Traumatic Diaphragmatic Hernia. C. L. Scudder, Boston.

102 Complete Obstruction of Duodenum Resulting from Impaction of a Large Gall-Stone. J. E. Thompson, Galveston, Tex.
103 Lever Action in Production of Traumatic Dislocation. G. G. Davis, Philadelphia.
104 *Talma Operation for Cirrhosis of Liver. E. A. Vander Veer, Albany, N. Y.
105 Nitrous Oxid-Oxygen-Ether Anesthesia: Administration; a Perfected Apparatus. F. J. Cotton and W. M. Boothby, Boston.
106 *Effects of Ureteral Ligation; Experimental and Clinical. J. D. Barney, Boston.
107 *Experimental Hydronephrosis. G. D. Scott, Sullivan, Ind.
108 Bismuth Poisoning. L. Mayer and G. Baehr, New York.
109 Procidentia Uteri. W. M. Polk, New York.
110 Sliding Hernia. P. F. Morf, Chicago.
111 Surgical Treatment of Puerperal Sepsis. W. E. Darnall, Atlantic City, N. J.
112 *Method of Ileosigmoidostomy With Formation of a Sigmoid Valve. E. A. Hall, Vancouver, B. C.
113 Improvement to Drainage Tube and Inflated Rubber Bag Arrangement for Liver Hemostasis and an Acknowledgment of Priority. J. R. McDill, Milwaukee, Wis.
114 Results of Routine Treatment of Structural Lateral Curvature by Means of Plaster Jackets. J. W. Sever, Boston.
115 Silver Wire Cable an Ideal Buried Metallic Suture. H. Lillienthal, New York.

97. **Permanent Intubation of Thoracic Aorta.**—Straight tubes of glass, aluminum, or of gold-plated aluminum were employed by Carrel. Their diameter was generally 9 or 10 mm. while their length was 45 mm. As the dogs were of various sizes, the tubes distended, exactly fitted the aorta, or were of relatively smaller caliber. Before being used, the tubes were paraffined. As soon as the tube was introduced into the lumen of the vessel, two silk threads which had been previously put around the aorta, were tied. These ligatures should be tied tightly enough to prevent the tube from slipping, but not too tightly; there is danger of cutting the aortic wall, which has been found to be very friable. The clamps were removed and the circulation reestablished through the intubated segment. There was generally no hemorrhage from the opening in the aortic wall. Eleven experiments were performed. Seven animals were intubated with a glass tube, three with an aluminum tube and one with a gold-plated aluminum tube. Two of the animals intubated with a glass tube died of hemorrhage eight and eleven days respectively after the operation. The accidents were due to preventable causes, the cutting of the aortic wall by the ligatures, and the breaking of the tube. It was found that no clot had deposited on the wall of the tube. In the five other cases, obliteration of the aorta or of the tube occurred suddenly from five to ninety-seven days after the operation. The tube or the aorta were found to be occluded by a fresh thrombus, which, in every case, started from a laceration of the wall due to the poorly finished upper or lower edge of the tube.

It appeared that thrombosis did not take place as long as no laceration of the vascular wall occurred. The form and the size of the tube in a large measure seemed to be responsible for this complication. These experiments have shown a new fact: The arterial blood flowed through a glass tube 9 or 10 mm. in diameter during periods varying from five to ninety-seven days. No deposit of fibrin on the wall of the tube occurred. Sudden occlusion of the vessel or of the tube took place following a laceration of the aortic wall by the roughly finished edges of the tube. The permanent intubation of a large artery is a simple operation. It may become practical if the shape and the nature of the tubes be modified in such a manner as to prevent the laceration of the aortic wall. It is probable that the use of smooth-edged gold tubes, or of tubes lined with a vein, will be followed by better results.

98. **Central Dislocation of Femur.**—The symptoms of central dislocation of the femur, according to Vaughan, are very similar to those seen in impacted fracture of the neck of that bone: (1) Outward rotation of the femur; (2) sinking of the trochanter or its approach toward the median line; (3) shortening; (4) restricted motion; neither flexion, adduction, abduction or rotation is normal. The limitation in the arc of rotation of the neck of the femur is striking; (5) presence of the femoral head in the pelvis. The diagnosis can be made from impacted fracture of the neck and from all other injuries which it resembles except certain other fractures of the pelvis, by feeling through the rectum, or seeing, by means of the roentgenogram, the head of the bone projecting into the pelvis. From certain other fractures of the pelvis with projection of the head into the pelvic cavity, the diagnosis can be made only by means of the Roentgen-ray or by exposure by operation. Reduction should be attempted as advised by the usual methods, namely: by traction outward and downward in the axis of the neck of the femur. Failing in these, the dislocation should be reduced by open operation.

104. **Talma Operation for Cirrhosis of Liver.**—It is Vander Veer's opinion that the operation of omentopexy is a justifiable one and that the ideal technic is, under general anesthesia, a median incision below the umbilicus, suturing as much of the omentum to the anterior abdominal wall as possible; and, above all, drainage for at least a week. This latter feature, he believes to be especially essential in the after treatment.

106. **Effects of Ureteral Ligation.**—It was found by Barney that sudden and complete occlusion of one ureter may produce no symptoms whatever, and uninterrupted recovery may ensue in 21 per cent. of cases, but in the event of an injury to both ureters there is complete anuria in all, as is to be expected, whereas, in the unilateral injuries suppression of the urine occurred in only 1.6 per cent. Ureteral fistulas are developed in 24 per cent., their site depending on the nature of the operation. Where only one ureter is ligated, pain and tenderness in the kidney, usually subsiding spontaneously, is to be expected in 26 per cent. It has not been found in cases of bilateral injury. Infection of the kidney produced by the injury to the ureter, or aggravated by it, and necessitating subsequent nephrectomy, occurred in 15 per cent. Both ureters may be clamped for as long as seventy-two hours with complete recovery after removal of the obstruction, whereas one ureter may be completely blocked for ten days without destroying the integrity of the kidney.

Of fifteen patients in whom the subsequent condition of the kidney was investigated by Barney, hydronephrosis was observed in 80 per cent., but in no case was this of more than moderate size. In the remainder there was said to be "no change" in the condition of the kidney. The mortality of bilateral occlusion of the ureter is found to be 33.3 per cent., whereas, in unilateral occlusion the death-rate is 17.8 per cent., but in both instances we must consider the influence of other factors, such as the previous condition of the patient, and the severity of the operation. Barney's investigation of this series of cases shows (a) that there is strong probability that many a ureter is ligated without the fact being known, and (b) that in the presence of postoperative anuria, and in the absence of localizing symptoms examination of each ureter by the cystoscope may be the only means of determining whether one or both ureters have been occluded.

107. **Experimental Hydronephrosis.**—In Scott's experiments complete ligation of the ureter produced hydronephrosis, the degree depending on the duration of the obstruction The changes occurring in the kidney parenchyma after complete obstruction of the ureter take place in a definite order. First, the straight tubules are dilated, then the convoluted tubules are similarly affected, and last to suffer are the glomeruli. These changes consist of dilatation of the tubules, flattening of the epithelium, granular changes of the epithelial cytoplasm and occasionally breaking of the cell wall. The interstitial tissue is usually increased and in late stages the blood-vessels are sclerotic. Compensatory circulation by anastomosis of the renal vessels with vessels entering the kidney through the capsule probably plays no part in determining whether a primary atrophy or hydronephrosis develops after complete ligation of the ureter. Incomplete obstruction of the ureter also produced hydronephrosis, the degree of hydronephrosis depending on the duration and on the pressure required to force urine past the constriction. Complete permanent obstruction produces hydronephrosis more rapidly than an incomplete obstruction of the ureter.

The microscopic changes following incomplete obstruction of the ureter are practically the same as those following complete obstruction. Complete ligation of the ureter retards secretion of the kidney but will not completely arrest it. In hydronephrosis of highest degree, the kidney epithelium is never completely destroyed, but is capable of further secretion. Complete permanent ligation of the ureter does not produce atrophy of the kidney, but this resulted in one case of incomplete obstruction.

112. **Method of Ileosigmoidostomy.**—The upper sigmoid curve in many cases is found lying in contact with the terminal part of the ileum. These are the parts Hall unites. He describes his method as follows: 1. Locate these parts, pack them off with gauze, clamp the ileum 1½ inches from the valve. Pass a linen purse-string suture around the ileum beyond the clamp, cut and invert the distal end and separate the mesentery for about ⅓ of an inch of the proximal end. 2. Clear fat from the upper surface of sigmoid for a space of 2 inches, clamp above and below. Cut sigmoid transversely for about two-fifths of its circumference, beginning at the upper border of the well-defined anterior longitudinal muscle; with linen suture approximate the extremities of this incision, infolding the proximate flap within the bowel and suturing the surfaces for about 1½ inches, thus forming a sigmoid "valve." The distal flap following the contour of the bowel makes a lateral oval opening about the size of the ileum. If necessary this opening can be enlarged by a longitudinal slit. A small opening 2 inches lower in the sigmoid admits a clamp which is placed on the ileum as the former clamp is withdrawn, and the bowel drawn within the sigmoid. The points of apposition being secured by forceps, a catgut suture is sufficiently deeply placed to control hemorrhage, a musculoperitoneal suture of linen follows, continued along the ileosigmoid surface for an inch or two to limit tension on the anastomosed parts. The withdrawal of clamps and closure of the small incision complete the operation.

Journal of Michigan State Medical Society, Battle Creek

September, XI, No. 9, pp. 545-608

116 Plastic Surgery of Bones. J. B. Roberts, Philadelphia.
117 What is "Epilepsy?" C. D. Camp, Ann Arbor.
118 Formation of Section of Ophthalmology and Oto-Laryngology by Michigan State Medical Society R. W Gillman, Detroit.
119 Maxillary Sinusitis. B. N. Colver, Battle Creek
120 Traumatic Myxosarcoma of Knee, Simulating Tuberculosis of Joint, With Report of a Case. F. C. Witter, Petoskey.
121 Clinical and Instrumental Methods of Estimating Efficiency of Heart. H. A. Freund, Detroit.
122 Two Hundred and Twelve Cases of Cancer of Uterus With Special Reference to Early Diagnosis. G. Kamperman, Ann Arbor.

Medical Record, New York

September 21, LXXXII, No. 12, pp. 507-552

123 *Etiology and Pathogenesis of Bronchial Asthma. A. G. Apostolides, Smyrna, Asia Minor.
124 Negro and His Health Problems. J. M. Taylor, Philadelphia.
125 Derailed Forces. M. A. Cleaves, New York.
126 Worry as Cause of Arteriosclerosis. H. C. Clapp, Boston.
127 Aneurysm (?) of Hepatic Artery. G. A. Friedman, New York.
128 Amenorrhea Due to Thyroid Insufficiency. P. K. Olitsky, New York
129 Are Present Methods of Disposal of Human Excrement Satisfactory? J. W. Brewer, Ithaca, N. Y.

123. **Bronchial Asthma.**—Apostolides believes that idiopathic bronchial asthma is due to a congenital excitability of the cortical respiratory centers, which excitability itself is due to a toxemia depending on alterations of the internal secretion of certain glands. This mechanism is not an impossible one, but indisputable evidence of its actual existence has so far been adduced. Apostolides has known two patients about 4 years of age who have had a number of what are considered attacks of spasmodic laryngitis, a disease which was supposed at one time to be due to disturbances of the thymus and therefore received the name of thymic asthma. The patients are now about 12 years of age and are suffering from attacks of genuine bronchial asthma.

Boston Medical and Surgical Journal

September 19, CLXVII, No. 12, pp. 383-418

130 Indications for Major Obstetric Operations. F. S. Newell, Boston.
131 Salvarsan-Calomel Treatment of Syphilis. W. F. Boos, Brookline, Mass.
132 Bacteriologic Diagnosis, Intubation, and Antitoxin Treatment of Diphtheria. E. H Place, Boston.
133 Significance of Symptoms in Pulmonary Tuberculosis. H. D. Chadwick and H. S. Wagner, Westfield, Mass.

New York Medical Journal

September 21, XCVI, No. 12, pp. 569-616

134 Sanitary Control of Prostitution in Some European Cities. F. Bierhoff, New York.
135 Skin Diseases in Relation to Nervous System. S. Pollitzer, New York.
136 Newer Teachings of Diseases of Alimentary Canal. M. I. Knapp, New York.
137 Syphilis and Gonorrhea As Depicted in the "Songes Drolatiques de Pantagruel." C. G. Cumston, Boston.
138 Some Diagnostic Aids in Gastric Diseases. E. A. Aronson, New York.
139 Clinical Observations of Trachoma. H. M. Friedman, New York.
140 Ten Sex Talks to Girls. I. D. Steinhardt, New York.
141 Mitral Stenosis and Pulmonary Tuberculosis. W. Narins, New York.
142 *Cardiac Disease and Pulmonary Tuberculosis. N. G. Seymour, New York.
143 Child and Constipation. N. J. Weill, Pittsburgh.

142. **Heart Disease and Lung Tuberculosis.**—Among the total number of charts from the Gouverneur Hospital Tuberculosis Clinic studied by Seymour, 2,151, there were 126 cases of cardiac disease noted. Sixty-two of these occurred among the positive tuberculous patients; sixty-one among the non-tuberculous, and only three from among those whose pulmonary condition was never diagnosticated. These groups were studied separately, since it is apparent that a very different significance attaches to the cardiac cases mistaken for pulmonary tuberculosis and those which were coincident with it.

Among the 519 non-tuberculous cases in series, there were sixty-one with cardiac diseases; that is, in 11.7 per cent. of the negative cases, mistaken for pulmonary tuberculosis, the misleading signs or symptoms were due to cardiac disease. These cardiac conditions were as follows: Chronic endocarditis, forty-six; mitral regurgitation, twenty-seven; mitral stenosis, eight; double mitral, nine; aortic regurgitation, one; double aortic, one; there was one case of myocarditis, one of secondary cardiac dilatation, nine of murmurs diagnosticated as functional, and four in which the murmurs were not identified.

Of 1,232 cases of pulmonary tuberculosis studied, sixty-two (5 per cent.) were complicated by cardiac disease. There were thirty-three cases of chronic endocarditis, as follows: Mitral regurgitation, twenty-five; mitral stenosis, seven; aortic stenosis, one. There was one case of pericarditis; eleven cases in which heart murmurs were detected, but their origin undecided; and seventeen in which the murmurs were diagnosticated as functional. The three cardiac cases occurring among the undiagnosticated pulmonary cases, were one mitral regurgitation, one functional murmur, and one murmur of uncertain significance. The cardiac cases occurred chiefly with complicating pulmonary conditions, or without complications of any kind. In summing up the general study of these cases, Seymour says two facts seem significant: First, that one of the most frequent errors encountered in diagnosis is that of pulmonary tuberculosis in cases of uncomplicated chronic endocarditis; and, second, that the combination of these two conditions is not very unusual, and therefore the recognition of an undoubted heart lesion does not preclude the possibility of a coexistent tuberculosis of the lung.

Lancet-Clinic, Cincinnati

September 7, CVIII, No. 10, pp. 249-266

144 Latent Tuberculosis of Infants. B. F. Lyle, Cincinnati.
145 New Procedure for Repair of Upper Portion of Vagina in Cases of Prolapse of Uterus. (Superior Colporrhaphy.) C. A. L. Reed, Cincinnati.
146 Suture Material. C. T. Souther, Cincinnati.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Australasian Medical Gazette, Sydney

July 27, XXXII, No. 4, pp. 81-107

1 Surgical Work in Country Practice. H. South.
2 Subcutaneous Section of Cricoid for Laryngeal Stenosis Following Intubation. G. Croll and A. J. Turner.
3 Action of Chloroform on Blood. J. W. Bean.
4 Scheme for Cultural Diagnosis of Typhoid Practicable in a Public Hospital Laboratory. A. E. Finckh.
5 Case of Ruptured Liver Treated Successfully by Operation. E. H. Binney.

August 3, XXXII, No. 5, pp. 109-136

6 Two Years' Salvarsan Therapy. A. E. Finckh.
7 *Five Hundred Patients Treated with Salvarsan. R. J. Millard.
8 *Three Hundred and Fifty Cases of Syphilis Treated with Salvarsan. E. H. Molesworth.

August 10, XXXII, No. 6, pp. 137-160

9 Fractures and Their Treatment. H. L. Maitland.
10 Two Cases of a Chronic Wasting Disease in Two Brothers, Diagnosed as (Probably) Cases of a Form of Myopathy Akin to Pseudo-Hypertrophic Muscular Atrophy. H. M. Lightoller.
11 Two Cases of Air Embolism. J. E. Dods.
12 Three Cases of Acute Ataxia in Children. W. F. Litchfield.

August 17, XXXII, No. 7, pp. 161-186

13 Effective Range of Infection. J. H. L. Cumpston.
14 Case of Acute Pancreatitis. W. E. Harris.
15 Case of Lobar Pneumonia with Relapse. D. D. Jamieson.

August 24, XXXII, No. 8, pp. 187-214

16 Direct and Indirect Cystoscopy. G. Craig.
17 Deaths from Strychnin Poisoning After Snake-Bite. G. Croll.
18 Some Cases of Ruptured Abdominal Aneurysm. A. Aspinall.
19 Case of Fractured Skull, with Ruptured Middle Meningeal Artery; Operations; Recovery. O. Smithson.
20 Color Sense in Relation to Emotion of Sex. G. H. Taylor.

7. **Salvarsan Therapy of Syphilis.**—The patients treated by Millard comprised: Syphilis: primary, 54; secondary, 286; tertiary, 129; congenital, three; total, 472. Cerebral syphilis, one; general paralysis of the insane, one; locomotor ataxy, three; lateral sclerosis, one; spinal myelitis, two; hystero-paraplegia, one; neurasthenia, two; chorea, three; hystero-epilepsy + chorea, one; leprosy, one; typhoid fever, two; general tuberculosis, one; lupus, one; anemia, two; gonococcal arthritis, three; cancer of tonsil, one; psoriasis, one; sycosis menti, one; total, 500.

In all 966 injections have been given, as follows: First injections: (*a*) Subcutaneous, thirty-five; (*b*) intramuscular, six; (*c*) intravenous, 459—500; second injections, intravenous, 379; third, sixty; fourth, eighteen; fifth, six; sixth, seventh, eighth (in one case), three; total, 966. The intravenous method of administration has been adopted after a brief trial of the subcutaneous and intramuscular methods. For the most part in this series of cases Millard has followed the routine of giving two full doses; *i. e.*, each .6 gm., with an interval of fourteen days. Of the 500 patients, 319 received a second injection and no more. But sixty patients received a third, eighteen a fourth, six a fifth injection, and one patient as many as eight injections in all. Generally speaking any injections after the second have been given on account of persistence of some symptoms of active syphilis in some cases and the persistence of positive Wassermann reaction. Most of the patients were vigorous adult males. For females, children and debilitated subjects, and for cases in which brain and spinal cord was diseased, Millard reduced the dose to .3 gm. or less. Four hundred and nine patients had the Wassermann reaction tested, but in the great majority it was not possible to keep in touch with these cases long enough to make successive observations of the effect on Wassermann reaction of the salvarsan treatment. Generally speaking, when such successive observations have been made the Wassermann reaction has been found to change from positive to negative, but the value of this as evidence of salvarsan efficacy has been discounted by the fact that the patients were generally taking mercury, which may have produced the negative effect. Many instances were observed of the so-called provocative effect of salvarsan, *i. e.*, a negative Wassermann reaction becoming positive after injection of salvarsan, or, if already positive, becoming more marked. This was noted in twelve cases, of which eight were tertiary syphilis, one locomotor ataxy and three secondary syphilis. One case showing obstinate persistence of positive Wassermann reaction is worth quoting in some detail.

The immediate effect on the lesions in active syphilis has been marvelous. If salvarsan could do no more than this it would be a most valuable addition to our therapeutic armamentarium since by speedily healing the chancres, condylomata, mucous ulcers, etc., it thereby seals up the main sources of infection, and must have a potent influence in restricting the spread of the disease. In the parasyphilitic diseases, such as locomotor ataxy, lateral sclerosis, etc., his results have not been encouraging. Generally the patient feels better after the dose, but the organic symptoms remain unimproved.

8. **Salvarsan in Syphilis.**—Comparing the immediate effects of salvarsan with those of mercury and potassium iodid, *i. e.*, with regard to their power of clearing lesions Molesworth says: (*a*) In the primary and secondary cases mentioned in the list not one failed to clear within a month—nearly all in a week to ten days. A little pigmentation was not infrequently left, but this cleared gradually without further treatment. In no primary case did a secondary rash develop. (*b*) Tertiary cases, including huge ulcerations with splinters of dead bone at the base, and measuring in one case over 2 inches across, cleared, granulated, and healed as fast as epithelium could grow over. (*c*) Congenital cases are more obstinate, especially interstitial keratitis, but even this certainly improves, although naturally the cellular infiltration and vascularization of the cornea is slow in clearing in such a spot. Tabes, except in the late stage, seems to greatly benefit.

In the direction of clearing up lesions, this list of 350 cases shows not one lesion which resisted more than three injections, and among them were numerous patients treated for a long time, thoroughly but unsuccessfully, with mercury, some of the lesions occurring during the treatment and persisting in spite of its continuance. In the 350 cases reported there have been about twenty recurrences, all treated early with small doses, intravenous or intramuscular, and two only with three injections given intravenously, and in each of these cases the dose given was .4 gm. or under. Among Molesworth's private patients, none of whom has received fewer than three injections, some four or five, and of whom only one-half have received any mercury, none has recurred. Again, since following the practice in hospital of giving the injections until the Wassermann became completely negative (a practice followed now for nine months), no such case has recurred, although only a very small number have received mercury afterward.

Lancet, London

September 7, II, No. 4645, pp. 675-742

21 Nature, Origin and Maintenance of Life. E. A. Schafer.
22 *Value of Quantitative Albumin Estimation of Cerebrospinal Fluid. J. G. Greenfield.
23 *Quantitative Cutaneous Tuberculin Test. E. C. Morland.
24 *Treatment of Flat Foot. P. B Roth.
25 Coarctation of Aorta in Adult, with Death Due to Rupture of an Aneurysm in Neck. F. P. Weber and F. W. Price.
26 Case of Large Caseous Tubercle of Myocardium. W. J. McKeand and D. M. Reid
27 Case of Very Exuberant Growth of Molluscum Contagiosum. W. Calwell.

22. **Albumin Estimation of Cerebrospinal Fluid.**—The method used by Greenfield in thirty-eight cases of nervous diseases of various kinds is a modification of Noguchi's butyric acid reaction; 2 c.c. of fluid are used, and the result of the test is poured into a graduated centrifuge tube, which gives readings to 0.1 c.c. with fair accuracy; each 0.1 c.c. by this method is equivalent to 0.025 per cent. Small quantities of fluid can thus be examined, and fairly reliable readings obtained from them. Greenfield found that a 0.4 c.c. precipitate corresponds fairly closely to 1 part per 1,000. Normal fluids gave readings of 0.05 to 0.2 c.c. (corresponding to 0.1 to 0.5 part per 1,000). Syphilitic meningitis and parasyphilitic disease gave readings up to 0.6 c.c., or 1.5 per 1,000, but in no uncomplicated case did Greenfield get readings above this level. In many cases of syphilitic nervous disease, even where some lymphocytosis was present, no increase of the albumin content was found, and this, he thinks, was probably owing to the disease being mainly vascular, or to the meningeal inflammation having subsided. Contrary to the statements of some text-books, he found the albumin content raised in tabes dorsalis to as high a degree as in any case of general paralysis examined. In other cases it was not above the normal level, and most often this was so in the chronic cases.

23. **Quantitative Cutaneous Tuberculin Test.**—Morland calls this test the quanti-Pirquet (q.-P. for short). Von Pirquet pointed out the possible quantitative application of his test, but it is comparatively recently that two Danish observers, Ellermann and Erlandsen, have worked out an ingenious method in which the sensitiveness can be determined by a series of simple measurements and the result expressed numer-

ically, thus affording an entirely objective standard of comparison from case to case. Morland has endeavored to simplify the procedure to the utmost and to soften the ruggedness of the calculations. [See THE JOURNAL, 1911, lvi, 856.]

The apparatus required consists of a spirit-lamp, a scarifier, some alcohol, and four different dilutions of old tuberculin (T), viz., 64, 16, 4 and 1 per cent. The most convenient scarifier is the platinum spade used by von Pirquet. The skin of the forearm over the brachioradialis muscle is rubbed with alcohol; the scarifier is held vertically between the thumb and forefinger, and with it four circular holes are drilled in the skin about an inch apart by a rapid twisting movement of the instrument on its long axis. The base of the pits should show vivid pink, but not actually bleed. The dilutions of tuberculin are made with the usual diluent of 0.5 per cent. phenol in normal saline. A drop is now applied to each scarification in turn, the weakest dilution distally (nearest the hand), so that a stronger solution shall not be carried by the lymphatics to a proximal spot. The excess of fluid is sopped up with tiny pieces of sterile wool and the moist spots left to dry for five minutes or so. The sleeve is then gently replaced and the patient instructed not to wash the forearm until the next day, to avoid rubbing or irritating it, and to present himself for observation after twenty-four to forty-eight hours.

The diameter of the resulting papules is measured in millimeters after twenty-four and forty-eight hours and the measurements charted. Only the papule is measured, not the surrounding zone (if present) of hyperemia, and the diameter of the scarification is subtracted as irrelevant. The sensitiveness value is really the inverse of the lowest strength of tuberculin which just gives rise to a reaction. Thus, if 5 per cent. be this strength, 100/5 or 20 is the sensitiveness value; or if 1 per cent. T just gives a reaction, q.-P. 100. The method assumes the possibility of measuring the papules accurately. The calculation further assumes that as the percentage of tuberculin used increases geometrically, the size of the papule only increases arithmetically. For instance, with dilutions 64, 16, 4 and 1 per cent., the papules may be 4, 3, 2, and 1 mm. It is very striking, Moreland says, how when the reaction is positive the papules, regarded as flat disks, fit evenly between two (imaginary) converging lines, and how a negative test is at once apparent by the disks (in this case of traumatic hyperemia only) being all of equal size. Ellermann and Erlandsen suggest that the value 100 is the crucial one clinically; below this point are the inactive, above it the active cases. In Morland's experience values above 100 were all suggestive of active disease; values below 50 of latent or arrested disease.

The application of the determination of q.-P. in practice is: (1) first and foremost, in the deciding of the question whether an existent tuberculosis is in such a condition as to require treatment, what may be called the clinical diagnosis of tuberculosis; (2) as a guide to the progress of a case, if favorable, q.-P. soon falls below the crucial limit; (3) in concluding or excluding the presence of tuberculosis in disease or ill-health where the diagnosis is doubtful; e. g. in bronchial asthma, bronchiectasis, enlarged glands, etc.; (4) in determining the initial dose of tuberculin for a therapeutic course (where q.-P. is high and the sensitiveness accordingly great, a small dose should be chosen to begin with); and (5) in standardizing any particular preparation of tuberculin and comparing two or more preparations.

In drawing a conclusion from the value of q.-P., certain points, Morland says, should be borne in mind: (1) the Pirquet reaction tends to disappear in advanced cases of tuberculosis and in miliary tuberculosis of rapid course; (2) it is constantly absent during the first ten days of measles and in some other transient acute conditions; (3) q.-P. tends to remain high long into convalescence from bone and glandular tuberculosis; and (4) in the negative phase of a tuberculin inoculation q.-P. may be very high, but it is remarkable how rapidly the large papules disappear as the positive phase sets in. The determination of q.-P. gives the degree of tubercular sensitiveness at the moment of examination and is a datum of great importance for diagnosis and as a guide to treatment.

24. **Treatment of Flat Foot.**—A treatment suitable, without slight modification, for all cases of static foot trouble (flat foot), from the early cases which are often described as "weak ankles" to the most severe cases where there is old-standing structural change is what Roth claims for his method. The treatment consists of: (1) attention to footwear; (2) attention to position in standing and walking; and (3) regular daily exercises. Whether boots or shoes are worn, whether they button or lace, they must be the shape of the feet. The inner side of the boot, where the big toe lies, is kept straight, so that the end of the boot is opposite the big toe, and not opposite the second or third toe. This is to ensure that the big toe is not pushed out against the other toes and has plenty of room in which to act. The soles should be a sixth to a fourth of an inch thick, the heels, broad, an inch or less in height.

If the degree of flat foot be anything more than the merest trace, mechanical means are utilized to throw the weight of the body, distributed down the leg, slightly outside the center of the ankle-joint. This is effected by thickening the sole and heel of each boot along its inner side by ¼, ⅓, or ½ inch, the amount depending on the severity of the case; the worse the case the greater the thickening. The additional leather is in the form of a wedge, with its base to the inside and its apex to the outside of the foot, so that the extra thickness on the inside fades off to nothing on the outside. Not only does it fade away outward toward the outside, but situated about an inch behind the tip.

The patient must always stand on both feet with the toes slightly turned in and the heels slightly turned out. He must never stand with the toes turned out, or on one foot to rest the other. Every now and then he must raise the heels just clear of the ground, that is, stand on the toes sufficiently to bring all the muscles of the foot into action. Whenever the feet begin to ache he should do this. In addition, he should stand with the feet very slightly turned over on their outer border. He must walk with the feet pointing straight forward, never with the feet turned out. If the feet are hurting, he must walk all the time very slightly on tip-toe, that, is, with the heels just off the ground. It is a good plan while indoors to walk on tip-toe all the time.

The exercises, to be done the first thing every morning, preferably with the shoes off, are two in number: 1. Standing, alternately heels raising and toes raising. The exercise is repeated from fifty to one hundred times. 2. Sitting on one chair, with the foot projecting over the edge of another, the calf of the leg resting on the seat. Keeping the knee still, the foot is slowly circumducted to its full extent in all directions, down, in, up, out, fifty times; then down, out, up, in fifty times. This treatment is said to remove the pain and discomfort of flat foot. As regards deformity it cures the slight cases, improves the moderate, and prevents the severe ones from getting worse. Even stiff and apparently hopelessly deformed feet get much more supple after a few months of this *régime*.

British Medical Journal, London

September 7, II, No. 2697, pp. 533-588

28 Educational Number, Sessions 1912-1913.

Sei-i-kwai Medical Journal, Tokyo

August 10, XXXI, No. 8, pp. 193-215

29 Analgesic Action of Masnisin. H. Sewaki.
30 *Value of Vaccine Treatment. Y. Takaki.

30. **Value of Vaccine Treatment.**—One hundred cases (*Staphylococcus aureus*, 55; *Streptococcus pyogenes*, 26; *Bacillus coli*, 4; Gonococcus, 14; Pneumococcus, 1) were treated with vaccines by Takaki. The results of these cases were generally favorable. In most cases there was gradual improvement and in certain cases a speedy improvement. In all cases there was no severe reactionary fever. Takaki thinks that the reactionary fever is caused by the injection of too large quantity of the vaccine. So the best way is to inject a small quantity several times instead of a large quantity. For injection both the subcutaneous and intramuscular methods may be adopted, but the latter is less painful and causes neither swelling nor redness afterwards. Any part of the body can be selected as

the quantity injected is usually small. The effect of the vaccine varies in different kinds, but staphylococcus aureus seems to be more effective than the others. The mixed vaccine is not so successful. The auto-vaccine is more effective than the vaccine prepared from other cases, but at times just as effective. Takaki regards the vaccine treatment as a very useful adjunct to ordinary surgical methods. Vaccine treatment alone will not cure all the cases, but it will assist the other methods in bringing the speedy and complete recovery.

Journal of Laryngology, Rhinology and Otology, London

September, XXVII, No. 9, pp. 465-520

31 Serous Meningitis, Choked Disc and Multiple Polyneuritis of Certain Cranial Nerves in a Young Alcoholic Smoker. J. N. Roy.
32 Mechanism of Paracusis (Willisii). F. P. Sturn.

Journal of Tropical Medicine and Hygiene, London

September 2, XV, No. 17, pp. 257-272

33 Examination of Stools for Cysts of Entameba Tetragena. S. T. Darling.
34 Treatment of Leprosy by Nastin. K. S. Wise and E. P. Minett.

Annales de Médecine et Chirurgie Infantiles, Paris

June 15, XVI, No. 12, pp. 353-384

35 Acute Meningeal Syndromes in Course of Infectious Diseases. H. Grenet.
36 Chorea with Symptoms of Organic Nerve Disease. (Chorée de Sydenham avec symptomes nerveux organiques.) H. Grenet and P. Loubet.
37 Chorea and Infections. (Chorée et infection.) J. Roux.
38 Improved Technic for Subcutaneous injection of Oxygen. (Technique de l'hypodermie gazeuse et présentation d'un appareil oxygénateur automatique.) R. Bayeux.

July 1, No. 13, pp. 385-416

39 *Complications of Typhoid Fever in Children. (Quelques complications de la fièvre typhoide chez l'enfant.) Leenhardt, Maillet and Carrieu.
40 Adipose Sclerema in Patches. (Sclerème adipeux en plaques.) H. Triboulet, R. Dumas and Debré.

July 15, No. 14, pp. 417-448

41 Spasmophilia in Children. (Spasmophilie dans l'enfance.—Clinique et thérapeutique.) F. Peruzzi.
42 Dangers of Camphor or Menthol in Local Application in Infant's Nose. (Une pommade camphréé forte, introduite dans les narines d'un jeune enfant, peut avoir les mêmes inconvenients que le menthol.) M. Perrin.

39. **Complications of Typhoid in Children.**—Two boys, brothers, both with typhoid, developed phlebitis in the right or left leg. In another case a girl of 8 had a severe relapse when apparently convalescing from a mild typhoid. Another little girl of 10 had two severe intestinal hemorrhages the tenth and thirteenth day of typhoid. Each time the temperature dropped several degrees. All the children recovered.

Archives des Maladies du Cœur, etc., Paris

August, V, No. 8, pp. 497-560

43 Acute Leukemia in Healthy Young Drug Clerk with Death the Twelfth Day. L. Læderich, R. Debré and Gastinel.
44 Peripheral Venous Pulsation in Case of Aneurysm of the Ascending Aorta. G. Buicliu and D. Danielopolu.
45 Triple Rhythm of Mitral Stenosis. (Le rythme à trois temps du rétrécissement mitral est dû tantot à un dédoublement, tantot à un doublement apexien du deuxième bruit.) C. Lian.

Archives de Médecine des Enfants, Paris

July, XV, No. 7, pp. 481-560

46 *Local and General Reactions in Children to Tuberculin. (Les réactions locales et générales à la tuberculine chez l'enfant.) M. Péhu.

August, No. 8, pp. 561-640

47 Advantages of Seaside Hospitals and Sanatoriums for Surgical Tuberculosis (De l'importance des hôpitaux marins.) J. Calvé.
48 Decompressive Trephining for Brain Tumors; Two Cases in Children. (Trépanation palliative pour tumeurs cérébrales.) A. Broca.

46. **Tuberculin Reactions in Children.**—Péhu reviews the history of tuberculin reactions and the disputed question whether they are actually specific for tuberculosis. Conflicting reports have been published as to positive reactions in other diseases and in the absolutely healthy. Péhu sifts the evidence and concludes that in the present state of our knowledge, the specific nature of the reactions cannot be denied; although their qualitative specificity is not absolutely certain, yet their quantitative specificity—with tuberculin, at least—is beyond question. For estimation of the findings a standardized test tuberculin should be used, and a standard adopted to measure the reaction. As the local and the general reaction to tuberculin occur in many clinically healthy children, it is difficult to draw the line between the sound and the pathologic. The test should be harmless, convenient, and not extremely sensitive; none of the tuberculin tests proposed to date fulfils all these conditions. At the same time, the agreement between the findings with the various tests shows that patent or latent tuberculosis is of more frequent occurrence the older the children. The findings consequently are most reliable in children under 4 years old. Above this age, they may aid in the diagnosis but their clinical value in each case must be critically estimated and not accepted blindly.

Journal d'Urologie Médicale et Chirurgicale, Paris

June, I, No. 6, pp. 737-880

49 *Pyelotomy for Kidney Calculi. P. Bazy.
50 *Roentgenoscopy of the Bladder. (La cystoradiographie.) F. Legueu, Papin and Maingot.
51 *Inflammation of the Verumontanum and Its Direct and Reflex Consequences. (Inflammation du veru montanum.) P. Orlowski.
52 *Asepsis and Infection of Tuberculous Urine. Rafin.
53 *Mode of Onset of Tuberculosis of the Kidney. Rafin.
54 *Epididymectomy for Tuberculosis of Genital Organs. N. Marinesco.

July, II, No. 1, pp. 1-156

55 General Toxicity of Extracts of Enlarged Prostate. F. Legueu and B. Gaillardot.
56 *Descending Infection of the Urinary Passages in Typhoid. A. Lemierre and P. Abrami.
57 *Cystoscopy with Enlarged Prostate. G. Marion.
58 *Obstetric Injury of the Lower Urinary Apparatus. (Troubles de la miction d'origine obstétricale. Destruction et réfection de l'urètre.) A. Guldjoglou.

49. **Pyelotomy for Kidney Calculi.**—Bazy insists that the pelvis rather than the body of the kidney should be incised to remove concrements. This technic does less damage, causes less operative shock and gives rise to fewer complications, primary or secondary. Radiography will show whether the stone is in the kidney or pelvis; when the inner margin is at least 5 cm. from the median line, the stone is in the pelvis. Stones farther from the axis of the trunk than this are in the kidney. He gives skiagrams of three new instructive cases. The shadow is generally on a level with the third lumbar vertebra or the articulation between the second and third or third and fourth. He does not say that it is possible to remove all kidney stones through the pelvis, but that much more can be done in this line than is generally recognized. Another advantage of pyelotomy is that it allows the pelvis and calices to be flushed out. In the three cases reported the infected urine was soon rendered sterile by this means.

50. **Cystoradiography.** — The extensive clinical research reported was done mostly with collargol injected into the bladder. A number of cases are illustrated demonstrating the value of the information thus to be derived in cases of malformation, diverticula, tumors, enlarged prostate, rupture of the bladder and bladder calculi.

51. **Inflammation of the Crest of the Posterior Urethra and its Direct and Reflex Consequences.**—Orlowski ascribes isolated inflammation in this region mainly to sexual anomalies interfering with the normal automatic and immediate reflex constriction of the local vessels. The musculature of the vessel walls and the nerve centers involved become exhausted, and inflammation in the verumontanum is liable to follow. The trouble generally yields promptly to direct local application of 20 per cent. silver nitrate. If there is hypertrophy, a week later he applies the actual cautery, very superficially, once or repeated two weeks later. Retention of urine is combated with hot sitz baths twice a day and a sodium sulphate purge. If more of the posterior urethra is involved, these simple measures would not suffice to cure the affection. The symptoms in one typical case were merely a smarting in the urethra, intermittent and not distinctly localized; this had continued for seven years with an occasional scanty mucopurulent effusion. No benefit was derived from treatment by ten different physicians until the verumontanum was cauterized when all symptoms permanently disappeared. Inflammation of the verumontanum is liable to entail impotency, and he cites cases in which nothing but proper treatment of it restored the sexual functions. The impotency may entail urogenital neurasthenia with disturbances in micturition from cystitis of the neck of the bladder secondary to the conges-

tion of the verumontanum. In five of his cases the neurasthenia had been accompanied by vasomotor disturbances so severe that a cardiac neurosis and dilatation of the heart had been diagnosed. Two of these patients reacted to the local treatment of the verumontanum with an attack of maniacal agitation, but they were cured completely by the local treatment alone; in the three others the results were less favorable, although marked improvement was noted.

52. **Sterility of Tuberculous Urine.**—Rafin found the urine aseptic in seventy-one of 239 tuberculous patients. The bacteria found in tuberculous urine by others are generally due to accidental contamination, so that it may be accepted as a general rule that an aseptic pyuria testifies strongly in favor of tuberculosis.

53. **Onset of Renal Tuberculosis.**—Bladder symptoms were the first to call attention to trouble in 61.87 per cent. of Rafin's 160 patients with tuberculosis of the kidneys. The kidneys themselves caused no revealing symptoms at first in over 80 per cent. Hematuria or turbid urine was the first sign in 5 and 2.5 per cent., general weakness in 2.5, and pain in kidney or bladder with hematuria in 2.62 and 1.87 per cent. Rafin thinks that the kidneys probably had caused early slight symptoms in a larger proportion of cases, but the vague fleeting sensations had been disregarded. In nearly every case he was impressed with the good general appearance accompanying severe tuberculous lesions in the kidney.

54. **Epididymectomy in Genital Tuberculosis.**—Marinesco discusses the history of operative treatment of genital tuberculosis and the indications for it, and reviews the outcome in ninety-six cases in which it was done and thirty-three of the patients reexamined after from one to fifteen years. He gives an illustrated description of the technic and states that a definite cure was realized in twenty-three cases. The lesions in the prostate and seminal vesicles had all healed, and this had occurred the more rapidly in the patients in whom the vas deferens had been most extensively resected. Even after a double epididymodeferentectomy the sexual powers persisted unimpaired.

56. **Typhoid Bacteriuria.**—The elimination of typhoid bacteria by the kidneys seems to be an established fact. This elimination may be accompanied by signs of nephritis as in a patient who had several relapses and at each return of the fever there were intense albuminuria, lumbar pain and hematuria with typhoid bacilli swarming in the urine. As the fever subsided each time the urine returned to normal. Typhoid cystitis may occur with or without appreciable symptoms.

57. **Cystoscopy with Enlarged Prostate.**—Marion's study of this subject is accompanied by twelve illustrations and a colored plate of the findings.

58. **Obstetric Injury of the Urethra.**—Guldjoglou reports several personal cases and summarizes some from the literature—a total of sixteen cases in which practically a new urethra had to be made on account of injury during delivery. He gives an illustrated description of the technic he followed, which proved very satisfactory, and compares it with the others that have been applied. The after-care is of extreme importance and several operations may be needed. (See Abstract 67 below.)

Lyon Médical, Lyons

August 11, XLIV. No. 32, pp. 229-260

59 *Nature of Osteomalacia. (Origine et nature sarcosporidiennes de l'ostéomalacie.) M. Jaboulay.

August 18, No. 33, pp. 261-296

60 Subaortic Stenosis. (Le rétrécissement sous-aortique pur.) Bret and B. Perducet.

59. **Parasitic Origin of Osteomalacia.**—Jaboulay concludes from histological study of a case of osteomalacia, beginning with a simultaneous fracture of the left humerus and femur in 1905, and terminating in death in 1908, that it is an infectious disease caused by the group of protozoa known as sarcosporidia. The new growth caused by these organisms results in the so-called spontaneous fractures so common in this disease. Treatment, therefore, should be by measures destructive to protozoa.

Presse Médicale, Paris

August 24, XX, No. 69, pp. 701-712

61 *Etiology of Scarlet Fever. (Les travaux récents sur l'étiologie de la scarlatine.) C. Levaditi.

62 Organotherapy of Backward Children. (Les enfants "arriérés.") R. Dupuy.

August 28, No. 70, pp. 713-720

63 Ischemic Contracture. (Ce que le médecin doit savoir de la rétraction musculaire ischémique.) A. Binet.

64 Echinococcus Disease of the Fourth Ventricle. (Cysticercose du quatrième ventricule cérébral.) H. J. Cazeneuve and G. Laurès.

61. **Scarlet Fever.**—Levaditi gives an oversight of what has been accomplished to date in the transmission of scarlet fever to monkeys and anthropoid apes. The latter are more susceptible and develop a disease closely resembling scarlet fever in man when they have been inoculated with the virus. The nature of the virus is still unknown, but it seems to be present in the tonsils, tongue, blood, lymph-nodes and pericardial fluid. He gives illustrations of the positive findings in an orang-outang inoculated with the virus at the Paris Pasteur Institute.

Revue Pratique d'Obstétrique et de Gynécologie, Paris

July, XX, No. 7, pp. 193-220

65 *Shoulder Presentation. (Des présentations irréductibles de l'épaule.) G. Ziegelmann.

66 Ferric Chlorid Test for Acidosis in Vomiting of Pregnancy. (L'urodiagnostic et uropronostic des vomissements graves de la grossesse par le perchlorure de fer.) V. Le Lorier.

August, No. 8, pp. 221-252

67 *Obstetrical Injury Interfering with Micturition. (Troubles de la miction d'origine obstétricale. Destruction et refection de l'urèthre chez la femme.) A. Guldjoglou. Commenced in No. 6.

68 Ovarian Cyst with Pregnancy; Three Cases. (Kystes de l'ovaire ou du parovaire et grossesse.) J. Vanverts.

65. **Irreducible Shoulder Presentation.**—Ziegelmann warns that rupture of the uterus may occur even with gentle maneuvers, and that the obstetrician should always be prepared to do a hysterectomy in cases of impacted shoulder presentation. If embryotomy is required, the head may be left behind. The entire urogenital apparatus should be carefully investigated after embryotomy to be sure that no injury has been accidentally done to the walls.

67. **Pregnancy or Obstetrical Injury Interfering with Micturition.**—Guldjoglou emphasizes that it is important during the pregnancy to be on the lookout for disturbances in micturition and ward off the complications liable to result when there is retention of urine and the uterus is in retroversion. In case there is incontinence from the urethra's being insufficient, its lumen should be made narrower or its curve made sharper or a resistant support for it be provided in some way. Sixteen cases are summarized from the literature to show the different technics that may be applied in case of obstetrical destruction of urethral tissue and the indications for them. Unduly prolonged pressure from the head is generally responsible for both functional and destructive injury of the urethra, so the accoucheur should be on the alert to avert this. The article is about the same as that by the same author mentioned in Abstract 58 above.

Semaine Médicale, Paris

September 4, XXXII, No. 36, pp. 421-432

69 Rôle of the Gonococcus in the Origin of Pyosalpinx. R. de Bovis.

Berliner klinische Wochenschrift

August 19, XLIX, No. 34, pp. 1597-1644

70 Gout. (Diagnose, Wesen und Behandlung der Gicht.) T. Brugsch.

71 *Acromegaly with Enlargement of Intestinal Organs. (Zur Lehre der Splanchnomegalie bei Akromegalie.) C. Amsler.

72 The Growth of Cells. (Ueber Zellenwachstum.) A. Adamkiewicz.

73 *Chemotherapy. (Zur Frage der "rationellen" Chemotherapie.) A. Sternberg.

74 Diarrhea after Hormonal; Three Cases. (Ueber Hormonaldurchfall.) W. Kausch.

75 Roentgenotherapy in Gynecology. M. Fränkel.

71. **Acromegaly with Splanchnomegaly.**—Amsler compares his case with two reported in 1906 by Löwenstein. His patient was a man of 41 with a hypophysis tumor, acromegaly and hyperplasia of the spleen, kidneys and pancreas, heart, adre-

nals and liver, the latter three showing also some hypertrophy. Diabetes developed in the course of the acromegaly. He discusses the possible mechanism of the various elements of the syndrome, remarking that the hypophysis may be responsible for idiopathic hypertrophy of the heart in certain cases. It is even possible that the hypophysis has something to do with the development of arteriosclerosis and arteriosclerotic contracted kidney. In future greater attention should be paid the hypophysis in these conditions, examining it under the microscope and also examining the adjoining region, as aberrant hypophysis tissue is sometimes found in the sphenoid bone and upper pharynx wall.

73. **Rational Chemotherapy.**—Sternberg theorizes to explain why no substance of the nature of tuberculin can be detected in the sputum, serum or effusions of tuberculous patients. Tuberculin may be regarded as an artificially produced aggressin. Reasoning from these premises he has been utilizing tuberculin as an elective vehicle to transport drugs to the disease process. He explains the focal tuberculin reaction as the result of activation of the tubercle bacilli in the focus by the tuberculin, which is an aggressin-body The logical therapeutic preparation therefore would be one that contains as little as possible of the tuberculin vehicle, no more than would be neutralized by the antibody on hand; this would permit the drug for which it is serving as a vehicle to exert its powers uninterfered with. His research indicates that tuberculin from bovine or fowl tuberculosis might prove most effectual, as they have a pronounced affinity for local tuberculous processes although the reaction they induce is minimal.

Correspondenz-Blatt für Schweizer Aerzte, Basel

August 20, XLII, No. 24, pp. 889-920

76 Endovesical Operations. (Leistungsfähigkeit endovesikaler Operationsmethoden.) F Suter.

September 1, No. 25, pp. 921-968

77 Congenital Dropsy (Hydrops universalis neonati mit komplizierender kongenitaler Mitralstenose.) E. Ludwig.
78 Peculiar Case of Carbon Monoxid Poisoning. (Kohlenoxydvergiftung.) P. Deus. Commenced in No. 24.
79 Intramuscular Etherization. (Die intramuskuläre Aetherisierung.) Dumont.

Deutsche medizinische Wochenschrift, Berlin

August 15, XXXVIII, No. 33, pp. 1531-1576

80 *Arteriosclerosis. H. Hochhaus.
81 Electrocardiography. (Die klinische Bedeutung des typischen Kammer-Elektrokardiogramms.) A. Hoffmann.
82 *Causes of Emphysema. (Zur Pathogenese des Lungenemphysems.) L. Hofbauer.
83 *Tubercle Bacilli in the Blood. (Tuberkelbazillen im strömenden Blute.) P. Ranström.
84 *Sulphur Reaction in the Urine with Cancer. (Untersuchungen über den Wert von Saxls Schwefelreaktion bei Karzinom in den Verdauungsorganen.) O. V. C. E. Petersen.
85 *Diagnostic Importance of Chondroitic Acid in the Urine. (Chondroiturie und fakultative Albuminurie.) H. Pollitzer.
86 *Detection of Scanty Helminth Ova in Stool. (Ein neues Verfahren zur Auffindung spärlicher Parasiteneier in Faeces.) S. Yaoita.
87 Present Status of Treatment of Congenital Dislocation of the Hip Joint. (Behandlung angeborener Hüftverrenkungen.) Joachimsthal.
88 Operations on Common Bile Duct. (Statistisches über 367 Choledochotomien.) A. Brüning.
89 *Postural Prophylaxis of Complications on the Part of the Lungs after Operations. (Ueber prophylaktische Hochlagerung und Lagewechsel nach Operationen.) A. Wagner.
90 Poisoning from Food Suggesting Focal Cerebral Disease. O. Meyer.

August 22, No. 34, pp. 1577-1624

91 Thrombosis. H. Ribbert.
92 Improved Technic for Immunization Against Trypanosomes. II. (Neues Immunisierungsverfahren gegen Trypanosomen-Infektionen.) C. Schilling.
93 *Diphtheria Bacilli in the Urine. (Absonderung von Diphtheriekeimen durch den Harn.) H. Conradi and Bierast.
94 Action of Mercurial Preparations on Spirochetes. (Untersuchungen über die Wirkung von Quecksilberpräparaten auf Spirochätenkrankheiten.) W. Kolle, M. Rothermundt and S. Peschié.
95 Anaphylactoid Phenomena After Repeated Injection of Salvarsan. O. Brückler.
96 Combination of Drugs. (Kombination von Arzneimitteln) M. Kochmann.
97 Vaccine Treatment of Hay Fever. (Die immunisatorische Behandlung des Heufiebers nach Wright.) H. Ellern
98 Paroxysmal Dilatation of Large Arteries. (Ueber paroxysmale Erweiterung grosser Arterien.) E. Schlesinger.
99 Bolus Alba as Aid in Surgical Disinfection. (Bakteriologische Untersuchungen über Händedesinfektion nach der "Bolusmethode Liermann.") Küster and A. Geisse.
100 Fracture of the Femur with Contracture of the Knee. (Weiterer Beitrag zur typischen Oberschenkelfraktur bei Knochenatrophie und Kniegelenkskontraktur.) R. Hagemann.
101 *Early Diagnosis of Pulmonary Tuberculosis. Schultes.

80. **Treatment of Arteriosclerosis.**—Hochhaus emphasizes anew the supreme importance of removing the cause, or at least attenuating it, mentioning alcohol, tobacco, coffee, gout, diabetes or nephritis as possible causes and a too strenuous life with inadequate periods of rest. Suggestion to reassure the frightened patient is also important, and he urges to refrain from calling the trouble calcification of the arteries; this term seems to have a peculiarly depressing influence on patients as it implies irreparable changes. Mild hydrotherapy is useful and cautious Swedish exercises and massage. If the heart action seems to be insufficient, he gives small doses of digitalis, sometimes for months and years, his prescription calling for the pulverized leaves and quinin sulphate, *aa* 1.5 gm., to be made into thirty pills, three of which are to be taken during the day. If there are accompanying subjective symptoms on the part of the heart, he gives in addition valerian or bromids with cold applications to the heart region. He remarks in conclusion that arteriosclerosis does not require treatment, especially in the elderly, unless it is causing actual disturbances.

82. **Origin of Emphysema of the Lung.**—Hofbauer says that the one factor common to all the various causes to which pulmonary emphysema is generally attributed, is that these causes all induce exaggeration of inspiration, while expiration remains the same as usual. Too much air is taken in for the amount expelled, and emphysema results from the excess of residual air.

83. **Tubercle Bacilli in the Blood.**—Ranström claims to have found tubercle bacilli in the blood of nine out of twenty-nine patients in the third stage of tuberculosis. In this group of nine the temperature was irregularly and intermittently febrile, and eight of these patients died within a year. None of the afebrile patients had tubercle bacilli in the blood.

84. **Sulphur Reaction in Urine with Cancer.**—Petersen obtained a positive reaction in two of twenty-seven nonmalignant cases, in thirteen of twenty cancer suspects, and in all but two of his nineteen cases of cancer. The contradictory findings were explained by cirrhosis of the liver in the two positive non-cancer cases, and by the concomitant severe jaundice in the two negative, certain cancer cases. These findings confirm anew the value of the test for cancer in the gastro-intestinal canal. (The technic was described in The Journal, Aug. 31, 1912, p. 738.)

85. **Chondroitic Acid in the Urine as Delicate Sign of Kidney Disease.**—Pollitzer calls attention to an excess of chondroitic acid in the urine as the earliest sign of a kidney lesion. It may be observed before even the microscope can detect anything pathologic. Chondroitic acid occurs in all varieties of cartilage, and in minute amounts is a normal constituent of the urine. It is one of the most active albumin-precipitating acids known. Acetic acid sets it free from its combinations in the urine, effusion or sputum, and at once any albumin present is rendered evident by the immediate turbidity of the fluid which follows. There are always traces of serum albumin in the urine and this is the cause of the minimal turbid cloudiness of the urine on addition of acetic acid in case of chondroitic aciduria. If the urine is shaken up with chloroform this removes the albumin and there is no further turbidity on addition of acetic acid, although the chondroitic acid is still present. But addition then of even a minute amount of albumin restores the opalescence. The chondroitic acid may not respond to the acetic acid because there is too little albumin present or because there is so much albumin that the chondroitic acid is choked, and the test does not become positive until most of the albumin has been removed. Permanent chondroiticaciduria is the rule, Pollitzer asserts, in individuals with orthostatic, "facultative" albuminuria, and it seems to occur regularly in the triad of coccus infections, acute articular rheumatism, endocarditis and chorea, which most clinicians now trace to chronic tonsillitis. The chondroiticaciduria with febrile tonsillitis preceded the albuminuria in the cases he examined and persisted long after the subsidence of the latter and of the angina. The chondroiticaciduria was very pronounced in his endocarditis cases, especially in the dragging septic type. It

may thus be regarded as the manifestation of damage of the kidney, for which chronic tonsillitis is generally responsible, although it is liable with other infections, typhoid, etc. He has never found the chondroitic acid in the blood, but it is found locally in destructive inflammatory processes. It was very abundant in the effusion in one case of severe polyserositis although the urine had only the normal proportion. Chondroitic acid is probably the essential agent in the Rivalta acetic acid test for albumin in the sputum, as a sign of its tuberculous inflammatory character.

86. **Scanty Ova in Stools.**—Yaoita uses a strongly alkaline solution of sodium hypochlorite with an equal amount of ether; this mixture rapidly disintegrates food particles while not appreciably affecting the ova. The latter settle in the tip of the centrifuge glass.

89. **Postural Prophylaxis of Postoperative Complications.**—Wagner protests against waiting for complications to develop before raising the patient's shoulders. He thinks this should be done systematically after all major operations, whether done with general or local anesthesia. He generally raises the head of the bed four to sixteen inches and he has not lost a patient from postoperative pneumonia since he has been doing this. Children are particularly grateful for being allowed to partly sit up, and young and old benefit alike. He raises the foot of the bed when there has been much loss of blood, and states that nothing else has such a marked influence in bringing the pulse up, sometimes accomplishing this when stimulants and infusion have all failed. In case of postoperative paresis of the bowel, turning the patient from his back on his side will often work wonders. A change of position is also often of supreme benefit in case of dilatation of the stomach and distention with air. The foot or head of the bed can be raised with the patient lying prone. This proved particularly effectual for a large abscess in the mediastinum. The abscess was drained and it promptly healed as the patient lay on his stomach with the foot of the bed raised. In no other position would it have been possible to prevent the spread of the pus inside.

93. **Diphtheria Bacilli in the Urine.**—Conradi and Bierast found scanty diphtheria bacilli in the urine in fifty-four of 155 diphtheria patients or convalescents examined. In thirty-two of the fifty-four positive cases the urine was from men or boys. In one case the bacilli were found seven weeks after the boy of 7 had apparently entirely recovered from diphtheria lasting two weeks. The bacilli were always few and far between, but the findings impose the necessity for disinfecting the urine of diphtheria patients. The facts cited may throw light on the development of pseudomembranous colpitis, gangrenous vulvitis and diphtheric skin affections. Infected urine might also prove a source of contamination of milk.

101. **Early Diagnosis of Tuberculosis.**—Schultes insists that the general and febrile reaction to subcutaneous injection of tuberculin is decisive only when râles develop at the same time at the apex. Large doses are less instructive than those of 5/100 or 5/10 of a milligram. On suspicion of neurasthenia, the large doses should be avoided with special care as they are liable to do much harm in the neurasthenic.

Jahrbuch für Kinderheilkunde, Berlin

August, LXXVI, No. 2, pp. 125-246

102 Starch Dyspepsia in Infants. (Zur Pathologie des Mehlnährschadens der Säuglinge.) B. Salge.
103 *School as a Factor in Epidemic Poliomyelitis. (Schule und epidemische Kinderlähmung.) J. Langer.
104 Case of Traumatic Pseudomeningocele Combined with Internal Hemorrhagic Pachymeningitis. R. Schindler.
105 Calcium and Phosphorus Metabolism on Cow's Milk. (Ueber den Kalk- und Phosphorsäurestoffwechsel des Säuglings bei knapper und reichlicher Ernährung mit Kuhmilch.) G. Wolff.
106 *The Eruption in Measles, and Its Transmission. (Ueber Masernexanthem und Masernübertragung.) E. Goetze.

103. **School as a Factor in the Spread of Epidemic Poliomyelitis.**—Langer reports a study of poliomyelitis in the schools at Steiermark. In addition to his own cases he obtained detailed information from the teachers in regard to all cases reported during the epidemic of 1909. He concludes that the school is a source of infection, and that all possible prophylactic measures should be taken to avoid the spread of the disease in this way. In support of this conclusion he mentions that he had sixty cases during the school year and only thirty-seven during vacations. Where there were several cases in different classes in the same school, twelve times there were two cases in the same class, twice, three cases and once five cases. In six schools the patients were seat-mates and in ten classes only children of the same sex were affected (seven times only girls, three times only boys). In the majority of cases it was found that the children went to and from school together or were closely associated in their daily life. Some children were taken sick in classes where there had been no previous cases, but they had been visited by the brothers or sisters of patients. On the other hand, in some instances there was only one case in a school or a class, though on account of the lack of knowledge of the disease no quarantine precautions had been taken. Where there were several cases in a class, the time between them was occasionally even longer than six weeks; in a few instances two cases occurred at the same time, showing that there must have been some outside source of infection. At the time of the school epidemics there were also cases among the children of the neighborhood outside of school. He gives detailed reports from twenty-one schools.

106. **The Eruption of Measles.**—Goetze concludes that the eruption is only a symptom, not peculiar to measles, but occurring in many other infectious diseases. He cites cases from Lührmann, Schilling, Kartulis, F. Müller and other authors of exanthemata very similar to that of measles, occurring in dengue, bilious typhoid, Rocky Mountain fever and other infections. He has found that measles can be transmitted to hogs. In animal experimentation the injection of the virus of measles causes marked changes in the pulse and temperature curves during the prodromal period. Seven curves are given.

Medizinische Klinik, Berlin

August 18, VIII, No. 33, pp. 1339-1374

107 The Ear and Acute Infectious Diseases. R. Eschweiler.
108 Thermal Baths and Hemorrhage. (Blutungen und mässigwarme Thermalkuren.) W. Schulhof.
109 Calcium Metabolism During Digestive Disturbances. (Der Kalkstoffwechsel bei Verdauungsstörungen.) Krone.
110 Disadvantages of Plugging the Frontal Sinus. (Empfiehlt sich die Plombierung der Stirnhöhle nach Citelli?) Engelhardt.
111 Measuring Distance Between the Pupils. (Weiterer Beitrag zur Bestimmung des Pupillarabstandes.) R. Helmbold.
112 Anaphylaxis, Non-Coagulation of the Blood and Ferment Toxicity. (Ueber Anaphylaxie, Ungerinnbarkeit des Bluts und Fermentgiftigkeit.) G. Salus.

August 25, No. 34, pp. 1375-1412 and Supplement

113 Present Status of Serotherapy in Streptococcus Infections. F. Heimann.
114 General Paralysis. (Diagnose und Differentialdiagnose der progressiven Paralyse.) M. Arndt.
115 *Causal Treatment of Diabetes. C. Funck. Commenced in No. 33.
116 Lime Contents of Mineral Waters. (Kalkgehalt unserer Mineralwässer.) C. Schütze.
117 *Antitrypsin Test for Cancer. (Diagnostische Bedeutung des Antitrypsingehalts des Blutserums beim Krebs und bei anderen Erkrankungen.) A. Citronblatt.
118 Treatment of Anthrax. (Behandlung des äusseren Milzbrandes.) B. Pericic.
119 Action of Gelatin by the Mouth on the Viscosity of the Blood. (Die Wirkung der internen Darreichung der Gelatine auf die Viscosität des Bluts.) E. Cmunt.
120 Experimental Bacteriologic Research on Action of Dermatologic Applications. (Beeinflussung des Bakteriengehalts der Haut durch dermatologische Behandlungsprozeduren.) S. Hidaka.
121 Results of Modern Orthopedics. M. Böhm.

115. **Causal Treatment of Diabetes.**—Funck expatiates on the progress that will be realized when the individual cases of diabetes are studied to determine the predominating factors in the disease. The evidence to date points to a constitutional inferiority of the glands in charge of carbohydrate metabolism—particularly the pancreas. The pathologic factor responsible for this inferiority may act on these glands directly or indirectly by inhibiting the vicarious action of certain other organs or functions. This predominating primary factor was a chronic catarrhal bowel trouble in one of the cases cited; the patient was a woman of 38 with symptoms of diabetes and neurasthenia and diarrhea for about two years. Under a course of treatment for the bowel trouble,

in eighteen days the sugar in the urine dropped from 200 per day to zero and has not returned during the year since although there have been no restrictions in the matter of diet. Funck calls attention to the information liable to be obtained by examining the urine voided at different parts of the day. Curves may thus be obtained which suggest a clue to the primary factor. In one case the sugar output seemed to be due to a reflex act elicited after each meal by the presence of food in the stomach. The proportion of sugar at 10 a. m. was 0.4 per cent. Fifteen minutes after dinner there was sudden desire to urinate and the proportion of sugar gradually increased to 1.1 per cent. by the third hour. Examination four years before had shown 2.6 per cent. in the total urine. The patient was a man of 46 and after a course of feeding exclusively by the rectum, to avoid the reflex influence from food in the stomach, he was freed entirely from the glycosuria. Now, nearly a year later, he can eat starchy foods and nearly a quart of milk a day, up to 2,300 calories, without any further sugar in his urine. In the third case the diabetes accompanied in a child of 2 an inherited, almost absolute, insufficiency of the digestive apparatus. Achylia gastrica is not unusual in diabetics. In some cases the metabolism may be upset by an excessive protein diet; in others the tendency to diabetes remains latent until aroused by some excess in eating and exacerbation of an old colitis, for example, as in a case described. There was usually complete tolerance for carbohydrates, but three or four days after a banquet from 0.2 to 0.4 per cent. sugar was found in the urine voided after dinner. Large doses of tannin, rinsing out the intestines and a frugal starch "colon diet," with abstention from meat for three or five days, put an end to the glycosuria each time. Others have recently reported the permanent subsidence of glycosuria under lavage of the stomach, dietetic treatment of enteritis, treatment of neurasthenia, salvarsan treatment of a syphilitic pancreatitis with 5.4 per cent. sugar, or thyroid treatment or treatment of uricacidemia. We have no criterion as yet to determine whether the diabetes is still in its first stage, that is, still amenable to treatment directed to removing the cause. After this stage is past, then the ordinary measures in vogue are applicable alone. The only safe way is to take it for granted that the diabetes is still in the first, curable stage and spare no pains to discover the causal factor in the digestive tract, liver, sympathetic system, thyroid or epinephrin-producing glands.

117. **Proteolytic Test for Cancer.**—Citronblatt reports positive findings with the antitrypsin test (Brieger) in 90 per. cent. of ninety-nine cancer patients, in two typhoid and in two gall-stone cases; negative in the numerous controls.

Monatsschrift für Kinderheilkunde, Leipsic

July, XI, No. 3, pp. 93-140

122 *Pleural Empyema in Infants. (Zur Klinik und Therapie des Pleuraempyems bei Säuglingen.) F. Zybell.
123 Salt Fever. (Ueber das sogen. Kochsalzfieber.) S. Samelson.
124 Experimental Research on Dogs in Regard to Action of Sugar. (Untersuchungen am Hunde über die Wirkung des Rohr- und Milchzuckers.) P. Heim.

122. **Pleural Empyema in Infants.**—Zybell reports twenty-two cases of empyema, only three of which were in children over 1 year old, the oldest being 15½ months. He cites further 145 cases from Nathan, 32 per cent. of which were during the first year and 21 per cent. during the second year of life. Lewis Smith observed thirty-nine cases, 36 per cent. of them in infancy. The physical findings are not typical as they are in adults, and the only reliable means of diagnosis is by puncture. As it is entirely without danger in the youngest children, he declares, it should be resorted to in every doubtful pulmonary case. Even then errors may be made as the trocar may enter a purulent focus in the lung itself. In infants the pyogenic process shows a marked tendency to extend to the lungs and to other serous membranes. In fifteen of the twenty-two cases there were complications of this kind: in seven a purulent pneumonia, in two each purulent pericarditis, dry perisplenitis or purulent arthritis; in four purulent otitis media, and in five general furunculosis and deep-seated abscesses. In several cases two or more of these complications were combined. The mode of onset is variable, sometimes very sudden, sometimes quite chronic. The most marked respiratory symptom is dyspnea, sometimes accompanied by a harsh dry cough and frequently by cyanosis, mild or severe in degree. Frequently, however, the respiratory symptoms are less pronounced than alimentary—loss of weight and appetite, vomiting and diarrhea. These with slight or negative physical findings frequently lead to errors in diagnosis. Neither is there any typical temperature curve. In three of these cases the temperature curve was practically normal throughout and in two others only moderately elevated. The height of the temperature is no index to the severity of the infection. The weight curve is more reliable (five temperature and weight curves are given). The infecting organism in the majority of cases was the pneumococcus. Three cases showed streptococci and one a mixed infection of streptococci and staphylococci; one case was tubercular. In adults, rib resection is the best operative procedure, but in infants it shows an appallingly high mortality. Zybell has collected eighty-two cases in infants under 1 year from the literature, seventy-two of which were fatal; in older children, eighty-four cases with sixty-three deaths. Simple puncture repeated as often as necessary he considers the best measure. He has collected thirty-one cases from the literature with twenty-seven recoveries. Of his own twenty-two cases, one was discovered only at necropsy. In two cases rib resection was done; both infants died. In five cases the empyema was drained by passing a rubber drain through a trocar. One of these infants recovered. One was punctured and the focus washed out with salt solution. This patient died, and he thinks the washing was partly responsible for the death. Thirteen patients were simply punctured. Two of these were in a practically moribund condition on entrance. Six of the other eleven recovered.

Münchener medizinische Wochenschrift

August 20, LIX, No. 34, pp. 1841-1888

125 *Combined Treatment of Cancer. (Behandlung und Heilung von Krebskranken durch innerlich und äusserlich angewendete medikamentöse Mittel.) A. Zeller and V. Czerny. Concluded in No. 35.
126 *Inflation of Rectum as Aid in Diagnosis of Latent Appendicitis. (Zur Diagnose der chronischen bezw. Intervall-appendizitis.) L. Dreyer.
127 Advantages of Raising the Pelvis as Aid in Version and Other Obstetrical Measures. H. H. Schmid.
128 Advantages of Primary Ether Anesthesia in Obstetrics. (Aetherrausch.) H. H. Schmid.
129 *Local Anesthesia and Agraffes for Suturing Perineal Tears. (Dammnaht.) H. H. Schmid.
130 *Connection Between Early Rising After Childbirth and Dyspepsia in Infants. H. H. Schmid.
131 *Carbonated and Oxygenated Baths for Infants. H. H. Schmid.
132 Technic for Roentgen Irradiation. (Vergleichsversuche mit Röntgeninstrumentarien.) E. Hergenhahn.
133 Protest Against Kehr's Criticism of Certain American Surgeons. (Einiges zu dem Artikel von Prof. Dr. Hans Kehr: "Ueber Duodenalgeschwüre.") F. Trendelenburg.
134 *Epidemic Appendicitis. (Epidemiologisches zur Appendizitis.) O. Lanz and German.
135 Experiences with Salvarsan. G. L. Dreyfus. Commenced in No. 33.
136 Roentgenoscopy of Action of Purgatives on Intestines. (Roentgenuntersuchungen über den Einfluss der Abführmittel auf die Darmbewegungen des gesunden Menschen.) F. Meyer-Betz and T. Gebhardt.

125. **Combined Non-Operative Treatment of Cancer.**—Zeller's work in this line was described in the Berlin Letter in The Journal, Sept. 7, 1912, p. 815.

126. **Inflation of Rectum as Aid in Diagnosis of Latent Appendicitis.**—Dreyer inflated the rectum with air in three cases with a history of recurring mild appendicitis but with no tenderness or other sign suggesting chronic trouble in the intervals. The gradual inflation caused no symptoms at first, but as the air made its way upward in the bowel and reached the region of the appendix, the patients began to complain at once of pain around the umbilicus and in the cecum region, the sensations similar to those during their previous inflammatory attacks or the pain brought on by horseback riding. Inflation of the rectum in some other patients free from any tendency to appendicitic trouble failed to elicit any sensations. This rectum inflation method may serve also in the study of the sensitiveness of the viscera.

129. **Technic for Suturing Perineal Tears.**—Schmid extols the advantages of the Braun technic for local anesthesia, suturing in tiers and using clips instead of suturing the skin.

130. **Connection Between Early Rising and Infant's Dyspepsia.**—Schmid found that the infants began to have digestive disturbances as soon as the mother was allowed to leave the bed. He found the explanation of this to be that the mothers took up the child whenever it cried and let it nurse, instead of feeding it only at regular intervals as is the rule when the mother is kept in bed. It is such a serious handicap to an infant to get digestive disturbances before it is a week old, that Schmid has now given up the advantages for the women of early rising to save the infants from the consequences of the mothers' heedlessness which he has found it impossible to control. As soon as the nurse's back is turned the mother is liable to feed her babe anew.

131. **Carbonated Baths for Infants.**—Schmid has found carbonated or oxygenated baths useful as a means of applying stimulation to the skin of prematurely born and other weakly infants.

134. **Epidemic Appendicitis.**—Lanz reports three instances in which an epidemic febrile streptococcus sore throat was followed by the simultaneous occurrence of two or three cases of appendicitis in the same family. German reports three recent cases in which the appendicitis seemed to coincide with the angina. In Lanz' cases the streptococcus was cultivated from the appendix, and he urges the necessity for prophylactic purging in every case of febrile sore throat. Appendicitis following the latter or of traumatic origin seems to display a special tendency to gangrene, and trauma is certain to cause perforation if the appendix was not entirely sound before the accident.

Wiener klinische Wochenschrift, Vienna

August 22, XXV, No. 34, pp. 1279-1310

137 *Operative Treatment of Pulmonary Tuberculosis. J. Sorgo.
138 Fracture of the Larynx; Two Cases. Advantages of Tracheotomy. (Ruptur der Trachea und Perforation des Oesophagus bei Larynxbrüchen.) H. Koerbl.
139 Perforation of Cheesy Lymph-Node Into Aorta First Manifestation of Tuberculosis. (Durchbruch einer verkästen Lymphdrüse in den Arcus aortæ.) K. Bauer.
140 Acute Somnambulism from Toxins Absorbed from Undiagnosed Dental Periostitic Process. R. Goldmann.

August 29, No 35, pp. 1311-1342

141 *Benzol in Treatment of Leukemia. G. Kiralyfi.
142 Hog Cholera in Man. (Schweinerotlauf beim Menschen.) G. Günther.
143 *Autohemotherapy in Cancer. (Aus dem Gebiete der Krebsforschung. II) A. Krokiewicz.
144 Conjugal Cancer. (Zur Berechung des Cancer à deux.) S. Rosenfeld.

137. **Operative Treatment of Pulmonary Tuberculosis.**—Sorgo dismisses as not having proved their usefulness all operative measures except artificial pneumothorax and thoracoplastics. These alone seem to have a future, judging from the experiences to date. He has applied the therapeutic pneumothorax in forty-five cases of pulmonary tuberculosis, and is convinced that this is the most effectual operative procedure known to date and that its application is justified in all cases of severe unilateral phthisis. The great trouble with it seems to be that the other lung is rendered less resistant. He found that patients constantly lost weight under the artificial pneumothorax, and this in turn had an unfavorable action on the other lung. The main point consequently in this compression treatment of the lung is to ascertain that the other lung is sound or at least that any process in it is mild, restricted to the apex and displaying a benign tendency. The outcome seems to depend entirely on this lung.

141. **Efficacy of Benzol in Leukemia.**—Kiralyfi gives the experiences to date with this method of treatment inaugurated by Koranyi not long ago. (Koranyi's first report on the subject was summarized in The Journal, Aug. 31, 1912, p. 755.) Seven patients with leukemia have now been given systematic benzol treatment. It is prescribed with equal parts olive oil, 1 gm. of the mixture in each capsule. Four capsules a day are taken at first, increasing to two capsules five times a day. The leukocytes return to normal numbers and the leukemic lesions subside. In some of the cases reported, the leukocytes dropped from 300,000 to 8,000 under the benzol when nothing else previously, not even Roentgen ray exposures, had had any influence on their numbers. The other symptoms of leukemia subsided likewise. The course of treatment varied from three weeks to five months, the age of the patients from 21 to 69. The results of benzol treatment in a case of polycythemia suggest that possibly it may prove able to regulate the blood production in this affection also. The interval since in all the cases has been too short to determine whether the cure is permanent. The leukemia was mostly of the myeloid type. In the one lymphatic case, the benefit was apparent exceptionally early, the leukocytes dropping to 7,200 in three weeks from 131,200 at first. A year before, under twenty exposures to the Roentgen rays, the leukocytes dropped from 80,000 to 40,000 but the lymph-nodes grew larger. One woman responded atypically to the benzol; the leukocytes were at first 140,000 and declined only to 100,000 under three weeks of benzol treatment. It was then suspended and the leukocytes increased in five days to 290,000 and then dropped in ten days to 65,000 and in fifteen more to 15,000. The other symptoms of leukemia showed marked benefit from the start; the fever and enlargement of the spleen soon subsided.

143. **Autohemotherapy in Cancer.**—Krokiewicz reports thirteen cases of cancer in which he drew 6 c.c. of blood from the median vein and reinjected it at once into the subcutaneous tissue in the chest, repeating the procedure at eight or ten day intervals. In the advanced cases the pains and vomiting were favorably influenced; the patients slept and ate better and regained more energy. In some cases the general condition took a marked turn for the better. This was especially marked when this autohemotherapy was applied after excision of the cancer. Convalescence seemed to be materially promoted.

Zeitschrift für Kinderheilkunde, Berlin

August, IV, No. 5, pp. 365-450

145 Tendency to Lithiasis in Children in Hungary. (Die infantile Lithiasis in Ungarn.) J. v. Bokay.
146 *Dangers of Piercing the Ears for Earrings. (Das Ohrringstechen und seine Gefahren, insbes. die tuberkulöse Ansteckung der Stichöffnungen.) A. Epstein.
147 Research on Rachitis. (Was lehrt mein Rachitismaterial?) R. Fischl.
148 *Clinical Diagnosis of Latent Inherited Syphilis. A. Goldreich.
149 Eruptions Following Vaccination. (Zur Pathologie vaccinogener Ausschläge.) G. Nobl.
150 Nutritive Value of Milk Sugar. (Der Nährwert des Milchzuckers.) M. Calvary.

146. **Tuberculous Infection From Piercing the Ears.**—Epstein reports in detail two cases of infants with tubercular infection of the ear and enlargement of related lymph-nodes; one was 9 weeks old, the other 4 months. Both had had their ears pierced for the wearing of earrings, when a few days old, by the midwife. He cites eleven other cases from different authors of tuberculosis of the lobe of the ear, probably caused in the same way. All had had their ears pierced in infancy.

148. **The Diagnosis of Latent Hereditary Syphilis.**—Goldreich reports 130 cases of hereditary syphilis examined by him, showing what stigmata were present and the results of the Wassermann reaction. The Wassermann reaction was positive in 67 per cent. of the cases. A sign which he considers of great importance is the enlargement of the epitrochlear glands. This was present in 80 per cent. of all the cases; in children under 6 years of age in about 90 per cent., while in the non-syphilitic cases he found only 15 to 17 per cent. with enlarged glands. He found fifteen cases of hydrocephalus, forty-seven cases of "saddle nose," and thirty-two cases with characteristic fissures at the angles of the mouth; only three cases of Hutchinson teeth were discovered.

Policlinico, Rome

September 1, XIX, No. 36, pp. 1297-1330

151 Indications for the Mastoid Operation. (Sul momento di operabilita delle osteomieliti acute parziali della mastoide.) T. Mancioli.

Riforma Medica, Naples

August 10, XXVIII, No. 32, pp. 869-896

152 Bacillus Carriers in Epidemiology of Malta Fever. (Influenza dei portatori di germi nella diffusione della febbre mediterranea.) A. Missiroli.
153 Operative Cure of Congenital Fistula in the Neck. G. De Francisco.

August 17, No. 33, pp. 897-924

154 Experimental Research on Atheromatous Degeneration of the Aorta. (Ricerche sperimentali sulla genesi dell' ateroma aortico e sulle alterazioni del miocardio da esso dipendenti.) C. Farmachidis.

155 Long Clinical Course and Necropsy Findings in Case of Hemorrhage in the Pons. (Caso di emorragia protuberanziale.) U. Gasperini. Commenced in No. 32.
156 Helminths in Relation to Cholera. (La Simbiosi elmintica nel quadro nosologico del colera asiatico.) A. Di Vestea.

Revista de Medicina y Cirugia, Havana

(August 10, XVI, No. 15, pp. 417-442

157 Classon Disease. (Caisson Disease o paralisis de los buzos.) R. Perez-Vento.
158 Prophylaxis of Epidemic Cerebrospinal Meningitis. J. F. Arteaga.
159 The Bubonic Plague in History and Literature. (Episodie sobre la peste.) L. M. Cowley.

August 25, No. 16, pp. 443-472

160 *The Sanitary Condition in Cuba. J. Guiteras.
161 What is Death? (Pailida mors.) J. B. Pons.

160. **The Sanitary Condition in Cuba.**—Guiteras replies to a statement made in congress by Senator Foss in regard to the sanitary condition of Cuba. A letter from Guiteras on the eradication of plague in Cuba was published recently in THE JOURNAL, p. 668.

Semana Medica, Buenos Aires

July 11, XIX, No. 28, pp. 49-96

162 *Goat Serum in Treatment of Lupus. (Caso de lupus vulgar tratado con suero normal de cabro.) A. S. Lagomarsino.
163 Congestion of the Lungs. (Sobre la fluxion de pecho. J. Lardieres.

July 18, No. 29, pp. 97-148

164 *Separation of the Upper Epiphysis of the Humerus. (Desprendimientos epifisarios de la extremidad superior del humero.) J. M. Jorge.
165 Microbian Toxins and Serotherapy. J. W. Howard.
166 Urban Hygiene in Argentina. (Nuestra higiene urbana.) F. Otero.

July 25, No. 30, pp. 149-200

167 The Physician and the Parturient. (El medico y la partera.) J. A. Beruti.
168 Acute Appendicitis. E. F. Belaustegui.
169 *Leg Technic for Eliciting Babinski Toe Reflex. (Nueva manera de investigar el signo de Babinski.) A. Guemes.
170 Application of Mendel's Law in Heredity. (Consecuencias de la ley de Mendel. Interpretacion de Heider. Terminologia de Bates. Biometras y Mendelianos. La pangenesis de Darwin.) V. Delfino.

August 1, No. 31, pp. 201-252

171 *Automobile Fracture. (La fractura del radio en los automovilistas.) L. Bard.
172 Cesarean Section for Placenta Prævia. A. Zabala.
173 *Bilateral Anastomosis Between Vas Deferens and Testicle. M. Tamburini.

August 8, No. 32, pp. 253-300

174 Research on the Will Power. (La potencia volitiva, es medible?) V. M. Farré. Commenced in No. 28.
175 *Inguinal Hernia With Part of Caliber of Intestine Strangulated. (Hernia inguinal de Richter a forma peritoneovaginal.) D. del Valle.

162. **Goat Serum in Treatment of Lupus.**—Lagomarsino's patient was a farmer of 46 and the lupus was of three years' standing, involving the nose. No improvement had been derived from the usual measures and roentgenotherapy. He was then given a course of local treatment with goat serum, gauze wet in normal goat serum being applied twice a day and the parts washed out with the serum. Hard scars formed, and these eschars were curetted and the serum applications continued on the raw surface. This goat serum treatment had been found very useful by Lagomarsino in a number of previous cases of various affections of the nose and ears and for gastric and varicose ulcers. The lupus soon showed marked improvement and all trace of it had apparently disappeared in six weeks as shown by the photographs of the patient before and after. The improvement has persisted unmodified during the four months to date.

164. **Separation of the Epiphysis From the Shaft of the Humerus.**—Jorge's study of this subject is accompanied by sixteen illustrations showing the mechanism, results and treatment for separation of the upper epiphysis. In his experience this epiphysis is the one that is most liable to become separated. The outcome depends on whether there is displacement of the epiphysis, and on the treatment applied. If there is displacement, the arm should be immobilized in slight inward rotation in a plaster cast after reduction. If there is no displacement, an ordinary bandage and splint will do, with a cotton wedge-shaped pad in the axilla. One of the cases illustrated shows extreme atrophy and shortness of the arm after uncorrected separation of the upper epiphysis. The injury at the age of 4 had been supposed to be merely a dislocation, and treatment had been applied on this basis by several physicians without benefit. The boy at 14 had ankylosis of the shoulder and the arm was 9 cm. shorter than its mate. Roentgenoscopy is indispensable, and even the best reduction does not always prevent any arrest in the development of the bone after separation of its epiphysis, but the lack of proper correction is certain to entail serious consequences. Massage should be begun early, with passive exercise as early as the second fortnight.

169. **Leg Technic for the Babinski Sign.**—Guemes noticed that in certain cases of nervous disease when the patient, reclining on his back, lifted his leg for about a foot, the big toe contracted as in the Babinski plantar reflex and the other big toe also contracted simultaneously although the other leg was at rest. This phenomenon was found unilateral in a number of cases of hemiplegia and bilateral in paraplegia. The toe does not contract in either foot if the leg is passively lifted, and of course it does not occur if the paralysis is so deep that the patient is unable to raise his foot to 30 cm. The sign was never observed in persons free from organic nervous disease, but it was positive in the case of sclerosis in patches examined, in two hemiplegic patients, in a case of myxedema with slight paresis of the legs, and it was most pronounced in a case of infantile hemiplegia. The sign was negative in a case of hemiplegia of syphilitic origin and in an old spastic lumbar myelitis. The findings were negative also in five cases of tabes, two of epilepsy and one each of syringomyelia, polyneuritis and histero-epilepsy. Guemes discusses the mechanism and significance of the test thus modified.

171. **Automobile Fracture.**—Bard has encountered five cases in his hospital service and two in his private practice in which the radius was fractured in cranking the machine. In three the fracture was in the lower third from direct and in three from indirect violence, and in one case the styloid process had been fractured. In the latter case, under a compressive dressing and massage the lesion healed in two weeks. Some of the other fractures required reduction, massage and a cardboard splint; the cure was complete in all by the twentieth day at latest. These automobile fractures are thus seen to be comparatively harmless when properly treated at once.

173. **Anastomosis Between Vas and Testicle.**—Tamburini reports a case in which he connected the vas and testicle to remedy a bilateral destructive process from acute gonorrhea affecting the epididymis on each side. The result was a complete functional success.

175. **Hernia With Only Part of Caliber of Intestine Protruding.**—Del Valle discusses the mechanism of Richter's hernia involving the femoral, obturator or inguinal openings. The data presented show that the pouch with a congenital inguinal hernia may present a tendency to stricture at four points, the lowest at a partial septum between the sac proper and the tunica vaginalis, where a Richter hernia may develop. The symptoms when this occurs are liable to be misleading, but the strangulation here is particularly liable to entail gangrene, even as early as in twelve hours. In the typical case described, the congenital inguinal hernia, the sudden onset of pain and swelling of the scrotum without signs of inflammation, and the scanty stool and flatus suggested strangulation of the hernia, but at first this seemed disproved by finding the inguinal ring permeable for the finger, and the complete motility of the scrotal tumor. The uniform cylindroid shape of the spermatic cord, its length and the cystic contents of the scrotal portion all tended to locate the trouble, and the operation confirmed the assumption of a Richter hernia in the base of the scrotum. Although only twenty-four hours had elapsed, and the symptoms had not been threatening, yet the intestine already showed signs of marked necrosis, with a subserous hemorrhagic infarct and separation of the serosa.

Ugeskrift for Læger, Copenhagen

August 29, LXXIV. No 35, pp. 1235-1264

176 Effectual Abortive Treatment of Gonorrhea. (500 Tilfælde af Abortivbehandling af Gonorré efter Engelbreths Metode.) C. Engelbreth.

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PUBLIC HEALTH IN AMERICA *

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BOSTON

I shall not easily find words to express my gratification at the distinguished honor that has been given to me of presiding over this assembly of the men who have so distinguished themselves in the fields where my own humble services have met with a more than adequate reward; but permit me to say, with all the emphasis I can give to my words, that, standing here under conditions that can never again recur, I am profoundly sensible of the highest distinction of my life.

I am well aware that I owe this place to the fact of my relations to the State Board of Health of Massachusetts, the first board created in this country with the general powers of a central authority in matters concerning the public health.

BOARDS OF HEALTH

So far as the forty-eight states which now compose this Union have enacted laws on sanitary matters, they have framed health codes differing somewhat in details and adapted to the requirements of the people in each state, but agreeing in this: that they have dealt with the whole vast subject of the protection of the public health among their own inhabitants.

The boards of health created in these states have had essentially the same history; they have begun their existence with advisory powers, and have been entrusted in the course of years with executive functions more or less extensive. In some instances they have charge of the vital statistics; in other cases this most essential support of any comprehensive system of public hygiene is in a separate department.

The activities of these boards, except in some limited fields, are not so closely connected with the every-day wants of the people as are the municipal authorities.

It may be said that the tendency on this side of the Atlantic, in this branch of government as, indeed, in our political affairs in general, has been to bring the real power as near as possible to the people. For this reason, in my own state certainly, the most powerful organization for health purposes is in the hands of the local boards of health. While these are not always the best agents for the purpose, at present, they are worth all the trouble the state may take in the way of advice, instruction and assistance, because their efforts will lead more promptly and with greater satisfaction to the education of the whole people in reasonable sanitary administration than any other means now available. It is on this education of the population as a whole that all measures for the sanitary protection of the community must finally rest.

A police system which shall regulate all the doings of a person who happens to be a source of danger to his fellows is inconceivable, in this country at least, and certainly not to be desired, if any other means of relief can be found.

In some of our states provision is made for an appeal from the action of the local authorities to the state boards. In the majority, however, this appeal is of a very limited character.

Our guests may find it difficult to understand the peculiar relations of the states to each other and to the government at Washington, if they do not remember that the original states are older than the Constitution of 1787, and had had many generations of self-government before the formation of the Union. They were inhabited by men largely of English origin, tenacious of their rights, and accustomed to settle their public affairs in open meetings. They entered the federal Union with more or less misgivings as to the rights which they might be compelled to surrender for the purpose of securing the undoubted benefits that belong to a national government. They therefore retained every function which was not specifically transferred to the central authority. In 1787, the date of the formation of the Constitution, public hygiene cannot be said to have had an existence. Obvious nuisances were dealt with in haphazard fashion, and when quarantines were established they were usually futile, ill-conceived and needlessly oppressive. Generations were to come and disappear before the sure foundations were reached on which the modern structure of preventive medicine could be built.

RISE OF PREVENTIVE MEDICINE

Enlightened men in several countries had indeed taught some of the practices which protected the health of restricted groups of men, but for the community there was no relief. Rich and poor suffered alike, with the difference, however, that the wealthy paid from their abundance and the poor from their poverty and with their bodies.

In the eighteenth century preventive medicine had already reached a stage of development in Great Britain which placed that country in the lead of the world. It is only necessary to mention the names of Dr. Richard Mead, who in 1720 published his treatise on "Pestilential Contagion and the Methods to be Used to Prevent It"; of Sir John Pringle, who wrote on "Diseases of the Army," and of Dr. James Lind, who wrote an admirable treatise on "The Means of Preserving the Health of Seamen," which pointed the way to the practical eradication of scurvy from the British navy. Lind also

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* President's Address before the Fifteenth International Congress on Hygiene and Demography, Washington, D. C., Sept. 23-28, 1912.

advised a treatment of typhus on which modern practice has made but little improvement.

From the labors of such men as these came a better practice, with results which in turn served as the most persuasive of teachings. The achievements of the century reached their highest point in 1798 in Jenner's discovery of vaccination, the greatest redemption from disease the world has known. Yet side by side with these memorable additions to the world's knowledge of the means of preserving health, views were prevalent as to the origin of epidemic diseases, hypothetical in kind and of such nature as to preclude the possibility of any control of contagion.

LACK OF ADEQUATE LEGISLATION

In the entire absence of any positive evidence as to the real nature of the more important diseases — or as to means for the prevention of pestilence — it was not unnatural that the framers of the Constitution of 1787 should not have included in the provisions of that document some reference to measures for the preservation of the public health. The strict constructionists of that instrument have held that the power of the United States to enact laws for the sanitary control of the country was to be found only in that clause which authorizes the United States "to regulate commerce with foreign nations and among the several states." On this slender thread was to hang our public health service.

The census authorized by the Constitution was for the purpose merely of counting the inhabitants. Lawmakers have been persuaded by public opinion to give a scope to the census approaching that of other civilized lands, so that in time there will be a sufficient body of vital statistics to enable us to determine some of the many questions which our unparalleled mixture of races offers. Our experience has already shown in limited areas great variations among the different stocks in resistance to disease, fecundity and longevity.

It is also true that it was found possible to attach to the Marine-Hospital Service in the Treasury Department some of the functions of a national board of health and this organization has performed its difficult task with conspicuous ability. Its able officers have always been subject, however, to the control of the Treasury Department, and that branch of the government is always more likely to be indulgent to the great business interests of the country than attentive to the suggestions of the trained sanitarian. Nevertheless I am not willing to admit that a due regard to the well-being of the whole community involves of necessity in any case a real injury to legitimate business. The suppression of the truth with regard to the existence of a pestilence in some of our cities has inevitably brought in the end such feelings of distrust on the part of those who have been too credulous, that they will be reluctant to yield hereafter to any evidence, however complete.

The various political parties have invited the attention of the voters of the country to the political platforms in which are set forth their respective policies. The declarations on the subject of the public health ought to satisfy the most ardent advocate of that cause. Therefore there is hope that our legislative bodies may find some way for bringing together the various sanitary functions now exercised by different departments of the government at Washington, and make them into a dignified and independent whole under a title which may signify that the preservation of the public health is no less the business of a federal republic than it has been of the various monarchies of the world. A bill to accomplish this purpose is now awaiting action in Congress. It was introduced by Senator Owen of Oklahoma and has the hearty approval of the health organizations of the respective states and of all who have an intelligent and honest interest in measures for the protection of the public health. It meets the opposition of the very few who still believe that such legislation lies beyond the powers of Congress, but its more important enemies are to be found among the selfish interests which fear diminutions of profit in the various enterprises which seek the cover of darkness. Those interests employ able attorneys and make much outcry about interference with the personal freedom of the citizen, although no provisions of this wise act can be construed to have this effect.

STATE AND FEDERAL SANITARY ADVANCEMENT

We present to you, our friends from other lands, the interesting spectacle of a successful democracy with, at heart, very conservative tendencies. We enter on almost interminable discussions on subjects of legislation and are apt to delay until an impatient public opinion forces the legislation to a conclusion. Our safety lies in the fact that our people have become educated in the matter under debate, at least, as early as our lawmakers. Our states and municipalities have therefore a more extensive, more connected and more instructive story of sanitary advancement than has the general government.

The establishment in England of a system of vital statistics in 1837 was followed by Massachusetts in 1842. The improvement in the sanitary condition of cities, which the epidemics of cholera forced on the Old World, were for the same reason made here. In the absence of a sufficient knowledge of the causative agent, the measures everywhere pursued were uncertain and to some extent ineffective; but a better conception of the value of pure water-supplies and more efficient systems of sewerage resulted from the stern teachings of this pestilence.

One name stands out above all others in the sanitary awakening of England, that of Edwin Chadwick. It would be a work of supererogation to tell this audience of his life work. Although his name always deserves honor, I mention it for the purpose of naming Lemuel Shattuck of Massachusetts, who submitted in 1850 to the legislature of that state a scheme for state medicine so far-reaching that it had to wait nearly twenty years for its adoption, and more than fifty years for its completion. Shattuck was inspired by the work of Chadwick and was more fortunate than his master in that his structure still endures. It would be out of place to describe more fully the work of the State Board of Health of Massachusetts. Starting earlier in the race than its fellows, it has watched without envy the approach of its competitors, and has gladly adopted when possible their procedures.

While it is true that the largest powers in the control of communicable diseases are lodged with the respective states and must necessarily be vested in them, it is also true that the general government has accomplished more in the scientific investigation of the causes of disease and has been of assistance to states and communities unable or unwilling to carry out all the measures requisite for the protection of their neighbors or even of themselves. The examples which have been given by the various services at Washington of invaluable work in the study of disease are well known to you. In the multitude of workers the world is apt to name only those who made the actual discovery, forgetting that many of the patient searchers have contributed much by indicating where the treasure was not to be found.

PREVENTING THE SPREAD OF COMMUNICABLE DISEASES

This continent has borne beyond the lot of civilized countries on the other side of the ocean the burden of yellow fever, which has brought in its train a greater panic fear and a wider dissolution of society and public affairs than any other pestilence. The mysteries of its progress led intelligent men to look to the great disturbances of nature for a cause. It had more than once invaded a city as far north as Boston and scattered its inhabitants in terrified confusion. Within our own time it had, for a brief period, rendered inaccessible the government of a great state. No effort had been spared in the attempt to obtain a knowledge of the real nature of the disease or some empirical means of preventing its spread. The brutal force of an unscientific quarantine had been our solitary guard. Competent medical men had been detailed from the services at Washington to study the disease in its home on the shores of the Caribbean Sea. They brought home proof of what it was not. Finley of Havana had suggested that the mosquito might be the vehicle for the infection. His brilliant hint had not been followed by convincing experiment. Walter Reed and his associates carried on in Cuba the investigations which finally established the absolute dependence of the disease on the agency of a mosquito, and yellow fever has ceased to be a plague, except in a community too indolent to make a proper use of a piece of mosquito-netting and to take active measures for the removal of the breeding-places of the insect. One last conquest remains — the isolation and the exhibition of the agent transmitted.

Another instance of successful dealing with a formidable menace to the public health has been the treatment by the Public Health Service of the bubonic plague on our western shore. Selfish commercial interests prevented the seasonable announcement of the presence of the plague in San Francisco, and caused unnecessary delay in the work of investigation and control. One important observation has been the extension of the disease to animals not hitherto shown to be generally infected, so that it can now be understood why the disease may remain concealed for a time and then break forth when least expected. We do not know, however, why an easily communicable disease should make its appearance on these shores for the first time, or why England should again be visited by it after the lapse of two and a half centuries. Again, this disease is not likely to be restrained by state boundaries, for whatever may be our means for restraining the movements of man, the rat and the squirrel do not recognize state lines, and nothing less than the authority of the nation can act with sufficient promptness to secure the best results.

With the presence of the disease in Porto Rico and Cuba the danger is imminent for the ports in close connection with those islands, and consideration of this peril may well engage the attention of this Congress.

Since the acquisition of the Sandwich Islands we have found ourselves face to face with the problem of leprosy on a large scale. This most ancient of named diseases, in earlier medical history probably a mixture of many diseases, has dominated the imagination of men through all times; it has been the exemplar of all that was dreadful in the afflictions of man; it bore the brand of a curse from on high. There is no sufficient proof that cases of the disease are more frequent here than they have been in the past, but in consequence of Hansen's discovery we have obtained the possibility of a definite diagnosis and can now speak with measurable accuracy of the number of cases existing in any community. At the beginning of the year 1912, 146 cases of the disease were known to exist in the United States. These were cared for with varying degrees of precaution by the authorities of seventeen states. Three states only, California, Louisiana and Massachusetts, have established isolation hospitals to which lepers must be removed and segregated. In the great majority of cases in this country leprosy has been an imported disease; and fortunately in portions of the Northwest, where infected individuals from Scandinavian countries brought the disease many years since, there has been no increased prevalence of leprosy, but on the contrary an apparent disappearance. Great changes in habits of living have probably exercised a helpful influence in bringing this result to pass.

If we are to insist on rigid isolation, these patients could be taken care of much better in some central station under favorable climatic conditions and under the supervision of the national authorities. It is proper that the federal government should undertake this responsibility because the victims of this disease are, in the main, importations for which no one state should bear the burden.

At the Leprosy Investigation Station in Hawaii, the successful cultivation of the lepra bacillus on artificial mediums has been accomplished. Monkeys have been inoculated and important additions to our knowledge may be confidently expected.

We congratulate ourselves on the freedom of the country from outbreaks of cholera, notwithstanding the fact that 25,000 out of the 237,000 immigrants landing last year at the ports of Boston, New York, Philadelphia, Providence and Baltimore came immediately from cholera-infected countries. In the search for carriers of the disease at the port of New York over 23,000 bacteriologic examinations are reported, with the result that the vibrio of cholera was found in twenty-eight persons having the disease and in twenty-seven persons who appeared to be in good health. The Italian government has aided this country by its measures to secure favorable sanitary conditions on board vessels conveying emigrants. The royal commissioners, who are officers in the naval medical service, are attached to these vessels and have very extensive powers in the management of the passengers in all matters concerning their health. It has been officially stated that the aid rendered the quarantine service by the royal commissioners has been of a very high order. Another important measure of cooperation has thus been undertaken which illustrates the newer spirit which the Paris convention of 1903 and the Washington Convention of 1907 have brought into the administration of quarantine. The experience of the past year is memorable, because for the first time in our own quarantine history, and anywhere on such a scale, the principle of the enforcement has been that any suspected person who is shown by laboratory examination to be free from the possibility of conveying infection may be admitted to the country.

THE PANAMA CANAL

To many here the construction of the Panama Canal may seem to be the most important of our sanitary achievements. The United States, taking advantage of its Cuban experiences in dealing with tropical diseases, and employing the same skilled agents on the newly acquired property in the canal, has carried the work so rapidly toward its finish that we may well hope that the present chief magistrate may see in his present term of office the virtual completion of the task. He had a controlling influence in determining the form of the canal while secretary of war, and has been an active and much interested and wise helper in every stage of its progress.

The French engineers who began the work, and who had labored energetically and skilfully on it, had nothing to learn from others in their own department, but it became impossible to maintain efficient organizations under the circumstances which then existed. The mortality and morbidity rates from malaria and yellow fever previous to 1904 would sooner or later have brought the work to a standstill.

Colonel Gorgas, to whose immediate supervision the sanitary work was entrusted, has made an interesting comparison of the vital statistics of the population of the Canal Zone with a well-regulated city in a Northern state containing nearly the same number of inhabitants. The rates do not differ essentially in the two communities. Whether the example thus offered to the countries in the neighborhood of the canal will be followed may be a question, but it seems to have been shown that it can be followed and at an expense not of itself prohibitive.

PROBLEMS IN PUBLIC HEALTH WORK

The International Congress of Tuberculosis held in this city in 1908 was a powerful stimulant to our people in promoting measures for limiting the spread of this disease. The interest in such measures is world-wide. Trustworthy statistics show that the successes obtained are commensurate with the efforts put forth. The relations of the state or municipality to the patient who may be treated at the expense of the public are not yet satisfactorily settled and there are other difficulties in the situation so serious and so complex that we ask for the benefit of the wise counsels of this body of experts.

Pellagra, which has long been looked on as a disease of Southern Europe, has recently been recognized in portions of this country. The problems of the disease are attended by so many difficulties and uncertainties that we have not yet been able to come to satisfactory conclusions with regard to it. Hospitals and asylums for the insane, with their wrecks of humanity, have been the places where the disease has been most closely observed, with the obvious difficulties of obtaining sufficiently correct histories of the early stages of the disease. Whether maize in a damaged state is the important factor in producing the disease can hardly yet be asserted. Taking into consideration the vast importance of Indian corn as a food product in this country, we earnestly invite your aid in the discussion of this question.

The venereal diseases are ever perplexing subjects for state control; our various experiments in this direction will be brought to your attention. It is too early to claim results of much value, but hardly any one disease is of so much importance to the public welfare as this, and the time is long since past for neglect and silence concerning it. Visitors from this country to that unequaled display offered to the world at the great Dresden exposition were much impressed by the completeness of the information presented by the department of sexual hygiene, and brought home ideas that cannot fail to have an influence here.

Epidemic cerebrospinal meningitis has been one of the diseases thoroughly studied at the Rockefeller Institute in New York, with the resulting discovery of an antidote serum; the epidemic form of this disease has become amenable to treatment through intraspinal injections of the serum. This success is full of encouragement for the efforts being made to discover a serum treatment of infantile paralysis which has appeared in recent years in all parts of the country and has been here as elsewhere an intractable disease not yielding to any medical treatment, and mysterious as to its cause and means of extension.

The importance of milk as a food has caused much legislation for the purpose of improving the quality of the article offered for sale. The difficulty of regulating the traffic between neighboring states has had something to do with the present unsatisfactory conditions. Certain traditional forms of uncleanliness have accompanied the dairyman's occupation for generations, and an attempt to change them has been so generally resented by the producer that improvement has moved slowly. There has been a change for the better, however, in the milk-supply of the large cities. But in this instance again affluence pays with that which it can easily afford, but poverty pays with its life. The grievous burden of excessive infant mortality, especially among the poor and careless, would undoubtedly be much diminished by a better-guarded milk-supply.

The reduction of infant mortality is one of the most important branches of public health work now before us. Unfortunately our infant mortality rates are not in general of a character which make possible the minute analysis which such tables possess in many of the countries from which you come. Some cities, however, possess statistics accurate enough to enable competent observers to draw conclusions which show results of an encouraging character.

I have enumerated some of the diseases that must fall under the notice of the public authorities. There are others to which I might well give a place, but they will receive due attention in some of the sections of the Congress.

ADVANCE IN MEDICAL RESEARCH

There has been no period in the history of the world, when wealth has been so sensible of its duties as in this. Whether we may assert that the long practice of democracy in the United States is responsible for this condition or not I may not venture to say, but our men of great wealth have given of their abundance generously and wisely, and there is no more encouraging sign of the times than the earnestness with which wealthy citizens have applied themselves to the relief of conditions which are elsewhere matters of government care. While it may seem ungracious to speak of a few evidences of this spirit, it would be ungenerous not to mention those great benefactions which are closely connected with the purposes to which we have devoted ourselves.

First of these great foundations is the Rockefeller Institute for Medical Research, created for the purpose of conducting, assisting and encouraging investigations in the sciences and arts of hygiene, medicine and surgery and allied subjects, in the nature and causes of disease and the methods of its prevention and treatment, and to make knowledge relating to these various subjects available for the protection of the health of the public and the improved treatment of disease and injury. The institute possesses in a suitable location in the city of New York a laboratory building and a hospital with a capacity of about seventy beds. Laboratory and hospital constitute as far as possible a unit. The scientific results obtained by this institution in the study and treatment of diseases which may be reckoned among the chief scourges of mankind are well known to you. The endowment funds amount to many millions. All this represents the enlightened public spirit of one wise and generous citizen. In order to relieve conditions resulting from the general prevalence through our Southern states of hookworm disease, Mr. Rockefeller has given $1,000,000 for immediate use in its treatment. Under the charge of the very capable commission charged with the expenditure of this money much human incapacity has been removed, and valuable lessons have been taught in the elements of personal hygiene. Great as these gifts are, still larger funds have been set aside by Mr. Rockefeller, most sagacious in his charities for the improvement of the condition of his fellows in many directions.

Other notable foundations for the promotion of the public health are the Memorial Institute for Infectious Diseases in Chicago, and the Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis in Philadelphia. The list might be enlarged by many other names of men and women who have given freely for the same unselfish purposes.

PUBLIC WORKS

Domestic water-supplies and systems of sewage-disposal have received everywhere in the country in recent years much attention. The examples of our practice and the results of our investigations in these subjects have a well-recognized value. The Lawrence Experiment Station of the Massachusetts State Board of Health for the study of the process of sewage-disposal has been for many years an authority of high rank, and its publications have had a wide circulation. Many of our large cities are situated on the shores of the ocean or on great lakes and rivers, and the easy method of disposal of sewage has been its discharge into these waters. The ocean will probably continue to receive all that can economically be brought to it without too great offense to the senses, but it is already evident that the large streams and lakes must be protected against increased pollution.

Our extravagant demands on the public water-supplies have been met by constructions that challenge comparisons with the monumental works of the Roman world.

INADEQUATE STATISTICS

The discoveries in the astronomical observatory have no more certain application to navigation, nor chemical research to manufacture, than have the statistics of life and disease to the protection of the human race. As a whole this country can take little credit to itself in the registration of vital statistics. The registration area as regards deaths includes less than 57 per cent. of the total population of the Union.

The public health officer should be able to call on some responsible department of government for sufficient statistical data to enable him to recognize the unnecessary and preventable wastes of life in any given district. His conclusions would be justified only on the assumption that the data are accurate and that the calculations of the various observers are so similar in character as to be safely comparable.

Since the permanent establishment of the United States Census Bureau, that office has done much to promote registration and to secure uniformity in its methods. A model bill has been drafted by the office in consultation with the authorities of the states, public health and medical associations and persons competent to advise in the matter, and trustworthy data should soon be obtained from the whole country instead of from only a few of the Northern states.

PREVENTION OF OCCUPATIONAL DISEASES

The hygiene of occupations is within the control of the separate states and only indirectly subject to national legislation. The British factory act of 1802 to protect the health and morals of apprentices and other employees in cotton and other mills—the beginning of England's great code of industrial legislation—was not followed in this country for a generation or more, and then first in Massachusetts.

Manufactures have been so largely the occupation of the inhabitants of this state that the legislation probably comprises as complete a body of statutes and sanitary regulation as can be found in the country.

This legislation has undoubtedly been highly beneficial to the workers in mills and factories, and so far as the conditions within the factory buildings are concerned has promoted health; though it is true that the workman sometimes goes from the carefully guarded surroundings of his workplace to the less favorable conditions of his own tenement.

There are still industries, however, which have not yet removed all the conditions inconsistent with health, and in which employers and workmen are alike unwilling to submit to unusual precautions for the purpose of avoiding personal injury or possible impairment of health. The legislation in several states appears to have reached a point where it may be asserted that this stage has passed and that we should now bend all our efforts to a course of determined and persistent administration in the hands of instructed and public-spirited officers acting with all the great powers conferred by existing statutes.

INSPIRATION FROM GREAT ACHIEVEMENTS

On occasions such as this we must feel the silent influence of the great men who have labored in the cause which we are met here still further to advance. They gave us the knowledge which has made it possible to deal with a few of the problems that have perplexed the world. Can any intelligent man believe that we have reached the goal? There has never been a time when the religion of mutual helpfulness has had such sway as now, nor has there been a time when the means of accomplishing its great purposes have been so ample.

The names of Jenner, Pasteur and Koch should be present in the minds of the members of a congress such as this. They contributed in the highest degree to the development of preventive medicine. Jenner discovered vaccination and, wise beyond his time, hinted that the vaccine vesicle was nothing but a modified small-pox and that in future some similar modification of the plague even might be obtained. Pasteur in his laboratory wrought to a scientific certainty the facts which prove the doctrine of infection, and the modification of the infective elements of disease. Koch devised new methods for studying microorganisms, and added to the list of the known producers of disease the bacilli of tuberculosis and Asiatic cholera.

The living holders of the torch I need not name. Some are present here, and we shall all gladly greet them; some, though absent in body, are represented by their teachings and their works, and to these we shall do honor. What happier fortune can befall a man than to labor as these men have striven; their aims have been the highest and their reward the most worthy. Fortune has given to them nothing greater than the power, and their nature nothing better than the wish to serve their fellow men.

In conclusion it now becomes my duty to welcome in the name of the American members of this congress our associates who have journeyed, many of them so far, to join us in these meetings. Very few of you are strangers to us, at least in name, and we anticipate with pleasure the formation of that personal acquaintance which adds so much to the value of such gatherings as this. All our interests are the same; in our pursuits there are no limits as to monarchies or republics; thrice welcome to the United States.

MEDICAL PROGRESS*

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I invite you to take with me a reflective glance over the general intellectual movement which has led up to our latter-day modern medicine.

We hear much of the progress and of the science of medicine. It is impressed on us in our daily work, in meetings with fellow practitioners, in medical journals and in conversation with patrons and friends. The wonders of modern medicine are exploited by the magazines and in the daily press. It is a matter of common knowledge that medicine has entered on a new era, more scientific and exact, and more efficient in the relief of suffering and in the prevention and cure of disease.

If we review the general field of medicine or any of the departments into which it is divided, we are impressed with the fact that our knowledge of the human body with all its complexities of structure, function and variations in disease has been enormously increased. By the assistance of the allied sciences, which Dr. Welch has so graciously acknowledged, especially physics, chemistry and biology, aided by improved methods of investigation and instruments of precision, new facts have been discovered and many of Nature's important and well-guarded secrets have been laid bare. The new principles evolved have been put to the test and their application in practice has been followed by the most brilliant successes in the annals of medicine.

In the great scientific developments of the latter half of the nineteenth century, medicine shared generously. It has advanced with rapid strides toward a truly scientific basis and in its progress it is discarding more and more of the empirical methods which formerly characterized it. Medicine has undergone a veritable revolution within the span of a generation and to-day is taking high rank as a science and speaking with a new authority supported by demonstrable facts.

THE RENAISSANCE OF SCIENCE

Knowledge of the natural world had been slowly and laboriously broadened and increased during the sixteenth and seventeenth centuries, and after a period of speculation there was a general reawakening of interest in the sciences toward the end of the eighteenth century. Chemistry, physics, natural history, mathematics, all felt the influence of the revival. The spirit of investigation extended rapidly in all sciences, and from Paris, the most active center of scientific study, it spread and became intensified as the nineteenth century advanced. Facts such as had caused Bacon to ask *cui bono?* were developed, and although they appeared to have little or no practical application, yet they clashed with the existing systems of thought and disturbed them as had the scientific discoveries of earlier centuries. Their announcement was received with indifference if not with active opposition. The discoveries were, however, important and convincing and could not be ignored. They excited more and more interest; efforts were made to put them to practical use, and their champions were more insistently and successfully demanding a fair hearing withheld by prejudice. New methods were being introduced, knowledge increased and the realism created by a more active nature study caused a gradual shifting in the trend of thought from the metaphysical to a more practical vein. The reciprocal relations between the sciences were more definitely appreciated and the conception of the unity of all knowledge was impressing itself more prominently on the intellectual world. Man's mind was being rapidly opened for the reception of new truths and the belief was becoming more general that alongside the world with which he had been familiar, Nature held secrets of value to man which it was incumbent on him to investigate untrammeled by preconceived opinions. The tendency to independent thought was increasing and the spirit of science was becoming more and more restive and resentful of the hide-bound restrictions exercised by philosophies and theologic dogmas which had long held scientific investigations in check. Pasteur in saying that "science should not concern itself in any way with the philosophic consequences of its discoveries" well expressed the spirit of advance and foreshadowed the coming break with the old philosophies which was to mark the final independence of all science.

The substitution of the doctrine of evolution, in geology by Lyell for that of cataclysms, and in the organic world by Darwin for that of special creations, shed an effulgent light on the processes of Nature. It gave man a more comprehensive view of the universe, of the planet we inhabit, of natural law and particularly of the orderly, harmonious progression pervading the inorganic and organic worlds. It broadened and strengthened him and enlarged his intellectual outlook. The doctrine of evolution came as the culmination of the developments in science during the first half of the nineteenth century and was destined finally to shake to their foundations man's most cherished beliefs in the old order. After a period of loud, contemptuous and angry protest the older systems of thought capitulated and henceforth the pathway of science became easier, and the barriers to the unprejudiced reception and examination of new discoveries were to a large extent broken down. The science of biology thereby received a new impetus and the further development of medicine was especially favored. Huxley in speaking of science in general nominates evolution as one of the three great doctrines to which the greater scientific achievements of the nineteenth century may be ascribed.

It is said that all natural sciences pass through three stages in their development; first, the descriptive, during which facts are observed, collected and classified; second, the analytic, during which the problems are being examined, resolved and reduced to principles; and, third, the synthetic, the constructive period when, methods of production being known, phenomena may be reproduced and interpreted from different points of view.

THE DESCRIPTIVE METHOD OF PRIMITIVE MEDICINE

From the earliest times in Greece physicians were held in high esteem and Homer said that "a physician outweighs many other men." Throughout history physicians have been leaders in the thought and science of their time and have laid up stores of precious knowledge for which the world must ever remain a debtor; yet when we apply our formula we must appreciate that speculation and theory based on observation alone did little toward the advancement of medicine as a science but rather encouraged it during its developmental stage. For centuries superstition, tradition and dogma reigned and exercised an absolute sway over the minds of men. All efforts for innovation were subjects of amusement, ridicule and contempt, and were often harshly suppressed. All Nature — and especially the human being — was mysterious and held in awe as too sacred for inquiry except on theoretic lines, and these must not overstep certain bounds. Authority and tradition formed the supreme court from which there is no appeal. Even during the sixteenth and early part of the seventeenth century, after a scientific spirit had broken forth in connection with the physical sciences, the cry of physicians, "back to Hippocrates," was insistent.

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* President's Address before the Colorado State Medical Society at the Annual Meeting, held at Pueblo, Sept. 24-26, 1912.

It is toward the end of the eighteenth century that dissatisfaction with the view that the symptoms were the disease became more manifest. It is then, in the independent efforts of Auenbrugger, Bichat, Corvisart, Laennec, the Paris school of pathologic anatomy and diagnosis, and later of Louis to find the explanation of disease in the anatomic lesion rather than in its clinical manifestations and by new methods of examination correlate the two, that we note the awakening of a true scientific spirit in medicine. Having its inception coincident with the rapid development in sister sciences favored by the general movement already mentioned, this spirit in medicine has since persisted against all opposition and grown steadily to its present proportions. This careful study of morbid anatomy following more critical physical examinations, by percussion and auscultation, so richly rewarded these men in France that it was enthusiastically continued by their followers and later adopted in Germany. Biology and pathology were established as sciences and physical examination as an efficient aid to diagnosis was recognized as a method of value to be systematically adopted.

DEVELOPMENT OF MEDICINE BY ANALYSIS

The introduction of this analytic method of inquiry marks for us the passage from the first to the second stage of the development of medicine.

From this time important additions were made laying broad and sure foundations for the further development of medicine later in the nineteenth century. Physiology was first to feel the impress of the new scientific spirit and much progress was made by the work of Magendie, Bell, Müller, the Webers, Claude Bernard and others. Studies in comparative anatomy and physiology were more actively pursued. Facts were being accumulated in gross pathology, but its material advancement awaited the development of the compound microscope in the fourth decade, by means of which Schleiden and Schwann were able to determine that the cell was the unit of plant and animal structure and to announce the "cell theory." This discovery revolutionized morphology and permitted rapid developments in histology and embryology. About twenty years later Virchow formulated on it his doctrine of "cellular pathology" which was destined to form the basis of all future work in pathology. In the meantime Liebig at Giessen was developing the new science of that organic chemistry which was the forerunner of physiologic and the biologic chemistry of to-day. Medicine, though long called the "mother of all sciences," apparently still failed to appreciate its dependence on other sciences. Even the growing close connection with physiology was cause for comment, and in 1859 Claude Bernard felt called on to defend physiology against the sneer that it was a "science *de luxe*" and of no practical use to medicine.

Aristotle observed that "wonderment arises from the ignorance of the causes of things." It is doubtless because of this attitude of the human mind that disease throughout all history had been enshrouded in mystery since observation, theory and the wreckage of the deadhouse had yielded no explanation of its causation, but only its dire results. Many theories had been propounded, but as they rested on no demonstrable basis they were supplanted one by one and medicine was unable to make any material advancement so long as physicians had no satisfactory explanation of the causative factors of symptoms and lesions. Kircher and Leeuwenhoek had discovered microorganisms and the latter had classified and described them. Shortly after and toward the end of the seventeenth century Robert Boyle had said: "He that thoroughly understands the nature of ferments and fermentation shall probably be much better able than he that ignores them to give a fair account of divers phenomena of several diseases (as well fevers as others), which will perhaps be never properly understood without an insight into the doctrine of fermentations." Marcus Plenciz, about 1762, had contended that infectious diseases were due to microorganisms, which alone had the power of conveying infection, and that there were specific organisms for each disease. Our own Holmes and later Semmelweis asserted that puerperal fever was due to putrid material introduced from without. Schönlein, in 1839, discovered the parasite of favus, and in 1849 Pollender noticed the anthrax bacillus in the blood of dead animals, but it was not until 1863 that Davaine showed its causative relation by inoculation of animals. Otherwise the experimental method had not been applied in etiology, corroborative proofs were lacking, no practical inferences were drawn from these assertions and the origin and nature of disease remained in profound obscurity.

Louis Pasteur, thoroughly impressed with the suggestive value of Boyle's statement, and with the ambition to explain the causes of putrid and contagious diseases, entered on his experiments in fermentation; and in 1863, by his brilliant and conclusive results, established an epoch-making principle and furnished the first reliable data on which the germ theory of disease is based. Later applying it he demonstrated that certain diseases of animals and of man were caused by bacteria. The veil of mystery surrounding the etiology of infectious diseases was thus finally removed and the clear scientific light shed on the nature of these diseases opened the way for the various developments which are responsible for our present views of disease and on which our modern medicine rests.

Louis Pasteur pointed out the road, Robert Koch devised the method of solving etiologic problems and medicine passed from the second to the third stage of development.

THE SYNTHETIC STAGE OF DEVELOPMENT

From the earliest time of which we have historic record physicians had relied almost exclusively on bedside studies for their knowledge of disease, and all progress in medicine had resulted from deductions made from clinical observations, supplemented especially during the nineteenth century by more detailed pathologic investigations and a few chemical analyses.

Experimental methods had been responsible for all our knowledge of physiology and they had been the fruitful source of progress in all other sciences. The highly complex character of living creatures in structure and in function had, however, rendered experiment in medicine difficult and retarded its application, and though it had been used to some extent in pathology, only isolated facts had been ascertained and its results were limited. With the methods of Koch, guided by his "postulates," aided by the stains introduced by Weigert and improvements in the microscope, experiments on animals were now freely resorted to for the solution of etiologic problems and became exceedingly fruitful in results. The discovery of the causative factor of one infectious disease after another was announced and the attention of the medical world was arrested by the exact findings of the laboratories and the success following their application in practice. The superiority of the experimental over the clinical method for the study of disease became at once apparent, laboratories for medical research sprang up in all scientific centers, and an increasing number of medical men devoted their exclusive energies to the study of the pure science of medicine. The economic value of this work being recognized, medical research was subsidized by governments, universities and private foundations. Such laboratories became better organized, their work was more carefully correlated, reported and checked, and from them has emanated the new information on which all subsequent progress has been based. Osler remarks that the experimental method did more to emancipate medicine from routine and the thraldom of tradition than all the work from Hippocrates to Jenner.

Favored by the discovery of anesthetics, surgery first felt the influence of Pasteur's teachings. From the successes of Lister, who first adopted and applied them, has developed the perfected technic which has permitted the great expansion of this branch of the healing art. By its application the innermost recesses of the human body are to-day entered with comparative safety, the actual disease examined, and in many cases a far more efficient remedy applied than ever before available. Diseases heretofore not accessible during life are studied *in situ* in their early stages, and medicine avails herself of the surgeon's findings to perfect her knowledge in pathology, diagnosis and treatment. Surgical interference with certain tissues, ovaries, thyroids, parathyroids, etc., has contributed greatly to our present knowledge of the so-called internal secretions.

Advances in medicine came from determining the causative factors of many diseases, the reactions between the invading organism and its host, and the further knowledge of the cell and its activities. The first and great profits of these developments accrued to preventive medicine and in lesser degree to medicine in general. Methods of prevention at once became more specific and exact and preventive medicine has already grown to enormous proportions and achieved most brilliant results. For a long time it appeared that the inability to reach the invader without damage to the host would be an insuperable obstacle to a more direct and efficient treatment. Following the discovery of the specific germs causing disease came the knowledge of attenuated virus effective in the prevention of rabies; the bactericidal properties of blood-serum; the toxins, the products of bacterial life; the phagocytic function of the leukocyte and chemotaxis; the products of the reaction of the cells of the host in defense, the antitoxins, the bacteriolysins and later the opsonins. The facts on which our present theories of immunity are based have been developed as the result of the labors of many observers during years of diligent research, especially of Ehrlich, who by his work and his "side-chain theory" threw such an illuminating light on the underlying principles of these complicated processes. Although it is believed that the immune bodies are derived from some form of internal secretion, their precise origin is not yet determined. Nevertheless in their activities we have the realization of that vague expression of former days, *vis medicatrix Naturæ*, which is being subjected to analysis, estimate and record in biochemical terms. These potentialities are recognized as residing in and being a physiologic property of the cell which, when stimulated, gives forth a multiplicity of substances differing in each instance according to the stimulant, and specifically adapted to combat the individual intruder or its toxin and designed to exercise an efficient control over the disease, limited only by the responsive powers of the patient. Out of these studies have come our biologic therapy, the supplying to the individual attacked of additional quantities of these physiologic products, antitoxins, lysins and opsonins, to aid in neutralizing the bacteria or their toxins, supplementing the inherent resistance and power to overcome disease. The revelations of bacteriology, the simplicity and precision of its diagnostic tests, the preventive methods against infections and the utilization of the products of humoral and cell metabolism for protection against and cure of disease form the most romantic and brilliant pages in the history of medicine.

In addition to bacteria certain other forms of microorganisms classed as protozoa are known as etiologic factors of disease and though not numerous as we now know them they are important, notably the plasmodium of malaria, the ameba of tropic dysentery, the spirochete of several diseases. These organisms do not appear to stimulate any such responsive cell activity in defense as do bacteria, and they are combated only by the direct action of chemical substances circulating in the blood, of which quinin has long been a well-known example. Efforts to find remedies of this class have led to the most brilliant success in modern therapeutics, the discovery of salvarsan by Ehrlich. The principle of these chemotherapeutics, the selective affinity of the drug for the invader without damage to the cells of the host, is most suggestive of future possibilities. Already Wassermann announces that eosin and selenium have an elective destructive action on the cells of mouse cancer.

The causative factors of many common diseases are not yet identified and it is an open question whether these microorganisms are vegetable or animal. There is good evidence that some of these, as that of poliomyelitis, are ultramicroscopic. Although in many instances the germs themselves have not been isolated and studied individually, enough is known of their habitat, life history and method of transmission to man, often by temporary hosts, to give effective weapons of protection, as in the case of yellow fever, and suggestions for treatment.

Physiology, by reason of its recent advances, has thrown much new light on disease. The more definite application of physiologic chemistry by Hoppe-Seyler in his investigations of secretions and excretions gave a clearer conception than was obtained before of the processes of digestion and tissue metabolism. This led to the more recent and elaborate studies in cell changes and intracellular ferments, or enzymes. These studies have tended to show that metabolism and function are to be explained along physicochemical lines, and it has even been said that "the mystery of life lay hidden in the chemistry of the enzymes." The subject of internal secretions has been elaborated by many observations, and Starling has recently announced to us the existence of hormones as their active principle, a hormone for each tissue concerned, which circulating in the blood excites functional activity in other organs and tissues "coordinating the activity of various parts of the complex organism" by which a physiologic equilibrium is maintained, a function hitherto ascribed to the nervous system. Hypersecretion and hyposecretion of these hormones now explain to us conditions heretofore little understood, and such disorders may often be successfully corrected by adding to the supply by opotherapy or diminishing it by surgery. The discovery of the neurons, their axons and dendrites, and their reciprocal relations; of cortical localization of many of the functions of the brain; and increasing knowledge of the terminal nerve filaments and the various electrical reactions of nerves have enlarged our understanding of the nervous system and extended the field of neurology in diagnosis and treatment. The myogenic theory of heart contraction has been productive of a clearer understanding of the heart cycle, the irregularities of function and of heart therapeutics. Experimental interference with the heart-valves imitating disease conditions, and studies in arterial and venous blood-pressure, checked and made more exact by the aid of instruments of precision controlled by electricity and made a matter of graphic record, have led to a more accurate appreciation of cardiovascular dynamics.

Anatomy and symptomatology, heritages coming to us from the origin of medicine, are receiving additions even at this late day, and various complicated syndromes are being unraveled by a better knowledge of disease in the earlier stages of its progress.

New instruments enable us to peer into many of the cavities of the body. The Roentgen ray has permitted us to look within the body and with a great degree of certainty to determine the location, size, form and consistence of internal organs and tissues, and to detect foreign bodies and many diseases. Chemistry and biology, embracing bacteriology, have given us accurate methods of diagnosis. In consequence of numerous new methods the diagnosis of many of the infectious diseases and an ever-increasing number of others is no longer a matter of opinion on which physicians may honestly differ, but rather of laboratory demonstration by microscope, cultures, inoculation, hemolytic tests, etc., giving definite information by which the future conduct of the patient and the treatment may be clearly and effectively outlined.

While the experimental method has determined all progress, the studies themselves have been biologic. All histologic and pathologic studies have been focused in the cell, the unit of vital structure and activity. Its morphology held attention for a long time, but as the limits of the microscope were reached and it failed to reveal the further secrets of the cell, recourse was had to chemistry. Flexner tells us that intracellular chemistry is bearing the richest fruits in the pathology of intracellular ferments and our newer conceptions of immunity and physiology, and that toxicology is the cornerstone of modern pathology. Disease is therefore coming more and more to be understood as the result of a poisoning, present or past, because of the entrance of foreign substances or the presence of the products of perverted cell activity and auto-intoxication. We now look beyond the organ immediately affected and inquire into the identity of the causative organism and consider the disease more from the point of view of an infection than of a disease of the organ in the derangement of which the attack is most manifest. We estimate the physiologic disturbance caused thereby and the capacity for service of the cells of the organ affected. Pneumonia is to-day a general infection, a septicemia with lung localization; typhoid is no longer an enteric fever but rather an infection, the typhoid bacillus circulating in the blood and the most manifest lesion being in the intestine.

According to the views of the day it is the reciprocal reactions between the invading organisms or their products and the fluids and cells of the host that we find the final explanation of symptoms, processes of disease and disturbances of functional activity. These biochemical reactions result in the elaboration and output of a long list of substances previously referred to, the terminology of which so puzzles the casual reader — the lysins, agglutinins, precipitins, aggressins, etc.— the biochemical expressions of the *vis medicatrix Naturæ* — which circulate in the blood and give the biologic tests in diagnosis, the vaccines for protection and the physiologic remedies for the cure of disease. Attacks of these diseases often immunize the individual and leave behind in the blood or cell their traces, which may sometimes be recognized long after. Incidental to immunization the antibodies often sensitize the system and produce the condition of anaphylaxis, from which comes the so-called serum disease and occasionally serious toxic accidents. The solution of the problems of immunity — those of personal idiosyncrasy and possibly of recovery by lysis — is supposed to be closely allied to the quality of these reactions. The phenomena were first described by Jenner in 1798 and they were noted by Magendie in 1839, but it is only recently that they have been brought clearly to our attention by Richet. The full meaning and scope of these phenomena are not yet understood, and anaphylaxis offers a large field for future study.

As we trace the results of these toxic influences of infections and perverted cell metabolism further and further they lead us from acute to chronic infections, often mild and lingering, to tissue changes and degenerations of chronic disease. It is now known that nephritis and other chronic diseases may be inaugurated experimentally by toxic influences. It still remains to be determined how far and in what manner toxic influences are responsible for the more obscure forms of degenerations, and whether or not they inaugurate tumor and cancer formations. As these studies have progressed and the problems of acute disease have become clearer attention is turning more insistently to those of chronic and occupational diseases.

The functional capacity of organs is becoming a more and more urgent problem in our clinical consideration of disease, and tests, as those for kidney function, are being sought in the hope that they will permit the determining of functional efficiency of organs with greater accuracy, and give better standards for prognosis.

In these quests biochemistry looks beyond the cell to its constituents, its colloids, their proteins and lipoids, the molecular affinities of protoplasm. It is a realm of marvelous complexity, yet here it is that the problems of that scientific medicine which we claim to be establishing are being solved. Here it is that the newer pharmacology is being developed. In the laws of the generation, growth and evolution of the cell lie the solution of present and future problems of physiology and pathology. As problems are solved others of still higher degrees of complexity present themselves and the ultimate solution recedes and as ever eludes our grasp. Our queries lead to the very origin and nature of life itself, to the verge of that gulf between the organic and the inorganic which has ever appeared impassable. Studies in abiogenesis, in the artificial development and growth of cells, work beginning with Traube at Breslau and recently extended by Quincke, Benedickt, Lehmann, Loeb and Leduc, is said to be narrowing the lines of demarcation to such a degree that the existence of this gulf is denied and a crossing only a footstep away is claimed by the enthusiast. Such cells, however, have shown no function, and so long as this essential feature of life is lacking, skepticism of any material advance must continue. The studies of Carrel and others in the growth of tissues separated from the organism, the persistence of function during this latent life, the capacity of such tissue to resume active life and function when transplanted and the successful application in man as in animals, open large fields for investigation and may lead to the solution of problems that will make for a still more marvelous development in future medicine and surgery.

MEDICAL SCIENCE TO-DAY

Thus along these broadly sketched lines the science of medicine has advanced during its third or synthetic stage of development, because of the more intimate knowledge of the processes of organic life gained by experimental research. Medicine overcoming every obstacle in her pathway — superstition, dogma, philosophy and many of the complexities of organic life — and protesting against the sentimentalities that would check vivisection, on which all advance in the biologic sciences depends, has reached her present high estate. Our horizon has been broadened, our views and our practice have been radically changed. Magendie was wont to say that "to express an opinion, to believe, was nothing else than to be ignorant." A better appreciation of the vastness of knowledge, the difficulty of arriving at absolute truth, the impossibility of any one attaining more than a partial view, breed a more modest attitude and a willingness to hold opinions *sub judice* until full proof is obtained and all doubt is removed. Pride of opinion is yielding to an interested attention to the views of others. Professional men throughout the world are being brought together in closer relations, in more sympathetic emulation to avoid error and arrive at ultimate truth. Absolute proofs for the correct interpretation of clinical phenomena are being sought in the laboratory. Method and precision are now coming to characterize medicine in daily practice and in theory.

Medicine has been called an art. We are pleased to acclaim it as a science. Sir Dyce Duckworth well says that "it is an art based on many sciences." In research it is a pure science; at the bedside for the relief of suffering and the cure of disease it must ever remain an art. The more of the science we possess the more of the art do we require to apply it skilfully. Shattuck tells us that in practice one finds a gap between our science and the concrete case varying in width; here and there it may be jumped, but usually it is bridged by the art of medicine.

Medicine has reached the high-water mark in its history. Welch has said: "Great as has been the material, intellectual and social progress of the world during the past century, there is no advance which compares in its influence on the happiness of mankind with the increased power to lessen physical suffering from disease and accident and to control pestilential disease." What is done at the bedside is individual and cannot be properly accredited outside the sick-room. Preventive medicine has amply demonstrated to the world, however, that it is founded on scientific truth, and by its precision, efficiency and success in eradicating disease has freed immense areas of the most fertile land on the globe from pestilence and restored it to the safe habitation of man.

Every age preens itself on its accomplishments. Posterity alone can properly apportion the credit due to each, and "without history a man's soul is purblind, seeing only the things which almost touch his eyes." History shows many backward steps in the march of civilization, many intellectual landmarks temporarily obscured. Medicine is said to have advanced in circles. In the theories of our forefathers in medicine we find suggestions of those of to-day, and wonder often arises that without the aid of the data now available they should have come so near the truth as we know it. This generation has been reveling in a field of unknown extent and value. The fruitage has been abundant and of an apparent richness beyond compare. A correct appraisement of the value of our acquisitions and the true bearings of the work of this generation must, however, await the time when isolated facts have been harmonized and generalizations have been made and historically compared. We should ever bear in mind the thought so beautifully expressed by Sir Michael Foster, that "what we know and what we think is not a new fountain gushing forth from the barren rock of the unknown at the stroke of the rod of our own intellect; it is the stream which flows by us and through us, fed by far-off rivulets of long ago." The additions made should be considered as the talent earned by us and added to those talents which are the heritage from the past.

There is an old Latin saying that "men resemble the gods in nothing so much as in giving health to their fellow man." Whatever our religion may be, whatever our philosophy of life may teach us, if we may accept as a practical working hypothesis that "the highest aims of human endeavor are best and most effectually realized in the good we can do to others," then the exponents of modern medicine in thus doing more than ever for the human race are fulfilling in larger and larger measure their high function in the human economy.

McPhee Building.

INTESTINAL ANTISEPSIS *

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Any rational conception of the possible control of bacterial activities in the intestinal tract took its rise after the thorough establishment of bacteriology on a sound working basis by Robert Koch through his investigations on anthrax, tuberculosis and cholera.

It was well known through the early publications of Woodward, Nothnagel, Uffelmann, Escherich and others[1] that under the microscope the feces consisted in large measure of bacteria, although the estimates made were exaggerated. From these observations, the theory of intestinal auto-intoxication, or stercoremia, developed greater impulse which led to more wide-spread practical investigation of drugs of known antiseptic properties.

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* Read in the Symposium on Antiseptics and Germicides in the Sections on Pharmacology and Therapeutics and Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* This research was conducted under a grant made by the Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association.

* Because of lack of space this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

[1] Cited by Strasberger, Ztschr. f. klin. Med., 1902, xlvi, 413.

The foundation for all future work on the bacteriology of the intestinal tract was carefully and broadly laid by Escherich[2] in 1886 in his profound studies of the stools of suckling infants. He it was who first realized how relatively small the numbers of cultivable bacteria are in the feces compared with the host seen in a stained preparation. Whether all these non-cultivable forms one sees are actually dead, or only such as do not find our mediums suitable for growth, cannot be arbitrarily decided one way or the other; it is most reasonable to suppose, however, that they are made up of both sorts in unknown proportions, most authorities favoring the idea that the dead ones chiefly predominate. Whatever be the proportions, they are frequently spoken of together as the "non-viable" bacteria in contradistinction to those which can be cultivated and termed the "viable" bacteria. Many attempts have been made to give expression in figures of the average content of viable bacteria in the stools of normal adults on a general diet; but so many variables have to be taken into account that it is not astonishing that the numbers published vary greatly. Sucksdorff,[3] examining his own stools over a period of twenty-four days, using nutrient gelatin as culture medium, found the count to vary from a maximum of 2,300,000 per mg. to a minimum of 25,000; he judged that 381,000 was expressive of an average per milligram. Gilbert and Dominici[4] obtained 67,000 per mg.; Casciani[5] 16,000 per mg., and Matzuschita[6] 18,000,000. MacNeal, Latzer and Kerr,[7] examining the stools of twelve healthy men in an exhaustive manner found numbers to vary between a maximum of 1,526,140 bacteria per mg. and a minimum of 1,360, with a mean of 116,239. Some have tried to establish a numerical ratio between the viable and non-viable bacteria, by a combination of counting organisms in a stained smear and cultural tests carried out under the most favorable conditions. Eberle[8] believed that from 4.5 to 10.6 per cent. were viable; while A. Klein,[9] coining the term "sterility index" to express this relationship, made it about 1 per cent. Schmidt and Strasberger[10] state that the foregoing figures are too high and affirm that 0.07 per cent. is much closer to actual conditions; they also have calculated by special procedure that a healthy adult excretes each day about 8 gm. (dried weight) of bacteria, equivalent to 128,000,000,000,000. MacNeal, Latzer, and Kerr,[7] after examining 204 stools of twelve men on mixed diet by the same method, obtained an average of 5.34 gm., and Mattill and Hawk[11] by a somewhat different process express this daily output as 8.27 gm.

FLORA OF THE INTESTINAL TRACT

The bacterial inhabitants of the intestinal tract are loosely spoken of as the "flora" of the tract, despite the fact that some are mere "birds of passage" while others may be looked on as steady tenants. Attention has of late been sharply called[19] to the impropriety of speaking of the flora of the stomach, duodenum, jejunum or upper two-thirds of the ileum, because in health and between the intervals of digestion these localities are practically sterile. With the large bowel the reverse is the case, and we may with perfect propriety speak of its having a definite and continuous flora. In this organ we have always present such active indologenous bacteria as *Bacillus coli, B. proteus, B. cloacæ, B. subtilis,* Welch's bacillus, *B. putrificus coli, B. sporogenes,* and some staphylococci.

Bacterial activity, although present in the chyme as it leaves the stomach, does not reach its maximum until the contents of the small intestine are discharged into the cecum and large intestine. Here any unabsorbed products of digestion, or undigested protein or carbohydrate are attacked immediately. The raw protein and amino-bodies are broken down further and we have the production of aromatic oxacids, indol, skatol, phenol, ptomains, hexone bases, mercaptan, hydrogen sulphid, etc. The most dangerous of these Metchnikoff[18] declares are the indol and phenol bodies, which by slow and continuous absorption give rise to symptoms of auto-intoxication and ultimately to scleroses of the arteries and other organs.

That Nature herself makes an effort to keep a portion, at least, of the gastro-intestinal tract free of bacteria has been well known for some years past, although attempts to explain this "self-sterilization," as Kohlbrugge[25] termed it, have not been at all entirely satisfactory. (A very full discussion of this topic is given by Medowikow,[26] Wollmann,[19] and Lindemann.[27]) Briefly stated, it would appear that the absolute or relative sterility depends on a conjunction of several factors, namely, hydrochloric acid in the gastric secretion, bactericidal substances in the secretion apart from hydrochloric acid, bactericidal substances in the succus entericus, particularly stimulated by the passage of fat (Medowikow), mechanical action of the mucus, peristalsis, and the action of the bacterial products of some species having a retarding action on other species. Medowikow states that this bactericidal substance of the gastric juice and succus entericus may not be effectively secreted through the evil effects of overfeeding, starvation, excessive hemorrhage, exposure to great heat, insolation, or to any cause promoting irritation of the mucous membrane of the tract. Surgically this self-sterility of the upper portion of the intestinal tract is of the highest importance, as early pointed out by Cushing and Livingood,[28] who also recommended the feeding of sterile food previous to operations in upper reaches of the tract.

INTESTINAL ANTISEPSIS

In considering any possibility of effecting antisepsis or sterilization of the digestive tract, we have to bear in mind certain definite facts: (1) as regards the tract itself; (2) the choice of the agent to be administered; (3) the technical methods to be employed in reaching results; (4) the interpretation of results.

1. *The Digestive Tract.*—The tract itself must not be regarded as a dead unresponsive tube 25 or 30 feet in length, but as a living, independently reacting organ

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[2] Escherich: Die Darmbakterien des Saüglings, Stüttgart, 1886.

[3] Sucksdorff: Arch. f. Hyg., 1886, iv, 355.

[4] Gilbert and Dominici: Compt. rend. Soc. de biol., 1894, pp. 117, 277.

[5] Casciani: Deutsch. med. Wchnschr., 1897, p. 297.

[6] Matzuschita: Inaug. Dis., Halle, 1902.

[7] MacNeal, Latzer and Kerr: Jour. Infect. Dis., 1909, vi, 123, 571.

[8] Eberle: Centralbl. f. Bakteriol., 1896, xix, 2.

[9] Klein, A.: Centralbl. f. Bakteriol., I, 1900, xxviii, 834.

[10] Schmidt and Strasberger: Die Faeces des Menschen, Berlin, 1905, Ed. 2.

[11] Mattill and Hawk: Jour. Exper. Med., 1911, xiv, 433.

[18] Metchnikoff: Ann. de l'Inst. Pasteur, 1910, xxiv, 755.

[19] Medowikow: Arch. f. Kinderh., 1910, liv, 307. Wollmann: Ann. de l'Inst. Pasteur, 1910, xxiv, 807.

[25] Kohlbrugge: Centralbl. f. Bakteriol., I, 1901, xxix, 571.

[26] Medowikow: Arch. f. Kinderh., 1910, liv, 307; 1911, lv, 214.

[27] Lindemann: Inaug. Diss., Bonn, 1909.

[28] Cushing and Livingood: Contributions to the Science of Medicine by the Pupils of William H. Welch, Baltimore, 1900.

which responds in a variety of ways to the entrance of foreign materials. Particularly must be considered its liability to irritation by the use of medicaments possessed of antiseptic qualities, whereby may be directly aided the continued multiplication of the very microbes we wish to subdue. The rapid absorptive power of the mucous membrane may become active in the case of certain agents by rapidly removing them from the field of action, and possibly exerting a harmful action on the body as a whole. Then also the antiseptic agent may be split up through the action of the digestive and intestinal juices and no benefit accrue from its administration; or the drug may combine with the elements of the chyme and be rendered inert.

2. *Choice of Antiseptic.*—The choice of a practical antiseptic agent has been lucidly set forth by Assmann[29] as follows:

A. It should have a strong germicidal action.

B. It should be relatively non-toxic for the body as a whole, and harmless to the intestinal mucosa.

C. It should be absorbed in small amount.

D. It should suffer no chemical changes whereby it loses any of the above requirements (A-C).

E. It should be so constituted that it mixes freely with the intestinal contents, and therefore be freely soluble.

To these conditions the following might be added:

F. It should be one that acts throughout the whole length of the tract.

3. *Technical Methods.*—For antiseptic studies on the feces, we have at our disposal the usual plate-culture method with or without the use of special mediums, the direct counting method of Klein[9] as modified by Hehewerth,[30] or that used by MacNeal, Latzer and Kerr,[7] and the centrifugal separation and weighing method of Strasberger.[1]

In criticism of these methods, it may at once be stated that in itself each is an imperfect method for furnishing entirely reliable results.

If we employ the cultural method, it must be borne in mind that any one medium that we elect to use cannot be suitable to meet the growth requirements of *all* viable species. In the next place, given a medium of preference, we have to reckon with bacterial antagonisms which may materially influence the count. Also some have conceived that a sufficient amount of the antiseptic agent may be carried over into the culture medium and suppress growth of some bacteria. Then on account of variation in technic of different workers it is difficult to draw comparisons of results; adequate standard methods are therefore urgently required. Lastly, not all bacteria grown out necessarily bear any direct relation to putrefactive processes. But at this point, one overpowering advantage that the cultural method has over its competitors is that by further analysis we may be able to determine the presence of indologenous types and so judge directly of the value of the antiseptic drug employed.

The counting method of Klein and Hehewerth, although most carefully elaborated, has within it certain defects that can be productive of only very approximate figures, and in unskilful hands would be entirely untrustworthy. Less objectionable, but more difficult, is MacNeal's method of adapting the Thomas-Zeiss blood-counting apparatus to the enumeration of bacteria in the stool.

The most popular method of to-day is that of Strasberger, the centrifuging and weighing method of determining the bacterial content of the stool, which I have used. As Strasberger himself declares, the method gives only approximate results, and in the hands of one individual fairly comparative results; but in the hands of different workers, results when compared together vary in an amazing degree. For instance, using the original Strasberger technic, or some slight modification of it, the values expressive of the percentage relationship of dried bacteria to dried stool of normal persons on a mixed diet as found by different workers are given in the accompanying tabulation:

RELATIONSHIP OF BACTERIA TO STOOL, FOUND BY STRASBERGER TECHNIC

Investigator	Relationship, Per Cent.
Strasberger	24.3
Schittenhelm and Tollens**	42.0
Lissauer *	8.67
Tobaya †	11.2
Sato ‡	24.39
Berger and Tsuchiya	12.6
Steele	18.1
Friedenwald and Leitz §	16.87
MacNeal, Latzer and Kerr	26.9
Mattill and Hawk	27.95
Harris	9.18

** Schittenhelm and Tollens: Zentralbl. f. inn. Med., 1904, xxv, 761.

* Lissauer: Arch. f. Hyg., 1906, lviii, 136.

† Tobaya: Quoted by Sato

‡ Sato: Ztschr. f. exper. Path. u. Therap., 1910, vii, 427.

§ My calculation.

Obviously, such marked variations in results are rather startling and weaken one's faith in the efficiency of this method. Ehrenpfordt[31] remarks in his criticism of the method that there must remain in suspension with the bacteria bodies whose absolute weight is greater, but which, on account of their larger surface, offer greater resistance to the precipitating force and thus remain suspended. If the force of centrifugation is increased, these bodies will be ultimately precipitated, but so also will large numbers of bacteria. Undoubtedly also, foreign substances which are of absolutely greater weight, but which, on account of being in a state of fine subdivision, are relatively of the same weight as the bacteria, will also remain suspended, and so be carried over continuously and introduce error into the final result. Strasberger himself pointed out that certain amounts of soluble nucleoprotein may always be carried over. Berger and Tsuchiya[34] made a series of tests and found that this nucleoprotein ran from 0.2 to 0.9 parts per thousand in the feces in normal conditions, and might in catarrhal conditions reach as high as 3.8. Ehrenpfordt considers that this substance constitutes a negligible error, as much of it is washed away in the process of centrifugation.

Probably one factor stands out preeminently as a source of error and that is the value of the judgment of the operator in interpreting the clarity of the supernatant fluid, for this constitutes a critical point. In his original paper Strasberger was content to cease washing the fecal sediment when the supernatant fluid remained "moderately clouded" (*mässig getrübt*), a condition which allowed a tremendous degree in latitude of interpretation. Even when "clear" to the naked eye, the fluid may still contain considerable bacteria, and the sediment an abundance of them. I have taken in my work an index of clarity to mean not more than an average of 15 bacteria per field of the one-twelfth inch oil-immersion lens when one 1.5-mm. loopful of fluid removed by a pipet from the central part of the tube is dried on a slide without spreading. The pipet should be carefully wiped and the first drop discarded lest a slight surface film (of fat and bacteria) adhere to it on withdrawing the pipet from the centrifuge tube. One can never free the sediment of bacteria, and the number remaining undisengaged when the supernatant fluid is clear varies tremendously, in spite of continual rubbing up of it at the end of each centrifugation. The second great cause of error, the admixture of particulate foreign matter, cannot be dealt with successfully by a second centrifugation. I have attempted to overcome this by slowly filtering the collected supernatant fluid through wet absorbent cotton (from 4 to 5 sq. cm.) packed not too tightly in the bottom of a funnel 6 cm. in diameter. The cotton is afterward removed, its retained fluid squeezed out into a centrifuge tube, and then it is torn up into small fragments, cast into the tube, 40 c.c. of the acid solution added and the whole shaken violently for two minutes. The cotton is next to be removed and squeezed dry, and the tube is then whirled for five minutes at 1,500 revolutions per minute, its contents added to the general collection, and the resulting sediment again washed until the fluid remains unclouded.

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[29] Assmann: Ztschr. f. Tiermed., 1911, xv, 122, 264, 352.

[30] Hehewerth: Arch. f. Hyg., 1901, xxxix, 321.

[31] Ehrenpfordt: Ztschr. f. exper. Path. u. Therap., 1910, vii, 455.

[34] Berger and Tsuchiya: Ztschr. f. exper. Path. u. Therap., 1910, vii, 437.

Some operators say that the feces ought not to take more than 300 c.c. to complete the washing of the sediment "clear"; I have never succeeded in doing it with less than 600 c.c. and on an average 1,000 c.c. Further, it is quite impossible to precipitate the bacteria from the alcoholic solution in five minutes at 3,000 revolutions per minute, which Ehrenpfordt states is all that is necessary. With the suspension containing from 60 to 70 per cent. of 95 per cent. alcohol, it consumes, in my hands, one hour and a quarter before the "clarity index" is reached, using a centrifuge with a 15 cm. arm-radius and running at 3,000 revolutions per minute.

As a result of my investigation, I am of the opinion that if workers in this country, at least, are to continue using the method, some endeavor ought to be made to unify or standardize the technic; otherwise interlaboratory results cannot be considered comparable.

4. Interpretation of Results.—Considering the merits, then, of these three methods used as indexes for interpretation of results, I am fully convinced that the cultural method in the hands of the thoroughly initiated affords us data of such value that no mechanical method, dealing only with biologically inert matter, can give. One *must* know what these bacteria are, where they come from, what they do chemicobiologically, and how they are influenced by intestinal medication; and one other point in favor of the biologic method is its relative freedom from technical details, which comparatively results in a great saving of time and enables us more extensively to cover the field of investigation. It may be stated here in this connection that a single Strasberger examination cannot be completed under five days of continuous work —Mattill and Hawk mention seven—nor can one person take care of more than two stools per day with convenience.

PREVIOUS WORK

Probably Bouchard[35] more than any other is to be regarded as the pioneer in intestinal antisepsis. He drew attention to the chain of symptoms grouped under the names "auto-intoxication" or "stercoremia" and he attempted to prove that the urines in such cases were possessed of peculiar toxic principles conferred on them by absorption of putrefactive bacterial compounds from the intestinal tract. Attempts were made by him to lessen putrefaction by administering charcoal, naphthalin and iodoform internally. Baumann,[36] using the method for the determination of the ethereal sulphates in the urine as the gauge of absorption of putrefactive substances, was probably more responsible than any one else in putting calomel so high in the list of the so-called intestinal antiseptics, a place it has no right to hold based on any distinct antiseptic action. Morax[37] repeated Baumann's experiments and concluded that calomel acted in reducing ethereal sulphates not by any antiseptic action on intestinal bacteria, but by removing their putrefactive products rapidly from the bowel through active peristalsis. F. Müller[38] demonstrated that by increasing the carbohydrates of the food, indoxyl could be completely removed from the urine. Biernacki[39] amply confirmed Morax's observations, and showed that a milk diet was quite as effectual as calomel in lowering the ethereal sulphates. Fürbringer[40] placed no faith in calomel or naphthalin in cutting short the clinical course of typhoid fever; nor by culture methods was he convinced that either of them had any influence in reducing the numbers of the bacteria present in the stools. Stern[41] demonstrated culturally that *B. prodigiosus* introduced into the canal along with the food was not restrained at all appreciably by calomel. Schütz[42] proved conclusively that *Spirillum metchnikovii,* which ordinarily succumbs in the dog's intestine, appears in a viable condition in large numbers following the administration of calomel. Evidence given by the Strasberger weighing method, in the hands of its author[1] and by Feigen[43] demonstrates that the bacterial output is markedly increased above the normal (from three-fourths to two times). On the other hand, Berger and Tsuchiya[34] found a slight reduction in the bacterial output.

A great array of other drugs has been tested culturally, and reports pro and con have been expressed by the authors. For instance, Sucksdorff[3] claimed to have obtained a drop of one-third in numbers of colonies in his own stool after taking 3.6 gm. of quinin in divided doses; and even a more marked drop followed the administration of 2.1 gm. naphthalin. Kumawaga,[44] using 14 gm. acetanilid, U. S. P., on a dog, reported a reduction of colonies to the proportion of thirty-seven to one. Salkowski[45] got a considerable reduction of bacteria in the feces of a dog fed at intervals with chloroform water. Stern[41] found no effect following naphthalin, betanaphthol, salol and camphor. Von Mieczkowski[46] in cases of ileocecal fistula tested the antiseptic values of bismuth, silver citrate, tannopin, betanaphthol and menthol by mouth. With the exception of menthol, his results were of no value; in the case of the latter there appeared to be a substantial reduction following the giving of such amounts as from 10 to 13 gm. in divided doses. As late as last year, Assmann[29] reported negatively on guaiacol cinnamate (styrakol), tanninformaldehyd (tannoform), tribromphenol-bismuth (xeroform) and bismuth subgallate, using the culture method to gauge results. He employed dogs fed on milk-rice and meat-rice diets. In the same manner he tried the effects of two different silver-protein solutions (so-called "colloidal" silver solutions), which had been superficially tested by Klimmer[47] in 1900. If given in a solution of gum acacia along with the food, the results proved encouraging as the colonies per milligram of feces fell at times quite low. In the giving of colloidal silver preparations to man, it ought to be borne in mind that absorbed silver might be ultimately in part laid down in the skin. In the dog, Klimmer states that absorbed silver is laid down in the intestines, liver and spleen, but *not* in the nervous system, muscles, ligaments or skin; in the dog the skin is devoid of sweat-glands and this may be sufficient explanation why no silver is deposited there.

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[35] Bouchard: Lecons sur les autointoxications dans les maladies, Paris, 1887.

[36] Baumann: Ztschr. f. physiol. Chem., 1886, x, 123.

[37] Morax: Ztschr. f. physiol. Chem., 1886, x, 318.

[38] Müller: Mitt. a. d. Würzburger Klinik, 1886, ii, 352.

[39] Biernacki: Deutsch. Arch. f. klin. Med., 1892, xlix, 87.

[40] Fürbringer: Deutsch. med. Wchnschr., 1887, xiii, 209, 235, 257.

[41] Stern: Ztschr. f. Hyg., 1892, xii, 88.

[42] Schütz: Arch. f. Verdauungskr., 1901, vii, 43.

[43] Feigen: Inaug. Diss., Bonn, 1908, p. 39.

[44] Kumawaga: Virchows Arch. f. path. Anat., 1888, cxiii, 134.

[45] Salkowski: Virchows Arch. f. path. Anat., 1889, cxv, 339.

[46] Mieczkowski: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1902, ix, 405.

RELATIONSHIP OF BACTERIA TO STOOL, FOUND BY STRASBERGER TECHNIC (AUTHOR'S FINDINGS)

Patient	Date	Drug Dosage	Feces		Bacteria		Colonies in Millions, Per Gram	Indican in Urine	Appearance of Carmin Indicator
			Total Moist	Total Dried	Total Dried	Per Cent. Relation			
			Salol Test						
Rb.	3/ 4 /12	0	130	9.3	0.7	7.54	167	+++	0
	3/ 8 /12 3/ 9 /12	6.0	390	101.79	4.13	4.06	53	+	0
	3/10/12	0	165	34.48	6.4	18.56	110	+	+++
Mt.	3/ 7 /12	0	785	†	†		150	+++	0
	3/ 8 /12	6.0	0						
	3/ 9 /12		205	26.65	2.62	9.41	840	++	0
	3/11/12	0	650	131.49	3.64	2.76	820	++	+++
			Betanaphthol Test						
Ma.	3/25/12	0	140	28.89	1.31	4.55	30	—	0
	3/26/12	4.0	80	†	†		120	—	0
	3/27/12		185	42.60	2.14	5.02	34	—	0
	3/28/12	0	40	4.40	0.28	6.54	460	—	+++
	3/29/12	0	175	31.90	1.65	5.19	214	—	+++
	3/30/12	0	180	27.88	3.09	11.1	87	—	0
Ro.	4/27/12 4/28/12	4.0	320	77.08	14.27	18.51	320	+	0
	4/29/12	0	185	12.32	2.84	23.11	700	+++	+++
	5/ 1 /12	0	‡	‡					
	5/ 2 /12	0	235	8.15	2.39	29.41	10	+	0
	5/ 3 /12	0	155	14.38	2.17	15.09	37	+	0
			Guaiacol Carbonate Test						
Zm.	4/27/12 4/28/12	4.0	35	8.66	1.92	23.38	950	+++	0
	4/29/12	0	90	14.99	4.14	27.67	355	++++	+++
	4/29/12	0	150	12.46	3.18	25.44	85	0	+++
	*								
Kf.	5/ 6 /12 5/ 7 /12	4.0	‡	‡					
	5/ 9 /12	0	345	84.73	11.86	14.60	500	+++	+++
	5/10/12	0	100	14.97	1.94	12.95	540	+	0
	5/11/12	0	160	38.24	3.77	9.84	670	+	0
	5/14/12	0	180	22.19	5.07	22.87	30	+	0

* Further observations impossible, as patient was transferred to surgical ward. † No determination. ‡ Stool lost. — No test.

By the Strasberger technic the following agents have been literally "weighed in the balance and found wanting": naphthalin, thymol, silver citrate, betanaphthol and salicylic acid (doubtful), by Strasberger,[48] magnesium dioxid and iodo-anisol by Feigen;[43] in cases of intestinal catarrh, negative results were obtained by Friedenwald and Leitz[49] using salicylate of bismuth, salol potassium guaiacol-sulphonate (thiocol), acetylsalicylic acid (aspirin) and thymol; while favorable results with bichlorid of mercury and ichthyol albuminate (ichthalbin) were noted; but the sharpest fall in bacterial excretion was obtained in a case of intestinal catarrh with hyperacidity when the patient was simply put on a change of diet! Berger and Tsuchiya[34] report a lessened bacterial output by the use of a patented preparation of agar-agar and hydrogen dioxid. Steele[50] found that in normal persons the administration of betanaphthol and bismuth salicylate caused a slight fall in the bacteria excreted.

AUTHOR'S WORK

My own work on which I shall now briefly report was undertaken at request of the Council on Pharmacy and Chemistry with the object of testing the combined values of methods and drugs in this very doubtful field of intestinal antisepsis. On account of the rather limited time at my disposal, a series of unlooked-for interruptions and the length of time required in making analyses, the results are not so extensive as might be wished for, but they have been to me very illuminating and valuable.

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[47] Klimmer: Ztschr. f. Tiermed., 1900, iv, No. 4.

[48] Strasberger: Ztschr. f. klin. Med., 1903, xlviii, 491.

[49] Friedenwald and Leitz: Am. Jour. Med. Sc., 1909, cxxxviii, N. S., 653.

[50] Steele: Jour. Med. Research, 1908, xiii, N. S., 93.

The investigation naturally enough fell into two parallel lines of work, the one an application of the Strasberger technic; the other a bacteriologic inquiry used as a check or control on the first. The drugs tested were salol, betanaphthol and guaiacol carbonate. Three cases were used for the development of the Strasberger technic, and when that was acquired, six more furnished the real basis for inquiry. None of these persons suffered from intestinal disturbances. All were put on the well-known Schmidt-Strasberger diet, consisting of toast, milk, eggs, butter, potatoes, meat and oatmeal gruel in proper balance and sequence.

Half a gram of feces was always accurately weighed out for the centrifugation process, and 1 gm. for the bacteriologic examination. The gelatin plates were left at room temperature (15 to 23 C., depending on seasonal and steam-heat alternations) for at least five days; the agar-cultures were grown for the most part at 37 C. for forty-eight hours, and less frequently for seventy-two hours; the extra day of incubation did not affect the count sensibly, if at all.

The bacterial species predominating were *B. coli* and streptococcus, the former in greatly preponderating numbers, except in one case in which the species were in reverse order. *B. lactis aerogenes* was met with in few numbers in two cases; *B. cloacæ* in one; *B. coli anaerogenes (?)* in one; an undetermined yellow coccus in one; and *Staphylococcus albus* in another case; neither *B. proteus* nor any spore-bearing aerobe was found. Anaerobic tests were not carried out as a routine measure, as time was not available. Three tests were made for the presence of spores of Welch's bacillus (*B. aerogenes capsulatus*), and in each case positive cultures were obtained with 0.1 c.c. and with two loopfuls (1.5 mm. diameter) of a one-tenth dilution of the fecal sample, thus proving a relative abundance of viable spores of this organism in each stool.

Each agent was given to two patients, respectively, in six divided doses: salol 6 gm., beta-naphthol and guaiacol carbonate 4 gm., and with the first and last dose of each, a capsule containing 0.3 gm. of powdered carmin to indicate the visible limits of drug distribution and action.

In most instances the indican in the urine was followed daily by qualitative tests only. It was noted that as a rule less was apparent following the administration of the antiseptic, but inasmuch as the indol content of the stools was not followed, the value attached to such observations is considerably lessened.

In so far as figures go (see table), mine do not go to prove that any of the antiseptic agents employed exerted any beneficial action. In the bacterial count, such variations as occur indicate nothing more than what might be found in running a series of daily counts on an individual over a period of several days. This is shown by Sucksdorff; in an investigation of over twenty-four days on one individual the figures varied from a maximum to a minimum a little over ninety times. The greatest variation of colonies in my tests is shown in Patient "Ro" (betanaphthol) in whose case the figures sank from 700 in the medicated stool to ten in the one following, which was not exposed to the action of the drug. It is obvious, too, that the figures obtained by the Strasberger technic show nothing favorable to the action of the drugs, using either the absolute daily bacterial output or the percentage relationship of dried bacteria to dried stool as bases of comparison.

To generalize seriously from the very small number of experiments would be unwise, but so many have reported "favorably" on drug action based on really small falls in percentage relationship that I cannot refrain from pointing out what Strasberger[51] himself does not accentuate frankly in his first article dealing with the value of the technic, wherein in one and the same person (normal) in a series of fourteen counts the percentage relationship varied from 68.4 to 7.0, and in three cases the absolute output in three-day periods varied from 37.5 to 12.3 gm. MacNeal, Latzer and Kerr's experiments[7] show variations in twelve average percentages of 20.8 to 34.62 and in absolute output per day of 1.87 to 9.15. Hence I feel that if we are to accept results on the basis of figures alone, those obtained by the Strasberger technic are open as freely to criticism as are those obtained in the past by purely bacteriologic counts. So I believe that moderate falls in percentage relationship (which are usually obtained) may be expressive only of variations within the normal, and one must be extremely conservative then in arriving at any positive conclusion as to the effectiveness of any drug.

Moreover, were results trustworthy, can we by employment of this technic say what organisms are killed off, saprophytes from the contents of the small bowel, or parasites from the cecum or colon, indologenous or nonindologenous? We cannot. To-day as formerly we stand in need of a method which, aside from the production of mere figures, can tell us what organisms we have to deal with, what their biochemical processes are, and how this or that drug is acting in reducing both numbers and species, and in what location in the tract reduction is effected. Such information can be obtained only from the application of modern ideas of biochemistry and pharmacy in conjunction with present-day bacteriologic knowledge and technic, and it will be along such lines that future progress will manifest itself.

In conclusion it may be said that in spite of so-called "favorable reductions" being obtained by any method whatsoever, our plate-cultures plainly inform us that antiseptic drugs fail to kill off per gram of feces, millions of indol-producing bacteria, whose habitat is the large intestine. When some agent is put into our hands that, acting particularly in the large bowel, can consistently reduce those millions to hundreds of thousands, and these to hundreds, we may begin to talk comfortably about the great value of this or that form of intestinal medication. And on the basis of evidence, we can still heartily agree with the remarks of Friedenwald and Leitz[49] who said that "regulations of diet, together with the evacuation of the bowels, is the most effectual method that we have at hand of reducing the excessively high bacterial content of the large intestine".

I wish to acknowledge the debt of gratitude I am under to Prof. Lewellys F. Barker, of the Johns Hopkins Hospital, Baltimore, and his several house officers and to Drs. Sellards and Austrian, who have by their kind services made this contribution possible.

ABSTRACT OF DISCUSSION

DR. GEORGE M. STERNBERG, Washington, D. C.: I think it extremely probable that the negative results from the use of the so-called intestinal antiseptics will by further researches be shown to be what might have been expected. Indeed, I have never had any especial faith in the use of intestinal antiseptics that have been proposed and largely used by the profession. I do not mean to say that they may not have had a valuable therapeutic effect, but that that effect was from destroying microorganisms in the intestinal canal I have doubted very much and this doubt is confirmed by the paper I have just heard.

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[51] Strasberger: Ztschr. f. klin. Med., 1902, xlvi, 439.

Dr. Horatio C. Wood, Jr., Philadelphia: The effect of antiseptics in the colon seems to me to be a problem which is hardly worth the solving. As a practitioner of medicine I never expect to get any antiseptic action in the colon from an internal antiseptic. I think that is absolutely hopeless. What we want to do, if possible, is to find some drug which will influence bacterial multiplication in the upper part of the intestine.

Dr. J. H. Mason Knox, Jr., Baltimore: What is the effect of lactic acid bacteria on the number of flora in intestinal content and is it lactic acid bacteria in the solid or the fluid form? Both are advocated, and, particularly, do these organisms have any effect on the presence or diminution of the number of dysenteric organisms which are sometimes found in infants' stools in warm weather?

Dr. Norman M. Harris, Chicago: There was in the unread portion of my paper a reference to some recent work carried out by Assmann in Germany with certain colloidal silver preparations on dogs fed on a particular diet—milk and rice-meat diet—and he thought he was able to lessen regularly and materially the bacterial output which came presumably from the large intestine. His conclusions were favorable to these two preparations. Whether colloidal silver preparations can be given to the human being without producing deposition of silver in the skin is open to question. Therefore, colloidal silver will in all likelihood have to be ruled out from human treatment. What drugs may yet be forthcoming, which are likely to be effective on the intestine, I do not know. I do not think we ought to maintain any strongly pessimistic attitude, however, in regard to future developments.

EFFECT OF IODIDS ON THE CIRCULATION AND BLOOD-VESSELS IN ARTERIOSCLEROSIS *

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The iodids have long enjoyed the reputation of exerting a beneficial influence on arteriosclerosis. Their extensive use in this condition has been largely brought about by the enthusiastic teaching of the French school. Huchard[1] ascribed to iodids the power "to lower arterial tension, to render more active the nutrition of organs, to effect resolution of degenerative processes in the vessel-walls and to lower peripheral resistance." A belief in their power to improve the mechanical factors of the circulation and to act favorably on the vessel-walls forms the basis of our modern iodid therapy in arteriosclerosis. It will be profitable to weigh the evidence on which this belief rests.

I. EFFECT ON BLOOD-PRESSURE

Potain[2] was one of the first to attribute the virtue of iodid to a lowering of blood-pressure, which he considered was brought about by its action on the heart and vasomotor nerves. Animal experiments to determine this point have given somewhat conflicting results. Sée and Lapicque[3] gave intravenous injections of potassium iodid and noted first a rise then a fall of blood-pressure, which they attributed to heart weakness.

Huchard and Eloy[4] obtained a marked fall in blood-pressure following the administration of potassium iodid to rabbits, but only after large doses. A very careful series of experiments on animals was carried out by Prevost and Binet[5] by means of injections of both iodin and iodid salts. They failed to obtain any effect on arterial pressure from moderate doses, while excessive doses produced a fatal fall.

Isaak and Vander Velden[6] observed that following the injection into cats of iodid-egg albumin there was slowing of the pulse and a fall in the pressure, as a result of vagus stimulation, whereas after sodium iodid and potassium iodid no such effects were produced. Barbera[7] reported a similar effect on pulse and pressure from the injection of large doses of sodium iodid in animals, but attributed the result to a paralysis of the depressor nerves of the heart. In rabbits neither organic nor inorganic compounds caused any variation in the pressure. Likewise, in frogs, Kraus[8] detected no influence of various iodid preparations on the arterial tension.

The most exhaustive and convincing experiments of Gumprecht[9] led him to conclude that in the rabbit small and large doses of iodids were without influence on the pressure; that only extremely large doses endangering life caused a fall in tension; that neither a local dilating action on the vessel-wall nor a paralysis of the vasomotor center could be demonstrated.

The clinical evidence is not of a positive character. In reviewing the literature one is struck with a surprising difference of opinions on the part of clinicians as to the influence of the iodids on arterial tension. The problem has not received the careful study that its importance deserves. It must be admitted, however, that the effect of any slowly acting drug on the pulse is not easy to determine because so many other therapeutic measures, such as cathartics, baths, diet, etc., are usually employed during the iodid treatment.

Asher[10] considers that iodids lower the blood-pressure by acting on the vagus and the depressor nerve of the heart.

Chelmonski[11] advocates iodids to check internal hemorrhage, so sanguine is he that they lower arterial tension. Lewy[12] has seen no vasomotor action of iodids in health, but in disease of the arteries and heart he maintains that it acquires this property. This idea is strengthened by the observations of Thaussig,[13] who produced, by daily doses of iodipin in chronic lead-poisoning with hypertension, falls of 80 to 110 mm. Hg in the course of one to three weeks. A similar fall in a case of lead-poisoning was obtained by Pal[14] (165 to 75 mm.) by administering

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] Huchard: Traité de thérap. appliqueé, Paris, 1897, i, 295.

[2] Potain: La clinique médicale de la Charité, Paris, 1894.

[3] Sée and Lapicque: Bull. de l'Acad. de méd., 1889, xxii, 328.

[4] Huchard and Eloy: Bull. gén. de thérap., August, 1892.

[5] Prevost and Binet: Action de l'iode et des iodures sur la pression arterielle, Rev. med. de la Suisse, 1890, No. 8.

[6] Isaak and Vander Velden: Untersuchungen über das Verhalten des Kreislaufs bei Zuführ jodierter Eiweiss-Körper, Med. Naturweiss, 1907, Arch. i, 105.

[7] Barbera: Ueber die Erregbarkeit von Herz und Gefässnerven nach Injectionen von Iod, Arch. f. d. ges. Physiol., 1897, lxviii, 434.

[8] Kraus: Die Pathologie des Schilddrüse, Verhandl. d. Kong. f. inn. Med., 1906, p. 38.

[9] Gumprecht: Die Bedeutung des Iods als Vasomotorenmittel, Verhandl. d. Kong. f. inn. Med., 1901, xix, 260.

[10] Asher: Discussion, Verhandl. d. Kong. f. inn. Med., 1901, xix, 283.

[11] Chelmonski: Iodnatrium und Iodkalium als Heilmittel bei Blutungen, Arch. f. klin. Med., 1899, lxiii, No. 5, p. 636.

[12] Lewy: Discussion, Verhandl. d. Kong. f. inn. Med., 1901, xix, 283.

[13] Thaussig: Zur Kenntniss der Gefässwirkung des Iods, Wien med. Wchnschr., 1902, lii, 1399.

[14] Pal: Quoted by Janeway (see Footnote 23).

potassium iodid in doses of 5 gm. per diem for only a few days.

On the other hand, there is excellent authority for believing that iodids do not in therapeutic doses exert any influence on the size of the arterial lumen or on the heart's action (Romberg,[15] Harnack,[16] Cushny,[17] J. Mackenzie[18]).

Gumprecht's clinical studies are in accord with those he made in animals, viz., that single doses of iodids do not alter blood-pressure and that the long-continued use of iodids has no constant and distinct influence on pressure either in healthy individuals or in the subjects of arteriosclerosis. In a number of cases of arteriosclerosis with hypertension, I have given a single daily dose of potassium iodid for several days. I have been unable to obtain either an immediate or a remote effect on the blood-pressure.

A decrease in the viscosity of the blood was suggested by Müller and Inada[19] as the chief action of the iodids, with a secondary influence on the pressure. Boveri[20] noted a lessened viscosity of the blood both in rabbits and in men, especially those with hypertension, whereas Bachmann[21] obtained no positive results in his experimental work. The most authoritative conclusions come from Determann,[22] who found sometimes an increase, at other times a decrease in the viscosity. He considers these variations are all within the limits of the physiologic variation of viscosity.

It may be properly deduced from these investigations that *the iodids in therapeutic doses are not vasodilators in their immediate action as are the nitrites* (Janeway[23]). In the hypertension of arteriosclerosis (with the possible exception of cases of lead-poisoning) it has not been proved that the continuous administration of iodids lowers blood-pressure. It is improbable that the viscosity of the blood is sufficiently decreased by iodids to alter blood-pressure materially.

II. EFFECT ON BLOOD-VESSELS

When Koranyi[24] announced that by injecting iodipin simultaneously with epinephrin into animals he could prevent the atheromatous effects of epinephrin on the arteries, the explanation of the action of iodid on arteriosclerosis seemed close at hand. He believed that the iodid counteracted the effect of the increased blood pressure excited by epinephrin and thus protected the arterial wall from degenerative changes. Unfortunately his results were not confirmed by later investigation. Biland[25] and also Loeb and Fleisher,[26] in a large number of well-controlled experiments, found that iodin preparations instead of preventing, actually aggravated the arterial necrosis of epinephrin.

It is by no means necessary, however, to abandon our belief in the efficacy of iodid in arteriosclerosis because there is inadequate proof of its action on the pressure. Absorption of the cellular infiltration in the vessel-walls would improve the circulation by enlarging their lumen and restoring in some degree the vascular tonus. That iodids are of benefit in syphilitic endarteritis is generally agreed. According to Osler,[27] there is no other drug that has a direct influence on the coats of the vessels. Whether they bring any structural change in other forms of arteriosclerosis is open to question.

THEORIES OF ABSORPTIVE ACTION

Various theories have been advanced to explain the beneficial effects of the iodids on absorption, more especially in syphilis. The most important are as follows:

A. That iodids are germicidal. This is untenable because the spirochetes are not destroyed by the drug and syphilis cannot be cured by iodids alone.

B. That opsonins are increased by iodids. Van Strübell[28] found the opsonic index was decreased for staphylococci. So far as I am aware, the opsonins in syphilis have not been studied in relation to iodid treatment.

C. That leukocytosis and an increased flow of lymph is induced by iodids (Heinz[29]). Both of these reactions are slight, and, as they also occur from chlorids, cannot be looked on as in any way specific for iodids.

D. That free iodin is liberated in the gumma and in some way promotes absorption (Binz[30]). According to Heinz, the iodin is set free by the leukocytes and as a result of increased metabolism the gumma is absorbed.

E. That iodids increase the permeability of the vessel-walls (Heinz) and thereby promote absorption. This theory is largely hypothetic.

F. That iodids produce a *proteolytic ferment* (Dick[31]). This is best illustrated in the febrile reaction produced by iodids in certain diseases.

THEORY OF PROTEOLYSIS

In 1889, Marchoux and Bourret[32] pointed out that potassium iodid caused a febrile reaction in leprosy, similar to the reaction following the injection of tuberculin in tuberculosis. It is known that potassium iodid may set up a thermal reaction in tuberculosis (Sorel[33]). I have recently seen an exacerbation of fever and pulse in a case of actinomycosis in Dr. Halstead's clinic following large doses of potassium iodid. Furthermore, it exerts a distinct absorptive action on the granulomas of actinomycosis and leprosy as well as of syphilis (Ricketts[34]).

The explanation has been given that the potassium iodid in some way attacks the causative bacteria and sets free the specific toxins.

Sorel investigated this theory in tuberculous guinea-pigs, which he found were very susceptible to the action of potassium iodid. Tuberculous pigs immunized against potassium iodid were still susceptible to the tuberculin reaction and conversely, after immunization against tuberculin, they gave a febrile reaction to potassium

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15. Romberg, E.: Ebstein-Schwalbe Handbuch der praktischen Medizin, 1905, iv, 721.
16. Harnack: Centralbl. f. Physiol., 1898, p. 291.
17. Cushny: Pharmacology and Therapeutics, Phila., 1906, p. 570.
18. Mackenzie, J.: Diseases of the Heart, Oxford, 1908, p. 266.
19. Müller and Inada: Zur Kenntniss der Iodwirkung bei Arteriosclerose, Deutsch. med. Wchnschr., 1904, xxx, 1751.
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iodid. He proved that peritoneal exudate induced in the tuberculous animal by injecting potassium iodid into the cavity contained no tuberculin. From these premises, he concludes that potassium iodid does not split up the bacterial proteid as tuberculin does, and its action is not truly specific. The reaction may be represented as follows:

The union of potassium iodid with antibodies already present in the infected individual gives rise to a ferment which has the power of digesting certain proteids (granulomatous cells, gumma, etc.). In this process, toxic substances are formed which create local inflammation in the lesion and at times a general febrile reaction.

If this hypothesis is correct, we can see how potassium iodid may have the power of setting up a proteolytic ferment which has a *selective* (not specific) action on the diseased granulomatous tissue of the arteries in a certain group of diseases. The digestion and absorption of cellular accumulations are most complete in syphilis, less so in actinomycosis, leprosy and tuberculosis. This conception makes it clear why iodids so remarkably cure one manifestation of syphilis, viz., the round-cell infiltration and yet do not destroy the spirochete or terminate the disease as a whole.

CONCLUSIONS

Iodids in therapeutic doses are not active vasodilators and when long continued do not materially affect blood-pressure.

Iodids do not alter the viscosity of the blood to any marked degree.

The iodids probably owe their beneficial influence in syphilitic acteriosclerosis to the absorption of the cellular exudate in the arteries. The absorption may be brought about by the formation of a proteolytic ferment which is created by the union of iodid with antibody, and which has a selective action on the luetic cellular exudate. It is possible that this selective digestive action may be operative to a lesser degree on the cellular exudate in arteriosclerosis due to other causes than syphilis.

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ABSTRACT OF DISCUSSION

Dr. Bernard Fantus, Chicago: Clinicians have pretty definite ideas as to the effect of iodids on pathologic tissue—ideas which they have obtained by the study of countless cases and which are almost as reliable as those obtained from experiments on animals. I believe that it can be demonstrated that iodids are capable of diminishing the size of tuberculous lymph-nodes and that it can be proved that certain goiters diminish in size under iodid treatment. Thus, I have records of about a dozen cases of goiter which in six months of iodid treatment have been reduced in size by about three-quarters of an inch to an inch and a half. It seems that the mode of action must in all these cases be similar to that responsible for the benefit obtained in syphilis, and the theory that has been endorsed by Dr. Capps, which seems to me the best theory that we have yet had advanced, would also have to be applied to these other conditions, except that perhaps in case of goiter we would have to think of cellular rather than of bacterial antibodies.

Dr. J. A. Capps, Chicago: The reference of Dr. Fantus to the therapeutic use of iodids in tuberculosis suggests an interesting point. Pathologists frequently express the opinion that the administration of iodid is sometimes responsible for the development of miliary tuberculosis; that in advanced pulmonary tuberculosis particularly the administration of large doses of iodid causes a breaking down of tubercles and allows bacilli that were partly walled off to be absorbed in the blood and in this way induces a general dissemination of bacilli throughout the body. We need more evidence on this question. This is one of the problems which deserves further attention and which seems amenable to experimental work to determine whether the tuberculous foci are broken down by the administration of large doses of iodid.

CLINICAL OBSERVATIONS ON THE DURATION OF DIGITALIS ACTION *

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The object of these observations is to supplement and continue the studies on this subject which have been in progress in this laboratory for several years. In the present communication it will be my aim to present evidence from a clinical point of view to show that the action of digitalis may, and often does, persist for some considerable period of time after its administration has been stopped. Some of the evidence has been culled from the literature from the recent detailed case reports on the disturbances of the heart's rhythm caused by digitalis, and the rest from daily observations which I have been able to make on patients under the care of several of our foremost clinicians in two of New York's greatest hospitals. After a brief discussion of the phenomena which may be used as evidence of the action of digitalis on the human heart, and the presentation of the several cases showing the duration of these phenomena, we shall be in a position to consider the bearing the observations have on the question of "cumulation" as it is seen at the bedside.

THE PHENOMENA OF DIGITALIS ACTION

For the purposes of this study only such phenomena were chosen as could with a reasonable degree of certainty be attributed, in the cases reported, to the action of the drug and to no other factor, or such as could be ascribed to the action of digitalis when other possible causative factors had been eliminated or accounted for by contiuous observations of the entire course of treatment.

The following abnormalities may be found under a variety of circumstances, and hence before they can be ascribed to the action of the digitalis bodies it is necessary to observe several precautions in the collection of the recorded cases and the observation of patients. First, they must have been absent from the tracings taken before the administration of digitalis. Next, they must arise during the course of its administration. And, lastly, they must disappear at some time not too remote from the discontinuance of the use of the drug.

1. Probably the most striking traceable abnormality in the heart's rhythm which can be assigned to the action of digitalis is the phenomenon of the coupled beat. This is seen only in those hearts in which auricular fibrillation is present. It is well illustrated in the tracings reproduced in Figure 7. Lewis has shown the second beat to be due to a stimulus arising in the ventricle, and hence it is closely similar to a ventricular extrasystole occurring in a regular heart.

2. Sinus irregularities may arise as the result of the action of digitalis in patients with the normal heart

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* Read in the Symposium on Digitalis Action in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Department of Pharmacology, Loomis Laboratory, Cornell University Medical College.

* The expenses of this investigation were borne in part by the Therapeutic Research Fund of the American Medical Association.

* Because of lack of space this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

rhythm, and are probably correctly attributed to stimulation of the vagus mechanism by the digitalis. The irregularity thus caused involves the whole heart, and the period of slowing does not affect isolated beats but usually appears in waves, or so-called phases, during which there is a progressive slowing followed by a more or less rapid return to the normal (Fig. 12). The sinus arhythmia resulting from digitalis action usually differs from the "youthful type" of Mackenzie in the absence of the phasic changes due to respiration, though phasic changes may occur independently of the respiration. The sinus arhythmia of digitalis may be more or less pronounced, and it is best seen if the patient be made to exercise a little and the tracing be then taken as the heart is slowing.

3. Closely associated with the preceding, and having a similar etiology in the action of digitalis on the vagus, is the slowing seen in certain cases of auricular fibrillation in which there is again a progressive lengthening and shortening of the diastolic portion of the beats. The slowing in this case is, however, probably due to the development of a partial heart-block, and it is only the phasic character that is dependent on the vagus action.

4. Occasionally in the very long intervals in the phasic changes of sinus arhythmia, extrasystoles have been observed, arising from intrinsic ventricular impulses. In other patients, in whom there is no sinus arhythmia, digitalis may cause the appearance of extrasystoles. These extrasystoles have been shown to arise in response to a stimulus developing within the ventricle precisely as in the case of the second of the coupled beats, and in both cases this is probably the result of a heightened muscular irritability.

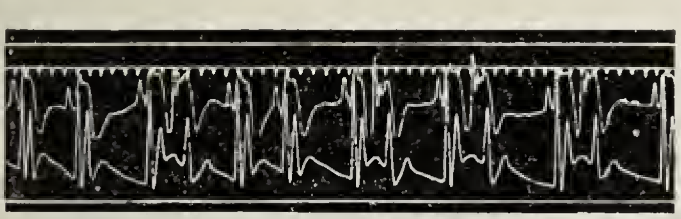

Fig. 7.—Jugular and radial tracing from Patient 4 (Figs. 3 and 6) thirty-six hours after beginning to take digitalis again; only 0.675 gm. had been taken.

5. Muscular irritability arising from the effects of digitalis on the cardiac musculature is common in animals but of rather infrequent occurrence in man. It is shown in one of my tracings (Fig. 15).

6. Pulsus alternans is attributable to a depression of contractility, and as the production of depression of this function is one of the actions of digitalis, it follows that this response is seen at times as a result of its administration.

7. The conductivity of the auriculoventricular bundle is also depressed by digitalis, and in certain instances this may become so marked as to give rise to partial or even complete heart-block. In some of the patients in whom this condition developed there had been a previous lengthening of the a-c interval, but this is not invariably the case, and the condition may arise in a patient with previously normal a-c intervals.

8. Auricular fibrillation has been reported by Mackenzie as resulting from the action of digitalis in one case, which will be cited in this paper.

9. Simple slowing may be considered a form of digitalis action which can be used as evidence of persistence. But it is to be noted that this effect is in the nature of a return from an abnormal to a normal condition, and consequently its persistence is frequently no criterion of the persistence of the action of the digitalis which caused the restoration of function. Under certain conditions of control, however, it does become possible to regard slowing as a sign of the persistence of action. To do this it is necessary to have determined the slowing effect of rest in the recumbent position on the pulse before any digitalis is given. Then there must be marked slowing as a result of the digitalis, which slowing must more or less speedily disappear after the drug has been withdrawn. In addition, after the cessation of the administration of the drug the other conditions of life of the patient must have undergone no material alteration. This is the least definite of the signs which may be used, and I have found it impossible to include in the following reports any cases which rest on this effect alone on account of their failure to comply with all of the prescribed conditions. All the rest of the phenomena of action being abnormal, they are not as subject to misinterpretation as this certainly is.

Having thus briefly indicated the possible signs by which we may judge the presence of definite persistence of the action of the digitalis bodies, I shall offer in very concise form the records of the cases on which this paper is based. For the sake of order the case reports are arranged according to the phenomena they show and not divided into my own observations as contrasted with those taken from the literature, but with each case report the source of the material is indicated. For the sake of later reference the cases are numbered in an unbroken sequence in the order of presentation. To preserve uniformity the quantities of digitalis taken are expressed in grams of the leaf, as this affords a ready means of comparison of doses when different preparations are used.

CASE REPORTS

CASES SHOWING THE PHENOMENON OF COUPLED BEATS

Case 1.—From Mackenzie.[1] A coupled-beat action was caused by 2½ gm. of digitalis which passed off within four days; resumption of the drug caused a prompt return of the coupled beats and the effects of an additional gram caused a persistence of the same for a period of eight days, with a second return in three days after only half a gram more had been taken.

Case 2.—Case of Dr. H. C. Bailey.[2] Persistence of the coupled-beat effect for eight days (and probably for longer) after 9.6 gm. of digitalis.

Case 3.—From Bailey.[2] During a period of nine days 2.7 gm. of digitalis produced the coupled-beat reaction which persisted for eight days after the last dose of the drug.

Case 4.—Personal observation. Coupled beats were induced by 3.25 gm. of digitalis taken over a period of seven days and persisted for nine days after the cessation of the drug. A little more than half a gram of the drug (0.675 gm.) in thirty-six hours caused a return of the abnormality eleven days after the last dose of the previous administration.

Case 5.—Personal observation. Coupled beats and slowing developed during the first course of digitalis treatment. The former lasted for four days after a total of 6.25 gm. of digitalis had been taken in a period of seven days. Return to digitalis after an interval of five days caused a speedy reappearance of the coupled beats and slowing, the former of which persisted for twelve days after the cessation of medication.

CASES SHOWING HEART-BLOCK

Case 6.—From Hewlett.[3] Heart-block resulted from the use of digitalis and lasted for three days after the discontinuance of the use of the drug.

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[1] Mackenzie: Heart, 1911, ii, No. 4, p. 305.

[2] Dr. Bailey has kindly loaned me the tracings of this and the following patient, previously reported by him, Am. Jour. Med. Sc., 1911, cxlii, 183.

[3] Hewlett: The Journal A. M. A., Jan. 5, 1907, p. 47.

Case 7.—From Bailey[2] (page 193 and Tracings 7 and 8 in his article). Heart-block persisted for six days after cessation of the use of digitalis.

Case 8.—From Mackenzie[1] (page 359). Heart-block developed under the influence of 4.5 gm. of digitalis in nine days and lasted for five days following its withdrawal. This occurred as a result of digitalis medication resorted to one week after similar previous treatment which had caused heart-block after 6.5 gm. had been taken.

SINUS ARHYTHMIA

Case 9.—Personal observation. Sinus arhythmia arose as the result of the taking of 2.5 gm. of digitalis, and lasted for two days after its withdrawal.

Case 10.—Personal observation. Sinus arhythmia arose in response to 2.6 gm. of digitalis taken in three days and persisted for two days after cessation of the use of the drug.

MISCELLANEOUS AND COMBINED PHENOMENA

Case 11.—Personal observation. In eight days 10.7 gm. of digitalis gave rise to cardiac irregularity due to muscular irritability, with extrasystole, the former of which phenomena lasted only two days.

Case 12.—From Mackenzie[1] (page 351). Extrasystoles, heart-block and sinus arhythmia developing after 5.8 gm. of digitalis slowly disappeared after its cessation. The sinus arhythmia lasted the longest, over six days. After a lapse of fourteen days squills did not cause a return of the previous phenomena until it had been taken for from ten to twelve days.

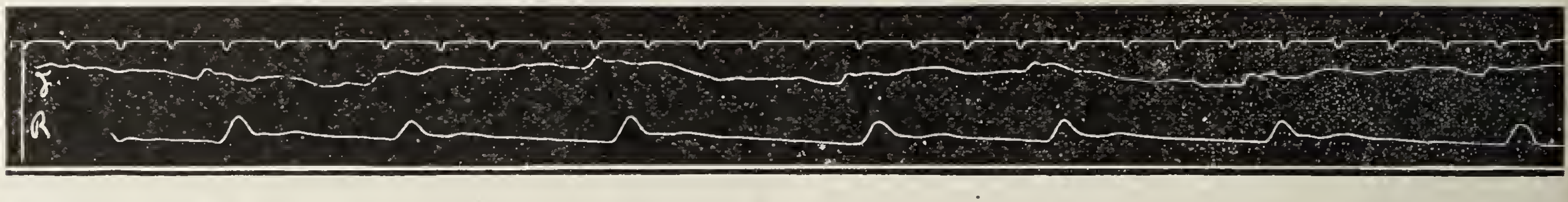

Fig. 12.—Jugular and radial tracing from Patient 9 (Fig. 11), four days later and one day after last dose of digitalis. Slowing and phasic changes.

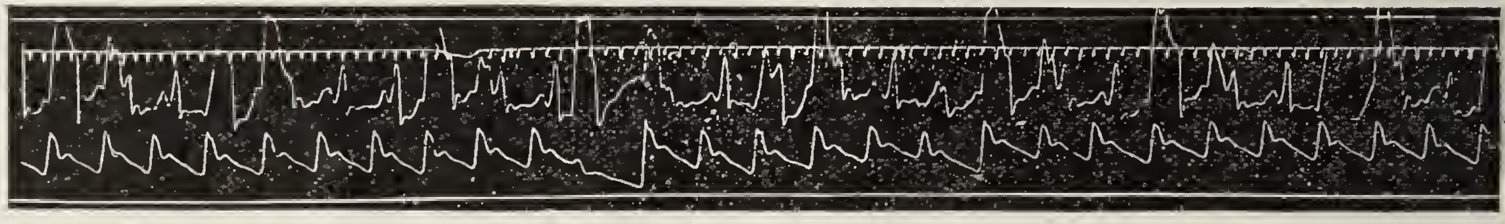

Fig. 15.—Apex and radial tracing from Patient 11, a few hours after the last dose of digitalis. Muscular irritability and one extrasystole.

Case 13.—Mackenzie[1] (page 335). Digitalis caused the development of auricular fibrillation in a previously regular heart. This fibrillation lasted a little over three days from the time of the last dose of the drug. The quantity of digitalis causing this condition was 3.5 gm., an amount which given over the same length of time sixteen days earlier had not produced any such effect.

While all of the preceding case reports deal with the duration of the action of digitalis itself, we have made many clinical observations on strophanthus, chiefly in the form of the pure principle, ouabain, or the crystalline g-strophanthin of Thoms, as it is less correctly termed. Most of these observations were made by my predecessor, Dr. H. C. Bailey, though I have made not a few myself.

The effects are prompt, owing to the fact that the drug is introduced directly into the circulation, and disappear almost invariably within twenty-four to thirty-six hours. By intramuscular injection the onset of the effects is nearly as prompt as by vein, and their duration is the same. These statements are based on the use of the drug in a very large number of cases, presenting a wide variety of cardiac lesions.

SUMMARY OF THE PRECEDING OBSERVATIONS

In five patients with auricular fibrillation digitalis produced the coupled-beat phenomenon with a maximum duration of this abnormality for eight days in two, more than eight in one, nine days in one, and twelve in the fifth. In two of the patients there had been a previous occurrence of the phenomenon in response to digitalis, lasting for four days in each instance. The smallest dose which, given without recent previous digitalis medication, sufficed to bring about this response was 2.25 gm. of the leaf. In three patients in whom coupled beats had arisen there was a return to the use of digitalis after a considerable interval of time, and after this phenomenon had passed off. The amounts of digitalis required to bring about a recurrence of the coupled-beat reaction and the interval which had elapsed from the last dose of the preceding course of treatment, together with the amount of the drug required in the first instance to produce the effect and the time from the onset of medication to the appearance of the phenomenon, are best shown in Table 1. These three cases, together with another (Case 8) will be the subject of further discussion.

TABLE 1.—AMOUNT OF DIGITALIS AND DURATION OF ADMINISTRATION BEFORE ONSET OF THE COUPLED-BEAT PHENOMENON

Case No.	Duration First Course (Days)	Total Dose (Grams of Leaf)	Interval Between Courses (Days)	Duration Second Course (Days)	Dose Causing Return of Phenomenon (Grams of Leaf)
1	7	2.25	5	9*	Less than 1.0
4	7	3.25	11	1½	0.675
5	7	6.25	5	2	Less than 1.0

* This long period in the second course of treatment is owing to the fact that the digitalis was given in very small doses and at long intervals (twice a day) so that, as is seen in the last column, the total given was very low.

Heart-block developed in three instances after digitalis was given to patients with previously normal rhythm, and lasted for three, five and six days, respectively, after the cessation of the use of the drug. In one of these cases (Case 8) the administration of 6.5 gm. of digitalis caused the appearance of heart-block which lasted for a period of less than a week. At the end of this time (one week after a total of 7.5 gm. of digitalis) it required only 2.5 gm. of the drug to bring about a return of the block. This will be discussed again in a subsequent portion of this study.

Sinus arhythmia arose in two patients with normal rhythm in response to digitalis administration, and in each the condition lasted for but two days after the drug had been withdrawn. In one patient with a previously regular rhythm digitalis caused the appearance of muscular irritability which was present for two days after the last dose of the drug. One patient with a normal rhythm developed extrasystoles, heart-block and sinus arhythmia while under digitalis treatment. The sinus arhythmia, lasting the longest, persisted for six days after the drug had been stopped. Digitalis caused the development of auricular fibrillation in a patient whose heart action had been regular. This fibrillation lasted for three days following the stoppage of the digitalis.

A more concise presentation of the major points brought out in this series of observations will be found in Table 2.

TABLE 2.—MAJOR POINTS BROUGHT OUT IN THIS SERIES OF OBSERVATIONS

Case No.	Heart Rhythm	Effect of Digitalis	Dose Causing Effect (Gms. of Leaf)	Total Dose Taken (Gms. of Leaf)	Duration of Effect After Last Dose (Days)	
1	Aur. fib.	Coup. beat.	2.25	2.25	4	(See also Table 1)
2	Aur. fib.	Coup. beat.	?	9.6	8+	
3	Aur. fib.	Coup. beat.	?	2.7	8	
4	Aur. fib.	Coup. beat.	2.7	3.25	9	(See also Table 1)
5	Aur. fib.	Coup. beat.	6.25	6.25	4	(See also Table 1)
6	Regular	Heart-block	?	?	3	
7	Regular	Heart-block	?	?	6	
8	Regular	Heart-block	6.5	7.5	?	(See details above)
9	Regular	Sinus irreg.	2.1	2.5	2	
10	Regular	Sinus irreg.	2.6	2.6	2	
11	Regular	Musc. irrit.	10.7	10.7	2	
12	Regular	Sinus, etc.	5.8	5.8	6	
13	Regular	Aur. fib.	3.5	3.5	3+	

We are now in a position to consider our facts and observations from an analytic point of view.

ANALYSIS OF THE PRECEDING OBSERVATIONS

As we have not the means of determining accurately how much of the digitalis given to man is absorbed and is acting on the heart, we must measure the duration of the action from the last dose, according to the nature and severity of the symptoms produced and their persistence. While the response to digitalis depends in great part on the nature of the heart's lesion and its functional capacity prior to administration of the drug, it would seem that, quite aside from these considerations, the responses to digitalis could be arranged in a sequential order of intensity somewhat as follows: (1) coupled beat, (2) heart-block, (3) combined phenomena, (4) auricular fibrillation, (5) muscular irritability in regular hearts, (6) sinus arhythmia. This arrangement of the phenomena conforms fairly well to the intensity of the digitalis action if we consider the mechanism of the production of each phenomenon and the differences in the individual susceptibilities of the patients. It has the further advantage of being in quite close conformity with the periods of duration of each of the phenomena. This is made clearer in Table 3.

TABLE 3.—RELATIVE INTENSITY OF DIGITALIS ACTION

Digitalis Effect	Mechanism	Duration (Days)
1. Coupled beats.........	Intraventricular stimulus; fibrillating heart......	4-12
2. Heart-block	Depression of conductivity	3- 6
3. Combined phenomena..	Simultaneous effects on several structures	6
4. Auricular fibrillation...	Direct action on auricular musculature	3
5. Muscular irritability...	Direct muscular action, normal muscle	2
6. Sinus irregularity......	Stimulation of vagus mechanism	2

If this suggestion as to the relative intensity of the several phenomena of digitalis action is a correct one, then the intensity of the action is apparently the most important single factor influencing the duration of the action after the digitalis has been stopped. This exactly corresponds to the results obtained in experiments on certain animals, which have been discussed in the preceding paper by Dr. Hatcher, and in which we see that the duration of the action is the longer the more nearly the dose given approaches to the fatal dose. This is but another means of expressing the degree of the intensity of action.

To illustrate graphically the varying intensity and duration of action as a result of the therapeutic use of digitalis, I shall introduce a chart (Fig. 17) on which I have projected the curves of three cases and a curve of the average of all the cases embodied in this report.

The base-line of the chart represents the condition of the heart prior to the administration of the digitalis. The therapeutic effects are shown by brackets as a zone of indefinite extent lying between the base-line of no perceptible action and the wide zone of distinctly toxic actions above. The zone of therapeutic action insensibly blends with the zones between which it lies. The ascending black lines illustrate the gradual increase in the action of the digitalis on the heart. These rise with continued administration until they pass into the zone of therapeutic action. This is seen clinically by an improvement in the symptoms and perhaps by a slowing of the pulse. Continuing the use of the digitalis, the lines of action rise further into the therapeutic zone and eventually pass into the zone of distinctly toxic actions. These I have indicated on the margin, but I do not wish to have it understood that in any one case the course of development passes through this sequence, or even that this sequence is strictly accurate in expressing the generalities of a series of cases. It is simply suggestive of a graduated intensity of action, as I have mentioned previously. A given case may show any one of the actions or several of them simultaneously (Cases 8 and 12). The traceable actions of digitalis fall for the most part within the toxic zone. If we let the ordinates represent days and the abscissæ the type and intensity of the response to digitalis, we may illustrate the rise and fall of the intensity of the action of an amount of digitalis producing any given response in the form of a curve. Continuing these curves, as dotted lines, back to the base-line, it will be noticed that I have not represented them as falling abruptly but have represented their descent as consuming a number of days. I base this view of the slow fall on the following observations:

1. In experimental work on animals it is possible to prove that digitalis is eliminated by a slow process and that its removal is proportionately much slower when the dose given is very toxic than when it is small and relatively slightly toxic. As Dr. Hatcher has already entered into the discussion of this, I will do no more than cite it here as a fact which has been proved for certain animals.

2. If we turn back to the details of four of the cases described in the first part of this paper (Cases 1, 4, 5 and 8) it will be seen that we have clinical evidence for the belief that in man, as in animals, digitalis is eliminated slowly. In Case 1 it took 2.25 gm. of digitalis to cause the coupled-beat phenomenon during the first course of administration. After an interval of five days without digitalis, during which time we must suppose that elimination was progressing, and after the coupled beats had disappeared, less than 1 gm. of digitalis was

required to bring about a return of the coupling. This small quantity was sufficient, although it was given in very small individual doses and over several days, during which further elimination was certainly occurring. The coupled-beat effect lasted for eight days, and a second return to digitalis, after an interval of ten days without it, brought about a prompt reappearance of the phenomenon in response to only 0.5 gm. Case 4 required 3.25 gm. of digitalis in the first course to produce coupled beats, and only 0.675 gm. was required to bring the phenomenon back eleven days after the last dose of the first course of treatment and two days after the coupled beats had disappeared. Case 5 required 6.25 gm. of digitalis in the first course before coupled beats appeared, and less than 1 gm. in the second course produced the same response after a five-day interval from the last preceding dose. In Case 8 the appearance of heart-block followed the taking of 6.5 gm. of digitalis; the drug was continued two days longer, raising the amount for the first course to 7.5 gm. After a week without any medication 2.5 gm. of digitalis caused a return of the block.

From these four cases I conclude that the elimination of digitalis in man is slow and that after the disappearance of the traceable signs of its action there remains, in an active state in the tissues, a very large portion of the total digitalis absorbed and acting prior to the cessation of its administration. This period of digitalis action, which cannot be definitely shown to exist by means of tracings or even by clinical signs in the majority of patients, may be termed the *period of latent action.* It is represented by the slowly falling line below the level of obvious action, either therapeutic or toxic, as the case may be. Its duration is of uncertain length. It corresponds exactly, except of course as to time, to the period of latent digitalis action which Dr. Hatcher has shown exists to such a marked degree in the cat.

From these observations I suggest that in man digitalis is more or less firmly fixed in the tissues, probably of the heart, in such a manner that so long as it remains it continues to exert its action in direct proportion to the quantity present. This fixation is such that the drug is but slowly given up and eliminated. Smaller subsequent doses at varying intervals of time after previous administration, but such as fall within the period of latent action, are needed to bring about the return of effects similar to those first produced. This return of action in response to a smaller second dose is due to the direct summation of the drug fixed in the tissues and that introduced subsequently.

The curve of action of ouabain, plotted as in the case of digitalis, would be represented by a line which would rise most abruptly, owing to the introduction of the drug directly into the circulation, and would fall within a period of thirty-six hours. Here, again, we have in man a striking similarity to the behavior of the cat to this glucosid, as shown by Dr. Hatcher. In other words it is rapidly eliminated and it is not firmly fixed, though its immediate action may be no less severe than that of digitalis.

Once more we may apply to man an argument which has been applied to animals in controverting the idea suggested to the effect that the persistence of digitalis action is persistence truly of *action* and not of the drug; in other words, that it is due to the duration of the *effects* of the action of the drug on the heart and not to the continued action of the drug itself. This is shown to be an erroneous conception by the fact that in the case of ouabain (see Case 15), after it had caused the appearance of the coupled-beat action, this phenomenon lasted less than thirty hours. It is possible to repeat doses of ouabain such as cause this effect, at intervals of from twenty-four to thirty-six hours without bringing about any more lasting action than that just mentioned. There seems to be but one conclusion which is logical and in agreement with the observed facts, and that is that the ouabain is not lastingly fixed as is digitalis, and that the phenomenon of the persistence of digitalis action is due, not to the lasting *effects* of any injury to the heart, but to the *actual presence of the drug* in the tissues in active form.

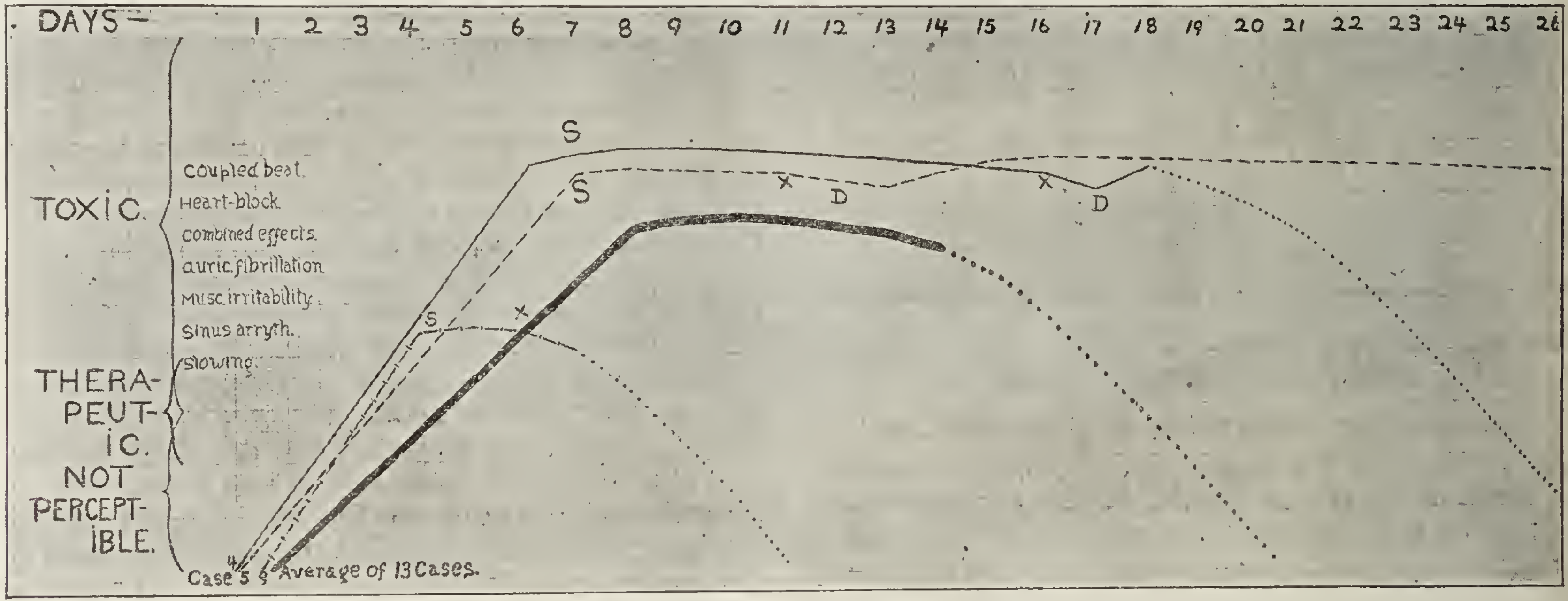

Fig. 17.—Chart illustrating the duration of digitalis action in man. The days are indicated by the ordinates; the type and intensity of the digitalis action by the height above abscissa. The administration of digitalis begins at abscissa and stops, in each case, at the point marked S. The particular toxic action of each case persists to the point marked X. In the two upper lines the point D indicates the beginning of the second course of digitalis administration. The heavy black line is the curve obtained by averaging the several factors for the entire series of cases reported in this paper. It is made to ascend to a mean height of toxicity which is not to be read as corresponding to any one of the special types of action. The phenomena noted in the zone of toxic action are arranged in an arbitrary order of ascent, the reason for which is discussed in the text. The dotted lines of descent are hypothetical and are discussed in the text.

CUMULATION

The use of the term "cumulation" is a very loose one indeed, it being applied to a variety of widely different conditions. Perhaps its most general application is to express the development under small repeated doses of a drug of symptoms which are much more marked than those caused by a single small dose. Accepting this as best expressing what is meant by the term, I suggest the following mechanism of the development of this condition in the case of digitalis, based on the foregoing material and the points which I have tried to bring out in my discussion.

Mechanism of Cumulation of Digitalis.—Cumulation in the case of digitalis is the result of a simple summation of amounts absorbed and fixed in the tissues, probably of the heart, and, owing to the firmness of this fixation, the intake is in excess of the elimination. The fixed portion continues to exert its typical action on the heart, and this action is directly dependent on the amount of the drug so fixed. The continued use of small doses of the drug, and within certain limits, the interrupted administration of small doses, raises, by the process of summation, the total amount fixed and acting on the heart to such a point that toxic symptoms develop.

Note.—In addition to the articles previously cited, the following references will be found of interest:

Cushny, A. R.: Am. Jour. Exper. Med., 1897, ii, 233; Am. Jour. Med. Sc., 1911, cxli, 469.
Hewlett, A. W.: The Journal A. M. A., Nov. 4, 1911, p. 1512.
Lewis, T.: Heart, 1910, i, No. 4, p. 306.
Mackenzie, J.: Diseases of the Heart, Ed. 1, 2.
Turnbull, H. H.: Heart, 1910, ii, No. 1, p. 15.
Wenckebach, K. F.: Brit. Med. Jour., 1910, ii, 1600.
Windle, J. D.: Heart, 1911, iii, No. 1, p. 1.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. HATCHER * AND EGGLESTON

Dr. David Marvin, Burlington, Vt.: About a month ago I began experiments with digitalis on man to determine four things: first, whether there was, from a single dose, a continuance of action; second, if it influenced respiration; third, if it slowed the pulse and fourth, its effect, if any, on blood-pressure. I gave 20 minims of tincture digitalis U. S. P. to twenty men and took observations every five minutes over a period of two hours. The results were negative, thus showing that digitalis does not influence respiration, pulse-rate or blood-pressure within two hours after administration of a single dose.

Knowing that Dr. Hatcher had demonstrated a persistence of action of digitalis, for a long period of time, in the cat, I thought I might get the same results in man. I therefore repeated the former dose, using the same number of men and took observations twice daily for three days. The results obtained were as follows: a persistence of action for fifty hours was characterized by an increase in blood-pressure which reached its height in twenty-four hours and then decreased until the end of fifty hours when it reached the normal average. The pulse was lessened. Respiration did not seem to be influenced at any time during the fifty hours.

Dr. Louis Faugeres Bishop, New York: I can confirm everything that has been said about the effect of digitalis on patients with heart disease. We must not lose sight of the fact that the heart action itself is one of the most difficult things to explain in all physiology. We cannot explain it on the ground of nerve action because a great many animal hearts would beat regularly without any nerve connections at all. We cannot explain it on the effect of any intermittent action causing the heart to contract because there is no intermittent action we can discover. So we are compelled to come down to the explanation of the heart beat as an intermittent action due to a continuously active force. Nobody is able to explain that satisfactorily except on one assumption, and that is on the chemical basis. We have to predicate the production in the heart of some chemical substance which is continuously being formed and which reaches a certain point of accumulation which results in the heart-beat; then this substance is either destroyed or modified by the heart-beat so that it has no further action and then when it accumulates again the heart can beat again, which is a perfectly clear explanation of the heart action. The heart after a single beat cannot be made to beat again until after an appreciable interval. My conception of the effect of digitalis is that it modifies in some way this chemical substance in the heart which has to do with the heart-beat just as a chemical mixture is modified by a reagent; soon a certain point is reached at which reaction takes place. Now if part of the reagent that is destroyed disappears, to obtain reaction again so much need not be added. I believe digitalis represents persistence in the heart of a modification of this hypothetical substance which has to do with the heart-beat. In clinical medicine in heart trouble, of course, we all know that fibrillation of the auricle represents the great disease in which digitalis is most effective and that it produces a partial heart-block. A case of fibrillation auricle, that is, a very rapid and absolutely irregular pulse, comes under observation. Large massive doses of digitalis are given until some toxic or physiologic pulse is perceived. I give digitalis until I get vomiting, diarrhea or slowed pulse. After that the very small dose and doses at long intervals will keep up the effect. I saw a patient from the South, who had dropsy and shortness of breath and a pulse of 160, absolutely irregular, and a swollen liver. The patient was given digipuratum, an extract of digitalis. In two weeks he had recovered.

Dr. R. L. Wilbur, San Francisco: Is there any satisfactory method, physiologic or chemical, for identifying digitalis in the excretions? Often there are toxic effects from the administration of such drugs because the patient is given the full dose in the ampules provided by pharmacists without regard to weight or age.

Dr. Arthur D. Hirschfelder, Baltimore: A certain number of patients admitted to hospitals and put at once on digitalis exhibit symptoms of digitalis poisoning or even die suddenly. Although most patients have received digitalis in some form or other before entering the hospital these cases are often ascribed to hypersensitiveness to the drug, whereas Dr. Hatcher's experiments indicate that they may be the result of residual digitalis action. I think that the observations of Dr. Hatcher and Dr. Eggleston throw on those of us who are compelled to apply these things clinically a very delicate question of judgment, and I hope that they will be able to give us some rule for their application in practice. I agree entirely with what Dr. Bishop has said that, as Mackenzie has found, the absolute arhythmia of auricular fibrillation represents the condition in which the most satisfactory results are obtained from the use of digitalis; but I have rarely been able to get the pulse-rate down to 50 without obtaining other undesirable symptoms: palpitation, a feeling of weight on the chest or emptiness in the limbs, and particularly persistent weakness. I think that it is a safer procedure to lower the pulse-rate at first to about 80 and then to go very slowly in lowering it further to the rate at which the patient feels most comfortable.

Where in the scale of digitalis effects which Dr. Eggleston has given would he place the effects on tonicity, which, in Dr. Cameron's experiments done in my laboratory some years ago, seemed to appear before the onset of any arhythmia? Dr. Eggleston's scale also differs somewhat from the one that I had been led to adopt through some experiments on the irritability of heart muscle that I made by faradizing the dog's auricle with gradually increasing currents. The mildest effect was the production of extrasystoles: a slightly greater stimulus and slightly greater irritability caused regular paroxysmal tachycardia with approximate doubling of the rate; and a still further increase caused fibrillation. Evidence from clinical cases seems to harmonize with this view; and it has recently been adopted by Thomas Lewis. Moreover, it harmonizes with the effects which Bredig and Wilke, the physical chemists, observed in the course of rhythmic chemical reactions, such as the catalysis of hydrogen peroxid by mercury under the influence of ascending electric currents. They found that under weak currents the bubbles of oxygen formed in regular rhythm; with increased current they were liberated in pairs like extrasystoles; and when the current was still greater, there was an explosion into a rapid rhythm which simulated tachycardia or fibrillation.

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* Dr. Hatcher's paper is published in the *Archives of Internal Medicine* and abstracted in the Current Medical Literature Department of this issue

Dr. E. W. Tully, Philadelphia: In the cases of normal hearts, when injecting atropin we get at least a rise of thirty beats during the hour. In cases of typical auricular ventriculation under similar circumstances we get at least forty or sixty, sometimes seventy-five. Clinically, these are the cases in which you know digitalis is going to do good. Take sclerosis thus fibrillated; with a similar amount of atropin injected during the hour you get perhaps fifteen or twenty, an increase of fifteen or twenty beats in the hour. In that case you know you are not doing good clinically with digitalis or any cardiac stimulant. The thing that is interesting in some of these cases is the withdrawing of vagus control. In the cases of auricular fibrillation with high pulse-rate the digitalis seems to calm that excitability. In these neurotic cases digitalis does not seem to do good. In all probability they have lost their function for absorbing and holding digitalis. It seems to me that is entirely possible.

Dr. Reid Hunt, Washington, D. C.: Returning to the pharmacologic aspects of the subject, quantitative studies, like these, on the duration of the effects of drugs, are so rare that it may be of interest to refer to the only similar studies I remember. Heymans and Masoin found that when a minimal fatal dose of potassium cyanid was divided into fractions and these injected into a rabbit in the course of an hour, death resulted; when, however, the injections of the lethal dose (in fractions) were extended over an hour and a half, the animal recovered. They argued that if a fatal dose of potassium cyanid, which is one of the most rapidly acting poisons, is still fatal when its administration is extended over an hour, there is probably no poison or drug the toxic dose of which can safely be repeated within an hour. It would be interesting to see if conclusions along these lines could be drawn from the studies of Dr. Hatcher on digitalis, that is, if the experiments would permit conclusions as to the shortest period in which it would be safe to administer doses which, taken together, would constitute a toxic dose.

Dr. William Salant, Washington, D. C.: The results of Dr. Hatcher are in all probability due to some injury rather than to retarded elimination, for it is hardly conceivable that an organic substance should take so long as thirty days for its elimination. It is doubtful, therefore, whether the increased toxicity observed by Dr. Hatcher is due to slow excretion. Were there any other symptoms noticed during that time besides those due to disturbance of the circulation?

Dr. Henry Beates, Philadelphia: My studies of digitalis have been limited exclusively to clinical observations, resulting in conclusions explained as follows: It is well known to all of us that in the normal animal, ligation of a branch of the coronary artery results in insular action of the ventricle. I think that fact demonstrates a fundamental principle which governs the clinician in the administration of this remedy in pathologic conditions. That principle is based on this: Given a heart-beat, the contractility of the myocardial cells is not called into action again until the intercellular fluid has assumed its normal condition. We know through studies in the laboratory, that renormalizing, if it may be so expressed, of the intercellular fluid takes place in an infinitesimal period of time. We also know from studies of metabolism that the cell will not perform its function, even though the materials for that cell to functionate are present in abundance, unless the cell is activated by the ions of the necessary crystalloid, as, in the heart, for instance, potassium, barium or calcium. Therefore, in morbid conditions, the action of the cell depends on the normality of the intercellular fluid. And that normality, in turn, is conditioned by the mean pressure existing between the arterial system, on the one side, and the venous on the other; osmosis, osmotic pressure, diffusion, etc., are all conditioned on this equilibrium. In digitalis exists the power of increasing the force of the cardiac beat, and also that very important arterial function, too much overlooked, propulsion. By administering digitalis (and I mean by that a standardized preparation not made from "40 cent leaves" but the $1.20 type), we restore the arterial pressure and thereby reestablish the normal condition of the intercellular fluid. It is then that the myocardial reaction results. The fact that the active principle that does the work of that drug is eliminated, as alleged, with astonishing slowness, is probably explained in this way. There is such a thing as physiologic equilibrium which must not be overlooked. In pain one secures relief with a dose of morphin, for illustration. The function of the nerve is afterward maintained long after elimination has occurred, because physiologic equilibrium has certainly been restored, and the absence of the pain indefinitely certainly does not demonstrate a combination of morphin and protoplasm, which requires all that time to be eliminated. The greatest field to demonstrate the point in question is in nutritional diseases. If a reliable digitalis is given which will give active physiologic effects, you bring about a physiologic normality of the cells of all structures.

Mr. Otto Raubenheimer, Brooklyn: I would like to know from Dr. Eggleston whether the infusion of digitalis which varied over 50 per cent. was made recently, that is, whether it was comparatively fresh, and whether it was strictly a U. S. Pharmacopeia preparation. I would also like to know from the pharmacologists as a member of the Revision Committee of the Pharmacopeia, whether the infusion of digitalis should have any alcohol added to it? It has been stated that this alcohol should be deleted for two reasons. One, in the first place, would be that the average pharmacist seems to be under the impression that the alcohol is added to keep the infusion and for that reason he keeps it in stock bottles and dispenses it. Some say that the addition of alcohol works antagonistic to the action of the digitalis.

Dr. Robert A. Hatcher, New York: The question of fixation of the digitalins in the tissues of the heart has been investigated by Cloetta and by Straub. I have also used rats, which are nearly a thousand times as tolerant of these bodies as cats, for the investigation of this question, but without success, despite the sensitiveness of the biologic test employed. Schliomensun found that extracts of the heart combined chemically with one of the digitalins, but Straub found that very dilute solutions of these substances did not cause standstill of the perfused frog's heart, whereas we have found that a vastly more dilute solution in the mammalian blood-stream sufficed to stop the heart, suggesting that combination with the tissues does take place, since some of the bodies at least leave the blood-stream of the cat very quickly.

The variability in the persistence of action of the several digitalins is a matter to be borne in mind. Dr. Wilbur is referred to an article in the *American Journal of Physiology*, 1909, xxiii, 303. Ouabain is excreted rapidly by the rat, and I have reason to believe that the rabbit also excretes digitoxin very rapidly. This bears on the question of Dr. Salant, and furthermore, I know of no evidence against the prolonged persistence of action of certain of the digitalins and in favor of the phenomena observed being due to injury alone. We know nothing concerning the excretion of the digitalins in the urine, in which digitoxin was not found after very large doses administered to rabbits.

The full action of digitoxin in moderate doses appears to be exerted slowly, but very large doses act with amazing swiftness after their injection directly into the circulation. The rabbit eliminates the digitalins very rapidly and the action of these bodies persists but a few hours at most in this animal. Dr. Beates is referred to New and Nonofficial Remedies, in which it is stated that digitalin chloroformique is a mixture consisting largely of digitalin true, and that digitalin, German, is a mixture of digitalin, digitonin and other principles.

We must divest ourselves of many preconceived opinions concerning the digitalins, for many of the questions of fundamental importance in the therapeutic use of these bodies have not been investigated.

Dr. Cary Eggleston, New York: In reply to Dr. Hirschfelder regarding digitalis poisoning, I am of the opinion that patients are not infrequently admitted to our hospitals who are in a state of cardiac decompensation but who have been given digitalis before admission. The previous use of the drug is unknown to the patient and usually not recognized by the physician, who at once prescribes digitalis. We have some observations which lead us to believe that this has actually resulted fatally to the patient, because of the action of an overdose as a result of summation. Certainly, some of the forms of irregular heart action which I have mentioned as resulting from digitalis might well be mistaken for a primary cardiac disturbance, particularly if tracings are not taken. Its use should not be continued beyond the establishment of one or another of the traceable abnormalities which are known to result from its administration. Not that it is necessary in all cases to go this far, but that one should go no farther. In auricular fibrillation the patient seems to be at his best after the production of the coupled beats, a decided abnormality but apparently a lesser evil than the one from which he was previously suffering. This brings up Dr. Hirschfelder's question regarding tonus. I believe that this is probably among the earliest effects seen, though it may not be evident until late in some cases. It may precede any traceable effect and is to be recognized by an improvement in all of the symptoms. The patient feels better, his cyanosis and dyspnea disappear, the urine increases, and he is able to lie down to sleep. My arrangement of the phenomena of action, I know, does not agree with Lewis' findings in electrical stimulation of the heart, but it conforms to the duration of the action of digitalis, and to a certain extent to the degree of divergence from the normal. I suggest that the effects of electrical stimulation and digitalis are not precisely analogous. The question of repetition of the drug I should say would depend on the results obtained in each case and should be controlled by one's observations. In the choice of the preparation of digitalis to be used I am inclined to the belief that intravenous administration of ouabain may be preferable in the face of acutely broken compensation, and that digitalis (by mouth) should be selected to maintain a prolonged action.

ANTITYPHOID INOCULATION: THREE YEARS' EXPERIENCE WITH ITS USE IN TRAINING SCHOOLS FOR NURSES IN MASSACHUSETTS*

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BOSTON

Pfeiffer's experiment, which led Wright to introduce anti-typhoid inoculation into the British Army, was more far-reaching than one could have imagined at that time. All are familiar with the extensive work which has been accomplished on these lines in the English, German and United States armies.

Inoculation material has been most varied. Heat-killed vaccines have been the most popular and in fact the only preparation used to any considerable extent in man. But animal experiments and a few human inoculations have been attempted with other material. Vincent[1] recommends macerated organisms sterilized by ether. Müller[2] has treated cultures with lecithin and extracted the product with chloroform. Rusznyák[3] has used the typhoid immune serum, while Besredka[4] and Bessau[5] have employed mixtures of the serum and dead organisms. Chemical agents such as silver salts, glycerin, sodium carbonate, formaldehyd solution and phenol (carbolic acid) have been widely used to sterilize cultures. Macfadyen[6] has employed frozen, powdered and filtered organisms. But the most extreme method is that of Castellani,[7] who employs on his third and fourth injection living organisms which have been attenuated by an exposure to 50 C. The advantages and disadvantages of these methods, although worthy of prolonged discussion, cannot be considered at the present moment.

All practical work has been accomplished in artificial typhoid immunity by means of heat-killed vaccines. Pfeiffer and Kolle[8] and Wright[9] recommend heating to 60 C., but Leishman[10] and Russell[11] advise only 53 C. In my work I was guided by the careful researches of Major Leishman[10] and others of the British Commission,[12] whose work alone at that time seemed complete.

It is well recognized that the typhoid bacillus is the greatest foe to the soldier in the field. During the last century nearly all the armies of the civilized world have been devastated by this infection, but the dangers of typhoid communication were not fully realized until the discovery of the specific organism by Eberth in 1880, and its demonstration in the various excreta of the body which followed shortly.

It was shown by Joslin and Overlander[13] that the nurses of Massachusetts were eight times more liable to typhoid infection than others less intimately associated with the sick. For the ten years ending 1908, two to four nurses contracted typhoid fever in the Massachusetts General Hospital alone. According to my statistics[14] there was a morbidity of 1.4 per cent. among the nurses as compared with Joslin's of 1.41 per cent. among the nurses of most of the large hospitals of Massachusetts. This unnecessary prevalence of typhoid fever in the best regulated of our hospitals caused Dr. Mark W. Richardson, secretary of the State Board of Health, who had long been interested in the disease and its prevention, to bring the matter before the governing boards of the Massachusetts General Hospital. Their response was prompt and decisive so that inoculation was started there at once and has been continued regularly to the present time.

In order to produce immunity in such a class of individuals it was necessary to demonstrate the safety of the process and the relative ease with which it could be accomplished. To bring about this result I proposed the use of small doses, frequently repeated, of a low virulence vaccine. My vaccine material was and still is essentially the same as that used by Leishman and Russell.

TECHNIC

In my work the technic is briefly as follows: The stock culture was isolated from the spleen of a patient with typhoid fever in 1902, so that its attenuation has been considerable. Its killing power with animals is one-fourth that of a similar culture only 1 year old. The organisms grown on agar slants for twenty-four hours, are killed by an exposure to 53 C. in the water-bath for an hour. Standardization is made with the Zeiss blood-platelet counter. Injections are four in number and are given at five-day intervals. The doses, which vary somewhat with the size of the individual, are 100 million, 200 million, 400 million to 600 million. For small women and children the amount of the vaccine is proportional to the body weight.

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* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Vincent: Bull. de l'Acad. de méd., Paris, 1910, No. 24, p. 615.
2. Müller: Ztschr. f. Immunit. u. exper. Therap., 1910, i, Part 5, p. 587.
3. Rusznyák: Centralbl. f. Bakteriol., 1911, 1 Abt., lviii, 134.
4. Besredka: Ann. de l'Inst. Pasteur, 1902, xvi, 918.
5. Bessau: Centralbl. f. Bakteriol., 1911, 1 Abt., lix, 549.
6. Macfadyen: Brit. Med. Jour., 1903, i, 882.
7. Castellani: Centralbl. f. Bakteriol., 1909, 1 Abt., lii, 92.
8. Pfeiffer and Kolle: Arch. f. Schiffs- u. Tropen-Hyg., 1905, ix, 327.
9. Wright: Brit. Med. Jour., 1897, i, 256.
10. Leishman: Jour. Roy. Med. Corps, 1907, viii, 463.
11. Russell: Johns Hopkins Hosp. Bull., 1910, xxi, 83.
12. Harrison: Jour. Roy. Arm. Med. Corps, 1907, viii, 472; Leishman, etc., ibid., 1908, x, 583, xi, 327.
13. Joslin and Overlander: Boston Med. and Surg. Jour., clvii, 427.
14. Spooner: Am. Jour. of Pub. Hyg., 1909, xix, 616.

The site of injection is preferably in the left interscapular region, but many inoculations have been performed at the insertion of the left deltoid. The latter seems less convenient because of the considerable muscular activity in the neighborhood of the swelling which occurs in almost all instances. Alcohol is used as a local antiseptic. When large numbers are to be inoculated at one time several syringes are used which are boiled between injections, care being taken to cool the syringe before vaccine material is introduced.

REACTION

It is a well-recognized fact that debilitated persons present the most profound reactions, and I have observed that latent and chronic disease of a non-typhoidal character may be made active by an inoculation. I have avoided vaccination in such individuals—especially tuberculous patients, but I have suffered a few accidents through improper histories. In this way a temporary but not serious acute exacerbation has taken place in three patients with chronic arthritis, in a patient with chronic cholecystitis, one with subacute urethritis and in patients with quiescent cases of furunculosis and acne. The duration of these untoward effects was very short.

The safety of my work necessarily calls forth a discussion of the "negative phase" so strongly supported by Wright, Morgenroth and Vincent. Since many of the nurses are exposed to the disease during inoculation a period of diminished resistance would be of great danger. Pfeiffer, Leishman and Russell have shown that the period following injection is one of increased resistance, however. This is in perfect accord with the small morbidity of typhoid among these nurses and eighty others who were most intimately exposed to the disease before and during inoculation. In this light it is interesting and important that few inoculated during the incubation period presented a milder form of the disease than those from whom the infection arose.

The reactions have been reasonably slight. Locally the site of inoculation presents a tender, painful wheal. When a vein is accidentally punctured a more severe local reaction results, the swelling and ecchymosis persisting several days. The neighboring lymphatic glands may become enlarged and tender, but the duration of the latter symptom is short, and the local soreness rarely lasts longer than from twenty-four to thirty-six hours. The constitution reaction in my latest personal cases, some 400 in number, is as follows:

Absent or slight................	86 per cent.
Moderate; i. e., malaise, headache and fever not exceeding 100.5 F.	10 per cent.
Severe; i. e., vomiting, diarrhea and chills and fever reaching 102 to 103 F.................	4 per cent.

These symptoms last from twelve to twenty-four hours, rarely forty-eight hours. Furthermore, in only five instances has a moderate or severe reaction been produced in any individual by more than one of the four inoculations. Fifty per cent. of the moderate reactions followed the second injection, the first and third dividing the remainder nearly equally. Among the severe reactions 50 per cent were produced by the third, the first and second dividing the remainder. Only very rarely does the fourth inoculation produce any discomfort. I have observed that when inoculation is started on the eve of catamenia or during the early days of flow, constitutional reactions are apt to be more severe. As a result, I plan as far as possible not to have the first two injections fall within those days.

HOSPITAL INOCULATION

During the first year my work was limited to the Massachusetts General Hospital, but since that time inoculations have been performed by me or under my supervision among the nurses and others intimately exposed to the disease in twenty-three hospitals in Massachusetts, through the efforts of Dr. Richardson. In all, 1,585 individuals have received this treatment. The result of hospital inoculations is told in a word by the following tabulation:

Individuals inoculated in hospitals........	1,361
Individuals uninoculated (but exposed) in same hospitals	674
Cases of typhoid among the inoculated—excluding 3 who were inoculated during the incubation period (one of these was a paratyphoid infection)..............	3
Cases of true typhoid among inoculated...	2
Cases among the uninoculated (9 of these were paratyphoid cases)...............	17
Cases of true typhoid among uninoculated.	8
Morbidity among inoculated..............	0.15 per cent.
Morbidity among uninoculated...........	1.19 per cent.

The last figure is somewhat lower than those of Joslin[13] and myself[14] quoted above. But it shows what may be expected among such large numbers of nurses unprotected by inoculation. The marked reduction among the inoculated needs no further comment. The two cases contracted among the inoculated occurred in the following manner: One nurse, a year following inoculation had attended outside her hospital two typhoid patients who died. Her disease was severe but was followed by recovery. The other, two years after inoculation, while caring for several patients, received in the mouth some typhoid material. Although the mouth was washed with antiseptics a mild infection followed.

In the Massachusetts General Hospital where inoculation has been in progress for three years and where over 80 per cent. of the nurses and others exposed to typhoid have been protected, no cases of typhoid fever have been contracted. Table 1 illustrates exposure in the medical wards during the typhoid season of ninety nurses who had completed their course and ninety-two who were still in training.

TABLE 1.—EXPOSURE OF NURSES IN WARDS DURING TYPHOID SEASON

	Av. Months of Typhoid Duty.	Av. Months of Typhoid Night Duty.	Percentage of Nurses Serving Night Duty During Typhoid Season.
Pupils	2.42	0.54	42
Graduates	2.88	0.64	57
Total	2.64	0.59	44

The high percentage of inoculated nurses serving night duty during the typhoid season is most suggestive, since that class furnishes most of the cases of the contracted disease. In all fairness it must be stated, however, that rather fewer cases of the disease have been treated in the hospital during this three-year period. But this reduction is in no way proportional to the decrease of the incidence above noted.

BLOOD CHANGES

Agglutination reactions have been performed by the microscopic method because of its ease, accuracy and its moderate value. The first hundred cases showed positive reactions in the following dilutions two weeks following inoculation:

1:50 or greater. :	80.6 per cent.
1:25 or greater	94.2 per cent.

Macroscopic agglutination reactions at an equal interval show positive results varying between 1:1,000 and 1:10,000. This quality of the blood persists to a considerable degree for two years, but is still evident after two and one-half years.

That an immunity exists in the presence of a positive agglutination reaction of even mild degree is most reasonable. But the converse is not true, since all are familiar with the usual transient character of the antitropic substances of the blood following an attack of the disease itself. Further investigations of blood changes, i. e., bacteriolysins, opsonins, etc., have not been carried out. since those points are now well established.

EPIDEMICS

The employment of this treatment in epidemics has been meager. This has been due no doubt to the fear of the so-called "negative phase." It has been attempted twice by me. In one instance the infection proved to be paratyphoid, and the results, though interesting, are of no great value. They are as follows:

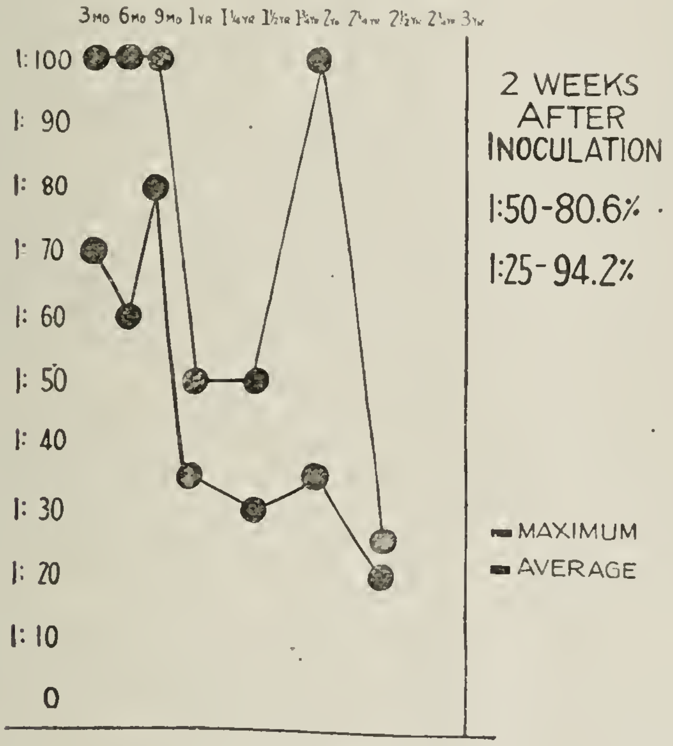

Figure 1.—Microscopic Widals.

Morbidity among uninoculated	12 per cent.
Morbidity among inoculated	6.6 per cent.

These figures are somewhat striking since each class embraces an equal number of individuals. Over 80 per cent. were inoculated during the incubation period, a fact which detracts considerably from the value of the statistics. But in spite of this, there is a considerable reduction of morbidity and only two cases appeared after inoculation was completed. Inoculation during this epidemic was of doubtful value.

The second epidemic was of greater interest and the results proved more satisfactory. The water-supply of a limited number of people in a little Vermont village became contaminated with the typhoid organism from the excreta of an isolated individual who had died from the disease six months prior to the epidemic. The original primary cases, seventeen in number, appeared simultaneously (Fig. 2). Within a week twenty-nine of the remaining forty-eight who had been exposed to the disease through the water-supply had been inoculated. Nineteen remained uninoculated. Among the latter five cases developed, among the former one. The latter presented his first symptoms immediately following his first inoculation. His disease was of a very mild variety.

The small size of this epidemic forbids drawing too broad conclusions, but it seems rational to advise the employment of inoculation, since no harm appears to result when the vaccine is given in a judicious manner. Furthermore, the absence of cases contracted among the inoculated in this epidemic and in several isolated cases of immediate exposure seems to be far from a coincidence. Inoculation in the time of epidemics must be performed with care, since it is inevitable that many must be inoculated during the incubation period. The result of this accident is not serious, however. My experience would indicate that the onset of symptoms was hastened by this step, but that the infection was shorter and of a less severe character, possibly because of the destruction of organisms before they had multiplied to a sufficient extent to produce a natural reaction from the unassisted body.

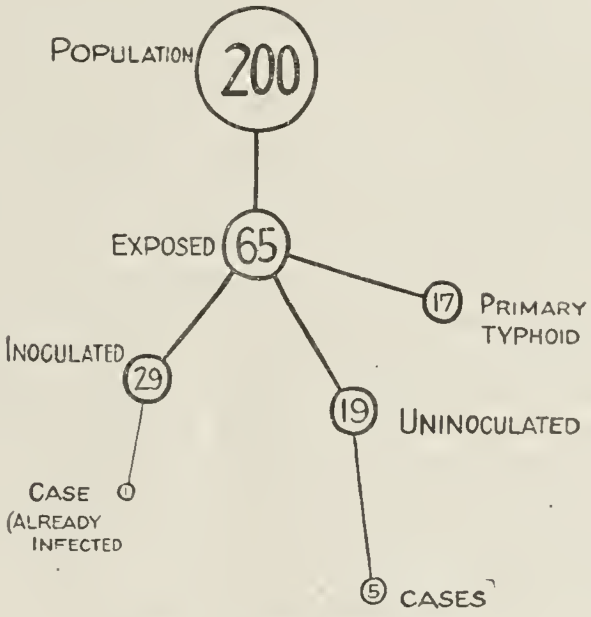

Figure 2.—Greensboro epidemic.

Including this epidemic and other personal cases the final statistics are as follows:

Inoculated individuals	1,585
Uninoculated individuals	700
Cases among inoculated (excepting those mentioned)	2
Cases among uninoculated (with similar exceptions)	13
Morbidity among inoculated	0.12 per cent.
Morbidity among uninoculated	1.86 per cent.

CONCLUSIONS

Frequent injections of small amounts of a low-virulence vaccine cause slight inconvenience.

They seem to produce a protection among nurses, who are eight times more liable to the disease than the average individual.

Their morbidity, under ordinary conditions, is 1.4 per cent, or nineteen cases among 1,361.

Only two cases developed under these conditions.

Case morbidity among the uninoculated in these hospitals is nearly nine times greater than among the inoculated, subjected to similar conditions.

No permanent untoward effects have arisen from over 5,000 injections.

The blood-picture indicates a certain protection lasting at least two and a half years.

The use of this means of protection has been shown to be safe in two epidemics and very efficient in at least one of them.

[Note.—I am deeply indebted for their careful work in completing subsequent inoculations and for excellent records of Dr. E. M. Crane, of Hardwick, Vt., and to those physicians in charge of the hospitals in which inoculation has been introduced.]

260 Clarendon Street.

SOME RESULTS AND FIELDS OF USEFULNESS OF ANTITYPHOID VACCINATION [*]

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Since the results of our campaign against typhoid in Texas have become generally known, there has developed among the medical profession and the laity an active interest in typhoid prophylaxis by means of bacterial vaccines, and for this reason it is believed that a statement of our experience in the army and the present status of the subject may be of value.

To illustrate by comparison I shall refer to vaccination against small-pox, it being the only other measure of this kind which has been extensively used and carefully studied; we know positively that when vaccination against small-pox is thoroughly carried out the disease disappears; we also know that the duration of immunity following vaccinia is not so long as our forefathers believed. In Germany the vaccination of infants is compulsory and revaccinations are required at school age, at the age of compulsory military service and again if there be exposure to the disease, at least three separate vaccinations being required during a lifetime. There is a general belief among the profession and the laity in this country that the immunity conferred by vaccination becomes ineffectual after from seven to ten years. The British royal commission[1] in its final report dated 1896 drew the following conclusions:

> The protection it affords against attacks of the disease is greatest during the years immediately succeeding the operation of vaccination. It is impossible to fix with precision this period of highest protection. Though not in all cases the same, if a period is to be fixed, it might, we think, fairly be said to cover in general a period of nine or ten years. . . . When revaccinated persons were attacked by or died from small-pox the revaccination had for the most part been performed a considerable number of years before the attack. There were very few cases where a short period only had elapsed between the revaccination and the attack of small-pox. This seems to show that it is of importance, in the case of any person specially exposed to the risk of contagion, that they should be revaccinated, and that in the case even of those who have been twice revaccinated with success, if a long interval since the last operation has elapsed, the operation should be repeated, for a third and even a fourth time.

Important further light on the subject is found in an article by Kitasato on "Vaccination and Small-pox in Japan."[2] As Japan is an island kingdom environed by unvaccinated countries in which small-pox is endemic, the disease in a virulent form is frequently introduced. Beginning with the year 1879 elaborate and careful statistics have been collected, which show quite definitely the gradual diminution of the immunity beginning with the second year after vaccination. Kitasato's table, based on 951 cases, is as follows:

SUCCESSFUL REVACCINATION AFTER:

1 year	13.6 per cent.
2 years	32.9 per cent.
3 years	46.6 per cent.
4 years	57.3 per cent.
5 years	51.1 per cent.
6 years	63.8 per cent.

Weil[3] reported in 1899 72.5 per cent. of successful revaccinations after seven years, 80 per cent after eight years, 85 per cent. after nine years and 88.6 per cent. after ten years.

Kitasato concludes that "the immunity acquired through vaccination begins to disappear during the second year, and by the tenth it has almost completely disappeared."

We have, then, some definite facts regarding a successful prophylactic treatment with which to compare vaccination against typhoid fever.

DURATION AND DEGREE OF TYPHOID IMMUNITY

Two questions frequently asked are, "What is the duration of the immunity?" and "Is it absolute?" First, as to its duration: Our own experience, beginning as it does in 1909, is too recent to be of value. From the rich experience of the British army in India Colonel Firth[4] concludes that immunity begins to diminish in about two and one-half years after inoculation. His tables also show that even after four and five years, the maximum period of observation, the rate per thousand among the inoculated is, roughly speaking, only one-fourth that of unprotected troops.

In the early days there was a tendency to consider that this immunity lasted for little more than a year, since agglutinins disappeared from the serum at about this time, but we know that agglutinins are present as long after vaccination as after typhoid fever, which gives, as a rule, protection for life.

As a matter of fact, we do not yet know definitely the duration of immunity following antityphoid vaccination; it begins to diminish at about the same time as immunity to vaccinia and it is possible that it may last nearly if not quite as long.

We know also that the immunity is not absolute, for in 1911, among 80,000 persons vaccinated in the army, there were twelve cases of typhoid with one death (due to intestinal hemorrhage); and in 1910 there occurred six cases among the vaccinated with no fatalities. Had it not been for the prophylactic immunization there would have occurred, at the prevailing rates of incidence, about 250 cases. The fact that the immunity is not absolute is no objection to its use, but is rather an argument for its repetition at intervals to be determined in the future as the lessons of experience become clear, just as we now do in the case of small-pox. It is our present practice to revaccinate against both small-pox and typhoid at the beginning of each three-year period of enlistment.

The failure to secure absolute protection in these few cases may be due to inefficiency of the vaccine, to exposure of the patient to exceptionally large quantities of infectious material or inability of the individual to respond to immunization with the usual antibodies; and this failure can best be interpreted as a personal idiosyncrasy.

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[*] Read in the Symposium on Antityphoid Vaccination in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] Article on Vaccination, Encyclo. Britannica, Ed. 11.

[2] Kitasato, S.: The Journal A. M. A., March 25, 1911, p. 889.

[3] Weil, quoted by Kitasato (Note 2).

[4] Firth: Jour. Roy. Army Med. Corps, 1911, xvi, 589.

With the limited number of doses of vaccine now used we can never hope to raise the immunity high enough to protect against overwhelming doses of infectious material and there are, no doubt, certain persons who cannot be completely protected against typhoid any more than against small-pox. We know that certain horses cannot be profitably used for the production of antitoxin and that not all laboratory animals respond equally to immunization.

Although we may fail in exceptional instances to prevent infection it is probable from our experience that the severity of the disease is modified and the death-rate lowered.

These comparisons prove that in antityphoid vaccination we have a method for the prevention of disease which approaches in efficiency if it does not equal the prevention of small-pox by vaccinia.

USE OF THE TYPHOID PROPHYLACTIC

The vaccine, or typhoid prophylactic, as we style it, consists of a suspension of dead bacilli in salt solution to which is added 0.25 per cent of tricresol as a measure of safety. The vaccine is accurately standardized by counting the bacilli; 500 millions are given as the first dose and 1,000 millions each for the second and third, ten and twenty days later. The skin of the upper arm is sterilized with iodin and the vaccine is injected subcutaneously. There is a local reaction consisting of a small red and tender area lasting about forty-eight hours. The general reaction, when present, gives rise to a headache and malaise and sometimes to fever, chills and occasionally to nausea, vomiting or diarrhea. The severe reactions are exceptional and do not occur in more than from one to three persons per thousand. The occurence of a severe reaction need not give rise to anxiety since they all pass off quickly and leave no trace. We have always insisted that only the healthy should be vaccinated, since a severe reaction in one weakened by disease might do harm. No precautions are taken after vaccination other than to warn against the use of alcoholic drinks and severe exercise. No hard work is required of troops during the following twenty-four hours, but they are not excused from ordinary routine work, as a rule. At one recruit depot during the past ten months 6,690 men have been vaccinated three times, making over 20,000 vaccinations; and only 223 men were excused from duty as a result, or about one in ninety; this record is probably higher than would occur were it not for our custom of vaccinating simultaneously against small-pox on one arm and against typhoid on the other. If the vaccinia is severe, the second dose of antityphoid vaccine is postponed a few days, but it has not been necessary to deviate in any other way from this routine.

RESULTS OF ANTITYPHOID VACCINATION

The total number of doses of our vaccine which have been used up to the present time is over 400,000, and no bad results have been reported; thanks to the efficiency of iodin as an antiseptic and the presence of 0.25 per cent. tricresol in the vaccine there have been no skin infections. We have always insisted that the dose be given subcutaneously and never into the muscle, since slow rather than rapid absorption is desired. In such a large number of hypodermic injections one might expect some accidental complications, yet only one has been reported, a case of temporary musculospiral neuritis. It is well to remember, however, that none but healthy persons should be immunized with the dosage used by us; by diminishing the quantity and increasing the number of doses it should be possible to immunize almost any one regardless of age or health. The present dose is arranged for a healthy man weighing 150 pounds, and is diminished for women and children in proportion to their weight.

The value of the protection given against typhoid fever can best be shown by stating briefly the results obtained at San Antonio and along the Mexican frontier during the spring and summer of 1911, and by contrasting these figures with the records of the Spanish War.

A division of troops, about 20,000 men, was mobilized in Texas and along our southern boundary as far west as San Diego, Cal., in March, 1911; they remained in camp and on march for a period of over four months; then the majority returned to permanent army posts. Immediately on the receipt of orders for mobilization the Surgeon-General made arrangements for compulsory vaccination of the entire command, with the exception of a few persons over 45 years of age. The vaccine was prepared at the Army Medical School, and sent forward as rapidly as it could be used. The immunization was carried out after the troops arrived at their destination and while they were under canvas without interfering with their work. As a result we have to record only two cases of typhoid, one in Texas and one in California, both ending in recovery, in the entire number of troops in the field.

In 1898, during the Spanish War, there were assembled at Jacksonville 10,759 troops among whom there were certainly 1,729 cases of typhoid, and including those probably typhoid, 2,693 cases, with 248 deaths. This camp lasted approximately as long as that at San Antonio; the number of men was less by about 2,000; the camps were situated in about the same latitude and both were furnished artesian well water; yet in 1898 there were over 2,000 cases and 248 deaths and in 1911 there was one mild case. We know that this immunity was not due to lack of exposure since the fever prevailed to a considerable extent in and around San Antonio. To be sure, our camps were more hygienic and sanitary than any we have ever had before, and the sick-rate from all causes was low, yet the men were permitted to visit town, where they became, for the time, a part of the community and were exposed to the usual sources of infection; yet there was almost complete absence of typhoid fever. This circumstance should leave no doubt of the value of antityphoid vaccination, since it is apparent that perfect camp sanitation cannot explain the immunity enjoyed by those who left camp. It is highly probable that there were also a few chronic bacillus-carriers among our own men, yet owing to vaccination and the excellent sanitation of the camps, the men remained healthy. Protection of the individual by vaccination is the only measure of protection independent of surroundings and effective under all conditions.

Compulsory vaccination in the southern maneuver camp was ordered March 9; the order was made applicable to all recruits for the army June 9, 1911, and was extended to include the entire personnel of the army under 45 years of age, Sept. 30, 1911. It follows that the number of men vaccinated increased by leaps and bounds; at the commencement of the year not more than 15,000 had been immunized while at the end there were over 55,000. If vaccination gives the protection which we believe it does, it should show in the total number of cases occurring during 1911, and the accompanying table has been prepared to show the statistics for the past four years. In considering this table it is well to remember that 1911 was a year of unusually great exposure, due to an extraordinary amount of field service.

DECREASE IN TYPHOID FOLLOWING ANTITYPHOID VACCINATION

	Cases		Deaths		Vaccinated Persons	
Year.	No.	Ratio per 1,000 Mean Strength.	No.	Ratio per 1,000 Mean Strength.	Cases.	Deaths.
1901	552	6.74	72	.88	..	..
1902	565	6.99	69	.85	..	..
1903	348	5.14	30	.44	..	..
1904	280	4.77	20	.33	..	..
1905	193	3.39	17	.29	..	..
1906	347	6.15	15	.26	..	..
1907	208	3.87	16	.29	..	..
1908	239	3.20	24	.31	0	..
1909	282	3.35	22	.26	0	..
1910	198	2.43	14	.17	0	..
1911	68	0.82	8	.097	12	1
1912*	7	0.20	1	.003	3	0

* Ratio for 1912 based on experiments for first half year.

For the present year, 1912, there have been reported during the first six months, seven cases, only three of which were in immunized persons; two of the remaining four developed in recruits within two weeks of the date of their entry into the service; should this rate continue we should not expect more than fifteen or twenty cases during the entire year.

The statement of these three results: those obtained in the Southern Maneuver Division, in the whole army in 1911, and in the first four months of 1912, should convince any one of the high protective value of this form of prophylaxis. Excellent results have been obtained in the past, particularly by the British in India, yet as the measure was to a certain extent a voluntary one, the objection has been made that the statistics conveyed a false impression as to its value, since the men who volunteered, being careful and thoughtful individuals, would probably not have contracted the disease in any event. This objection we have disposed of in our service by making the vaccination obligatory on every person under the control of the commanding general. In fact, it is difficult to conceive of a more complete and thorough-going test of any measure than has been given this, and the results are evident.

FEASIBILITY OF GENERAL INOCULATION

A word as to the necessity for this form of prophylaxis. It is generally admittd by the opponents and more numerous luke-warm adherents of antityphoid vaccination, that it is essential for the Army and the militia of the several states, in times of war and mobilization. Has it not, however, a field of usefulness in civil life in this country? It has been repeatedly shown that the incidence of typhoid fever is higher in hospitals than in the cities in which the hospitals are situated,[5] and there is pretty general agreement that the medical and nursing staffs and employees should be vaccinated. For the same reason all who in any way come in contact with the sick should be immunized, since typhoid, like other exanthems, is contagious during the prodromal stage.[6] In this group we may place the personnel of dispensaries, various charities and undertakers.

Another large group comprises those who live in industrial villages, mining towns, isolated communities where the typhoid death-rate is above the average. Workhouses, asylums and especially schools come in this category.

There is another large group of persons living under conditions simulating those occurring with an army in the field, although without the same sanitary safeguards. I refer to the camps of engineers, contractors and pleasure seekers. Here, if anywhere, the use of the typhoid prophylactic would richly repay the time and trouble necessary for its administration. Its usefulness, however, is not limited to these classes of persons. The typhoid death-rates for New York, Boston, Chicago and most other large cities in the North are low, varying from 4.7 in Bridgeport, Conn., to 17.5 in Philadelphia, and as long as the inhabitants of these cities remain at home they run little danger of contracting the disease. Remaining at home, however, is a thing most of us do not do; we send our patients, families and go ourselves to the seaside and mountains where the typhoid rate is five and ten times as high as at home. In the cities we depend on pure water, proper disposal of wastes and the intelligent activities of an energetic municipal health department. In going into the country or traveling from place to place where the usual safeguards are lacking, why not avail ourselves of this form of individual prophylaxis which is efficient in all places and at all times?

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5. Richardson and Spooner: Boston Med. and Surg. Jour., 1911, clxiv, 8.
6. Conradi: Klin. Jahrb., 1907, xvii, 297

INOCULATION AGAINST TYPHOID

IN PUBLIC INSTITUTIONS AND IN CIVIL COMMUNITIES: A FURTHER REPORT*

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BALTIMORE

Since the experimental inoculations of Wright[1] and of Pfeiffer and Kolle,[2] in 1896, immunization against typhoid fever not only has been tested out in various armies and proved of inestimable value in reducing the number of cases of this disease in military camps, but also has been used in hospitals to lower the attack-rate among nurses and attendants. More recently, even certain state and city boards of health have adopted this procedure in their fight against typhoid.

The utility of this measure in military life is settled beyond debate, while its usefulness in protecting those exposed to infection in hospitals cannot be disputed. Indeed, it is our belief that the time is not far distant when those in charge of such institutions not offering this means of protection to their nurses and attendants will be considered culpably careless.

Again, it is our firm conviction, based on results we have obtained, that inoculation against typhoid is adaptable to preventing epidemic and sporadic cases in public institutions, particularly those for the insane and feebleminded.

The advisability of extending typhoid vaccination to civil communities at large, however, may be considered an open question. It might be argued that the various measures now used in the war against enteric fever are all that are essential; that if cities and towns direct their attention to obtaining pure water, clean milk, the proper disposal of sewage, and freedom from flies; if shell-fish and green vegetables are obtained from sources above the suspicion of pollution; and if reports of all cases of typhoid fever are followed by placarding the houses, screening the patients and disinfecting the excreta, bedding and utensils likely to be contaminated by such excreta, it will be unnecessary to add typhoid vaccine to their armamentarium.

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* Read in the Symposium on Anti-Typhoid Inoculation in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Bacteriologic Laboratory of State and City Boards of Health.

1. Wright: Lancet, London, Sept. 19, 1896.
2. Pfeiffer and Kolle: Deutsch. med. Wchnschr., 1896, xxii, 735.

Such a position, however, seems little more tenable than to hold that they should direct their attention to the proper disinfection of the dejecta to the exclusion of all other means of prevention. For our large cities, much less our smaller towns, have not attained, and in the near future are not likely to attain, this advanced state of sanitary control over the above-mentioned carriers of infection. In the meantime are they content to remain supine and to allow the annual sacrifice without offering their poorer citizens this method of prophylaxis, and without at least advising its adoption by those citizens who can afford to do so? Again, even in a community in which this ideal of sanitation is an accomplished fact there would still be the bacillus-carrier, the contact case and the danger of introduction from without either by visitors or by residents.

When all things are considered we feel that there is a field for antityphoid inoculation in the prevention of enteric fever in civil life, and that those state and city boards of health that are supplying vaccine to the citizens of their respective states and cities are acting wisely.

For more than two years the department of health of Baltimore has furnished vaccine to the various hospitals within the city, and it has recently decided to give it free to citizens who are unable to purchase it. The state department of health of Maryland since the summer of 1911 has prepared antityphoid vaccine for several state institutions. Altogether, since March, 1910, between 2,700 and 2,800 persons have been inoculated with vaccine from the conjoint laboratory of the state and city boards of health, and reports have been obtained from 2,044 of these, we ourselves having immunized only 140 of this number.

The immunization of 650 of the 2,700 and odd has not been completed, so that no report of the reactions can be made at present. This includes 250 citizens of a town of 6,000 inhabitants, in which there are certain districts showing an excessive attack-rate. The other 400 are inmates of Springfield State Hospital. In addition to these the inoculation of volunteers from the unvaccinated members of the Fourth Infantry, Maryland National Guard, is in progress. The number of these is at present not ascertainable.

Of the total number of those from whom we have procured records, 309 were resident physicians, nurses and attendants in general hospitals; 1,551 were inmates, nurses and attendants in two state hospitals for the insane, and 184 were private citizens of Baltimore and of rural districts. This latter class includes physicians, nurses in private practice, medical students, commercial travelers, laboratory workers, members of infected households and people going to summer resorts; in short, persons specially exposed to infection.

Table 1 shows in detail the distribution of the 2,044 persons from whom reports have been obtained.

Before analyzing the reports thus far received we shall briefly describe the preparation of the vaccine employed. This has been prepared in two different ways. At first it was made from a mixture of six different strains of *Bacillus typhosus*, five of which had recently been isolated from blood-cultures. The other bacillus had been under cultivation in the laboratory for several years. These six organisms were inoculated into a flask containing 100 c.c. of broth incubated from eighteen to twenty-four hours, and from this mixed growth agar-cultures were made. At the end of twenty-four hours the latter were washed off with sterile normal salt solution, and the bacilli were killed by holding the suspension at 58 C. for forty-five minutes. This was then preserved by adding 0.25 per cent. of tricresol. From the beginning of 1911 to the present time the vaccine has been prepared from a typhoid bacillus furnished us through the courtesy of Major Russell, this being the same avirulent strain with which the Army has been immunized. In the preparation of the vaccine from this bacillus it has been our custom to kill the organism by the use of 0.5 per cent. phenol (carbolic acid). In the main the various stocks of vaccine were standardized by Wright's method. Occasionally, however, Harrison's modification of this method was employed. Before distribution the death of the typhoid bacillus and the freedom from contamination were determined by making aerobic and anaerobic cultures. As a further safeguard white mice and guinea-pigs were inoculated.

The injections were made subcutaneously into the arm near the insertion of the deltoid. At first the site of inoculation was prepared by rubbing briskly with 95 per cent. alcohol, but a little later a solution of phenol or mercuric chlorid was substituted for this. Since the summer of 1911 we have advised the thorough cleansing of the arm and the application of tincture of iodin round the point of insertion of the needle both before and after the inoculation.

TABLE 1.—DISTRIBUTION OF PERSONS INOCULATED FROM WHOM REPORTS HAVE BEEN OBTAINED

Springfield State Hospital, inoculated under the direction of Dr. J. Clement Clark, 1911	887
Spring Grove Hospital, inoculated under the direction of Dr. J. Percy Wade, 1911	664
Mercy Hospital, inoculated under the direction of Dr. Eckhart, 1910	68
Mercy Hospital, inoculated under the direction of Dr. Gillis, 1912	25
Franklin Square Hospital, inoculated under the direction of Dr. Pearce Kintzing, 1910	16
Franklin Square Hospital, inoculated under the direction of Dr. Pearce Kintzing, 1912	11
University Hospital, inoculated under the direction of Dr. H. J. Maldeis, 1911	88
University Hospital, inoculated under the direction of Dr. H. J. Maldeis, 1912	18
St. Joseph's Hospital, inoculated under the direction of Dr. E. H. Hayward, 1911	34
Homeopathic Hospital, inoculated under the direction of Dr. H. M. Stevenson, 1911	11
St. Agnes Hospital, inoculated under the direction of Dr. J. A. Chatard, 1911	38
Private cases, inoculated under the direction of numerous physicians, 1911-1912	44
Civilians (including physicians, nurses, students, etc.), inoculated by the authors, 1911-1912	140
	2,044

The doses employed have been increased since we first started. We felt that if we were going to succeed in having antityphoid vaccine generally adopted by hospitals and institutions it was necessary at first to avoid any unduly severe reactions; we therefore began with the administration of 125 million, 250 million and 500 million dead typhoid bacilli at intervals of from seven to ten days. Later when this preventive measure became more firmly established in these institutions, we felt it was both safe and wise to increase the doses to 250 million, 500 million and 1,000 million bacilli, to be given at intervals of a week to ten days. We did not advise this, however, until these doses had been tried on students who had volunteered, and it was found that there was little or no perceptible increase in the severity of the reaction.

We have a record of the ages of 1,326 of those immunized; fourteen were in the second decade of life; 367

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† Since this paper was read the distribution of vaccine has been extended to all citizens

were in the third decade; 943 were in the fourth, and two were in the sixth. Of those between 10 and 20 years of age eleven were nurses in training, and eight of these gave a moderately severe reaction, certainly an inordinate number; the other three in the second decade were students, and these escaped without any systemic disturbance. There is no noticeable difference in the severity of the reaction to the vaccine for the other periods of life.

On analyzing the records we find that redness and local tenderness were present in all cases, but infection never ensued. Malaise followed the inoculation in 775 cases; headache in 835; muscular pains in 106; nausea and vomiting in sixty; chills in fifty-seven and rise of temperature in 884 cases. In 1,160, or 56.7 per cent., constitutional symptoms failed to follow the injections.

As already mentioned, 1,160, or 56.7 per cent., of those immunized did not develop fever. The temperature ranged from normal to 101 F. in 785, or 38.4 per cent., of the cases; from 101 F. to 103 F. in eighty-two, or 4 per cent.; and in the remaining seventeen, or 0.8 per cent., it exceeded 103 F.

Of the 884 showing constitutional reaction 874 state the inoculation which this followed. The analysis of these 874 records discloses that the reaction occurred after the first injection only in 132 persons; after the second only in 255; after the third alone in 382; after the first and second in fifty-nine; the second and third in fourteen; the first and third in ten; and all three in twenty-two cases. From these figures Table 2 has been constructed.

TABLE 2.—STATEMENT OF INOCULATIONS WHICH WERE FOLLOWED BY CONSTITUTIONAL REACTIONS

Dose	Number of Records	Number Showing Systemic Reaction	Per Cent.
First alone	2,044	132	6.4
Second alone	2,044	255	12.4
Third alone	2,044	382	18.6
First and second	2,044	59	2.8
Second and third	2,044	14	0.6
First and third	2,044	10	0.4
First, second and third	2,044	22	1.0
Not noted	2,044	10	0.4

Table 3 shows the percentage of reactions following each dose.

TABLE 3—PERCENTAGE OF REACTIONS FOLLOWING EACH DOSE

Dose	Number of Records	Number Showing Systemic Reaction	Per Cent.
First	2,044	223	10.9
Second	2,044	350	17.1
Third	2,044	428	20.9

In 246 of the 884 having a systemic reaction this lasted from one to six hours in fourteen cases; it persisted from six to twelve hours in ninety-six; it disappeared in from twelve to twenty-four hours in eighty-nine; from one to two days in forty-three; from two to three days in five; from three to four days in six instances; in five days in one; and it lasted over ten days in two persons. One of these, a female patient at Springfield Hospital, was suffering from chronic mania. In this case a low grade of temperature persisted for two weeks and pulmonary tuberculosis was suspected; and while no sputum could be obtained for examination for the tubercle bacillus, the patient had a dry, hacking cough and dulness over a portion of one lung. The other patient was an extremely hysterical woman. She suffered from gastric distress for ten days after the inoculation. She, however, has had similar attacks before and since that time. In another institution two tuberculous persons were vaccinated; one of these reacted with moderate severity, the other but very slightly.

Although the number of patients inoculated with the polyvalent vaccine has been comparatively small, we have drawn up a table comparing the reactions following the use of this with those resulting from the use of that prepared from the Russell strain. These are shown in Table 4.

TABLE 4.—COMPARISON OF REACTIONS FOLLOWING INOCULATIONS OF POLYVALENT VACCINE AND MONOVALENT VACCINE OF THE RUSSELL STRAIN

Reaction	Polyvalent Vaccine		Monovalent Vaccine	
	Number	Percentage	Number	Percentage
No reaction	56	56.5	1,104	56.7
Slight (temperature normal, 101 F.)	24	24.2	761	39.1
Moderately severe (temperature 101-103 F.).	16	16.1	66	3.3
Severe (temperature over 103 F.)	3	3.0	14	0.7

This shows that in more than half the cases no reaction ensued after the use of either type of vaccine. In addition, we find that 95.8 per cent. of persons immunized with the single avirulent strain had either no elevation of temperature or a rise to less than 101 F., while but 80.7 per cent. of those receiving the other vaccine had a like result; moderately severe and severe reactions, therefore, more frequently occurred after the administration of the polyvalent type.

We feel, nevertheless, that no conclusions should be drawn from this comparative table, since they would be invalidated by the small number of persons that have been immunized with the polyvalent as compared with those protected with the monovalent vaccine. We believe, however, that one prepared from a number of strains of avirulent typhoid bacilli would subserve its purpose better than a vaccine made from a single strain. These organisms should be carefully selected; only those capable of producing large quantities of antibodies and at the same time not causing severe general disturbances should be used.

As already mentioned, we have increased the dosage of vaccine since the spring of 1911. In order to compare the reactions following the larger and smaller doses we have carefully gone over the reports received. The first inoculations with the increased doses were made into medical students, and as there was scarcely any increase in the severity of the reactions we have since then used them in the immunization of all adults.

In making the comparison we have included only the cases of patients inoculated with the monovalent vaccine. This has been done because those injected with the other invariably received the smaller doses, and we therefore believe it is only fair to omit these altogether.

The examination of the records of those immunized with the single avirulent strain shows that 635 persons received 125 million, 250 million and 500 million, and 310 were given 250 million, 500 million and 1,000 million dead typhoid bacilli. Of the former 58.4 per cent. escaped without a general reaction; 39 per cent. had but a slight one; 1.8 per cent. suffered a moderately severe one; and 0.6 per cent. had a severe reaction. Of the latter 47.7 per cent. had no systemic symptoms; 39.3 per cent. reacted but slightly; 11.6 per cent. had a moderately severe, and 1.2 per cent. a severe reaction. Thus we find that 97.4 per cent. of those injected with the smaller doses showed either no constitutional disturbance or but a slight one, while only 87 per cent. of those receiving the larger quantities had a similar experience. Despite the somewhat larger proportion of moderately severe reactions we believe the use of the bigger doses is more than warranted by the greater protection that must almost certainly ensue.

Of the 310 injected with the larger amount 187 were nurses in hospitals, and it has been our experience that they show a disproportionate number of moderately severe and severe reactions. The fact, therefore, that so large a percentage of these cases was of this class explains to a great extent the differences noted above. Table 5 shows these differences in a striking manner.

TABLE 5.—COMPARISON SHOWING GREATER REACTION IN NURSES

Dose	No Reaction		Slight Reaction		Moderate Reaction		Severe Reaction	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
125, 250 and 500 million	956	58.4	639	39.0	30	1.8	10	0.6
250, 500 and 1,000 million	148	47.7	122	39.3	36	11.6	4	1.2
125, 250 and 500 million (nurses alone)	3	7.9	30	79.9	3	7.9	2	5.2
250, 500 and 1,000 million (nurses alone)	68	36.3	89	47.6	26	13.9	4	2.1
125, 250 and 500 million (nurses excluded)	953	59.6	609	38.1	27	1.7	8	0.5
250, 500 and 1,000 million (nurses excluded)	80	65.0	33	26.8	10	8.1	0	0.0

As for more than two years antityphoid vaccine has been distributed by the conjoint laboratory of the state and city boards of health, we deem it important to tabulate the immunized cases according to the time that has since elapsed (Table 6).

TABLE 6.—CASES IMMUNIZED SINCE VACCINE HAS BEEN DISTRIBUTED

	Hospital Nurses and Attendants	Inmates Public Institutions	Civilians	Total	Typhoid Among Immunized
2-2½ years ..	84	0	15	99	0
1-1½ years ..	0	0	56	56	0
1 year	171	887	36	1,094	0
9 mos.-1 yr...	0	330	0	330	0
6-9 months...	0	334	18	352	0
3-6 months...	11	0	55	66	0
1-3 months...	43	0	4	47	0
Total......	309	1,551	184	2,044	0

Besides giving the length of time the various classes of people have been inoculated this table also shows that none of the immunized have developed typhoid. This latter fact is of peculiar interest when it is seen that the persons vaccinated have largely been those especially exposed to infection.

Thus, 309 were nurses and attendants in general hospitals in a city in which typhoid is very prevalent. Now Joslin and Overlander[3] found that the attack-rate for nurses in six Boston hospitals for the years 1902 to 1905 was 161 per 10,000 as compared with twenty per 10,000, which was approximately the morbidity for the whole of Massachusetts. Again, as previously noted by Hachtel and Stoner,[4] for the five years preceding the adoption of this prophylactic measure the attack-rate for nurses and attendants in six Baltimore hospitals was about 500 per 10,000. Since in the city at large the number of cases for the same years has ranged from 24.5 to 42.2 per 10,000 inhabitants;[5] therefore, in these hospitals the nurses and attendants appear to be about twelve to twenty times as liable to infection with enteric fever as the citizens of Baltimore. As before stated, the attack-rate before immunization was instituted was 5 per cent., while that for vaccinated nurses and attendants has been *nil*. Add to this that in five of these same institutions eighty-two nurses were not injected, and seven of these, or 8.5 per cent., contracted typhoid, and we have a most striking comparison.

Then again, 887 of the vaccinated were inmates and employees of an institution for the insane, principally the former. In this asylum the morbidity from enteric fever for the previous years was 1 per cent. a year. Now while not one of the inoculated developed this disease, three out of 333 not immunized suffered from typhoid.

Still further, the 184 civilians were persons particularly subjected to infection, such as physicians, nurses in private practice, laboratory workers, medical students and traveling salesmen. Besides this, eleven of these were members of infected households, and in several instances either nursed or assisted in the nursing of the patient.

In conclusion, we are convinced that antityphoid vaccination is of incalculable value in the protection against enteric fever, and owing to the undue incidence of this disease in hospital nurses and attendants, they should be urged to submit to inoculation. Indeed, we feel that the authorities in control of such institutions who do not offer their nurses this protective measure are negligent in the extreme. In public institutions, especially in hospitals for the insane and mentally deficient, inoculation should be employed in reducing the number of cases of this malady. In the latter hospitals great care should be exercised as to the selection of patients for immunization, avoiding those of advanced years and those suffering from chronic organic disturbances such as arteriosclerosis and cardiac and renal diseases.

Considering the brilliant results obtained, the very slight inconvenience usually experienced following the vaccination, the atrocious number of cases of typhoid fever occurring yearly in both the city and the country, and the extreme complexity of the problem of lessening this attack-rate by sanitation, it is our firm conviction that all civilians should be advised to be inoculated against this disease. Naturally we do not advise antityphoid vaccination as a substitute for proper sanitary control. When we think of the extreme difficulty of coping with typhoid, however, and the length of time it will require to attain the ideal of sanitation; when we consider that even under the best sanitary conditions we still have to fear the typhoid carrier, direct contact and the danger of introduction from without by visitors and by citizens, we believe that antityphoid inoculation will have a place in the prevention of this disease in civil life, and that boards of health should not only advise the adoption of this measure, but should also distribute the vaccine free of charge for the immunization of the citizens of their respective communities.

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[3] Joslin and Overlander: Boston Med. and Surg. Jour., clvii, 247.

[4] Hachtel and Stoner: Am. Jour. Pub. Health, ii, No. 3, p. 157.

[5] As the report of typhoid cases in Baltimore is not complete, these figures are estimated from the reported deaths on a basis of a 10 per cent. fatality.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SPOONER, RUSSELL AND HACHTEL AND STONER

Dr. M. P. Ravenel, Madison, Wis.: The State Hygienic Laboratory of Wisconsin began issuing antityphoid vaccine free of charge to physicians of the state about nine months ago. Our experience is that inoculation into the arm as recommended in the Army produces less reaction than in other parts of the body. I wish to confirm what Dr. Spooner has said about the mildness of the attack in those who have been partially vaccinated or in whom infection has already taken place when the vaccination was done. We have had several cases which confirm this statement. We have urged strongly the vaccination of nurses in hospitals throughout Wisconsin and it is being done to a considerable extent. The following case is of interest: A woman was suffering from typhoid fever. The attending physician wished to vaccinate the husband and two trained nurses in charge. We sent the vaccine. One nurse, however, refused the vaccination, saying that she was immune. Soon after leaving the case she was taken sick with typhoid. The husband and the other nurse remained well.

We have vaccinated about 1,900 people in Wisconsin, including approximately 1,000 of the National Guard. The reactions have been almost invariably mild. Two severe reactions occurred on the third injection which were hard to explain. Inquiries showed that both men had been drinking. Our experience, though comparatively small, has convinced us of the great value of the process. In one institution we apparently stopped a bad outbreak at once. In a small town where typhoid was raging we vaccinated 116 persons. We have not had the report of a single case occurring in any of those vaccinated. We are using a polyvalent vaccine, and are urging on the physicians of the state the further adoption of the practice.

Dr. Malcolm C. Rose, New York: It is a great thing when a physician can say that he has had this preventive treatment himself; perhaps Major Russell and Dr. Spooner have had it; I would like to know their personal experience and learn just how it feels, because the next trip of the American Medical Association will probably be away to the West—we shall have to travel on cars, boats and other means of transportation where we shall be exposed. Dr. Spooner speaks about the severe reaction; but exactly what he saw I am not quite sure. Then, also, how long does this immunization last?

Does vaccination help to prevent relapse when a typhoid patient is vaccinated in the home? Does it help to prevent relapse, or what some doctors call a relapse, when it is a new running of the disease? I call a relapse the result of improper care or improper feeding.

Dr. Lesley H. Spooner, Boston: I have not used the interscapular region for a long time. I have inoculated only 500 in the back; but I have been impressed by the fact that the circumference of induration was not so great nor complaints so frequent as when other regions were employed. There is one thing to be said, however, in limitation of that statement: those persons who have been inoculated in the back have been chiefly private patients. I find that in the latter class less severe reactions are met than among nurses and physicians. This may account for the discrepancy in our findings.

An episode connected with the little epidemic which I have described before parallels Dr. Ravenel's experience of similar exposure to the two nurses engaged on the same case. Two table girls were employed at the hotel which was the hotbed of this epidemic, since about half the cases originated there. These girls were doing exactly the same work; they shared the same room and slept in the same bed. One was inoculated, the other was not. The former had the most severe reaction of any one in that group of cases. She did not contract the disease. Two weeks after the last inoculation, the uninoculated table girl contracted the disease. In regard to personal inconvenience, I will say that I inoculated myself twice and was given the third injection by a confrère three years ago. On only one occasion did I feel any constitutional reaction. It consisted of such symptoms as one expects on the eve of a cold. The following day they had entirely disappeared. There was, as I recall, slight local soreness. I felt nothing to prejudice one the least against undergoing the treatment.

Dr. F. F. Russell, Washington, D. C.: Since we do not know accurately the duration of the immunity, we recommend revaccination of soldiers once in each enlistment, giving two doses on the second vaccination, rather than three. Among civilians we suggest revaccination only on exposure. It is important to refuse vaccination of persons who are not well. Our refusal to vaccinate all but the healthy may explain our good results and complete lack of accidental complications. Many are using polyvalent vaccines with the idea that they are better than vaccines made from a single strain of the bacillus. We have always used a single, selected strain, which confers protection wherever used. There is more reason for adding a little paratyphoid to the vaccine. At present we do not know how prevalent paratyphoid fever is; we are encouraging our men to use blood-culture methods, that this point may be accurately known.

The importance of Dr. Spooner's work in the Greensboro epidemic and of vaccinating the nurses while on duty in the hospital is great. It is a different problem from ours. At Torrington, Conn., last summer, vaccine was used extensively in an epidemic; there was only one case among the vaccinated, and that a mild one. I do not remember the total number of cases, but eighty nurses were employed, of whom forty-five accepted and thirty-five refused vaccination. Among the forty-five there were no cases, while three occurred among the thirty-five unvaccinated. Vaccine was used in a small epidemic among 2,500 marines at Guantanamo, Cuba. In the one case in which typhoid developed after vaccination, autopsy showed that the patient was undoubtedly infected before. Wright and Leishman used vaccine during the height of an epidemic at Maidstone, England, with excellent results. Cullison, a pupil of Wright, vaccinated the attendants and nurses of an insane asylum in Dublin, during an epidemic, with the same good results. The vaccine was used the past year in an epidemic in Cedar Rapids, Iowa, where the outcome was also satisfactory. Dr. Spooner's paper again emphasizes the fact that we need have no fear of an injurious negative phase; that we can safely vaccinate against typhoid just as we do against small-pox.

It seems probable that the way in which the vaccination is done has something to do with the severity of the reaction. The absorption of vaccine should be as slow as possible. We think it should be put into the subcutaneous tissue, and not into the muscle; some men have vaccinated directly into the muscle, where the absorption is too rapid, producing a decided reaction. If the second or third dose is injected into a region still indurated from a previous inoculation there may be rapid absorption, with severe reaction.

Dr. Harry W. Stoner, Baltimore: Several striking instances occurred in our experience with the vaccine: In one institution eighty-eight out of ninety-one nurses and attendants were inoculated in 1911. One of the three nurses not inoculated developed typhoid fever and died. At another hospital a nurse who was on her vacation at the time the inoculations were made was not immunized. A few weeks after she returned to the hospital she developed typhoid. In still another institution in which the nurses were immunized in 1910, three out of eight new nurses who came in in 1911, and who had not received the vaccine, were stricken with typhoid fever during the latter part of that year, while none of the inoculated nurses remaining in the hospital were attacked.

The question how long immunity lasts is a pertinent one and not easily answered. From studies we have made with the serum of rabbits inoculated with typhoid vaccine, we have found a gradual rise in the bacteriotropic substances—bacteriolysins, agglutinins and opsonins—corresponding closely, and following about the same curve as that occurring in human beings. These substances were demonstrable in the blood for from six months to a year, gradually decreasing until they finally disappeared. When these animals were reinoculated with similar doses of the same vaccine it was found that there was a much quicker production of these substances than at first. We believe that the first inoculation sensitized certain cells, which on reinoculation responded more readily to the production of these substances, and that a person immunized by typhoid vaccine is protected from typhoid by the rapid formation of these antibodies. Since the curve of the formation and duration of these bacteriotropic substances in the blood of immunized individuals corresponds closely with their production and durations in the blood of patients with typhoid fever, it would seem that an immunized individual would be as well protected as is the individual who has had typhoid fever.

As to personal experience, Dr. Hachtel and myself were the first in our series of cases to receive the vaccine. Neither of us suffered any great reaction. Following the second injection I had a slight rise in temperature and a dull headache lasting about two hours. The other two injections did not give rise to any symptoms.

A STUDY OF THE ULTIMATE RESULTS IN THE DISPENSARY TREATMENT OF TUBERCULOSIS*

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Without the dispensary, such control as we now have of the tuberculosis problem would have been hardly possible. Its importance in the tuberculosis crusade cannot be overestimated, and yet it is extremely difficult to establish in terms of cases with disease arrested just how efficient it really is. Compared with statistics dealing with sanatorium patients, there are few statistics to show the ultimate results obtained in patients whose treatment was received entirely in a dispensary. When the tuberculosis dispensaries were first introduced it was hoped and believed that the majority of patients could be treated efficiently by these agencies. After a few years' trial, however, there was considerable disappointment with the results obtained, and with the increasing number of sanatoriums more and more cases were at once sent to these institutions. Here, again, the results have not measured up to expectations, so that at present there is considerable uncertainty in regard to the best way to proceed.

In the meantime, dispensary treatment itself has undergone many changes and in each instance for the better. The lesson has been learned that there is a limit to the number of cases which can be handled efficiently; supervision in the home has been made something more than a mere inspection visit, and above all, there has come about a very general appreciation that there are economic and social as well as medical aspects of the tuberculosis problem.

It is particularly the economic and social aspects of the problem that have emphasized the need of redoubling our efforts along the line first attempted by the dispensary, namely, the handling in their homes of patients who appear to have a chance of being benefited. This involves the improvement or the attempt at improvement of living conditions, without which no very rapid improvement in the situation can be hoped for. From this point of view the experiments about to be inaugurated in New York City and Cincinnati, whereby the problem is attacked as a family problem in the home, will be watched with the keenest interest.

It should be borne in mind that the results detailed in this paper represent the dispensary as it was in its incipient state. Furthermore, the Phipps Institute dispensary, at the time of its foundation, was the only place of its kind in eastern Pennsylvania, and to it flocked patients from all over Philadelphia, the adjoining towns and even the neighboring State of New Jersey. Of necessity, supervision was impossible in many instances and even where practiced, inadequate, as we understand supervision to-day.

The patients under consideration visited the Phipps Institute in the second year of its existence; namely, from Feb. 1, 1904, to Feb. 1, 1905. The investigation was completed Sept. 1, 1911, so that an interval of nearly seven years had elapsed. Any one who has not attempted an investigation of this sort can hardly appreciate the difficulties encountered in such a study. The long interval which had elapsed and the constant shifting of their abode on the part of many of the patients made the obtaining of information a slow and tedious process. One of the gratifying results, however, was the receipt of many letters, which indicated that the instructions received had been productive of good.

The total number of patients applying to the Institute in the year under consideration was 1,067. They have been divided into four groups: first, those known to be dead; second, those untraced; third, those refused treatment, because of being either not tuberculous or not destitute; and fourth, those known to be living. The information was obtained from the records of the institute, the official death records at the City Hall, from letters and from the investigations of a nurse.

I. PATIENTS KNOWN TO BE DEAD

Of the 915 patients with a positive diagnosis of tuberculosis, 380 (41.5 per cent.) are known to have died of tuberculosis. In addition, there are thirty-one patients who have a diagnosis of tuberculosis on the records of the institute, but who according to the official death-returns are reported as having died of other causes. In a few cases, as for instance several deaths from violence, the returns are correct. Not less than twenty-three patients of this group, however, in all probability died of tuberculosis, notably eleven whose deaths are officially returned as due to heart disease. While there is a certain amount of confusion between tuberculosis and certain forms of heart disease, particularly mitral stenosis, the mistake is usually that of considering a heart case as being tuberculous rather than the reverse.

TABLE 1.—NUMBER OF DEATHS FOR THE SEVEN YEARS

	1904	1905	1906	1907	1908	1909	1910	1911
Official report .	20	37	19	10	4	12	8	0
Phipps' report.	82	40	5	4	1	0	2	0
Investigation .	5	23	9	9	7	7	3	1
Letters	4	16	12	4	1	0	7	4
Total.....	111	116	45	27	13	19	20	5

No date specified in 24.

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* Read before the Eighth Annual Meeting of the National Association for the Study and Prevention of Tuberculosis, in Washington, May, 1912.

II. PATIENTS UNTRACED

In this group there are 320 cases. This large number, comprising 34.9 per cent. of the cases treated as having tuberculosis, serves to emphasize the necessity of limiting the territory covered by the dispensary. As I have already stated, the conditions which existed when the institute was founded made it an impossibility to keep closely in touch with the patients, and this applies more particularly to those living in the overcrowded sections of the city where the population is constantly shifting from house to house. Another defect in attempting to cover too great an area is the failure of patients to keep up their attendance. The tremendous falling off of attendance after a few months is well illustrated in Table 2:

TABLE 2.—ATTENDANCE OF PATIENTS IN SUCCESSIVE YEARS

February, 1905	274	February, 1909	15
February, 1906	165	February, 1910	13
February, 1907	31	February, 1911	9
February, 1908	14		

Thus, of 915 patients with a definite diagnosis of tuberculosis, but 274 attended the following year and this number rapidly diminished each succeeding year.

III. APPLICANTS CONSIDERED NOT TUBERCULOUS OR NOT DESTITUTE

There were 152 cases in this group, and the only interest in this connection is that of diagnosis. In the majority of these 152 cases the histories show that there was nothing to warrant a diagnosis of tuberculosis, or, if tuberculous, the patients were not destitute. There were, however, fourteen in whom a diagnosis of acute or chronic bronchitis or asthma was made. While no special study was made of these cases, it is known that several of the patients have since died of tuberculosis. More recently one of my associates, Dr. Cruice, has investigated a number of patients who visited the dispensary five years ago, and in whom a diagnosis of bronchitis or asthma had been made from one examination only. Of fifty such patients from whom he was able to obtain definite information either by letter or personal examination, four have since died of tuberculosis and twenty-three have definite symptoms and physical signs of the disease at the present time.

These results serve to emphasize the necessity of more care, especially as there is a growing tendency to restrict the diagnosis more and more.

IV. PATIENTS LIVING

At the time the investigation was completed (Sept. 1, 1911), 184 patients (20 per cent.) were known to be living. According to the classification first in use at the institute, the prognosis was estimated in the following terms: favorable, doubtful and unfavorable. This classification is essentially the same as incipient, moderately advanced and advanced.

Table 3 is based on the prognosis used at the institute.

TABLE 3.—OUTCOME IN 184 CASES WITH VARIOUS PROGNOSES

	Prognosis	No Symptoms *	Symptoms *	At Work *	Not Working *
Favorable	121	80	18	82	8
Doubtful	34	19	16	22	5
Unfavorable	5	3	2	3	2
No record	24	..	..	..	..
	184	102	36	107	15

* In addition there were twenty-four who were living but who gave no information as to their health or occupation.

As would have been expected, the great majority of those able to work belonged to the favorable or incipient group. From the 107 patients giving definite information regarding their occupations, the following facts were elicited: Forty-five different lines of work are being followed at present. It is interesting to note that ninety-five of the 107 are engaged in occupations involving inside employment and that twelve only are working at outside jobs. Furthermore, there were but nine instances in which patients changed from an inside to an outside occupation, while two others changed from outside to inside employment. The character of the work is extremely diversified, ranging from sedentary, confining clerical work to unskilled laboring work.

TABLE 4.—OCCUPATIONS OF PATIENTS, 1904 AND 1911

1904		1911	
Tailor	1	Bookkeeper	1
Unknown	2	Bricklayers	2
Unknown	1	Carpenter	1
Housework	1	Child's nurse	1
School	4	Clerks	9
Salesgirl	1		
Fruit-vender	1		
Dental student	1		
Clerks	2		
Machine operator	1	Car conductors	3
Baker	1		
Tailor	1		
Unknown	1	Cook	1
Iron-molder	1	Coremaker	1
Dancing-teacher	1	Dancing-teacher	1
Machinist	1	Dentist	1
Teacher	1	Doctor	1
Shoe-cutter	1	Drivers	3
Laborer	1		
Driver	1		
Unknown	1	Electrician	1
Teamster	1	Farmers	2
Tailor	1		
Glassworker	1	Glassworker	1
Unknown	1	Grocers	2
School	1		
House-painter	1	House-painters	2
Office clerk	1		
Mill hand	2	Housework	39
School	1		
Housework	36		
Iron-molder	1	Iron-molder	1
Coal-miner	1	Insurance collector	1
Laborers	2	Laborers	2
Mill hands	3	Mill hands	3
School	1	Leather-worker	1
School	1	Musician	1
Packer	1	Orderly	1
Weaver	1	Outdoor work	1
Threader	1	Plasterer	1
School	1	Photographer	1
Lithographer	1	Policeman	1
Unknown	1	Printer	1
Riveter	1	Riveter	1
Saleswoman	1	Saleswoman	1
Waitress	1	Scrubwoman	1
Seamstresses	2	Seamstresses	2
School	1	Shipper	1
Salvation Army officer	1	Salvation Army officer	1
Peddler	1	Storekeeper	1
School	1	Student (medical)	1
Motorman	1	Supt. of sanatorium	1
Tailors	3	Tailors	3
Tooth-molder	1	Tooth-molder	1
Typefounders	2	Typefounders	2
Typist	1	Typist	1
Baker	1	Unknown	1
Waiter	1	Waiter	1
School	1	Weaver	1
Total	107	Total	107

The question naturally arises, Can we be sure that these cases were all tuberculous? So far as the actual finding of tubercle bacilli is concerned, the evidence is not strong. Of the 107 now known to be earning their living, the sputum was positive in nine, negative in forty-seven and no examination recorded in forty-nine. On the other hand an analysis of the histories shows that in many of these cases there was exposure to the disease and that in all there was one or more than one strongly suggestive symptom, such as blood-spitting, pleurisy, night sweats, cough, loss of weight, etc. In addition physical signs indicating more or less involvement of one or both apices were present in all. Of course, it cannot be denied that some of these cases represent instances of quiescent or completely healed lesions.

In the light of our present knowledge, however, there is no method by which we can accurately distinguish between a completely healed lesion and one which is quiescent, but apt at any time to become active. So long as this difficulty confronts us the safer course is, at any rate so far as the dispensary patient is concerned, to explain the situation and do what we can toward educating the patient. As Bulstrode has well said:

> Skepticism, based on the absence of bacilli in the sputum, raises the further question as to the means by which phthisis was diagnosed in prebacillary days, or as to how it is practicable to diagnose any "closed" tuberculous lesion. It is, of course, possible to raise the question as to whether any case in which tubercle bacilli have not been discoverable in the sputum can be regarded as one of pulmonary tuberculosis, but, conversely, it would be a very serious position to take up to urge that no patients whose sputum had not yielded tubercle bacilli should be admitted into a sanatorium. It might, indeed, be regarded as a fatal objection from a curative and consequently from a preventive standpoint.
>
> It will probably be generally conceded that by the time tubercle bacilli have appeared in the sputum some breaking down of lung substance has already commenced and that if it is practicable to diagnose the presence of the disease with a fair degree of probability before the appearance of the tubercle bacilli in the sputum much valuable time may be gained.

In spite of the innumerable articles which have been written urging the importance of certain symptoms or combination of symptoms as strong evidence of tuberculosis past or present, there still exists too much timidity in making a diagnosis. Involving as it does such serious consequences if an error is made, it is safer in this instance to be radical rather than conservative, even if it has been offered in defense of the conservative attitude that we have no right, as was recently said, to place the stigma of tuberculosis on an individual unless we are practically certain that such a condition exists. Certainly any one who has seen much of tuberculosis must have been impressed repeatedly with the unfortunate results of conservatism whereby the diagnosis has been delayed until it is impossible to any longer have any doubt.

11 South Twenty-First Street.

THE MODE OF INFECTION IN EPIDEMIC POLIOMYELITIS *

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The problem of prevention of infection in epidemic poliomyelitis still confronts us. Progress in the study of poliomyelitis has been made and knowledge gained, but the question of supreme importance is this: Does this knowledge offer a solution of the mode of infection? With all diseases prevention is far better than the most perfect means of cure; with poliomyelitis it is better, first, because at present there exists no specific or true curative treatment, and, second and chiefly, because for the most part when the disease is first recognized it has already caused irreparable damage. An understanding of the mode of infection would lead inevitably to the framing of measures of prevention which, with reasonable certainty, could be expected to bring about a limitation of the extent of the epidemic spread.

The infectious agent or virus of poliomyelitis attacks chiefly the central nervous system. Indeed, it has been detected regularly in the spinal cord and brain, and in the mesenteric lymph-nodes among all the internal organs. It has also been detected in the mucous membrane of the nose and throat, and in the mucus secretions of this membrane, and in the mucus secretions of the stomach and the small and large intestine. The virus has not been detected in such important organs as the spleen, kidneys, liver or bone-marrow. The fact is significant, but in attempting to interpret it, account should be taken of the circumstance that at present we possess only one means of detecting the virus, and that consists in its transmission to monkeys, in which it produces characteristic paralyses and anatomic changes. On this account small quantities of the virus may conceivably escape discovery. The conclusion is none the less inevitable, however, that detectable amounts of the poliomyelitic virus exist only in the few situations and organs mentioned. The distribution of the virus is identical in human beings who are subjects of so-called spontaneous poliomyelitis, and in monkeys in which the experimental affection is produced. Nor does it matter how the experimental inoculation is accomplished and whether the virus is introduced by injection into the brain or large nerves or subcutaneous tissue or peritoneum, or whether it is merely applied to the nasal mucous membrane. In whatever way the infection is produced purposely, the distribution of the virus in the infected monkeys is the same as in infected human beings.

The precise facts of the distribution of the virus are important for another reason than the establishment of the pathology of the disease. The virus is one that is not known to increase aside from the infected body, and hence in order that it shall be capable of propagating poliomyelitis, it must secure a means of escape from the infected animal. The escape is now known to occur along with the secretions of the nose and throat, and the discharges from the intestine. We are obliged therefore to ask ourselves what the means are by which the virus confined within the interior reaches these external surfaces of the body.

Let us begin by disregarding for the moment the essential point of the way in which the virus probably enters the body in infected human beings, and give our attention to the way in which it escapes in the infected monkey into the nose, throat and intestines. We may first consider the instance in which the virus is deposited in the brain, in which it becomes sealed, as it were, and cut off, apparently, from the exterior of the body. Having been injected into the brain tissue, the infectious microorganism constituting the virus multiplies both within and about the brain tissue at the site of inoculation. As multiplication progresses, the virus leaves the original site of injection and wanders to adjacent and distant parts of the central nervous tissues, becoming implanted in the medulla, the spinal cord, the intervertebral ganglia, as well as reaching the pia-arachnoidal membranes or meninges, in which it also spreads. Ultimately, when the virus becomes sufficient in amount, it brings about anatomic changes in the nervous system, one of the results of which is paralysis. The period intervening between the inoculation and the appearance of paralytic symptoms may be as brief as two or three days, or as long as three, four or five weeks. The great disparity in this period depends on the

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* From the Laboratories of the Rockefeller Institute for Medical Research.

amount and quality of the virus, as well as the degree of resistance of the inoculated monkey.

The virus, which has found its way to the meninges, does not long remain in the cerebrospinal fluid, with which it escapes in part into the blood, in which it does not appear to undergo and further increase in amount, and indeed seems even incapable of surviving long. A part also of the virus contained within the cerebral fluid escapes regularly by way of the lymphatic channels surrounding the short nerves of smell that pass from the olfactory lobes of the brain to the mucous membrane of the nose. It has long been known that there is an intimate connection between the lymphatic vessels of the nasal mucous membrane and the lymphatic spaces of the pia-arachnoidal membrane. Once having gained the mucous membrane of the nose, the virus may even escape into the mucus secretion, with which it is carried into the mouth, and in part swallowed, or it may become established in the substance of the nasal membrane, where it undergoes subsequent multiplication and increase. As a matter of fact both occur. The virus escapes with the secretions partly externally to the infected body, and a part of it is swallowed with the secretions themselves, while a persistent infection of the secretions is maintained by means of the increase that takes place in the membrane itself. In this way is assured the escape of the virus directly into external nature, as well as the contamination of the gastro-intestinal cavity, with the discharges of which it becomes commingled. From the intestine it reaches in some amount the mesenteric lymph-nodes, and thus enables us to account for the occurrence of the virus in those lymphatic nodes which form a notable exception to the general internal organs.

We have now followed the route by which the poliomyelitic virus, implanted within the apparently closed cavity of the skull, reaches the exterior of the body. It is obvious that in the spontaneous form of the infection in man no such mode of introduction of the virus can occur. The virus must indeed enter the human body by some external channel, after which it seeks and becomes implanted on the central nervous system. It is known that in monkeys the virus is incapable of passing the barrier of the unbroken or slightly abraded skin, or of being taken up from the stomach or intestine unless the functions of these organs are previously disturbed and arrested by opium, and it is further known that it traverses with difficulty or even not at all the substance of the lungs. On the other hand, it is established that the virus passes with readiness and constancy from the intact or practically intact mucous membrane of the nose to the central nervous system, and that this membrane, next to direct intracerebral introduction of the virus, gives the readiest method of successful inoculation.

Hence the view that the nasal mucous membrane is the site both of ingress and egress of the poliomyelitic virus in man. Support for this view is found in the study of the pathology of epidemic poliomyelitis, as well as by the fact established incontestably by experiment that the virus of the disease is regularly present in the nasal mucous membrane and its secretions, both in infected human beings and in monkeys.

Still one link in the chain of causation of epidemic poliomyelitis as here outlined remained to be forged. The clinical evidence is strong in suggesting that human carriers of the poliomyelitic virus exist. The virus has now been detected in the secretions of the nose, throat and intestine of patients suffering from abortive or ambulant attacks of poliomyelitis. The unrecognized examples of the abortive disease play a highly important part in the dissemination of the virus, through which the area of infection is extended, and the number of the attacked increased. Clinical observation accords a similar part to the healthy virus-carrier, who is the last to be detected and confirmed experimentally. Obstacles in the way of this confirmation are considerable, but not insuperable. We possess no means except animal inoculation of discovering the virus of poliomyelitis. Pettersson and his associates now assert that they have demonstrated the virus in washings from the nose and throat of healthy persons in intimate contact with patients having acute cases of the disease.

The preponderance of cases in the late summer and autumn months early suggested an insect carrier of the infection. House-flies can act as passive contaminators, since the virus survives on the body and within the gullet of these insects. Howard and Clark attempted unsuccessfully to infect the common varieties of mosquito and the body- and head-louse, while they succeeded, in one series, in producing infection in bedbugs which were made to feed on the blood of inoculated monkeys. The virus remained alive within these insects for a period of many days. The inoculation of monkeys with a filtrate prepared from them gave rise to characteristic paralysis and anatomic lesions. This result is significant since it shows that insects are capable of taking up the virus from the blood, in which it exists in minimal quantities, and in harboring it for a considerable period in an active state; but it does not show that multiplication occurs within them or that in nature they act as the agents of inoculation.

It is not permissible to draw hard and fast conclusions regarding the mode of infection in epidemic poliomyelitis from the number of cases occurring, or from their focal distribution, or the seasonal period of the greatest prevalence of the epidemic. While it is true that many more examples of single cases than of multiple cases in a family occur, yet multiple cases are only less frequent than single cases, and not by any means rare. The prevailing views on this topic are being modified rapidly by the recognition of the abortive and ambulant examples of the disease. While the period of greatest prevalence of the epidemic is during the months of August, September and October in the northern hemisphere, and the corresponding months in the southern hemisphere, yet the onset of the epidemic occurs in the early spring and summer months and the disease does not wholly disappear during the winter months. It cannot be affirmed strictly that the disease dies out necessarily at any period of the year. While there are epidemic factors relating to poliomyelitis that are not understood, they are neither remarkable nor unique. If the fact of seasonal prevalence is reversed, all the ordinary factors of case frequence and focal distribution relate equally to epidemic meningitis. Epidemic poliomyelitis, like epidemic meningitis, is preeminently a disease of early childhood, and finds the highest percentage of its victims in the first five years of age, but does not wholly spare older children or even adults. Like epidemic meningitis, it appears in a frank and in an abortive or ambulatory form, appears to be transmitted by a virus that enters and escapes from the body in the region of the mucous membrane of the nose and throat, can be transported by active infected carriers, and probably by healthy passive carriers of the specific microorganism or virus, and fortunately is limited in its extension by a high natural indisposition or insusceptibility to infection existing among persons of all ages.

Sixty-Sixth Street and Avenue A.

THE PRODUCTION OF ACTIVE AND PASSIVE IMMUNITY TO THE PNEUMOCOCCUS WITH A SOLUBLE VACCINE

A PRELIMINARY REPORT*

J. O. HIRSCHFELDER, M.D.
SAN FRANCISCO

The extensive employment of vaccines made from dead microorganisms has been followed by variable results; in some cases the results have been excellent, in others, absolutely negative. It seemed probable that these discrepancies might be due to the fact that in the one case an efficient quantity of the bacterial endotoxin had entered into the circulation, whereas when no beneficial results ensued it might be that a satisfactory extract of the microorganisms had not occurred. It therefore seemed logical to search for a means of dissolving the active principle of the bacteria with as little injury as possible.

After various methods had been unsuccessfully tried a solution was made by acting on the living microorganism with an alkaline pancreatin solution at 37 C. for a definite time, stopping the action by slight acidulation and filtering through a Pasteur filter. Studies with the pneumococcus showed that the virulence of the microorganism could be readily maintained by growing it in a 2 per cent. glucose, 4 per cent. glycerin veal bouillon, faintly alkaline to litmus, to which calcium carbonate had been added according to the method of Hiss and transplanting the culture daily. It is of interest to note that unless the culture with the calcium carbonate be shaken frequently it will become acid, as diffusion through the liquid is not sufficiently rapid to preserve the neutral reaction.

In order that there should be no doubt of the results, larger doses of the pneumococci than were necessary to kill the rabbit were employed; but the variability of the time necessary to kill the control was probably due to the varying acidity that developed in the culture medium. This occurred before it was discovered that the mere presence of the calcium carbonate did not preserve the neutrality of the liquid.

In these experiments, in which I was ably assisted by Dr. L. S. Mace, only a single dose of the soluble vaccine was administered, the purpose being to establish the principle that such a soluble vaccine had really been produced. The method employed was to grow the pneumococcus for forty-eight hours in the culture medium just described to which a piece of marble had been added. To this culture equal parts of a solution of 0.2 per cent. pancreatin (Cudahy) in 2 per cent. bicarbonate of soda at 37 C. were added, allowed to stand fifteen minutes in the incubator, made faintly acid with hydrochloric acid, and filtered through a Pasteur filter. Rabbits injected with a single dose of this liquid developed relative or complete immunity to a virulent pneumococcus culture in about six or seven days, as is shown by the accompanying tabulated statement of two sets of experiments. (Tables 1 and 2).

TABLE 1.—PNEUMOCOCCUS VACCINE NO. 40 (ALL ANIMALS VACCINATED DEC. 20, 1911)

Number of Rabbit	Quantity of Vaccine, c.c.	Date of Infection	Quantity of Pneumococci* c.c.	Date of Death	Number of Days Living	Pneumoc. in Blood †	Number of Control	Date of Death	Number of Days Living	Pneumoc. in Blood †
1029	10	12/24/12	0.005	1/15/12	22	+	1041	12/26/11	2	+
1030	10	12/25/12	0.005	12/26/11	1	+	1056	1/ 4 /12	10	..
1028	10	12/26/12	0.005	1/ 2 /12	7	0	1066	12/29/11	3	+
1027	10	12/27/12	0.005	1/10/12	14	0	1067	12/29/11	2	+
1026	10	12/28/12	0.005	12/29/11	1	0	1069	12/30/11	2	+
1024	5	12/29/12	0.005	1/ 7 /12	9	..	1070	12/31/11	2	+
1021	5	12/30/12	0.005	1/ 5 /12	6	..	1074	1/ 3 /12	4	..
1023	5	12/31/12	0.005	1/21/12	21	0	1095	1/ 6 /12	7	..

* Pneumococcus 913. † In this and Table 2, where no note of the presence of germs in the blood is made, the examination was not made or the record was lost.

TABLE 2.—PNEUMOCOCCUS VACCINE NO. 41 (ALL ANIMALS VACCINATED DEC. 24, 1911)

Number of Rabbit	Quantity of Vaccine, c.c.	Date of Infection	Quantity of Pneumococci* c.c.	Date of Death	Number of Days Living	Pneumoc. in Blood	Number of Control	Date of Death	Number of Days Living	Pneumoc. in Blood
1053	10	12/29/11	0.005	1/ 3 /12	5	+	1070	12/31/11	2	+
1060	10	12/30/11	0.005	1/ 4 /12	5	0	1074	1/ 3 /12	4	..
1049	10	12/31/11	0.005	1/ 5 /12	5	+	1095	1/ 6 /12	6	..
1040	10	1/ 1 /12	0.005	1/14/12	13	0	1108	1/ 6 /12	5	+
1061	10	1/ 2 /12	0.005	1/ 7 /12	5	0	1109	1/ 6 /12	4	+
1039	5	1/ 3 /12	0.005	1/12/12	9	..	1111	1/ 5 /12	2	+
1051	5	1/ 4 /12	0.01	1/11/12	7	0	1113	1/ 6 /12	2	+
1047	5	1/ 5 /12	0.05	1/16/12	11	0	1117	1/ 8 /12	3	..
							1119†	1/ 7 /12	2	+
1043	5	1/ 6 /12	0.05	1/16/12	10	..	1121	1/ 8 /12	2	..
1050	5	1/ 7 /12	0.05	1/10/12	3	+	1112	1/ 9 /12	2	+

* Pneumococcus 913. † Received 0.0005 c.c.

On April 21, 1912, one rabbit was vaccinated with 5 c.c. and another with 40 c.c. of a solution prepared from a culture of the pneumococcus that had not grown very vigorously. On May 8, they and a control were each injected with 0.05 c.c. of a virulent pneumococcus culture. Two days later the control was dead of pneumonic septicemia with the microorganisms in the blood, whereas the vaccinated animals are still living. In later experiments in which two injections of the extract were given, a small one followed a week later by a larger dose, active immunity to the pneumococcus was more regularly produced in the rabbit.

It has been found that the vaccine will retain its qualities without any preservative at ordinary temperatures (45 to 65 F.) for at least somewhat over three months. A rabbit that had been vaccinated April 1,

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* From Cooper Medical College.

1912, with 5 c.c. of the pneumonic extract No. 40 that had been prepared Dec. 20, 1911, was inoculated, together with a control, April 10, 1912, with 0.05 c.c. virulent culture of pneumococcus. The vaccinated animal is still alive, whereas the control died in two days and pneumococci were isolated from the heart's blood. Another rabbit, injected April 11, 1912, with the same extract is likewise still living, the control having died within twenty-four hours and pneumococci having been cultivated from the heart's blood.

In order to determine whether it would be possible to produce a serum which would afford passive immunity, a dog was injected with increasing doses of the pneumonic extract from Dec. 28, 1911, to April 13, 1912, when he was bled. A rabbit injected with 4 c.c. of the dog's serum intravenously March 14, 1912, and subcutaneously with 0.05 c.c. virulent culture of pneumococcus, is still living, whereas the control rabbit was dead within three days and the pneumococci were cultivated from the heart's blood. March 24, 1912, the dog was again bled and on March 25, 1912, two rabbits received 6 c.c. of the serum intravenously and 0.05 c.c. virulent pneumococcus culture subcutaneously. Two controls died within two days with pneumococci in the blood. The one vaccinated rabbit lived until April 8, 1912, and the other until April 13, 1912, and the heart's blood of both was found to be sterile. In order to be positive that the pneumococcus with which I was operating was not sensitive to normal dog's serum 6 c.c. of the latter was injected intravenously into a rabbit and 0.05 c.c. virulent pneumococcus culture was administered subcutaneously, March 21, 1912. The rabbit died March 22, 1912, and the control March 23, 1912, and pneumococci were cultivated from the heart's blood of both rabbits.

Unfortunately the serum of the dog cannot be used on human beings on account of its toxicity, and experiments are being made for the purpose of producing antipneumonic serum from sheep and horses.

Ten patients with pneumonia were treated with an extract prepared from an emulsion of the same washed living pneumococci. All recovered. In a majority of the cases crisis set in within twenty-four hours after the first dose. A striking fact observed was a rapid fall of the number of leukocytes within twelve hours and preceding the reduction of temperature. The number of cases is far too small to warrant an estimate of the value of the treatment but certainly proves its harmlessness. The cases are presented in Table 3:

TABLE 3.—PNEUMONIA PATIENTS TREATED WITH PNEUMOCOCCUS VACCINE

	Treatment Begun After Initial Chill.	Crisis.
1.	32 hours	within 24 hours
2.	3½ days	within 12 hours
3.	4 days	within 6 hours
4.	4 days	within 12 hours
5.	5 days	within 5 days
6.	5 days	within 24 hours
7.	5 days	within 24 hours
8.	5 days	within 43 hours
9.	5 days	within 56 hours
10.	12 days	within 36 hours

Since cases of pneumonia are comparatively rare in San Francisco at the present season, we have been unable to test the extract in the large number of cases necessary in order to form reliable conclusions. Because of the well-known variability of the virulence of the organism in different communities and in different seasons, it is desirable to test this extract under as diverse conditions as possible. I shall be glad to furnish the extract to hospitals and research institutions free of charge, on request.

Encouraging experiments are being conducted wit various other germs treated in a similar manner. Th results will be reported later.

1392 Geary Street.

A GRAPHIC MENSTRUAL CHART

Catharine Macfarlane, M.D., Philadelphia

It requires but a short experience in taking gynecologi case histories and in reading such histories as taken b students and resident physicians to demonstrate the difficult of grasping quickly and remembering accurately the patient's exact menstrual history. Unless a rather wordy description is written and referred to at each visit, the same questions will be put to the patient repeatedly, and, after the history has extended over several months, only moderately accurate replies will be obtained.

After a considerable period of dissatisfaction with present conditions I endeavored to formulate a method of graphically

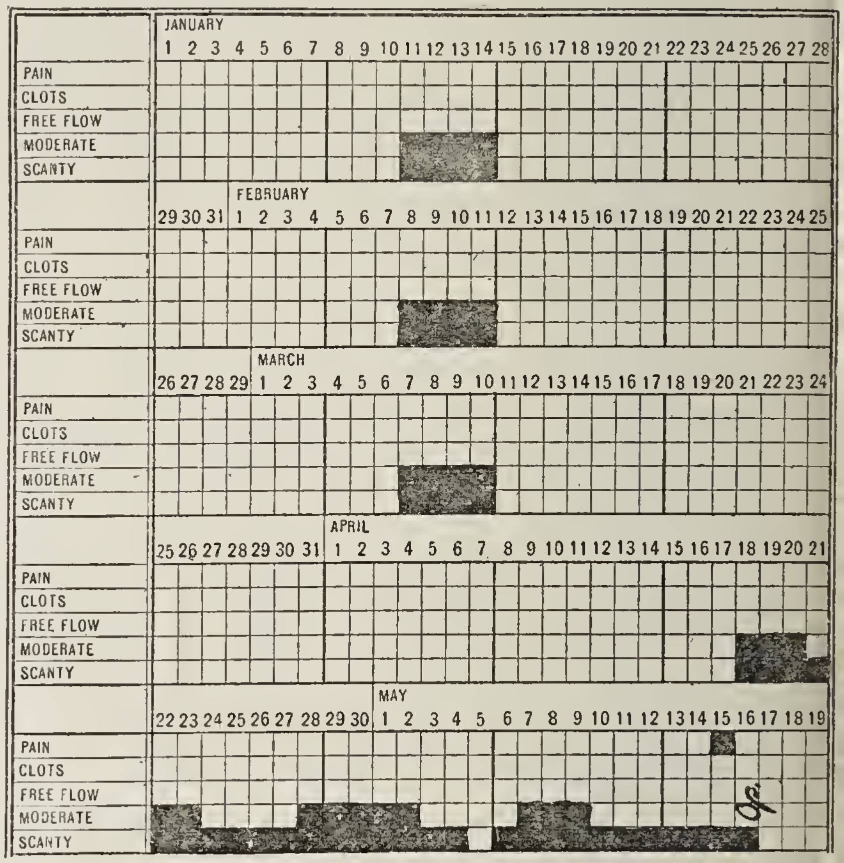


Fig. 1.—Menstrual chart of a case of ectopic pregnancy. Operation, May 16, 1912. There is space on the paper containing the chart to record the name, diagnosis, operation and such other details as are desirable.

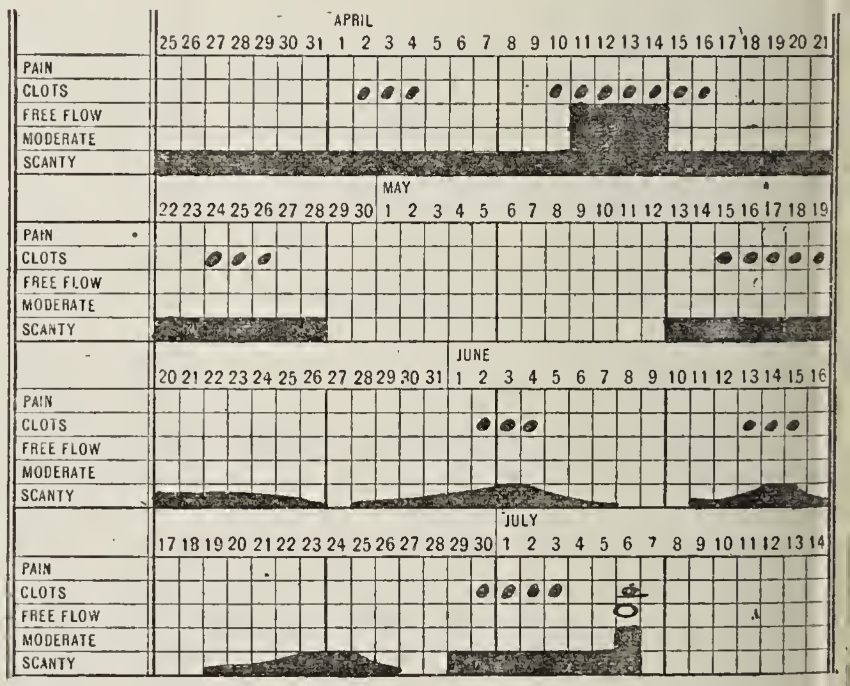


Fig. 2.—Menstrual chart of a case of hypertrophic glandular endometritis. Curettage, July 6, 1912.

recording the patient's menstrual history similar to that universally used for recording variations in pulse, temperature and respiration. The resulting chart, after several months' trial in private and hospital practice, has proved a great improvement over anything previously used.

In private practice a chart is given to the patient at her first visit with directions as to using it. This is brought to the office at each subsequent visit, filled out to show any regular or irregular uterine bleeding, the passing of clots or the occurrence of pain during the intervals. In hospital practice the details of these symptoms throughout the period of the patient's present illness are recorded on the chart by the resident physician when taking the history, and further notes are made day by day as necessary during the patient's stay. As one of the resident physicians in the Woman's Hospital expressed it, "by the time I have filled in the graphic chart for the required period, there are not many questions left unasked." From the standpoint of the visiting chief, the satisfaction afforded by this accurate, concise record cannot be exaggerated. Instead of being obliged to read through a series of disjointed facts relating dates and days of pain, bleeding, etc., one is enabled to see at a glance the whole situation, and one's memory can be refreshed at any time by consulting the chart.

Figures 1 and 2 show sections of the menstrual charts of a case of ectopic pregnancy and of a case of hypertrophic glandular endometritis, respectively.

1709 Pine Street.

A CLINICAL INCUBATOR AT SMALL COST

C. Emerson, Ph.D., M.D., Lincoln, Neb.

I have devised an incubator for bacteriologic work that keeps a very satisfactory uniform temperature and can be constructed easily by any one at small cost, as follows:

1. A galvanized iron box, 12 inches in all dimensions, is provided with a hinge or slide door on one side and openings for the adjustment of the heat-regulating apparatus.

2. The heat-regulating apparatus is an expanding drum, A, suspended within the box and this on expansion and contraction under the influence of varying degrees of temperature operates a lever, B. This lever ends in a copper plate, C, which, when at rest on top of the box, is in contact with the two copper wires D and D′. The thermostat indicated in the diagram is such as is used on "Queen Chicken Incubators," except that the metal disk used in the incubator merely for controlling a current of air is replaced by a disk of copper. Of course, there is insulation between this copper disk and the lever.

3. The wiring, as illustrated in the diagram, may be explained by starting at the plug, E, which connects with an ordinary electric lamp-socket. One of the wires in the lamp cord, F, is attached to a heavy copper wire, D, which is insulated except near the end where it comes in contact with the copper plate. The other wire in lamp cord, F, is carried to the plug, G. The second wire from plug G ends in the heavy copper wire D′, which is insulated except near the end where it forms the second connection with the copper plate, C. The plug, G, inside the incubator is connected with a single electric lamp which will furnish sufficient heat for this apparatus. The electric lamp is placed in one corner of the box. A tin partition separates the lamp from the rest of the incubator so that light is excluded.

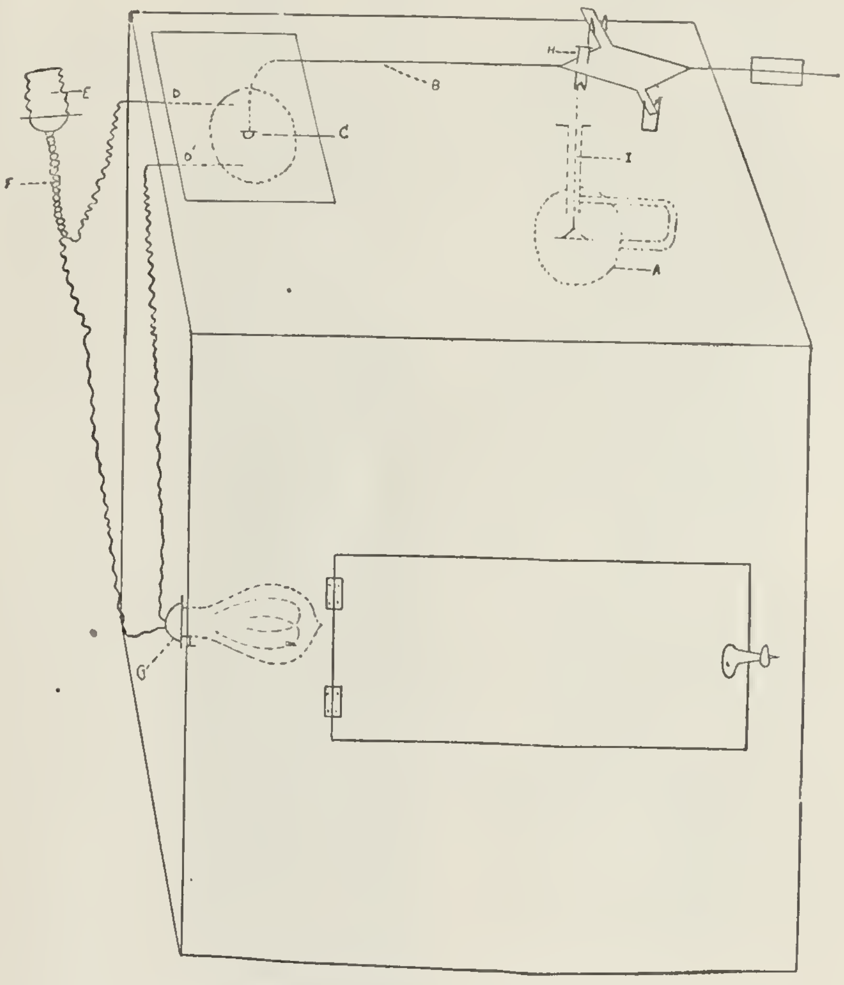
4. The insulation deserves special note. The lamp-cord has its usual insulation. The copper wires D and D′, insulated except near the end, pass between two layers of rubber insulation, such as is used by electricians, until they have reached a point immediately beneath the copper disk, C. Then they pass upward through the upper layer of insulation with their ends not insulated in contact with the copper plate when the latter is at rest. These two layers of insulation are riveted to the top of the box. There should be insulation between the copper disk, C, and the lever, B. The lever surrounded by rubber is passed through a hole in the center of the copper disk and ends in a loop of sufficient size so that the disk cannot slip off.

The mechanism is as follows: When the temperature is low in the box the copper disk, C, rests on the two wires, D and D′, so that the circuit is made and the lamp or heating plate functions. As the heat increases in the box the drum, A, expands, and when the temperature reaches a certain point determined by the adjustment of the screw, H, the lever, B, is pushed upward by means of the piston, I. The copper disk, C, is raised from its contact with the wires and the circuit is broken.

The expanding drum is more delicate than the thermometer. The light is continually flashing on and off while the temperature as indicated by the thermometer does not vary to the extent that it can be recognized by the eye. This incubator has been in operation for four weeks and I have not detected any variation in the thermometer.

The cost is comparatively slight: The galvanized iron box was made by a tinner for $1. The thermostat costs $1.75. The copper disk, plugs, wiring and insulation may be obtained from an electrician, already connected, ready for adjustment to the box, for less than $1.50.

Certain variations may be made. The box will be better if made of asbestos since radiation will not be so great and the cost of the current to operate it will be less. Other varieties of hot-air thermostats may be used and I have omitted to give the exact location and size of apertures for their adjustment because they vary in this particular. The one I have used is simple, cheap and efficient. Socket G may be connected with an electric plate or a plug for several electric lights, making possible the construction of larger incubators.



Inexpensive clinical incubator.

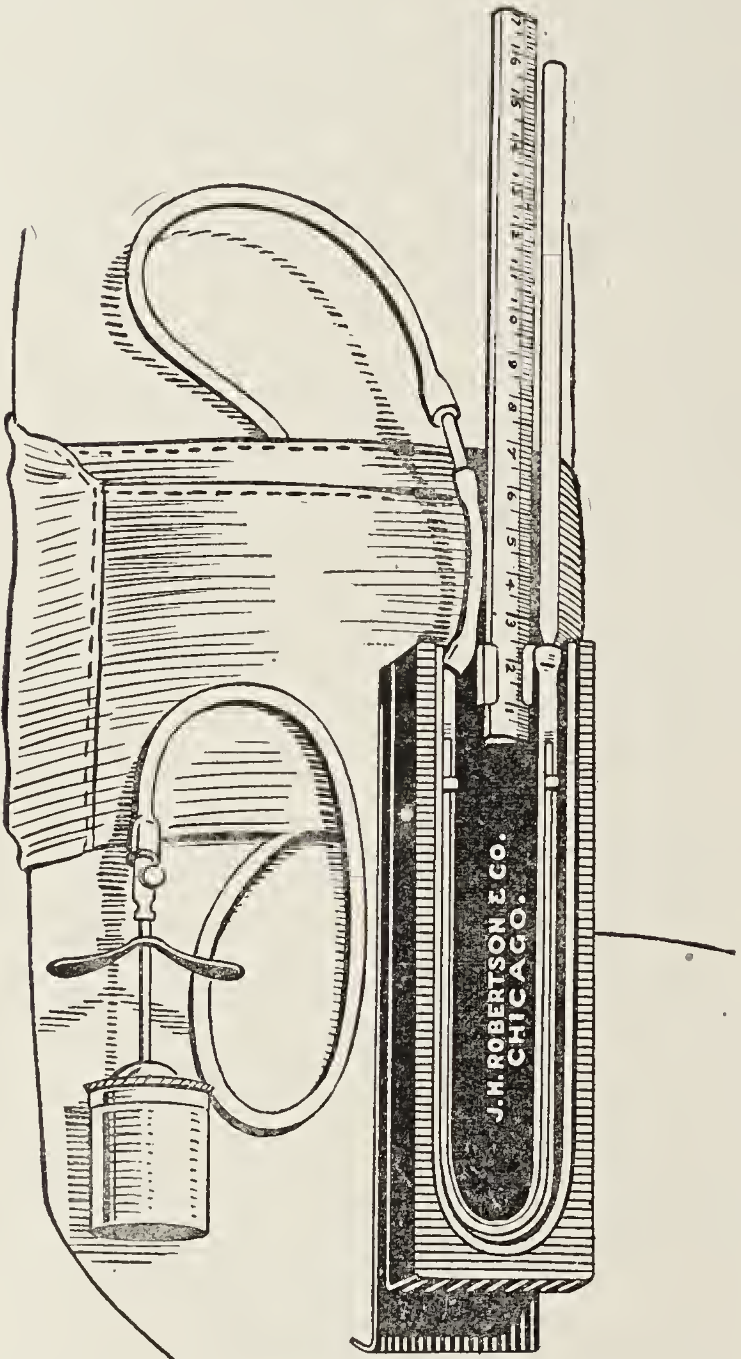
A POCKET MERCURY SPHYGMOMANOMETER

B. M. Linnell, M.D., Chicago
Associate Professor of Medicine, Rush Medical College

The instrument consists of a U tube of mercury with a ground-glass joint, an arm and a sliding scale graded in millimeters in a leather-covered box. This form of manometer is the most accurate because the air-space is reduced to a minimum.

The instrument is set up by hanging it on hook attached to the upper part of the cuff, pinning it to the clothing, or having it held. Any cuff may be used but a cloth-covered cuff (4½ to 5 inches wide) is preferable because more easily portable. The pump may be a rubber bulb, but I prefer a metal pump, similar to the Bier pump with valves reversed. It is more durable and occupies less space. The U tube must come within one-eighth of an inch of the top.

When the box is closed the rubber tubing over the cuff end can be folded and held in place by the cover of the box. The ground-glass joint can be stoppered with a rubber stopper or a lead-pencil rubber eraser, which is also held in place by the cover. The folding cover is buttoned at the bottom. If properly adjusted the mercury will not leak out even with the shaking it gets in an automobile. The box and cuff can easily be carried in a coat pocket or small satchel.



A pocket mercury sphygmomanometer.

In taking a reading the usual precautions are to be observed. With a U-tube manometer the mercury goes down in the arm nearest the pump and cuff and up in the extension. The difference between the levels in the two arms is the amount of pressure, so the reading on the scale must be multiplied by 2 to arrive at the correct reading; for example, if the mercury rises to 6, which is 6 cm., or 60 mm., 2 × 60 = 120 mm., the correct reading. Simplicity and accuracy are the chief characteristics of this instrument. An office instrument may be made by using a tube carefully tested, without a joint and supported by an ordinary laboratory standard, the cuff and pump being the same. A 150 mm. ruler is attached to the long arm of the U tube and set at the mercury. I have used such an instrument in my clinic at Rush Medical College for four years with great satisfaction. Its simplicity makes it self-explanatory to the students, and its cost is small.

SUCCESSFUL TRANSPLANTATION OF URETER FROM VAGINA TO FUNDUS OF BLADDER TWENTY MONTHS AFTER WERTHEIM OPERATION IN WHICH GREATER PART OF TRIGON WAS RESECTED

Gaston Torrance, M.D., Birmingham, Ala.
Surgeon to St. Vincent's Hospital

History.—The patient, Mrs. J. L. H., aged 45, consulted me Jan. 6, 1910, for an extensive carcinoma of the uterus. The family history was negative. Menstruation began at 15, was irregular and rather profuse. The patient was married at 18 and had three children, the eldest 29 and the youngest 22; there were no miscarriages; menstruation had been regular since the birth of the first child. The patient had never had any serious illness. In November, 1908, she began to have a continuous, free, bloody discharge. Six months prior to operation she began to have severe pain in the back and in the pelvis and the discharge became very offensive.

Examination.—The patient was very much emaciated, having lost 45 or 50 pounds, and very cachectic. The cervix was a mass of broken-down cancerous tissue which bled profusely when sponged, and extended well up into the uterus and down an inch or more into the vagina; there were no pelvic adhesions. A very grave prognosis was given and operation suggested with no assurance of an operative recovery.

First Operation.—Four days later, under ether, Wertheim's operation was done, resecting about an inch and a half of the vagina and the trigon of the bladder, leaving an opening about 2 inches long in the bladder, which was closed by the method of C. H. Mayo; the ureters were dissected up to the brim of the pelvis, and uterine vessels tied as close to the pelvis as possible and all surrounding tissues dissected out. The peritoneal flap from the anterior part of the pelvis was drawn back and sutured to the rectum and pelvic brim, completely shutting off the pelvis from the abdominal cavity.

The patient made a good recovery with no complications except a slight urinary leak from the vagina. She regained the fifty pounds she had lost and her normal color in two or three months, when she returned to her home in Kansas City. Sixteen months later she returned to have me close the bladder fistula. She was voiding some of the urine, but the greater part was escaping by the vagina.

A very small-pointed sound in the bladder could be clicked with one in the vagina. This was closed and the amount of urine voided was increased, but still about half passed through the vagina.

Cystoscopic examination showed a patent ureter on the right side, which was catheterized, and blue urine was collected from it after the injection of indigocarmin, subcutaneously. The scar in the bladder was strong and in a healthy condition; there remained only a scar where the left ureter should have been. During this cystoscopic examination blue urine was seen to trickle from the vagina; the cystoscope was passed up into the vagina and the opening of the ureter located well up on the outer side of the pelvis, where the ureter had been caught in the scar tissue; a lateral leak about 2 inches from the bladder was draining into the vagina. I experienced no trouble in passing a catheter through this opening up to the kidney.

Transplantation of the ureter was advised, but was postponed four months to avoid the summer.

Second Operation.—An attempt was made to pass a stiletted catheter, but it was not possible on account of the angle formed by the adhesions to the ureter. Under ether an incision was made, low down, through the left rectus. The posterior peritoneum was divided on the side of the pelvis at the outer extremity of the common iliac artery. The internal iliac was exposed and followed down to locate the ureter, which was drawn close to the rectum, and followed down beneath the peritoneum to the point where it became adherent to the vagina; with one finger in the culdesac and one behind the peritoneum the ureter could easily be felt. After the ureter was clamped close to the adhesion and the distal end ligated it was divided and brought up, and it was found that by some tension it could be transplanted to the upper part of the bladder. A small opening was made in the fundus of the bladder and the end of the ureter, after being split, was drawn into the bladder by passing a fine catgut suture, with a needle on each end, through the flap and then through the bladder wound and out through the wall of the bladder, so that when tied the flap of the ureter was drawn down against the wall of the bladder cavity; the ureter was then buried in a trough in the bladder wall by means of interrupted sutures of linen. The peritoneal wound was closed over the ureter. About an inch of the ureter, which was left projecting out over the pelvis without any covering, was covered by the omentum and sigmoid. But for the fact that the kidney was low on this side an anastomosis would have been almost impossible, as the bladder was small and less easily manipulated on account of the previous resection and an inch or two of the ureter had been sacrificed in the vaginal scar.

Postoperative Course.—The patient made a good recovery. The urine was bloody for several days, as I have always found it to be in cases in which I had to dissect the ureters up for some distance, and this made me feel confident that the ureter was patent.

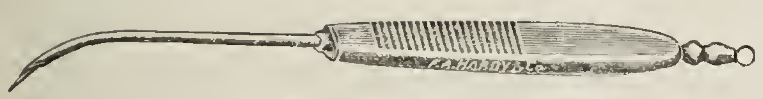
The only complication was a chill at the end of the first twenty-four hours, which was probably due to the lodgment of a small blood-clot in the lower end of the ureter; this cleared up in a few hours and recovery was rapid.

The patient left the hospital at the end of four weeks and came back a month later for a cystoscopic examination. I used a Brown-Burger cystoscope and after catheterizing the right ureter I had to turn the instrument completely over to locate the ureter implanted in the fundus of the bladder; this ureter was easily catheterized and clear urine was collected, but as the catheter, a No. 7, could be passed only about 3 cm., I decided to inject indigocarmin again. The blue urine promptly appeared, thereby demonstrating the patency of the ureter.

A NEW ANTRUM IRRIGATOR

C. Coulter Charlton, M.D., Atlantic City, N. J.

My antrum irrigator, shown in the accompanying illustration, on account of its simplicity, has given great satisfaction and proved a time-saver. It was designed by me two years ago and has proved invaluable in clinical work, in which so many cases are seen and treated during a limited period of time. The instrument is a long needle with a special curve, having a handle and tip for attaching rubber tubing. The curve of this instrument has proved to be superior to others that were intended to enter the antrum through the inferior meatus. It is very easy to manipulate, and, as it was intended to enter the maxillary sinus below the inferior turbinate, it is an instrument of safety even in the hands of the inexperienced.


A new antrum irrigator.

To irrigate the maxillary sinus, anesthetize the nasal mucous membrane at the selected point of entry, which is usually about 20 mm. posteriorly to the anterior tip of the lower turbinate and 5 mm. below its attachment to the antral wall. Holding the irrigator between the thumb and index-finger, introduce it with the point downward and rotate outward and upward to the point selected. Then a little pressure backward and outward, bringing the handle of the instrument to the opposite side forming an angle of 45 degrees from the midline, causes it to enter the antrum easily. The syringe containing the solution having been previously attached with tubing, everything is ready for irrigation.

By this procedure the solution flows through the instrument that is in the artificial opening and returns to the nasal cavity through the normal opening or openings. In this method the return flow is more remote from the inward flow and causes a more thorough cleansing, with less pain, as the pressure required to force the solution through the sinus is not so great. When the irrigation is completed, force a syringefull of air into the sinus, which will cause the excess of solution to be expelled.

1101 Pacific Avenue.

New and Nonofficial Remedies

The following additional articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Their acceptance has been based largely on evidence supplied by the manufacturer or his agent and in part on investigation made by or under the direction of the Council. Criticisms and corrections are asked for to aid in the revision of the matter before publication in the book "New and Nonofficial Remedies."

The Council desires physicians to understand that the acceptance of an article does not necessarily mean a recommendation, but that, so far as known, it complies with the rules adopted by the Council.

W. A. Puckner, Secretary.

BACILLUS PESTIS VACCINE.—This vaccine is claimed to be of value as a prophylactic against infection by plague.

H. K. Mulford Co., Philadelphia.

Plague Bacterin.—Marketed as follows: I. Single-dose vaccination in 1 Cc. ampules. Standardized to contain 5 billion killed B. pestis (plague bacilli) in each Cc. II. Ten single-dose vaccinations in one 10 Cc. ampule. Standardized to contain 5 billion killed plague bacilli in each Cc. III. Single two-dose vaccination in two 1 Cc. ampules. Two vaccinations are used for one immunization. The first dose (red label) is standardized to contain 1 billion and the second dose (white label) to be injected from seven to ten days later or when the reaction to the first injection has subsided is standardized to contain 2 billion killed B. pestis in each Cc. IV. Ten two-dose vaccinations in two 10 Cc. ampules. Each Cc. of ampule with red label, marked "First vaccination," is standardized to contain 1 billion killed B. pestis. Each Cc. of ampule with white label, marked "Second vaccination," is standardized to contain 2 billion killed B. pestis.

MIXED VACCINES.

H. K. Mulford Co., Philadelphia.

Staphylo-Strepto-Bacterin Mixed.—Marketed in a package of four syringes: Syringe A. A mixed vaccine containing about 50 million killed staphylococcus pyogenes aureus, 50 million killed staphylococcus pyogenes albus and 25 million killed streptococcus. Syringe B. A mixed vaccine containing about 100 million killed staphylococcus pyogenes aureus, 100 million killed staphylococcus pyogenes albus and 50 million killed streptococcus. Syringe C. A mixed vaccine containing about 200 million killed staphylococcus pyogenes aureus, 200 million killed staphylococcus albus and 100 million killed streptococcus. Syringe D. A mixed vaccine containing about 400 million killed staphylococcus pyogenes aureus, 400 million killed staphylococcus pyogenes albus and 200 million killed streptococcus.

SERUM ANTIDIPHTHERICUM AND ANTIDIPHTHERIC GLOBULINS (See N. N. R., 1912, p. 201).

Cutter Laboratory, Berkeley, Cal.

Diphtheria Antitoxin, U. S. P.—Marketed in syringes containing 1,000, 2,000, 3,000, 4,000 and 5,000 units; also in bulbs. Diphtheria antitoxin globulin marketed in syringes containing 1,000 units.

TUBERCULIN PREPARATIONS (See N. N. R., 1912, p. 214):

Cutter Laboratory, Berkeley, Cal.

Detre Differential Test.—Made up of one tube each of Tuberculin O.T., Tuberculin B.F. human, Tuberculin B.F. bovine. Each tube contains about 1/10 Cc.

Tuberculin O.T. (Dilution) Von Pirquet's Reaction.—Marketed in packages containing ten capillary tubes and one ejecting bulb.

VACCINE VIRUS (See N. N. R., 1912, p. 208).

The Slee Laboratories, Swiftwater, Pa. (Abbott Alkaloidal Co., Chicago).

Glycerinated Vaccine Virus.—Marketed in packages containing respectively five and ten capillary tubes.

NON-PROPRIETARY BRANDS OF ACCEPTED ARTICLES

The following brand of an accepted article having been found to comply with the standards adopted, the Council voted that it be listed:

Bismuth Betanaphtholate, Merck.—Manufactured by E. Merck, Darmstadt, Germany (Merck & Co., New York).

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[*For other information see second page following reading matter*]

SATURDAY, OCTOBER 12, 1912

THE UTILIZATION OF THE HIGH-CALORIE DIET IN TYPHOID FEVER

The employment of a more liberal diet, consisting of 4,000 calories and upward per day, in the management of typhoid fever has received prominence as the result of the painstaking studies of Shaffer and Coleman.[1] The excellent outcome which they have reported has inspired a wide-spread interest in the subject. Physiologically it appears decidedly reasonable to prevent the loss of body weight and preserve nutritive equilibrium in any condition in which profound demands are made on the body's store of energy, especially when the deficit is likely to be prolonged over a considerable period of time. Nothing short of the excellent recoveries, the relative absence of relapses and other favorable features reported could have sufficed to win the day against the prejudice which has long existed against liberal feeding in typhoid fever under conditions that have commonly been supposed to involve the deficient digestive cooperation of the alimentary tract. The daily use of a quart of milk, a pint of cream, six or seven ounces of milk-sugar, several eggs, toast, butter, cereals, potato, custards and apple sauce — in short, a dietary calculated to more than satisfy the appetite of an ordinary healthy man—in a disease supposed to call for most careful sparing of the gastro-intestinal canal, has evoked silent protest or even mild reproof in some quarters. It has been well said, however, that things move along so rapidly nowadays that people who say "it can't be done" are often interrupted by somebody doing it. And so the diet in typhoid has increased so much in some clinics that patients in the height of their fever are given more food than was formerly given in the later periods of their convalescence.

Inasmuch as clinical experience has now shown that patients do well on this diet, we may assume that they utilize the generous diet satisfactorily. Of course it requires little investigation to discover that the so-called "high-calorie diet" described above has been rationally selected. Meat is excluded; easily digestible carbohydrates are abundant; fats are liberally administered in palatable forms and furnish a considerable contribution to the energy intake; in its make-up the diet is decidedly antiputrefactive in character. Nevertheless there have been frequent misgivings among competent critics as to the real extent of absorption of the unusually large amounts of fat in particular, especially during the assumed depression of the digestive functions correlated with the febrile condition.

The question under debate is one that can be solved by experimental investigation, and an answer has been formulated by Dr. Du Bois[2] of New York. In a most creditable research, illustrative of the type of superior clinical study which we hope to see far more prominent in our American hospitals than it has been in the past, Du Bois has determined directly the food utilization of a series of patients maintained on the Coleman diet in the wards of Bellevue Hospital, New York. His work shows that the stools of typhoid fever patients on the high-calorie diet closely resemble normal stools. The indican excretion in the urine compares favorably with what may be observed in normal individuals, and there is no evidence of any irritation of the intestinal tract attributable to the diet. The essential facts may be summarized by the statement that throughout the disease the patients can absorb carbohydrates and proteins quite as well as can normal individuals. They can, further, absorb large amounts of fat; but the percentage of absorption is somewhat lower than the normal, especially in the earlier part of the disease.

Such findings encourage added confidence in the importance of the newer dietotherapeutic recommendations for typhoid fever and assure for them a more respectful consideration on the part of a critical profession. Granting the possibilities of satisfactory nutrition here substantiated, the serious problem of actually administering these large quantities of food to an indifferent and lethargic patient confronts the clinician for practical solution. Good nursing holds the secret to success. The best efforts of a skilful dietetic art and faithful, energetic and intelligent bedside attendance will overcome many apparently insuperable difficulties. High-calorie feeding is assuredly a possibility.

THERAPEUTIC RESEARCH

The attention of our readers has already been called[3] to the constructive work now being conducted by the Council on Pharmacy and Chemistry through its Committee on Therapeutic Research. The subject was also discussed in the Trustees' report[4] at the Atlantic City session, and attention called to the fact that liberal appropriations had already been made for the use of the committee. This work is in direct line with the basic objects of the Council[5]— the advancement of therapeutics through the substitution of definite knowledge for vague impressions and general beliefs that have too long prevailed, in recognition of the fact that therapeutics, particularly drug therapeutics, has not kept step with other branches of medical science.

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[1] Shaffer, P. A., and Coleman, W.: Protein Metabolism in Typhoid Fever, Arch. Int. Med., December, 1909, p. 538. Coleman, W.: The High Calorie Diet in Typhoid Fever, Am. Jour. Med. Sc., 1912, cxliii, 77.

[2] Du Bois, Eugene F.: The Absorption of Food in Typhoid Fever, Arch. Int. Med., September, 1912, p. 177.

[3] Natural and Synthetic Salicylic Acids, editorial, The Journal A. M. A., January 13, p. 116.

[4] The Journal A. M. A., June 8, p. 1786.

[5] Sollmann, Torald: Therapeutic Research, The Journal A. M. A., May 4, p. 1390.

The first result of the committee's appointment was a pharmacologic study, by J. A. Waddell,[6] of the effects and toxicity of sodium salicylates of natural and synthetic origin, which disposed conclusively of the asserted dangerous character of the so-called synthetic sodium salicylate.

Four papers, which are more or less directly the result of this committee's efforts, were presented before the Section on Pharmacology and Therapeutics at the session of the American Medical Association last June. Three are printed in this issue, and the fourth, by R. A. Hatcher, appeared in the September *Archives of Internal Medicine*.[7] They illustrate the character of the work which is to be done and show its immense value to the medical profession.

The first of these papers, by N. M. Harris of the department of bacteriology, University of Chicago, is an attempt to determine the efficiency of intestinal antiseptics, regarding the action of which, despite the claims of those commercially interested in their exploitation, little positive evidence is available. The critical review of the literature and the personal investigations conducted in the Johns Hopkins Hospital make it plain that the effects of intestinal antiseptics, if any, cannot be determined by merely watching the clinical progress of the case, and that no reliable chemical or bacteriologic methods are available for the measurement of intestinal putrefaction, but that the actual effects of intestinal antiseptics cannot be very great. As a moderate antiseptic action may be useful, at least as an adjuvant to other treatment, it would be valuable if such an action could be demonstrated and a method devised for comparing the relative efficiency of the various "intestinal antiseptics" on the market. Until such a method has been worked out it will be well to remember that assertions made in behalf of this or that proprietary product are based on mere beliefs and opinions, that the action has not been demonstrated by trustworthy experiments and that any marked effect on intestinal putrefaction is highly improbable.

The paper by J. A. Capps, a member of the Council on Pharmacy and Chemistry, "Effects of Iodids on the Circulation," is an inquiry, preliminary to actual investigation, into the existing data on an important subject. The extensive use of iodids in cardiovascular disease, especially in arteriosclerosis, furnishes strong presumptive evidence that they have a beneficial effect. But as to the nature and the mechanism of this effect, there are few definite data either experimental or clinical. Capps discusses the various explanations offered and concludes that the theories so far proposed are unsatisfactory and that the whole question awaits solution. He inclines to the belief that the key to the iodid action will be furnished by a closer study of the condition in which it is mainly if not solely effective, namely, syphilitic endarteritis. Here, it is believed, iodids cause absorption of the cellular infiltration of the vessel wall, thereby enlarging the volume of the blood-vessels and restoring their elasticity. The flow of blood would thus be equalized and the heart relieved without necessarily altering the general level of blood-pressure.

If this view is correct, the mechanism of the circulatory improvement would be solved. The remaining question, the mechanism of this absorption, opens up the whole subject of the mode of action of iodids in syphilis. This question also is mainly in the speculative stage. Capps discusses the theories so far advanced, points out their unsatisfactory nature and offers a new theory, that a proteolytic ferment is formed by the union of iodid with antibody, which ferment has a selective action on the cellular exudate. Means whereby this theory may be proved are suggested and the future work along the indicated lines may be looked forward to with interest. Actual knowledge as to the mechanism of the action of iodids would be of inestimable value to medicine. The present paper is of value chiefly in that it emphasizes how little definite information we have.

The duration of the action of digitalis has important bearing on the dosage and cumulative action of this drug. These are matters of great importance in digitalis therapy regarding which we have no very definite conception. Much confusion also has been created by the unreliable and often almost absurd affirmations concerning the many new digitalis preparations and principles which are being put on the market constantly, which have detracted from a better understanding of the drug itself. For this reason the next two papers, an experimental study by R. A. Hatcher of Cornell University Medical College and a member of the Council, and the clinical study of Eggleston, also of Cornell University Medical College, have great practical as well as scientific interest. The work gives a good picture of the duration of digitalis action and should enable physicians to prescribe the drug more intelligently and avoid overdosage as well as underdosage, which have in the past been potent for much uncertainty if not harm or danger.

Eggleston also discusses whether this persistence of digitalis action is due to the actual persistence of the drug in the tissues or whether the effects outlast the presence of the drug. The fact that the effects of ouabain (New and Nonofficial Remedies, 1912, p. 168) disappear promptly, is presumptive evidence that the continued action is due to persistence of the drug in the tissues and not merely to a persistence of the effects.

It is believed that these papers show strikingly the possibilities of the work undertaken by the Council's

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[6] Waddell, J. A.: A Comparative Investigation of the Effects and Toxicity of Sodium Salicylates of Natural and Synthetic Origin, Arch. Int. Med., December, 1911, p. 784; abstr. in THE JOURNAL A. M. A., January 13, p. 143.

[7] Abstracted in Current Medical Literature Department, p. 1402.

Committee on Therapeutic Research and also of the vast amount of work which must be done before the action of even our "best-known" drugs is fully understood. The matter presented, it seems to us, also contains a strong suggestion that physicians should attempt to become better acquainted with the standard drugs and their preparations before they experiment with new things, no matter how alluring the claims for some new drug may sound.

RECENT WORK ON POLIOMYELITIS—THE BITING FLY AS AN INTERMEDIARY

From time to time the attention of our readers has been called by editorials and by special articles to the important advances in our knowledge of anterior poliomyelitis. Contributions of the greatest importance were announced recently in Washington. The entire morning session of two of the sections of the International Congress on Hygiene and Demography was devoted to a joint discussion of poliomyelitis which was participated in by men prominent in recent studies of the disease. The papers and discussions included a comprehensive presentation of the facts previously known regarding the etiology and epidemiology of the disease and the results of newer studies presented in this country for the first time.

The Journal has previously referred to the fact that various observers have demonstrated the virus of poliomyelitis in the nasopharyngeal mucosa and tonsils of monkeys and human beings infected with the disease; but although many investigators have reported attempts to demonstrate the virus in the secretions of the nasopharynx and intestines, all had reported negative results until Kling, Wernstedt and Pettersson[1] presented their work in which they showed, for the first time, the infectiousness of the secretions of the nasopharynx and intestines of persons who had died of poliomyelitis. At the Washington meeting Dr. Pettersson presented a summary of the more recent investigations of Kling, Wernstedt and himself, in which the virus of poliomyelitis was also shown for the first time to exist in the buccal and intestinal secretions of persons in the acute stage of the disease, convalescents, persons suffering from clinically obscure infections of poliomyelitis, and apparently healthy persons in the immediate vicinity of poliomyelitis patients. These investigators obtained secretions from such persons by washing out the mouth, nose, pharynx and rectum (the latter having first been emptied by a large enema) with salt solution. The washings so obtained were passed through a Heim filter, which restrained the bacteria present, but allowed the virus of poliomyelitis to pass. The filtrate was injected into the peritoneal cavity of monkeys and usually also into the sciatic nerve.

Inoculations were made with the buccal and intestinal secretions of eleven patients with acute cases of poliomyelitis, both mild and severe, and the virus was demonstrated in ten of the eleven. Positive results were obtained with seven out of twelve specimens of buccal secretions and with nine out of ten intestinal washings. The intestinal or buccal secretions of eight out of nine convalescents were shown to be still infectious more than four weeks after the onset of illness, in one case as long as seven months. It would therefore seem that the virus of poliomyelitis may be present in the secretions of infected persons for weeks after all acute symptoms of the disease have ceased.

The virus was demonstrated in the mouth secretions of three persons who had not, so far as known, been in contact with any recognized case of poliomyelitis but who had themselves suffered from rather slight illness, but with no symptoms characteristic of poliomyelitis. Most important of all was the report by Dr. Pettersson that he and his colleagues had succeeded in demonstrating, for the first time, the virus of the disease in the buccal and intestinal secretions of persons who gave no history of recent illness but who had been in intimate contact with other persons in their own families sick with poliomyelitis. "Virus carriers" were found in six families. The opinion was expressed that such carriers were most likely very common during epidemics of poliomyelitis, probably exceeding the number of persons with clinically recognizable infections. These results of Kling, Wernstedt and Pettersson would seem almost to justify the conclusion that the infection is disseminated by transfer of the virus directly from person to person, "virus carriers" and abortive cases accounting to a large extent for the spread of the disease.

Considerable doubt was cast on the justification of such a conclusion, however, as a result of the observations reported by Prof. M. J. Rosenau of the possible agency of the stable-fly, *Stomoxys calcitrans,* as a transmitter of the disease. Dr. Mark W. Richardson of the Massachusetts State Board of Health had summarized the epidemiologic investigation of poliomyelitis made in that state from 1907 to 1912, in which the evidence was strongly in favor of the fly transmission of the disease. Impressed with this evidence, Dr. Rosenau, in cooperation with the State Board of Health, undertook experiments to determine whether the *Stomoxys* could transmit poliomyelitis. Dr. Rosenau stated that six out of twelve monkeys exposed daily for several weeks to the bites of large numbers of *Stomoxys,* which were also daily allowed during this time to bite monkeys experimentally infected with poliomyelitis, had developed symptoms of the disease. Of the six monkeys, two had become paralyzed and died, three were paretic at the time of the report, and one after a short illness had recovered. Several of the sick animals had a preliminary diarrhea before developing paralysis. Sections of the cord from one of the dead monkeys showed lesions characteristic of poliomyelitis, while the cord of the others showed degenerative changes which, in the absence of infiltrative lesions, were not considered sufficiently typical to justify a diagnosis. Sufficient time had not elapsed at the date of the report to determine the results of an attempt at transmission with the cord of the paralyzed monkey.

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[1] Kling, C., Wernstedt, W., and Pettersson, A.: Ztschr. f. Immunitätsforsch. u. exper. Therap., 1912, xii.

This preliminary announcement will naturally focus the attention of all students of poliomyelitis on the *Stomoxys* as the transmitter of the disease, and the work presumably under way in many laboratories, as well as the epidemiologic observations from this new point of view so strikingly presented by Dr. Rosenau, will doubtless clear up the present apparent inconsistencies. The epidemiologic studies of the disease now being made by the United States Public Health Service at Buffalo will probably throw further light, from the epidemiologic side, on the insect theory of the transmission of the disease, and more complete reports from Dr. Rosenau may fully establish the correctness of his preliminary announcement. At present the question remains an open one as to whether the disease is directly contagious, whether a biting fly is a necessary factor in its transmission, or whether it may be conveyed in more than one way.

If it be proved that the stable-fly is the chief or only means of transmitting the disease, its prevention and eradication will be a comparatively easy matter, as a campaign of destruction against this species of fly should be much more easily conducted than those which have been successfully conducted against the malarial and yellow fever mosquitoes and other insects which have been shown to be transmitters of deadly diseases.

It is a matter for congratulation that from the time when Landsteiner and Popper first showed the transmissibility of poliomyelitis to monkeys, many of the additions to our knowledge of the experimental disease, as well as of its epidemiology, have been made by American investigators. Should Dr. Rosenau's preliminary announcement be confirmed by further work showing the bite of the stable-fly to be the only method by which the disease is transmitted, it would be another cause for congratulation that the way for the eventual control of the disease was pointed out by an American.

CULTIVATION OF MALARIAL PLASMODIA

Bass[1] in 1911 announced that he had successfully cultivated the parasites of the three forms of malaria. As set forth in a recent note, Bass and Johns[2] were later sent by the Tulane School of Tropical Medicine to Central America and carried on work in Panama in the cultivation of the plasmodia and the development of a technic. A fuller report[3] of this work has recently been made, and some interesting conclusions have been drawn or suggested. Bass and Johns were able to cultivate the parasites in human serum, in Locke's fluid from which calcium chlorid is omitted, and in human ascitic fluid. Positive cultures of the parasites have been made in the three forms of malaria and have been carried as far as four generations from the parent culture. The technic in the cultivation of a single generation differs somewhat from that for the cultivation of successive generations. The parasites will grow only in red blood-corpuscles, and it was found necessary to add dextrose to the culture-medium which seems to have a protective influence on the parasites within the red blood-corpuscles. When the parasites segment and escape from the red blood-corpuscles, they are immediately attacked and destroyed by the leukocytes, when these are present. The serum is also destructive of the parasites. In the cultivation of more than one generation, the leukocytes must be removed from the culture-medium, as otherwise the parasites are immediately destroyed at segmentation. Only the asexual cycle has been observed in the cultures, although there were indications that the sexual forms might also be cultivated.

It is the conclusion of Bass and Johns that the plasmodium in the blood of a patient can pass from cell to cell only when the cell is in direct contact with another cell containing a segmenting parasite, and then only when the opening for the exit of merozoites occurs opposite the cell to be infected. This probably occurs frequently in the small capillaries through which the non-segmented parasite cannot pass, its protoplasm being less yielding than that of the red blood-cells. It was found that blood drawn within one or two hours after a full meal was more serviceable for culture mediums than if drawn after fasting, which corresponds with the clinical observation that the parasites will often disappear in the blood and the paroxysms will cease if the patient is put to bed and given a purgative with a light diet. Calcium salts when added to the culture mediums were found to cause hemolysis of the infected as well as the non-infected cells, and the authors suggest this as an explanation of malarial hemoglobinuria, the amount of calcium salts in the blood being perhaps slightly augmented by the calcium in drinking-water or in food. Only a slight excess of calcium over the normal amount is required to produce this effect. Hemolysis from the calcium in non-infected, normal blood does not occur.

The experiments offer an interesting suggestion as to the way in which quinin acts in malaria. The authors believe that it does not directly kill the parasites but produces permeability of the red blood-cells with destruction of the parasites by the blood-serum. They suggest that their method of cultivation of the malarial parasite or some modification of it may be applied to the cultivation of other blood-cell parasites of man and animals. This fact and the suggestions regarding the mode of action of quinin, the influence of dextrose on the development of malarial parasites and the production of hemoglobinuria are really more interesting even than the fact that a technic has been developed for the cultivation of malarial plasmodia.

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[1] Bass, C. C.: THE JOURNAL A. M. A., Nov. 4, 1911, p. 1534.

[2] Bass, C. C.: THE JOURNAL A. M. A., Sept. 21, 1912, p. 936.

[3] Bass, C. C., and Johns, F. M.: Jour. Exper. Med., October, 1912.

Current Comment

HONOR TO WHOM HONOR IS DUE

Last week The Journal made several comments on the recent session of the International Congress on Hygiene and Demography and its influence on sanitary progress in this country. The section meetings, the exhibit, the creditable attendance from this and foreign countries, the public interest, the wide-spread and valuable educational publicity in the newspapers—these were the evident results. As is often the case, the cause is not so apparent. Yet any one who has been associated with any great task knows that no result is ever achieved without a proportionate amount of careful planning and painstaking effort on the part of some one. Those who have been most intimately connected with the management of the recent congress know that the principal cause of its successful outcome is found in the labors of Dr. John S. Fulton, the Secretary-General. For two years he has worked, unremittingly and conscientiously, to make the congress a gathering that should be a credit to the country in which it was held and to the scientific men of our land. How well he succeeded is now a matter of history. The Journal congratulates Dr. Fulton on the results of his efforts.

HUMAN HAPPINESS A BUSINESS ASSET

Human life is gradually becoming recognized as a business asset. This is a new fact in the development of the race. Life-insurance companies are realizing that they can increase their dividends faster by cutting down the death-rate than by increasing sales or by reducing expenses. Employers of large numbers of human machines are realizing the surprising fact that, as a cold business proposition, it pays, not in sentiment but in dollars, to take good care of their employees. Business men are learning that well-fed, well-clothed, contented men and women, working in well-lighted, well-ventilated quarters and on schedules arranged in accordance with our modern knowledge of psychology and physiology, actually turn out more work and better work than underpaid, discontented help, working under uncomfortable and insanitary conditions. Therefore large corporations are spending money liberally in playgrounds, rest-rooms, libraries, gymnasiums, sanitary lunch-rooms, moving-picture shows, safety devices, ventilating systems and similar devices for the well-being and enjoyment of their employees. If one asks these men why they are doing these things, they will disclaim any charitable or philanthropic motives. "This isn't charity," says one firm, "we want that clearly understood. This is simply good business management and common sense. A well man is of more use to us than a sick man. A happy, contented woman turns out more work and better work than an unhappy one. Therefore anything we can do to make the people who do our work at ease in mind and body we regard as good business management, just as we regard fire-insurance, improved machinery and labor-saving devices." The firms that have realized the enormous importance of this discovery are already reaping the benefits. The conservation of the health of employees will be a fundamental principle of good business management in the future. When it is fully recognized by the industrial world that sickness is a material liability and that health is a realizable commercial asset, contagion and preventable diseases will be hunted down and exterminated as relentlessly as modern industrialism now pursues counterfeiters, forgers and other commercial criminals.

DAIRYMAN'S RESPONSIBILITY FOR POISONOUS MILK

A dairyman in Atlanta, Ga., was fined $50 recently for violating the milk ordinance of that city. The dairyman, who ran a clean dairy, had permitted one of his drivers to purchase milk from another dealer in violation of the ordinance which requires milk-dealers to inform the health board of the source of all milk sold. The milk of the second dealer was not wholesome. An interesting angle was imparted to the case which may serve as a warning to milk-dealers who wish to avoid the expense of damage suits. One of the chief witnesses against the dairyman testified that his 2-year-old daughter had become seriously ill from ptomain poisoning caused by poisonous milk purchased from the dairyman on trial, and his testimony was corroborated by two physicians. The witness declared that if his daughter died the dairyman would be held responsible. The dairyman admitted that it was the practice of his drivers to purchase milk from other milk-dealers when their supply ran short. With this direct testimony that the illness was due to improperly inspected milk, it would seem that the dairyman might be held responsible in damages, though just what position a court or jury might take on the question is, of course, problematic. The case, however, suggests another forceful reason why the dairyman should comply not only with the ordinances as laid down, but with the measures which science and experience have proved to be essential to the production of safe milk. When he finds that his pocketbook may be touched in this way, he will be more ready to comply with the requirements.

MEDICAL EDUCATION IN ALABAMA

Reconstruction of medical education in the United States goes steadily on, and evidences of it are being received from all sections of the country. Of particular interest is the important readjustment recently made in Alabama, through the efforts largely of President George H. Denny of the University of Alabama, who displayed a thorough knowledge of the conditions and needs of medical education. For many years Alabama has had two medical schools, located respectively at Mobile and Birmingham. The former since 1897 has been recognized as the medical department of the University of Alabama and in 1907 by legislative enactment all its property was transferred to the university, which assumed complete control. The Birmingham school, realizing that without state aid or private endowment it could no longer teach medicine in accordance with the rapidly increasing requirements, recently offered to transfer its property to the university on condition that the work of the third and fourth years of the medical course be continued at Birmingham. This would mean that the work of the first and second years would be given only at Mobile but that the work of the third and fourth years would be offered both at Mobile and at Birmingham, the student being allowed to choose between the two cities for his clinical instruction. In order that the university might secure full control of medical education in the state and yet avoid any unwise duplication of work, President Denny recommended that the Birmingham offer be accepted by the trustees of the university, but that instead of duplicating the clinical years of the undergraduate medical course, a postgraduate school be established at Birmingham and operated under the auspices of the university. With this understanding, which is said to have been satisfactory to both parties, the trustees voted to accept the Birmingham property. In accordance with the agreement, it is reported that undergraduate teaching will be discontinued at Birmingham after the three classes now enrolled have been graduated and that a postgraduate medical school will be developed there. Thus medical education in Alabama is to come entirely under the control of the state university, a parallel to what has already been done in Minnesota, Indiana, Colorado, Arkansas, Mississippi and Oklahoma. Alabama has gone further, however, in that provision has been made for the development of postgraduate medical instruction. It is to be hoped that nothing will interfere with this wise solution of the problem and that the rapid progress in medical education recently made in Alabama may continue unhampered.

HEALTH FOR SALE

One of the most interesting and important papers presented before the Fourth National Conservation Congress, which met last week in Indianapolis, was written, not by a physician or a sanitarian, but by a business man, Mr. E. E. Rittenhouse, of the Equitable Life Assurance Company. An abstract of his address appears in Society Proceedings in this issue. Mr. Rittenhouse, in the opening paragraphs of this address, recognized the crucial point in the present situation. He said: "It takes money to carry on a great educational movement and it takes money to conduct a public health service. The war between preventable disease and death is therefore a struggle between the dollar and the death-rate." These words should be placed before every citizen, for his instruction and as a warning. With our present-day knowledge of disease, good health is a commodity which can be bought, if our cities, counties and states are willing to pay the price. For $1.50 per capita per year, any community can practically banish those diseases which we now have the means of preventing and can greatly reduce the number of deaths from all causes. One dollar and a half per year! Not quite half a cent a day to save life from destruction by known causes! Three cents a week, twelve and one-half cents a month, to protect each man, woman and child from disease, which we know how to prevent and which we know will exact a toll of many lives during the next year and all succeeding years until proper preventive methods are inaugurated! A pitiably small sum, one thinks. Yet how much are our most advanced commonwealths spending for this purpose? Pennsylvania heads the list with 48 cents per capita, per annum; Arkansas, at the bottom, does not spend a cent; New York spends 1.7 cents; Massachusetts, 4.2 cents; Indiana, 1.8 cents; and so on. In 1911, fifty of the largest American cities with a total preventable death-list of 117,724, spent an average of 30 cents per capita to prevent disease, and $1.65 per capita to prevent fires. If we could have in every city as good a sanitary service as we now have fire protection, many lives that are now needlessly sacrificed could be saved. The people can have such protection if they want it and if they will pay for it. Safety from disease can be obtained just as we obtain safety from fire and from thieves. Health can be secured if society will foot the bill.

MORTALITY STATISTICS THREE YEARS OLD

If the title given above reminds our readers of the well-known song of "Bean Porridge Hot" the only apology that can be offered is that it is inspired by the receipt this week of the mortality statistics of the Bureau of the Census for 1909. The publication, nearly three years after date, of the great mass of statistical information regarding deaths in the registration area, is undoubtedly of scientific value to the student; but of what practical service is the distribution of this material long after the conditions which produced these deaths have passed away? It should be said, at once, in justice to the Bureau of the Census and its director, that the fault does not lie there. The material for this volume has been ready for months, but Congress did not appropriate money for its publication until recently. We understand that the responsibility lies directly on Congress, and no doubt to many members of Congress there is nothing absurd about printing mortality reports three years after they were compiled. But suppose the Weather Bureau did not publish its reports until three years had passed. Suppose the Department of Agriculture held back its crop reports until they were three years old. Suppose the Treasury Department sent to bankers, in 1912, reports on the gold reserve or the currency circulation or the bond issues in 1909. Would the financial world, the agricultural interests or the general public be satisfied? What the public and the sanitarians and physicians want to know is, what is the state of the nation's health to-day? What diseases are now causing loss of life and what dangers may be looked for and avoided? Statistics kept for three years before they are distributed may be interesting as historical data, but they are not particularly valuable as current information.

COOPERATION OF SCIENTISTS FOR SAVING LIVES

The creation by the American Medical Association and others of the Commission on Resuscitation from Electric Shock was announced early this year in THE JOURNAL.[1] A preliminary report of this commission has been issued in the form of a revised chart of instructions to be followed in case of accident, and a booklet containing practically the same matter as the chart. The chart is printed on heavy cardboard and is to be posted in all electric power-houses and other places where injury from electric currents is possible. The booklet is for distribution to employees. While the high character of the work of this commission is most gratifying, the most important result of its appointment is the close cooperation which has been established between those interested in electric-light problems and the organizations representing the medical profession of the country and the electric engineers. If further evidence of the value of the work of this commission is needed, it is found in the request recently made by Dr. J. A. Holmes, director of the Bureau of Mines of the Department of the Interior, asking that the medical members of the commission serve on a similar committee on resuscitation from poisonous gases. This request has been granted by the Council on Health and Public Instruction, which, at the Atlantic City session, appointed Dr. Walter B. Cannon, Dr. S. J. Meltzer, Dr. Yandell Henderson, Dr. George W. Crile, Dr. Reid Hunt and Dr. Joseph Erlanger, to represent the American Medical Association on such a commission. This includes the medical members of the Commission on Resuscitation from Electric Shock, with the addition of Dr. Hunt and Dr. Erlanger. The official participation of the medical profession in cooperation with governmental, technical and commercial organizations in the solution of such problems indicates that in the future, medical scientists and medical organizations are to be invited to consultations on all questions affecting the lives and the health of the public.

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[1] January 27, p. 282.

HEMATINEMIA

The differentiation of the various derivatives of the blood-pigment, hemoglobin, which may arise under a considerable range of pathologic possibilities, has been helpful in the direction of accurate diagnosis. The deeply colored urines which, to the eyes of the older physicians, were a sign of an undoubted upset somewhere in the organism, even though the cause might be obscure or unfathomed, have acquired new meanings in the hands of the modern clinical chemist. With the aid of the spectroscope and a refined chemical technic he distinguishes between oxyhemoglobin, methemoglobin, hematoporphyrin and a further series of compounds, each of which has its peculiar import in pathologic history. The appearance of methemoglobin after poisoning with substances like chlorates, for example, or the elimination of hematoporphyrin after the excessive use of sulphonmethane (sulphonal), sulphonethylmethane (trional) and related drugs, has often given the clue to a successful solution of a difficult diagnostic problem and the initiation of appropriate remedial or prophylactic measures. A novel addition to pathologic chemistry has been made in the discovery of hematin in the blood of a patient suffering from acute chromium intoxication.[1] This derivative, representing the nonprotein fragment of the hemoglobin molecule, was found in the serum of the blood during a period of several days, while there were practically no other pigments in solution. Its formation must, of course, be ascribed to changes incident to the toxic destruction of red corpuscles and the liberation of pigment. The findings deserve additional comment because they emphasize the fact that whenever careful investigation is encouraged in the clinical laboratories of hospitals (as in this instance at the Allgemeines Krankenhaus in Hamburg-Eppendorf) scientific medicine is certain to profit by useful discovery.

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[1] Schumm, O.: Hämatinämie bei toxischem Blutkörperchenzerfall, Ztschr. f. physiol. Chem., 1912, lxxx, 1.

Medical News

COLORADO

Personal.—Dr. and Mrs. William Frederick Slocum, Colorado Springs, have returned from Europe.——Dr. Charles Adams Holder, formerly of Colorado Springs, U. S. Consul at Rouen, France, for the last three years, has been appointed United States Consul-General for Norway with headquarters at Christiania.

New Tuberculosis Pavilion.—A new pavilion for tuberculosis patients is to be erected at the Union Printers' Home, Colorado Springs. This improvement will cost $10,000. The trustees have also decided to build two stories over the library annex at a cost of $25,000, to be used for hospital purposes, and other improvements amounting to $5,000.

Women Physicians Hold Meeting.—The Women's Colorado State Medical Association held its annual meeting and banquet at Pueblo, September 25, and elected the following officers: president, Dr. Ella Mead, Greeley; vice-presidents, Drs. Jessie Stubbs, La Junta, and Mary Stratton, Denver, and secretary-treasurer, Dr. Kate E. Yont, Denver.

State Society Meeting.—At the forty-second annual meeting of the Colorado State Medical Society held in Pueblo, September 24-26, the following officers were elected: president, Dr. J. A. Black, Pueblo; vice-presidents, Drs. C. E. Edson, Denver; W. H. Halley, Rouse; H. A. Calkins, Leadville, and C. A. Ringle, Greeley; councilors, Drs. H. G. Wetherill, Denver, and A. R. Pollock, Monte Vista, and delegate to the American Medical Association, Dr. W. A. Jayne, Denver.

DISTRICT OF COLUMBIA

Personal.—Dr. V. B. Jackson has returned from Europe.——Dr. Thomas B. Kramer fell from a street car recently, dislocating his left shoulder.——Dr. L. B. Kline has started for the Philippine Islands where he will open a hospital at Vigan, Luzon, under the auspices of the Christian Foreign Missionary Society.

More Light in Medicine.—The Medical Society of the District of Columbia is continuing its series of public lectures on health topics. The object of the society is to give the public direct and accurate instruction with regard to the health of body and mind, and to minimize the public danger due to unwise procedures based on partial knowledge or misinformation.

ILLINOIS

State Tuberculosis Association.—The Illinois Association for the Prevention of Tuberculosis will meet at Springfield, October 19, this meeting being held in conjunction with that of the Illinois State Conference of Charities and Correction. The chief subject for discussion will be "Antituberculosis Work in the Smaller City" and the speakers will be Drs. J. W. Pettit, Ottawa, and George T. Palmer, Springfield. A part of the day will be spent in inspecting the dispensary and visiting nurse service of the Springfield Tuberculosis Association.

Chicago

Personal.—Dr. Clarence L. Wheaton has been appointed physician in charge of the male service at the Chicago-Winfield Tuberculosis Sanatorium.——Dr. Charles P. Small has resigned as university physician to the University of Chicago, and will hereafter devote his entire time to his special line of work.

INDIANA

Campaign for Incurable Tuberculosis Patients.—A three-day campaign to raise $10,000 for a camp for incurables at the Antituberculosis Farm, Evansville, was carried on by the local antituberculosis society, October 1-3.

New Officers.—Younger Physicians' Club of Indianapolis, September 26: president, Dr. John W. Carmack; secretary-treasurer, Dr. D. W. Fosler.——Thirteenth District Medical Society, at South Bend, September 18: president, Dr. H. F.

Mitchell, South Bend; secretary-treasurer, Dr. C. M. Howard, Warsaw. The next meeting will be held April, 1913, at Goshen.——Huntington Association for the Study and Prevention of Tuberculosis, organized at Huntington, September 24: president, Dr. W. C. Chaffee; secretary, Mary Baker, both of Huntington.

Personal.—Dr. George D. Kahlo, professor of medicine in Indiana University and formerly medical director of the French Lick Springs Hotel, has been elected medical director at White Sulphur, W. Va. Dr. Kahlo sails this month for Europe.——Dr. A. P. Roope and family, Columbus, have returned from abroad.——Dr. Wm. W. Hoggatt, French Lick, was seriously injured in an automobile accident at Indianapolis, recently.——Dr. W. H. Hoppenrath, Elwood, was attacked by highwaymen near Indianapolis, September 17, but succeeded in repelling the attack.——Dr. A. K. Hammond, Fort Wayne, sustained painful bruises in an automobile accident, September 17.——Dr. Eric A. Crull, secretary of the Fort Wayne Board of Health, has been appointed surgeon for the Fort Wayne Mercantile Association, vice Dr. A. P. Buchman, resigned.

MARYLAND

New Officers.—Georges Creek Medical Association at Frostburg, September 20: president, Dr. W. Oliver McLane; secretary-treasurer, Dr. T. L. Conroy, both of Frostburg.

Nurses' Home for Frederick Hospital.—Work has been commenced on a nurses' home for the City Hospital, Frederick. The building, which is to be 62 by 35 feet, is the gift of Mrs. Georgia Simmons.

Pumps Condemned.—The State Board of Health is waging war against pumps and wells of Baltimore County. More than seventy pumps have thus far been condemned and posted and their handles chained. The board is trying to check the prevalence of typhoid in Towson and vicinity.

Baltimore

Fresh-Air Hall Fund Grows.—Up to September 16, $9,258.70 had been subscribed for the erection of a new recreation hall at the Fresh-Air Farm, Fallston.

The Herter Lectures.—The seventh annual course of lectures of the Herter foundation was delivered by Dr. George H. F. Nuttall, Quick professor of biology in the University of Cambridge, England, October 8-9-10, on spirochetosis, trypanosomiasis and piroplasmosis, each lecture being illustrated by lantern slides and specimens.

Personal.—Dr. James J. Mills has returned from Europe.——Dr. G. C. Battles has resigned as resident physician to the Municipal Hospital for Tuberculosis on account of ill health and has been succeeded by Dr. Louis Friedman, New York. Dr. James Murray has also been appointed assistant physician of the institution.——Dr. William H. Welch entertained a number of members of the International Congress on Hygiene and Demography at the Maryland Club, September 30.——Professor Ernest Zueblin delivered the address at the opening session at the University of Maryland on "Attitude of the Student and Conditions Necessary to Success, and the Methods to Be Employed."

Faculty Appointments.—The following appointments have been made on the medical faculty of Johns Hopkins University: Dr. Herbert M. Evans, formerly associate, to associate professor in anatomy; Dr. Charles R. Essick, formerly instructor, to associate in anatomy; Dr. Edward H. Richardson, formerly instructor, to associate in gynecology; Dr. Thomas P. Sprunt, formerly instructor, to associate in pathology; Dr. Samuel J. Crowe, formerly assistant, to associate in surgery; Dr. Lloyd P. Shippen, formerly assistant, to instructor in hygiene and bacteriology; Dr. Henry A. Stephenson, formerly assistant, to instructor in obstetrics; Dr. David M. Davis, assistant in pathology; Dr. Henry H. Hazen, assistant in dermatology; Dr. George B. Jenkins, assistant in anatomy; Dr. Roy D. McClure, assistant in surgery; Dr. Everett D. Plass, assistant in obstetrics; Dr. Holland N. Stevenson, assistant in pathology.

NEW JERSEY

Sanitary Cups Obligatory.—The supreme court of New Jersey sustained an order to the Public Utility Commission, October 4, requiring railroad companies supplying drinking water on trains to passengers to provide a sanitary drinking-glass or individual drinking-cup.

Diphtheria in Camden Decreased.—After a conference between Dr. H. J. Davis, chief medical inspector of the Camden public schools, and Dr. J. F. Levitt, medical inspector of the Board of Health, it was announced that all danger of the epidemic from diphtheria in East Camden was passed. There are but nine cases now in the infected district and all are recovering. The schools, however, will not be opened until October 14 and services in churches and Sunday-schools are still discontinued.

NEW YORK

Needs of State Hospital.—An appropriation of $365,000 for new buildings and needed repairs at the State Hospital for the Insane, Binghamton, is to be asked from the legislature at its next session.

New Dispensary for Syracuse.—The trustees of Syracuse University have voted to establish a dispensary in connection with the College of Medicine. A portion of the dispensary will be used for social service work. Work will be started on the building in the near future.

Association Approves Mayor.—The Rochester Public Health Association has addressed a letter to Mayor Edgerton expressing its deep appreciation of his valuable cooperation and assistance at all times and especially at the time of the Health Field Day, August 10.

Personal.—Dr. Edgar A. Nugent, Unionville, suffered a fracture of the right hip in an automobile accident, September 21.——Drs. Hersey G. Locke and H. L. Elsner, Syracuse, have been appointed members of the Committee on Experimental Medicine of the Medical Society of the State of New York.——Dr. S. S. Ham has been appointed a member of the medical staff of Ellis Hospital, Schenectady.

Sanatorium May Be Reopened.—The Mountain Sanatorium, Binghamton, which was closed by order of the mayor, September 28, may be reopened as the president of the Colorado Fuel and Iron Company has made the following offers to the city: either to lend money without interest to keep the institution open until Jan. 1, 1913, or if such a loan cannot be legally accepted, to contribute direct one-fourth of the expense of keeping the institution open until that date.

County Tuberculosis Hospitals.—Already twenty-one counties of the state have decided to build tuberculosis hospitals under the county hospital law passed in 1909. It is expected to bring the number up to thirty before the end of the year.——The Board of Supervisors of Westchester County has voted to purchase a site for $40,000 for its new tuberculosis hospital which will cost about $100,000.——County hospitals will soon be opened in Fulton, Montgomery, Tompkins and Oswego Counties.

Hospital Notes.—The cornerstone of the new Mount St. Mary's Hospital, Niagara Falls, was laid September 29 by Bishop Colton with impressive ceremonies. The building is to be made of cut stone and shale brick, will accommodate 125 patients and will cost about $300,000.——The new German Deaconess Hospital, Buffalo, was opened for inspection October 1 and was formally dedicated October 6. It is believed that the old building of the hospital will be continued as an annex to the newer institution.

New York City

Selling Cocain to Children.—The proprietor of a Brooklyn saloon and three other men were arrested recently for selling cocain, opium and heroin to school children in the Bedford and Bushwick sections. More than 500 packages of the drugs were seized. It is said that the drugs were sold on the street corners for as little as five cents. The offenders were held in $5,000 bail.

Cancer Home Appeals for Funds.—St. Rose's Free Home for Cancer which has just completed a new $100,000 building has been embarrassed because of a rumor that the building had been entirely paid for. This was not the case, there being a mortgage of $45,000 on the property. An urgent appeal has been made not only for money to raise the mortgage but for $25,000 to meet the expense of furnishing and maintenance.

Personal.—Dr. E. F. Bashford, director of the Imperial Cancer Research Fund of England, delivered two lectures on "Cancer" at the New York Academy of Medicine, one on the evening of October 2 and one on October 5.——Prof. Max Rubner of Berlin delivered the Wesley M. Carpenter Lecture at the New York Academy of Medicine on the evening of October 3, his subject being "The Life of a Cell."——Dr. and Mrs. G. A. Hull, Dr. and Mrs. J. E. L. Davis and Dr. and Mrs. Augustus B. Wadsworth have sailed for Europe.——Dr. and Mrs. L. J. Waterman, Brooklyn, have returned from Europe.

Foreign Physicians Lecture.—Prof. H. Straus of the University of Berlin will lecture in German at 4 p. m., October 14, on "Gastric Secretion from the Therapeutic Point of View;" at the same hour on October 15 on "The Method and Purpose of Dechlorination in Nephritis." Prof. C. von Noorden of the University of Vienna will give a series of lectures in English on "New Aspects of the Pathologic Treatment of Diabetes," and on "Diagnosis and Treatment of Nephritis," beginning October 29 at 4 p. m. and continuing for four consecutive days at the same hour. These lectures will be delivered at the New York Postgraduate School and Hospital.

Tuberculosis Blamed for Poverty.—The New York Association for Improving the Condition of the Poor has just announced the results of the investigation of 6,565 families that sought aid of the association between Oct. 1, 1911, and June 30, 1912. Of this number 1,605 sought aid because of illness, and the illness in 555 families was tuberculosis. This would indicate that 8 per cent. of the destitution in the homes of the city during the above named period was due to tuberculosis. The association says that some effective plan of home treatment must be found, because it will be many years before there will be enough hospitals to accommodate all the tuberculosis patients, in spite of the excellent work that is being done. A comparison of the hospital provisions in the United States with the needs and growth of population shows that the demand is increasing twice as fast as the supply.

PENNSYLVANIA

Homeopathic Insane Hospital Opened.—After a summer of preparation, the Board of Trustees of the State Homeopathic Insane Hospital, Rittersville, opened the male ward of the institution, October 1. This will accommodate 225 patients. The female ward is nearly ready for occupancy.

Statistics on Epilepsy Wanted.—The Commission on the Segregation, Care and Treatment of the Feeble-Minded and Epileptics desires to obtain information as to the relative prevalence of feeble-mindedness and epilepsy, and as to the total number of these defectives who are not receiving institutional care.

New Officers.—Fourth Censorial District Society at Harrisburg, September 17: president, Dr. J. Henry Musser, Lampeter; secretary, Dr. H. C. Kinzer, Lancaster.——Seventeenth Censorial District Society, at Danville, September 5: president, Dr. Harvey M. Becker, Sunbury; secretary, Dr. Luther B. Kline, Catawissa.

Hospital Endowed.—Mrs. A. A. Geisinger, Danville, has announced that she will give $600,000 for the establishment of a hospital in that city to be known as the George F. Geisinger Memorial Hospital. Of this amount, $100,000 is to be used toward the cost of the building, while the balance of $500,000 will be held as an endowment fund.

Typhoid in Norristown.—Fourteen additional cases of typhoid fever were reported to the bureau of health, Norristown, October 3. The health officer, Dr. White, declares that eleven of the cases are due to drinking milk from a dairy at Limerick, where conditions were found not of the best. Since the investigation no milk from this dairy has been sold in Norristown.

State Medical Meeting.—The sixty-second annual convention of the Medical Society of the State of Pennsylvania was held at Scranton, September 23-26. The trustees convened Monday afternoon, September 23. The first general meeting was called Tuesday morning by the president, Dr. James M. Tyson, of Philadelphia, and the delegates were welcomed by Mayor von Bergen and Dr. Rowland W. Davis, president of the Lackawanna County Medical Society. Dr. Tyson was presented with a gavel made of coal and a feature of the first day was a paper on medical expert testimony from a legal standpoint by Attorney Francis F. Kane, of Philadelphia. The seventh annual banquet and conference of secretaries of the component county societies was held that evening at the Hotel Jermyn. Dr. Luther B. Line of Catawissa was toastmaster. On Thursday evening a dinner was given to the visitors followed by a reception and dance. A resolution was adopted disclaiming responsibility by the society for criticisms of the State Department of Health made by one speaker. The following officers were elected: president, Dr. Lewis H. Taylor, Wilkes-Barre; vice-presidents, Drs. A. A. Long, York; David Strickland, Erie; M. Howard Fussell, Philadelphia, and J. C. Gilland, Greencastle; secretary, Dr. Cyrus L. Stevens, Athens (reelected); assistant secretary, Dr. William H. Cameron, Pittsburgh; treasurer, Dr. George W. Wagoner, Johnstown, and delegates to the American Medical Association, Drs. William R. Davies, Scranton; J. B. McAlister, Harrisburg; William T. Hamilton, Philadelphia, and T. E. Davis, Pittsburgh.

Philadelphia

Steamer Detained at Quarantine.—Because of the discovery of a suspected case of small-pox in one of its passengers, the German steamer *Graf Waldersee* was detained at the Reedy Island Quarantine, September 21.

Hospital Buys Lots.—The Kensington Hospital for Women has purchased three dwellings, each 15 by 32 feet, at the southwest corner of Fontain and Waterloo Streets, for a nominal consideration. The lots will be used for the enlargement of the hospital.

Medical Club to Honor Mayor.—The Medical Club of Philadelphia has announced that it will give a reception in honor of Hon. Rudolph Blankenburg, mayor of Philadelphia, Friday, October 18, at the Bellevue-Stratford.

Pier Hospital Closes.—The official closing of the hospital for babies on the Chestnut Street Pier took place September 28. Since the opening of the hospital, June 16, more than 1,000 babies have been treated. The daily average attendance was eighty babies. Dr. S. W. Newmayer was the chief physician and the hospital force consisted of three nurses under the supervision of Miss C. E. Perkins.

Students' Physicians Appointed.—Announcement has been made that Dr. Rufus B. Scarlett and Dr. William F. Guilfoyle have been appointed students' physicians at the University of Pennsylvania and students are urged to report to them when ill. Provost Edgar F. Smith, in a circular letter, has advised parents and guardians of every student at the university of the provisions made for looking after the health of students and requested that each student bring a report of his general physical condition from his family physician or obtain such from Drs. Scarlett and Guilfoyle.

Break Ground for Museum.—September 24 ground was broken by Dr. Edgar F. Smith, provost of the University of Pennsylvania, and former mayor Weaver, for the Thomas W. Evans Museum and Dental Institute, at Fortieth and Spruce streets. The ceremonies were attended by the deans of the University of Pennsylvania, members of the faculty of the University Dental School, representatives of the various dental alumni associations and the French and English consuls. The building is expected to be completed in the fall of 1913 and, according to the plans, will be the largest and best equipped dental school in the world, supported by an endowment of $600,000. The building will cost about $500,000. The Museum and Dental Institute will be under the administration of the university. Dr. Evans, the famous Paris dentist in Louis Napoleon's reign, was a former Philadelphian who died in Paris in 1897.

TEXAS

New Hospitals.—Dr. L. Mackechney has planned a new hospital in the Kemp home, Wichita Falls.——A modern city hospital is to be erected in North Dallas at a cost of about $100,000.——The Kings Daughters' Hospital which has been erected at a cost of $40,000 at Temple was thrown open for public inspection, August 23. The new building contains thirty-five rooms for patients together with the necessary operating-rooms and administration offices.——The Wayland Building, Plainview, is being remodeled and will be converted into a hospital.

Sanatorium Notes.—Plans have been presented to the Dallas city and county commissioners and physicians of the city and county for the proposed tuberculosis hospital to be erected on the old Union Hospital site, north of the city. The estimated cost of the buildings is about $30,000. The plans call for three connected buildings with a total length of 430 feet.——Lakeside Sanatorium, San Antonio, was incorporated August 22, with a capital stock of $20,000, by Drs. Thomas M. Dorbandt and M. A. Forbes.——Construction work was begun, August 20, on the Hospital for the Treatment of Children Suffering from Tuberculosis of the Bones, Galveston. The hospital is being built under the direction of the Texas branch of the National Association for the Study and Prevention of Tuberculosis.——Plans have been revived to establish in Waco an infirmary for incurable tuberculosis patients, the cost to be borne jointly by the city of Waco and McLennan County.——The Houston Antituberculosis League has established in the basement of the county courthouse a free dispensary for the treatment of tuberculosis patients, and asks the city and county to contribute each $7,500 toward the erection of a tuberculosis sanatorium.——State Tuberculosis Colony No. 1, Carlsbad, was opened for occupation and service July 16 and twenty-six patients have been received. Dr. Bascom Lynn, the superintendent, is asking for an additional appropriation of $90,475 to construct dormitories and cottages, and to provide other extensive improvements.

UTAH

Personal.—Dr. C. F. Osgood, Ogden, was held up in his office September 8, and robbed of $55.——Dr. George Roberts, intern at St. Mark's Hospital, Salt Lake City, who has been ill in that institution, is reported to be convalescent.——Dr. M. R. Stewart, Salt Lake City, has returned from Europe.

New State Society Officers.—The annual meeting of the Utah Medical Association was held in Ogden, September 24-25 and the following officers were elected: president, Dr. Andrew J. Hosmer, Salt Lake City; vice-president, Dr. R. A. Pearse, Brigham; secretary, Dr. W. Brown Ewing, Salt Lake City; treasurer, Dr. H. P. Kirtley, Salt Lake City, and councilor for the second district, Dr. R. C. Smedley, Salt Lake City. The association decided to hold its meeting next year in Salt Lake City.——At the annual banquet Dr. A. S. Condon, Ogden, in his address, linked the National League for Medical Freedom with subsidized newspapers and declared that the league was merely a combination of "patent-medicine" manufacturers who had bought up the newspapers with expensive advertising and had subsidized the opponents of the Owen bill with enormous amounts of money. A resolution was adopted regretting that the senators and representatives from Utah, who, during the pending of the so-called Owen bill, stood aloof from it with indifference and openly opposed it when it was manifestly their duty to defend and advocate it, inasmuch as it is not only in the interests of their constituents, but also, in a larger sense, of those who seek to conserve the most vital question that ever confronted the public in general, namely the conservation of our sanitation and the protection of our seaports against the invasion of foreign epidemics and diseases.

VIRGINIA

Hospital Opened.—The Rockingham Memorial Hospital, Harrisonburg, which has been in course of erection for four years, was opened to the public October 1 with formal ceremonies. The hospital site adjoins the State Normal School grounds and the building has been erected at a cost of $30,000. Of this $20,000 was bequeathed to the institution by William G. Leake, Harrisonburg.

Personal.—Dr. George C. Hall, New York City, has been appointed assistant medical director of the Life Insurance Company of Virginia, Richmond.——Dr. R. L. Robertson has been appointed health officer and Dr. J. E. Earley, school trustee of Charlottesville.——The ancestral home of Dr. John Winn of Richmond, fourteen miles from West Union, was struck by lightning September 7, and considerably damaged. ——The residence of Dr. and Mrs. James D. Stearnes, Dublin, was destroyed by fire, September 6.

WISCONSIN

Personal.—Dr. George T. Hegner has resigned from the staff of the Emergency Hospital, Milwaukee, and will practice in Appleton.——Dr. John R. McDill, who has been in the Philippine Islands for twelve years, has returned and will resume practice in Milwaukee.——Dr. N. L. Tibbits, Peshtigo, who has disposed of his practice and has moved to Grand Rapids, was given a banquet by the local lodge of Knights of Pythias, recently.——Dr. G. N. Hidershide, Arcadia, has started for Europe.

Reorganization of Child Welfare Work.—A reorganization of the child welfare work in Milwaukee has been effected. The Child Welfare Station, formerly on Eighth Avenue, has been abandoned and new quarters have been secured in the Fifth Avenue School, near Hays Avenue. The advisory staff has been selected by Dr. E. T. Lobedan, director of the board, consisting of Drs. H. Wagoner, Irene Tomkiewicz, J. A. Birkl, A. R. F. Grob, J. N. Rock, H. Gramling, A. A. Krygier, L. Bradstead, L. J. Drozniakiewicz and S. A. Baranowski.

GENERAL

New Hospital for Manila.—The cornerstone for a Spanish hospital has just been laid in Manila by Acting Governor-General Newton W. Gilbert. The site of the institution is on Calle Sandejas, and of the $35,000 required for its construction more than $20,000 is already in hand.

Croat Hospital Planned.—At the annual meeting of the National Croatian Society held recently in Kansas City, Kan., the proposition was discussed of buying several hundred acres of land in Kansas or some other southwestern state, on which to establish a hospital for the care of Croatians suffering from tuberculosis.

Public Health Inspections of Common Carriers.—The Secretary of the Treasury issued a general order October 6, directing all commissioned medical officers of the United States Public Health Service when traveling under official orders to make inspections of the sanitary conditions of the trains and vessels on which they travel and of the stations, terminals and wharves at which they stop. Congress authorized this inspection but failed to appropriate funds to carry it out.

Hospital Authorities Meet.—At the annual meeting of the American Hospital Association held in Detroit, September 25-27, the following officers were elected: president, Dr. Frederick A. Washburn, Massachusetts General Hospital, Boston; vice-presidents, Dr. W. P. Morrill, Winnipeg (Man.) General Hospital, and Mabel Morrison, Robinwood Hospital, Toledo; secretary, Dr. J. N. E. Brown, Detroit General Hospital (reelected), and treasurer, Asa Bacon, Presbyterian Hospital, Chicago (reelected).

Prevention of Infant Mortality.—At the third annual meeting of the American Society for the Study and Prevention of Infant Mortality held in Cleveland, October 2-4, the following officers were elected: Dr. L. Emmett Holt, New York City; president-elect, Dr. J. Whitridge Williams, Baltimore; vice-presidents, Dr. Isaac A. Abt, Chicago, and Arthur M. Baldwin, Cleveland; secretary, Dr. Philip Vaningen, New York City; treasurer, Austin McLanahan, Baltimore, and executive secretary, Miss Gertrude B. Knipp, Baltimore (reelected).

Bequests and Donations.—The following bequests and donations have recently been announced:

Jewish Consumptives Relief Society, Jefferson County, $6,000 for the erection of a laundry building and $200 a month for its maintenance by Mr. and Mrs. S. Fishbaum, Chicago.

Craig Colony for Consumptives, Jefferson County, Colo., $3,400 by the sale of flowers in Denver, August 13.

Children's Hospital Association, Denver, $3,650 by the annual Fête Day at Elitch Gardens.

Methodist Hospital, Indianapolis, $20,000 by the will of Mrs. Susan Dixon, Shelbyville; eighty acres of land, said to be worth $150 per acre by the will of Mrs. Simeon Smith, Bloomfield.

Eagleville (Pa.) Sanatorium for Consumptives, $5,000; Frederick Douglas Hospital, $2,500; Jewish Maternity Hospital, $2,500; Mt. Sinai Hospital, $2,500 by the will of Samuel Kohn.

German Hospital, Philadelphia, $1,000 by the will of John G. Hess.

Presbyterian Hospital, American Oncologic Hospital and Home for Female Consumptives, Philadelphia, each $500 by the will of Elizabeth Gorne.

Presbyterian Hospital, Philadelphia, $5,000; Episcopal Hospital, Philadelphia, $10,000, $5,000 of which is to install a free bed in memory of the husband of the testator, by the will of Mrs. Ida S. Whitman.

Presbyterian Hospital, St. Agnes Hospital, St. Joseph's Hospital, Pennsylvania Hospital and Jewish Hospital, Philadelphia and White Haven Sanatorium of the Free Hospital for Poor Consumptives, $5,000 each, for the establishment of free beds, to be known in each instance as the "Bartholomew Shea free bed," by the will of Mariah Mellon.

Beth Israel Hospital, Philadelphia, $15,000; Mount Sinai Hospital, Philadelphia, Lebanon Hospital, Sanatorium for Hebrew Children, Hospital for Deformatives and Joint Diseases and Jewish Maternity Hospital, each $2,500 by the will of Nathan Herman.

Cary Memorial Hospital, Caribou, Me., $125,000 for establishment and endowment by the will of Dr. Jefferson Cary.

New York Academy of Medicine, the library of the late Dr. James B. Newcomb.

Littleton (N. H.) Hospital, $1,000 for the George B. Glesner fund.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Sept. 27, 1912.

The National Insurance Act

In the deadlock between the profession and the government concerning the medical benefits of the national insurance act the hostility of the friendly societies to the profession's demands is once more in evidence. The government is in the unfortunate position of being between two fires, and has aroused in an acute form the old quarrel of the profession with the societies. It has long been the object of the British Medical Association to modify the unsatisfactory conditions of contract practice, but the disunion of the profession rendered its efforts vain. Now opposition to the insurance act has united the profession and brought the struggle to an issue. It may be remembered that the government offered the physicians a capitation fee of $1.50 for medicine and attendance and that the physicians demanded $2, as well as a long list of extras. As the friendly societies at present pay less than the government terms, they are very hostile to the physicians' demands.

Considerable interest attaches to the annual National Conference of Friendly Societies, which is now being held at Newcastle-on-Tyne. In his inaugural address, the president complained that no light could be obtained from the insurance commissioners as to the present position. The various societies made overtures for the capitation fee of $1.50 to be paid over to them should the physicians fail to come to terms with the government, so that the societies could deal with the doctors directly, but the request was not favorably considered. At present the commissioners were discussing various systems: (1) capitation system; (2) capitation system plus payment for special services; (3) payment by attendance; (4) fees and capitation system plus payments for special services. All these will, it appears, be included in general regulations with options to the local insurance committees to adopt any combination of them they may see fit. Thus, the president complained that nine months after the passing of the act the warfare as to price which had been waged between the government and the physicians is to be transferred to every local insurance committee for settlement without any lead. This, in his opinion, imposed a responsible duty on every member of the committees representing insured persons—to oppose strenuously any additional cost for medical benefits. Care was especially necessary as regards the wage limit of $10 a week demanded by physicians. Parliament refused to put this in the bill and it would be a bone of contention on every insurance committee.

Trade Unionists and the British Medical Association in Australia

In Western Australia the British Medical Association has received the support of local trade unionists in a manner which is unprecedented in the old country, where these organizations regard the attempt to establish a "standard wage" with anything but sympathy. Recently the Yarloop Hospital Committee was told by its medical officer that in consequence of regulations of the Western Australian Branch of the British Medical Association governing the conditions under which members might contract with benefit societies, hospitals, etc., it would be necessary for his allowance to be increased. The hospital committee found that on the present contribution of about $1 per month per member they could not meet the demand. At the half-yearly meeting the committee's report was the principal subject for discussion. A large number of subscribers journeyed from all parts to attend. The majority were members of the timber workers' union. They soon showed that they intended to support what they termed their "union doctor." One prominent unionist expressed delight at the fact that the physicians were, through their union, endeavoring to establish a minimum wage. It was decided to bring the physician's allowance up to the stipulated rate and authority was given to the committee to make, if necessary, a further demand of 12 cents from each member.

PARIS LETTER

(From Our Regular Correspondent)

Paris, Sept. 20, 1912.

French Health Statistics

Since 1906 French health statistics have covered the whole country, but previous to that year did not include towns of less than 5,000. According to the latest report published, the total deaths since 1906 have been as follows: 1906, 778,400; 1907, 793,467; 1908, 744,694; 1909, 755,442; 1910, 704,770. The number of deaths per thousand of population has been:

	Towns of More than 5,000.	Places of Less than 5,000.	France as a Whole.
1906......	20.67	19.39	19.86
1907......	21.18	19.70	20.21
1908......	20.27	18.27	19.00
1909	20.61	18.50	19.27
1910......	19.38	17.18	17.98

A study of the statistics shows that there have been more deaths in the towns of more than 5,000 inhabitants than in those of less than 5,000, excepting from malaria, grip, acute bronchitis, pneumonia, diseases of the stomach (except cancer), conditions incident to pregnancy and childbirth, congenital debility, senility, violent death, senility and unknown diseases. Deaths from old age are more numerous among persons living in the country than in towns. In towns of more than 5,000 there were 18,318 deaths from old age, or 1.28 per thousand, and in towns of less than 5,000, 83,643 deaths, or 3.35 per thousand. Diseases which were responsible for more deaths in the towns than in the country were typhoid fever, measles, tuberculosis (3.30 per thousand instead of 1.51), infantile diarrhea (0.81 as against 0.52), and acute nephritis (0.53 as against 0.17).

The report is comparatively satisfactory as regards epidemic diseases, although efforts should be increased to check typhoid fever. Epidemic diseases in 1910 caused 22.095 deaths out of 704,770, or 3.17 per hundred deaths, which is less than deaths caused by violence, 27,320; infantile diarrhea, 24,652; congenital debility, 22,719; cancer, 31,303, and much less than tuberculosis, 85,088. Efforts to reduce infant mortality have been markedly successful: from 1906 to 1910 the deaths per thousand among infants up to 1 year of age have been reduced from 135 to 100; in Paris from 1887 to 1890 the infant death-rate up to 1 year was about 300; from 1896 to 1900 it was 201, and from 1901 to 1905 it was 156. In 1910 it was but 111. Malignant tumors are as wide-spread a cause of death in France as in other countries; the death-rate from 1906 to 1910 from this cause was 70, 75, 77, 78 and 80 per hundred thousand population. In 1910 it was 107 in towns of more than 5,000 and 64 in others. The total number of deaths from malignant tumors has increased from 27,306 to 31,303 in this period. The comparative death-rate from this cause in 1909 is as follows: France, 78; Spain, 50; Italy, 63; Belgium, 64; England, 85; Germany, 95; the Netherlands, 102, and Switzerland, 127.

The general death-rate in France is higher than it ought to be, taking into consideration its climate, prosperity and the enlightenment of the people. It is not so small as the death-rate of Europe as a whole and of Italy, but is less than that of Germany, Switzerland, Belgium, and much less than that of Great Britain and the Netherlands. Tuberculosis is the chief reason why a better showing is not made. Tuberculosis does not cause 150,000 deaths per year, as has been said so often, but there were 85,088 deaths from it in 1910, of which 37,838 occurred in towns of less than 5,000 and 47,250 in towns of more than 5,000. The report emphasizes the fact that the highest death-rate from tuberculosis occurs in those departments in which the greatest amount of alcohol is consumed.

The Medical Corps in the Army Maneuvers

The maneuvers which have just ended in the West were participated in for the first time by a number of medical corps attached to an infantry division. Until this year, for reasons of economy, the medical corps took no part in the army maneuvers. As a result the medical officers had no experience in the field and were likely not to be equal to assuming responsibilities when called on in time of need. The medical corps this year was given field practice as a result of recent discussions in the Chamber of Deputies, which brought to light the fact that in the Morocco expedition the medical corps had been handicapped by lack of experience.

In the maneuvers a new organization of the field medical service was tried for the first time. Heretofore the army medical service has been divided, for the purpose of being near the firing-line and for carrying and treating the wounded, into an ambulance corps for each infantry division and an ambulance corps and eight field hospitals for each army corps. According to the new plan the old ambulance corps and field hospitals have been superseded by a number of light units, equipped like one another so as to be interchangeable, and consequently able to follow the troops in their maneuvers and to consolidate after a battle to carry on the work of caring for the wounded which they have picked up. The new formations are called ambulance corps and hospital sections, the latter being equipped with the means for doing actual hospital work.

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, Sept. 21, 1912.

The Blind in Prussia

In the period between the census of 1905 and 1910, according to recently published official statistics, the number of the blind in Prussia has been reduced not only relatively but absolutely. For 10,000 inhabitants there were in 1910 only 5.2 blind, whereas in 1905 there were 5.6 and in 1880, 8.2. The male population has always been somewhat more affected than the female. As to the age of the blind, the middle and old age classes show many more blind than the younger classes. Among 10,000 inhabitants there were in 1910 only 0.8 under 5 years (1905: 0.8); under 10 years 1.4 (1.2); from 20 to 30 years 2.7 (2.8); from 50 to 60 years 9.8 (10.8); from 60 to 70 years 18.3 (19.7), and over 70 years 49.7 (5.54). The increase in numbers of the blind in advanced life is associated with the occurrence of other afflictions besides their eye disease. In 1910 of the 20,953 blind, 18.57 per cent. were inmates of institutions. Of those who were cared for in institutions the merely blind formed the smallest proportion, namely, 17.95 per cent.; the insane blind, on the other hand, amounted to 37.94 per cent.; the deaf and dumb and blind to 22.7 per cent., and such blind persons as were deaf and dumb and imbecile formed 40.85 per cent.

Statistics of Causes of Death in Bavaria for Thirty Years

It is well known that in the last three decades the death-rate in general has been materially reduced. From 1881 to 1885 there died on the average yearly from puerperal fever, 26.4 per 10,000 puerperæ. From 1906 to 1910, on the other hand, there died yearly only 14.9 per cent. per 10,000. The scarlet fever mortality has declined in the thirty years from 45.6 per cent. per 100,000 of population to 7. The reduction in the mortality from measles and röthelu is not so pronounced. This disease is characterized by marked variations in the individual years.

The mortality from diphtheria and croup has been very materially reduced from 122.2 per 100,000 of population to 51.8. How effective the treatment of this disease with antitoxin is may be seen by comparison between the years immediately before and after the discovery of this remedy (1894). There died from diphtheria and croup in 1893, 8,695 persons; in 1894, 4,894; in 1895, only 2,769; in 1896, 2,290, and in 1897, 1,848. Even the mortality from whooping-cough has undergone a notable reduction in the last three decades, namely from 55.6 per 100,000 of population to 30. Typhoid has lost almost completely its former terrible character. From 1881 to 1885 the annual average of victims to this disease was 22.1 per 100,000 of population, but from 1906 to 1910 only 2.1 per 100,000 of population died of it.

The annual average of deaths from pulmonary tuberculosis, which is the cause of 10 per cent. of all deaths, has dropped from 254.4 to 204.7 per 100,000 of population.

In 1888 there were 161 cases in which syphilis was reported as the cause of death; in 1910 there were 233 cases. How far syphilitic affections formed the basis of other diseases and so acted indirectly to a certain extent as causes of death cannot be determined from the statistics.

In regard to cancer, so far as comparable figures are available (up to 1905), no reduction in the mortality can be discovered, and at least as far as the absolute numbers are concerned, there was an increase, namely, from 6,411 deaths in 1905 to 7,134 in 1910.

Marriages

Joseph M. Weaver, M.D., Allentown, Pa., to Mrs. Frances Pierson Jones of Meadville, Pa., at Baltimore, September 25.

Benjamin Franklin McNeal, M.D., Swiftown, Miss., to Mrs. Charles B. Tindall, at Hickory, Okla., September 26.

Charles O. Johnston, M.D., Claysburg, Pa., to Miss Margaret Della Beegle of Friend's Cove, Pa., September 4.

James M. Hanrahan, M.D., Elizabeth, N. J., to Mrs. Sarah L. Coleman of Honesdale, Pa., September 25.

John Michael Bohan, M.D., Galesburg, Ill., to Miss Florence Lynch at Monmouth, Ill., September 25.

Roscoe W. Smith, M.D., Walla Walla, Wash., to Miss Alice Marjorie Bacon at St. Paul, Minn., recently.

Jacob C. Bowman, M.D., Pineville, W. Va., to Miss Alma Irdeen Yates at Biscoe, N. C., September 18.

Charles A. Stimson, M.D., Eaton Rapids, Mich., to Miss Isabella McBaine of Detroit, September 25.

John W. Lyons, M.D., Jessup, Pa., to Miss Helen G. Meehan of Carbondale, Pa., September 25.

Fred Yohn Cronk, M.D., Guthrie, Okla., to Miss Mildred A. Myers of Baltimore, Md., September 14.

Walter E. Halfman, M.D., to Miss Anna M. Brinkman, both of New York City, September 24.

Carlyle Newton Haines, M.D., to Miss Bertha Irene Barron, both of Sayre, Pa., September 24.

Frederick C. Liddle, M.D., to Miss Emily Louise Sykes, both of Dorset, Vt., September 24.

Ollie Walker Rice, M.D., to Miss Margaret Propst, both of Alderson, Okla., September 25.

Randall Edward Hoyt, M.D., to Miss Jacqueline Hendricks, both of New York City, recently.

John Arrell Scudder, M.D., to Miss Maysel Berniee Lee, both of Edwardsport, October 1.

Adam Bert Fair, M.D., to Miss Alma Boyd, both of Frederick, Okla., September 21.

John Russell, M.D., to Miss Phoebe M. English, both of Des Moines, Ia., September 11.

Deaths

Albert Wood, M.D. Harvard Medical School, Boston, 1862; of Northboro, Mass.; a member of the American Medical Association; president of the board of trustees of the City Hospital, Worcester; vice-president of the board of trustees of Memorial Hospital; treasurer of the Worcester Insane Hospital; councilor of the Massachusetts Medical Society; died at his home in Worcester, September 26, aged 79.

James H. Butler, M.D. University of Maryland, School of Medicine, 1857; formerly demonstrator of Anatomy in his Alma Mater, but for 42 years connected with the Baltimore Custom-House; surgeon of U. S. Volunteers during the Civil War; died suddenly at his residence in Baltimore, September 27, from cerebral hemorrhage, aged 76.

David Robertson, M.D. McGill University, Montreal, P. Q., 1864; of Milton, Ont.; a practitioner of Milton for over thirty years and for several years mayor of that city; elected to the provincial legislature in 1878 and appointed registrar of the county of Halton in 1898; died at the home of his daughter at Nelson, B. C., August 9, aged 71.

John Jay Colton, M.D. University of Pennsylvania, Philadelphia, 1869; a member of the Massachusetts Medical Society; at one time city physician of Lowell and a member of the school board; died at the home of his daughter in Lowell, Mass., September 23, aged 82.

George Ingersol Cutler, M.D. University of Vermont, Burlington, 1864; a member of the New Hampshire Medical Society; at one time a member of the Pension Extension Board of Cheshire County; died recently at his home in West Swanzey, aged 79.

William A. Neal, M.D. Rush Medical College, Chicago, 1857; of Elkhart, Ind.; a member of the Indiana State Medical Society; surgeon of U. S. Volunteers during the Civil War; died in the Clark Hospital, September 25, from kidney disease, aged 77.

Lewis C. Silvernail, M.D. Eclectic Medical College of Pennsylvania, Philadelphia, 1861; of Prattsville, Greene County, N. Y.; for the last twelve or fifteen years a practitioner of Binghamton, N. Y.; died at his home, September 21, aged 73.

Louis M. Griffin, M.D. Tulane University, New Orleans, 1878; a member of the Louisiana State Medical Society; once president of the Franklin Parish Medical Society; died at his home in Oakley, La., September 24, aged 59.

Isaac L. Babcock, M.D. Bennett College of Eclectic Medicine and Surgery, Chicago, 1881; of Rochester, Ind.; formerly of Maxinkuckee, Ind.; a member of the Indiana State Medical Association; died August 19.

Jacob Welty Rugh, M.D. Jefferson Medical College, Philadelphia, 1851; since 1853 a practicing physician of Westmoreland County; died at his home in New Alexandria, Pa., September 28, aged 85.

George W. Maust, M.D. Hahnemann Medical College and Hospital, Philadelphia, 1893; of Lock Haven, Pa.; died in the Hahnemann Hospital, Philadelphia, September 27, from nephritis, aged 47.

Henry Fiske Leonard, M.D. Columbia University, New York City, 1880; of Boston; a member of the Massachusetts Medical Society; died at the Worcester State Hospital, September 25, aged 54.

Arthur Hugo Friedeberg, M.D. Washington University, St. Louis, 1904; of St. Louis; died from strangulation due to a fish bone which lodged in his throat, September 28, aged 48.

Miles E. Barnett, M.D. College of Physicians and Surgeons, Chicago, 1897; of Omro, Wis.; died at the home of his mother in that city, September, from cerebral hemorrhage, aged 47.

Cutler Taylor Ball, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1878; formerly of Terre Haute, Ind.; died at his home in Decatur, Ill., August 26, aged 58.

Lucian Bailey, M.D. Medical College of Ohio, Cincinnati, 1902; of Friendship, Ripley County, O.; died August 26, from heart disease, aged 35.

James R. Caldwell, M.D. Harvey Medical College, Chicago, 1898; of Chicago; died at his home, September 21, from myocarditis, aged 68.

Harry E. Wilcox, M.D., Medical College of Indiana, Indianapolis, 1896; died suddenly at his home in St. Paul, Ind., August 10, aged 41.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

SAMUELS RETURNS TO WICHITA

Detroit Proves Too Hot for this Quack

"Professor" Samuels, who dispenses a weak solution of sugar and salt at $5 an ounce for the cure of all known diseases, has returned to Wichita, Kansas. Some months ago he left the western city and transferred his mail-order business to Detroit. If he did this in the belief that Michigan was an "easy" state and that he would be free from interference by the authorities, he was disappointed. He had barely got settled in his Detroit offices when the public prosecutor, Mr. Hugh Shepard, raided the concern, seized the card index of Samuels' present and prospective victims and, according to the newspapers, carried off a barrel of sugar and a bin of salt. All these things have been referred to in THE JOURNAL[1] before.

American Medical Association Cartoon Series No 15

GRASPING STRAWS

Finding Michigan so unsympathetic, Samuels has returned to Kansas and is now "doing business at the old stand." Detroit is to be felicitated. The business men of Wichita do not seem to be very enthusiastic over Samuels' return. The official organ of the Wichita Business Association in discussing fake concerns in that city makes the following reference to Samuels without mentioning the quack's name:

> "Only recently the king of quacks and 'fakers,' run out of a big Eastern city, mercilessly handled without gloves by the American Medical Association, has returned to Wichita. Some people received him actually with open arms. Some seem to think that the boost that postal receipts get from this mail-order business atones for any shortcomings he possesses. Righteous indignation surges up rebelliously at the very idea of 'fake' clothing and shoe concerns doing business here, and legislation gets them; but no one seems to care much at the return of this notorious and unconscionable medical quack."

If Wichita has the right kind of public prosecutor, that city can be made to be just as unhealthy for Samuels as Mr. Shepard made Detroit. But the case would need to be handled without gloves. Samuels' business is a fraudulent one and in spite of his wealth, amassed by selling a worthless mixture as a cure for disease, his activities in this line can be curbed.

Like all mail-order quacks, Samuels' chief stock in trade are his testimonials. In his advertising, he makes much of the letters that he claims to have received from his "patients." There is one class of letters that he receives about which nothing is said. We reproduce a few of the letters of this kind. Out of consideration for their writers, we omit the names and addresses of the persons sending them although both are on file in THE JOURNAL office:

TENNESSEE, Feb. 20, 1912.

PROF. H. SAMUELS, Wichita, Kan.

Dear Sir:—I am sending the treatment back that you sent my wife some time ago. She is dead now. The treatment you sent her made her worse and I can prove it. She never used it but six times and she got worse right straight. Now I enclose your treatment back to you and I want my money back. If you don't I am going to pull you for sending something that made my wife worse. There have others told me I could, but I won't bother you if you will send my money back, and if you don't I will see what I can do with you. Awaiting for quick reply, I am,

Yours very truly, W. F. S.

OHIO, Jan. 21, 1911.

PROFESSOR SAMUELS, Wichita, Kan.

Dear Sir:—I am sorry to tell you my father is dead, and if you have not sent that medicine, please hold same and return our money, as we need it under the present circumstances.

We are greatly in need of money now, and if you will please send our money back, please do so.

If you have a small boy you may put yourself in our condition and think if you were to die and leave a boy and wife to take care of themselves.

You see, my father was a poor working man and put all of his hope in your medicine.

So if you will please send our money back we will be very grateful to you. Yours very truly, H. S. P.

P. S.—We ask your sympathy in our trouble.

ARKANSAS, May 5, 1911.

PROFESSOR SAMUELS.

Dear Sir:—I will drop you a few lines, as I will send the last treatment of your medicine back. My husband is dead. Just waited too late to cure him, and I am left alone with two little ones to provide for and I can't use your medicine. I will return it, and if you think it right to return the money why do so, for I need it. As that is all, I will close. E. Y.

IDAHO, May 16, 1911.

PROFESSOR SAMUELS.

Dear Sir:—Received your letter, but Mr. L. was dead at that time. He passed away Saturday, May 6. Kept up with your medicine till the last day; used only half of the one month's treatment. Will you take the medicine back that is left and send me some of the money back, at least $15 of it, as I am a widow with three children, now can use the money badly. Please let me know about it as soon as possible. Have the medicine in a cool dark place. Yours respectfully,

MRS. A. L.

NEBRASKA, Feb. 20, 1912.

PROF. H. SAMUELS,
Wichita, Kan.

Dear Sir:—Something near two months ago I sent you a bank draft for $5 for a month's treatment for my little boy's eye who by accident was hit in the eye with a stick and thus cut in the edge of the pupil of the eye. We rec'd the treatment in due time and used it according to directions, but have received no benefit, as the boy is blind in that eye. I sent you the money in good faith and on your own recommendation and also of Mrs. S. of this place, who is taking your treatment. Now, in view of the fact that we have received no benefit from treatment, do you not feel that it would be right that I should receive my $5 again?

Doc, if I was not a poor man and have four children to look after beside my wife, I would say nothing at all; but in view of the foregoing facts I only ask to be treated by you the same as you would desire to be treated by me were you in my stead. I will close, hoping to hear from you soon. Sincerely yours.

A. F. S.

Can these be read without indignation? Do the tragedies they detail call forth no protest against the heartless cruelty of the mail-order quack? Must we wait for that far-off time when the masses of the people shall have developed that healthy scientific skepticism that will make quackery impossible, before doing something to protect the wives and children who are heartlessly swindled by frauds of this kind? Or shall we not ask our legislators to recognize the patent fact that a large proportion of the public needs protection against its own susceptibility and credulity in matters so closely related to its own health?

The Detroit *News* published an interview that one of its reporters had with Samuels at the time this quack was still living in one of the most expensive hotel suites in Detroit. When seen by the reporter Samuels, with his wife and daughter, was about to start for a ride in his motor car. After the interview was over Samuels and his party rode off—but let the reporter tell it:

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[1] June 1, 1912, p. 1693.

"They were laughing as they went out in the sunshine and the well-dressed little party looked prosperous—the 'professor' has cleaned up half a million dollars on his compound. But as they slipped into the traffic of the avenue, another picture seemed to arise and sit beside the 'professor'—a gaunt woman holding in her arms a heavily-breathing child. In her hand, a bottle and a medicine dropper. She touches the forehead and starts back. The wasted little body is chilling with the chill of death. The professor opens a letter. She asks for the return of the money she sent him. She does not need the rest of the treatment, the child is dead.

"Then there is a man who coughs slowly and terribly. His face is the color of chalk, his throat is sunken, his hands are so slender the bones seem to start through. A wife bends over and drops a colorless liquid into his eye. With the application goes all of her faith, for is not Professor Samuels the 'Modern Moses'—he says so himself in his advertisements—who will lead the people out of the bondage of sickness and suffering? And mingled with these are many, many others."

Correspondence

Correction in Thymol Dosage for Hookworm Disease

To the Editor:—In my article, "Notes on the Treatment of Ankylostoma Anemia (Uncinariasis, Hookworm Disease) with Thymol" (The Journal, June 8, p. 1744), it is stated that according to the original method of administering thymol, 12 gm. of the drug were given daily, divided into two equal parts of 6 gm. each, to be taken every two hours. Needless to state, this is an error which slipped into the translation from the Italian and, unfortunately, escaped my notice previous to publication.

The dose of 12 gm.—for adults and strong patients not suffering from complications of the malady—was originally divided into six equal parts of 2 gm. each, administered one dose every two hours. I am anxious that readers should note this correction, because the dose erroneously stated as of 6 gm. taken at one time might give rise to disturbances, especially in the stomach.

Camillo Bozzolo, Turin, Italy.

Physicians Wanted for the Yale Hospital in Changsha, Central China

To the Editor:—The Yale Hospital in Changsha, Central China, needs two men for its staff in the summer of 1913. Men who have recently completed their internship in an American hospital and who wish for a large practical experience in medicine or surgery will find this a splendid opportunity. The last appointee writes that he has had three times as much experience in his first year there as he would have had in the United States.

We have an up-to-date surgical equipment with a great deal of major surgery, and a large medical clinic with a good laboratory for research work. Our old hospital has forty beds, but we are soon to begin the construction of a new plant.

The places are open for either a temporary or a permanent appointment, preferably the latter, and men who have received a Yale degree will be given preference. I shall be very glad to hear from interested men who will state their qualifications and to give them full information about the conditions of appointment.

Edward H. Hume, M.D.,
Physician in charge,
156 Fifth Avenue, Room 1228, New York.

Alcohol Among Women.—During the past decade suicide, insanity, imbecility, epilepsy and other nervous diseases have increased about 20 per cent. among women, and are due, according to a standard authority, to the sad fact that our women are indulging too freely in the use of alcoholic drinks.—B. C. Keister, before the Medical Society of Virginia.

Queries and Minor Notes

Anonymous Communications will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

BURTON'S CURE FOR TABES

To the Editor:—Will you please advise me in regard to the standing of C. H. Burton of 92 Broadway, Detroit? He claims to be able to cure locomotor ataxia and is sending out a lot of circular letters telling of his treatment. Frank J. Barrett, Hazardville, Conn.

Answer.—C. H. Burton, M.D., used to be employed by C. W. Mixer of Hastings, Mich., who conducted a fraudulent mail-order cancer cure concern to which the government denied the use of the mails. Since cancer curing has become unprofitable, Burton is now exploiting a cure for locomotor ataxia. One method by which he obtained the names of prospective patients was described editorially in The Journal, May 18, p. 1517. A gentleman who wrote to Burton mentioning the fact that he had read The Journal's exposé received a long letter in which Burton made the following statement:

> I never was in the laboratory of Dr. Mixer, never had anything to do with him and I scarcely know the man at all. My first thought was to sue The Journal for slander, but on looking them up I find that they are not worth anything, so a judgment would do me no good.

From this it appears that Burton adds lying to his other accomplishments. Dec. 7, 1909, Burton, in giving a testimonial for Mixer, declared under oath:

> I visit the office of Drs. Mixer daily and give advice in regard to the selection of remedies for patients who write for treatment. I examine all question sheets and either approve of the use of Drs. Mixers' remedies in suitable cases or throw out the sheets because I deem the treatment unsuitable for some.

ASEPSIS IN HYPODERMIC INJECTIONS

To the Editor:—Will you kindly give the technic for an aseptic hypodermic injection? On the hypodermic-tablet tube is the word "aseptic." The tablet is usually emptied into the palm of the hand, picked up by the fingers and put into the syringe; water is drawn into the syringe from a cup, the needle is adjusted, pushed through the skin, and the injection is made. At no time after the tablet (the first tablet) leaves the tube is there anything which approximates asepsis; and still, who ever heard of infection from such procedure? Is anything nicer and neater required? T. C. Y.

Answer.—Everything pertaining to the giving of a hypodermic injection should be done aseptically. In hospitals and in many physicians' offices sterile water is kept at hand for hypodermic and other uses; the syringe and the needle are sterilized after each use, ready for the next occasion. In private practice a safe and reasonable procedure consists in boiling some water in the bowl of a spoon, the needle having been placed in the water. Thus needle and water are effectively sterilized. The tablet is carefully dropped from the tablet container into the barrel of the syringe and then the water is poured in. This leaves the needle in the spoon. It is picked up by the screw end and screwed on the barrel without the needle being touched. The site of the injection is rendered aseptic by cleansing with alcohol, or, better still, tincture of iodin.

DURATION OF CONTAGIOUSNESS IN WHOOPING-COUGH

To the Editor:—The question arises frequently as to when the contagiousness of whooping-cough disappears. The texts I have at hand do not supply the information.

1. When may it be considered safe to admit a child to the public school without danger of infection to the other children?

2. Often a child will cough for weeks after it ceases to "whoop" or have spasms of the epiglottis and larynx. Is it safe to allow these children to attend school while there is any cough?

W. W. Cassidy, M.D., Durand, Wis.

Answer.—1. The question as to when whooping-cough ceases to be contagious is still unsettled. It is becoming more probable, however, that the time is nearer the beginning of the disease than was formerly thought. While it seems probable that there is little if any danger of contagion after the first few weeks, it is safer to place the point of cessation of danger of contagion at the end of the paroxysmal stage. The Chicago Health Department requires children to remain away from school until that time, and makes the seventh or eighth week the earliest time at which it is considered safe for a child to return to school.

2. The cough that is even spasmodic at times, and frequently lasts or recurs for months after the active spasmodic stage, is regarded as being wholly free from danger to others.

GRATUITOUS INFORMATION TO INSURANCE COMPANIES

To the Editor:—1. In your opinion, has a physician any right to answer the questions asked on the following blank without the consent of the individual concerned?

2. Should a life-insurance company expect such service without paying for it? Is not the request a courteous imposition?

J. E. Tuckerman, Cleveland.

To Dr. ....

My Dear Doctor: In applying for insurance, ... aged ...., of ...., occupation ...., states that you treated ...... for .... on or about .... Will you have the courtesy to answer the questions hereto subjoined and return same in enclosed stamped envelope?

Respectfully yours,
....
Medical Director.

1. Was ailment same as mentioned by applicant? If not, state correct diagnosis.
2. State duration, severity and sequel on vitality.
3. Is he now in good health?
4. Did you ever prescribe for or attend him professionally at any other time? If so, when and for what?
5. Did he, to your knowledge, have the advice or attendance of any other physician? If so, who, when and for what?

Answer.—1. The civil law concerning "privileged communications" is not the same in all the states. Consequently, the legality of the physician's act in answering varies, depending on the state from which the reply is made. In practically every instance, however, an applicant for life insurance waives whatever rights he might have under the law and grants the company the privilege of seeking and obtaining information concerning his past and present physical condition. Under these conditions, the physician has a "right" to answer the questions.

2. The company asks for information and an opinion which have a value, or the inquiry would not be made. The physician must decide whether he will give an opinion gratis or ask a reasonable remuneration for it. The regular medical attendant of the applicant may be prompted to "throw in" this report as a gratuity to a patient; or because of business or social connections, he may feel that he already has received a return in similar courtesies accorded him. If he requires a fee, his response should be that he invariably expects a fee for searching his case records for the information and framing the opinion requested in the company's form letter. This is the practice of a number of physicians.

THERAPEUTIC VALUE OF AGMEL

To the Editor:—Please give information regarding the use of Agmel and the Mexican plant from which it is made, in the treatment of chronic nephritis.

J. L. Allen, M.D., Calgary, Alta.

Answer.—Agmel is said to be a concentrated syrup made from the juice of the maguey, or century plant, *Agave americana*. This plant is a source of a cider-like, fermented liquor used in Mexico under the name of "pulque." Chemical examination (reported to the Council on Pharmacy and Chemistry) of the concentrated syrup showed the specimen to be a kind of molasses which is apparently rendered more or less stable by the small quantity of formic acid which it contains. No alkaloids were found present, nor more than a trace of protein matter, and the conclusion drawn is that the trace of formic acid probably represents the sole medicinal constituent of the preparation. Experiments on frogs indicated that the slight effects observed can be explained by a mere injection of such concentrated sugar solutions.

From the facts as given above it would seem that the therapeutic value of the preparation is practically *nil*. There are a sufficient number of excellent, official diuretics for use in nephritis when diuresis is indicated, without it being necessary to resort to an unofficial preparation under a proprietary name, the composition of which gives no promise that it will be of value in this disease.

THE VERONAL HABIT

To the Editor:—Will you kindly inform me if there have been reported many cases of the veronal habit, also the symptoms and results of the habit and the prognosis and treatment? Are any symptoms akin to morphinism—that is, as far as being cheerful one day and moody and depressed the next—liable to appear in a person addicted to taking veronal frequently? Please give reference to any recent literature on veronal addiction. C. A. L.

Answer.—Like other hypnotics, veronal may lead to the formation of a habit. There is practically no literature on the subject and we can give no description of the symptoms.

COLOR IN GERHARDT'S DIACETIC ACID TEST

To the Editor:—Is there not a slight mistake in the wording of "Gerhardt's diacetic acid test" in the article on "Acetonuria," by Dr. Sidney A. Chalfant (The Journal, Sept. 14, 1912, p. 852): "Add 10 drops of tincture ferric chlorid and if a yellowish-brown color still appears, diacetic acid is positive; if a yellowish-brown color, diacetic is negative"? Weekly Reader.

Answer.—The passage as quoted is obviously incorrect, an error having occurred in putting the article into type. As indicated by the context, the first "yellowish-brown" should have been "reddish-brown." The paragraph should have read:

> Take 1½ inches of urine plus 10 drops of tincture ferric chlorid; shake and if a reddish-brown color is obtained, take another specimen of urine and boil; then again add 10 drops of tincture ferric chlorid and if a reddish-brown color still appears, diacetic acid is positive; if a yellowish-brown color, diacetic is negative.

The passage as it stands, however, will lead to misapprehension, as it would naturally be supposed that the persistence of the color was characteristic of diacetic acid. This is not correct. Diacetic acid is decomposed on boiling. If this decomposition were complete the addition of ferric chlorid should make no change in the boiled specimen except for the yellowish tint caused by the color of the reagent. The decomposition on boiling is, however, not complete even at the end of half an hour; hence the reddish-brown color usually persists but is much fainter. If the greater part of the red color is discharged, the substance which gave the reddish-brown color in the unboiled urine was diacetic acid, but if it remains as strong after boiling as before, the coloration must be due to some other substance. In making this test the mixture should be filtered after the addition of the ferric chlorid and if no color appears a few drops more of the ferric chlorid should be added. The reason for this is that iron is precipitated by the phosphates in the urine and may be entirely removed from solution. The turbid mixture of urine with precipitated phosphates will not allow the color due to diacetic acid to be clearly seen until after filtration.

LITERATURE ON CHRONIC POLYARTHRITIS WITH TUBERCULOSIS

To the Editor:—Please give me references to late literature on the subject of chronic polyarthritis (popularly known as chronic joint rheumatism) with tuberculosis as a possible cause. Some articles are said to have appeared in foreign journals lately, but I have been unable to find the references. T. D. Q.

Answer.—Following are some recent articles on the subject:

Weeks, S. H.: Tuberculous Arthritis of the Hip-Joint, *South. Med. Jour.*, January, 1909; abstr. in The Journal, Oct. 31, 1908, p 1537.

Poncet, A.: Acute Tuberculous Rheumatism, *Med. Press and Circular*, July 28, 1909.

Melchior, E.: Tuberculous Articular Rheumatism, *Centralbl. f. d. Grenzgeb. d. Med. u. Chir.*, Dec. 30, 1909; abstr. in The Journal, Feb. 12, 1910, p. 573.

Orr, H. W.: The Non-Operative Treatment of Tuberculous Arthritis, *Med. Herald*, August, 1910.

Melchior, E.: Tuberculous Articular Rheumatism, *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, xxii, No. 3; abstr. in The Journal, Feb. 18, 1911, p. 547.

Tommasi, L.: Tuberculous Rheumatism, *Rev. de méd.*, April, 1911, No. 4; abstr. in The Journal, July 1, 1911, p. 51.

Veras, S.: Tuberculous Rheumatism, *Bull. Soc. de pédiat. de Paris*, June, xiii, No. 6; abstr. in The Journal, Oct. 7, 1911, p. 1245; Three Cases of Tuberculous Rheumatism, *Ann. de méd. et chir. inf.*, Sept. 15, 1911.

Lyle, H. H. M.: Tuberculous Rheumatism, *Ann. Surg.*, May, 1912.

LITERATURE ON SERODIAGNOSIS IN PREGNANCY

To the Editor:—Some weeks ago I read an extract regarding some work done on the complement fixation test in the diagnosis of pregnancy. I do not remember where I saw the reference and in looking over my files I am unable to find it. Please give references to articles which have been written on this subject.

B. F. Stout, M.D., San Antonio, Tex.

Answer.—The following may be referred to:

Fieux, G., and Mauriac, P.: Serodiagnosis of Pregnancy, *Ann. de gynéc. et d'obst.*, February, 1910, No. 2; abstr. in The Journal, April 2, 1910, p. 1174.

Rosenthal, E.: Serodiagnosis of Pregnancy, *Ztschr. f. klin. Med.*, Nos. 5-6, 1911; abstr. in The Journal, June 17, 1911, p. 1865.

Fieux, G., and Mauriac, P.: Serum of Non-Syphilitic Pregnant Women Gives Positive Response to Simplified Wassermann Test, *Jour. de méd. de Bordeaux*, March 24, 1912.

Fieux, G., and Mauriac, P.: Serodiagnosis of Pregnancy, *Ann. de gynéc. et d'obst.*, May, 1912, No. 5; abstr. in The Journal, July 6, 1912, p. 71.

Abderhalden, E.: Serodiagnosis of Pregnancy, *Münch. med. Wchnschr.*, June 11, 1912; abstr. in The Journal, July 20, 1912, p. 235.

Editorial in The Journal, Sept. 14, 1912, p. 881.

Society Proceedings

COMING MEETINGS

American Association of Railway Surgeons, Chicago, Oct. 16-18.
Clinical Cong. of Surgeons of North America, New York, Nov. 11-16.
Kentucky State Medical Association, Louisville, Oct. 29-31.
Mississippi Valley Medical Association, Chicago, Oct. 22-24.
Southern Medical Association, Jacksonville, Fla., Nov. 12-14.
Virginia Medical Society, Norfolk, Oct. 22-25.

INTERNATIONAL CONSERVATION CONGRESS

Fourth Annual Congress, held in Indianapolis, Oct. 1-4, 1912

The President, HON. J. B. WHITE of Kansas City, in the Chair

While the attendance was not equal to that of the two preceding congresses, the interest was unabated, the enthusiasm for better public health legislation being marked. A large and interesting hygienic exhibit was arranged in the corridors and rotunda of the state-house, a large portion of the material exhibited being supplied by the Indiana State Board of Health. In addition to the exhibit, illustrated lectures on public health were given three times a day, the stereopticon and moving-picture machine being used.

The first session was devoted to the usual addresses of welcome and responses, and addresses by President White and by Hon. H. L. Stimson, Secretary of War, representing the President of the United States. At the second session Prof. George E. Condra, president of the National Association of State Conservation Commissioners, reported on "What the States are Doing." Dr. W. A. Evans of Chicago spoke on "Human Life, Our Greatest Resource," and various committees reported progress during the year. In the evening, a public meeting was held at Tomlinson Hall at which Dr. Harvey W. Wiley spoke on the "Conservation of Man."

Human Life as a National Asset

At the Wednesday morning session, Mr. E. E. Rittenhouse of New York City, Conservation Commissioner for the Equitable Life Assurance Society of the United States, read a paper on this subject, which was noteworthy as summing up the entire question of conservation of life on a basis of hard, uncontrovertible facts. The paper was written by a business man, and not by a physician or sanitarian, which makes it all the more noteworthy.

Mr. Rittenhouse said: The life-saving movement is still in its infancy. It has been directed so far almost wholly against contagious diseases common to infancy and early adult life, while the degenerated diseases of middle life and old age, to which comparatively little attention has been paid, are steadily increasing. The average length of human life has been increased by increasing the proportion of people living in the younger age periods, while the average duration of life of those who pass into middle life and old age has been constantly shortened. The principal items of life waste are due to the hazards, habits and conditions of life which civilization has introduced.

Our fire losses amount to about $250,000,000, to prevent which our cities are spending $1.65 per capita. Our annual economic loss fro mpreventable diseases is conservatively estimated at $1.500,000,000, to prevent which our cities are spending 33 cents per capita. A million and a half people in the United States are constantly suffering from preventable liseases. During the next ten years, over 6,000,000 lives will be needlessly destroyed, if present conditions continue. The ity and state health officer knows that with an appropriation f $1.50 per capita, the health, happiness and longevity of the ommunity can be greatly increased, but as the taxpayer will give him only 25 cents per capita, he is compelled to run a 25 cent health department. Even in Pennsylvania the appropriation is only about 48 cents per capita. Arkansas spends othing at all for this purpose; New York State spends about .7 cents; Massachusetts, 4.2 cents; Florida, 10 cents; Indiana, .8 cents; Kansas, 2.7 cents, and Virginia, 1.9 cents. In cities he same condition exists. Providence, R. I., spends 11 cents er capita for health and $1.99 per capita for fire protection; Portland, Ore., spends 13 cents per capita for health and $1.91 for fire protection; Minneapolis spends 14 cents per capita for health and $1.67 for fire protection.

To remedy these conditions, business institutions, civic, social and religious organizations should join in a life-conservation campaign. The individual should be educated to adopt the healthful habits of life. Communities should be urged to establish public health organizations; the organization of local health leagues and the encouragement of rigid supervision of contagious diseases should be advocated. Every effort should be made to encourage states and municipalities to appropriate sufficient funds to finance adequate health departments.

The Public Health Movement

PROF. IRVING FISHER of Yale gave a history of the present movement for better health conditions, the organization of the Committee of One Hundred, the efforts made to secure the establishment of a national Department of Health, and the present situation. He also discussed the conditions in public health in Sweden and other European countries, and emphasized the importance of a national Department of Health, of proper vital statistics and of careful study of eugenics to provide a better race for advanced generations.

Authority in Health Control

DR. L. E. COFER of the United States Public Health Service reviewed the public health loss of the United States, and of the different states. He said that he was at a loss to suggest what additional health legislation is necessary or desirable. He is unable to see the necessity for any different plan of organization than that now in existence, as long as the people in whose behalf the organization is maintained are satisfied.

The remainder of the morning was devoted to a discussion of farm lands and agriculture.

Conservation and Its Relation to Hygiene

At the afternoon session, DR. OSCAR DOWLING of New Orleans, president of the Louisiana State Board of Health, spoke on this subject.

Duty of the Employer Toward Conservation

MR. E. A. RUMELY, La Porte, Ind., stated that we must care for the increasing population, not by increasing exploitation or natural stores, but by providing abundant work for skilled labor. Agriculture has been a process of mining. The farm must now furnish a field for the profitable employment of skilled labor, for the use of capital and the demonstration of the principles of scientific management, becoming thereby a workshop instead of a mine.

Duty of the Teacher Toward Conservation

PROF. E. T. FAIRCHILD of Topeka, Kan., president of the National Educational Association, emphasized the need of better teachers and better equipment for the public schools, especially in rural districts.

Duty of the State

DR. J. N. HURTY of Indianapolis, secretary of the Indiana State Board of Health and ex-president of the American Public Health Association, advocated the restriction of the use of drugs, poisons and improper foods, the prevention of overfatigue, the reduction in venereal diseases and the use of alcohol in order to reduce crime, pauperism and insanity.

Section meetings on foods and on accident prevention were held later in the afternoon.

Accident Prevention

MR. MELVILLE W. MIX of Mishawaka, Ind., president of the Dodge Manufacturing Company and vice-president of the National Association of Manufacturers, one of the founders and a director of the National Society for the Promotion of Efficiency, said: Almost every establishment is to-day giving more thought to the safety of its employees, with the result that employers themselves are necessarily compelled to give more thought to the safety of themselves and others. The popular disregard for personal safety is the most important factor in the present situation. There must be an established public conviction, an active, subconscious state of mind that automatically thinks of safety first, before industrial accidents will be reduced. It may be a generation or two before this is brought about. It can be accomplished only by constant drill and discipline. We are lacking in proper statistics regarding these questions, and have to rely on Germany for much of our information.

Cold Storage

Dr. Harvey W. Wiley, speaking before the food section, emphasized the improved condition of cold-storage business.

Mr. Frank A. Horne, chairman of the Committee on Legislation of the American Association of Refrigeration, said that the cold-storage warehouse was performing a useful public function.

In the general discussion which followed, Dr. Wiley said that attacks on the cold-storage business five years ago were justified by conditions, which have since greatly improved.

History and Importance of the Conservation Movement

In the evening, Mr. Henry Wallace, editor of *Wallace's Farmer*, Des Moines, Iowa, reviewed the history of the conservation movement, and said that man is after all the biggest thing on the planet. The farmer is more important than the farm. The American farmer has farmed some of the richest soils in the world for a few generations, and has wasted fertility so recklessly that he is now crying out for commercial fertilizer, while the Chinese have farmed the same soil for at least forty centuries, and have maintained the soil fertility without the use of such fertilizers. The only way to restore wasted fertility of the soil, and the waste of the forests and mineral resources, is by increasing to the utmost limit human efficiency, physically, mentally and morally.

Pensions for Mothers

Judge Ben B. Lindsey of the Juvenile Court of Denver appealed for state pensions or compensation for needy mothers, reviewing the child welfare movement and emphasizing the duty of the state to the child.

The audience at the evening meeting was large and attentive.

The program Thursday morning included an address on "Lumber Conservation" by Major E. G. Grigg, of Tacoma, president of the National Lumber Manufacturers' Association, and a symposium on the prevention of accidents, which included a paper on "Saving Miners' Lives," by Dr. John A. Holmes of Washington, director of the National Bureau of Mines; Mr. Thomas H. Johnson of Pittsburgh, Pa., consulting engineer of the Pennsylvania Railroad, on the "Prevention of Railroad Accidents," and Mr. Reginald P. Bolton of New York, on the "Prevention of Elevator Accidents."

In the afternoon the congress met in the Coliseum building at the State Fair Grounds, where an address was given by Hon. Woodrow Wilson, governor of New Jersey.

In the evening a women's meeting was held, with Mrs. Philip M. Moore of St. Louis, ex-president of the General Federation of Women's Clubs, in the chair. Addresses were given by Mrs. Matthew T. Scott of Washington, president-general of the Daughters of the American Revolution; Miss Julia C. Lathrop, chief of the Children's Bureau, Department of Commerce and Labor; Mrs. John R. Walker of Kansas City, honorary vice-president-general of the Daughters of the American Revolution, and Mrs. Marion A. Crocker of Fitchburg, Mass., chairman of the Department of Conservation of the General Federation of Women's Clubs.

The fourth and last day's session included addresses on "Conservation of Human Life," by Mr. A. B. Farquhar of York, Pa.; on the "Problem of Tuberculosis," by Dr. Livingston Farrand, executive secretary of the National Association for the Study and Prevention of Tuberculosis; "Water as a Natural Resource," by Dr. W. C. Mendenhall of the United States Geological Survey; "Conservation and Civics," by Mr. Ralph M. Easley, National Civic Federation; "Disposal of Sewage," by Dr. Burton J. Ashley, Morgan Park, Ill.; "The Story of the Soil," by Mr. H. H. Gross of Chicago, president of the National Soil Fertility League, and "The Story of the Air," by Prof. Willis L. Moore, Chief of the United States Weather Bureau

Resolutions on Health Conservation

At the afternoon session the report of the Committee on Resolutions was adopted. The following resolutions refer to vital resources and public health:

Recognizing the natural resources of the country as the prime bases of property and opportunity, we reaffirm the declaration of the preceding congress, that the rights of the people in these resources are natural, inherent and inalienable; and we insist that these resources shall be developed, used and conserved in ways consistent both with current welfare and with the perpetuity of our people.

We put chief emphasis on vital resources and the health of all the people; since health and brains are the first and most important factors for efficient life, we urge the adoption of all rational and scientific methods which will lead to their buiding-up.

To be well born is the primal requirement, and the first step to make sure that children shall be well born is to stop the multiplication of those bearing hereditary defects of body and mind. We believe that science is capable of solving the problem satisfactorily and that improvement is possible under existing conditions. We earnestly urge its consideration by the public.

We believe that every state should have wisely ordered health laws, with well-paid health officers with power to enforce them, and also that a national Department of Health should be created comporting with the dignity and importance of the cause. This department should work effectively for the promotion of the physical and hence the moral and intellectual health of the people.

The accurate registration of births and deaths, which has been called the "bookkeeping of humanity," is a fundamental necessity for a study and knowledge of disease, and for all public health work; therefore, we affirm our belief in the importance of vital statistics registration, and recommend that all states now without proper vital statistics adopt as early as possible the model bill for the registration of vital statistics endorsed by the United States Bureau of the Census and by many prominent professional and scientific bodies.

We urge the strengthening of laws safeguarding the health and the lives of workers in industrial establishments; and we commend to the employers of labor all practicable safety devices and proved preventive measures against illness and injury and physical inefficiency; and we urge on the other states the investigation of accidents by elevators and the enactment of laws similar to those on the statute-books of Pennsylvania and Rhode Island.

We commend the activity of all individuals and organizations and governmental agencies to put an end to such work by children and women as impairs the health of the race. Childhood is our greatest resource and its right to protection in growing to a normal maturity is inalienable. We deplore the ignorant use of medicines; and we call on all human and educational agencies to teach the waste and danger of any drug-habit.

We earnestly advocate the employment by communities and manufacturing concerns of such methods of sewage disposal as will render their waste products harmless to health and utilize them in the restoration of soil fertility; and we urge the enactment by states of laws prohibiting stream pollution, and by the federal government of such legislation as will prevent the pollution of interstate and coastal waters.

Uniform state legislation regulating the refrigeration of perishable foodstuffs is advisable; therefore this congress recommends that its food committee be requested to study the questions involved in the production, collection, sanitary preparation, transportation, preservation and marketing of perishable foods and to report its findings to the succeeding congress as a basis for uniform legislation.

Officers Elected

The following officers were elected for the coming year: president, Mr. Charles L. Pack, Cleveland; vice-president, Mrs. Philip N. Moore, St. Louis; secretary, Mr. Thomas R. Shipp, Indianapolis.

INTERNATIONAL CONGRESS ON HYGIENE AND DEMOGRAPHY

Fifteenth Meeting, held at Washington, D. C., Sept. 23-28, 1912

(Continued from page 1316)

Protection of Passengers

Dr. H. M. Bracken, Minneapolis, Minn.: It is the duty of railways to protect their passengers from disease. The traveling public spreads disease through ignorance, indifference and selfishness. Some travel on railway trains, knowing that they are suffering from a contagious or infectious disease. Others travel, knowing that they are carriers of disease germs, which do not affect them, but which are communicable from them to others. To this extent, responsibility for jeopardizing of passengers on railroads rests with the public.

Rural Hygiene

Dr. John N. Hurty, Indianapolis: Rural hygiene is really not different from urban hygiene; the question is: How much and how shall the general principles of the science be applied? The first step in rural hygiene is to see to it that rural dwellers are well born. The weak, the degenerate and those exhibiting transmissible physical, mental and moral defects, should not propagate. Accurate birth, death and disease records are necessary for an understanding of the situation, and must be reckoned with. The rural dwellers should be made to appreciate fully the fact that disease prevention is possible and being sick is the result of wrong living. Sanitary farm houses are rare, very many being very unsanitary. Too many are flat on the ground, lacking ventilation beneath; they are damp, mold is frequently found in closets and in corners; bed-rooms are small, lighted and ventilated with one small window; water-supply is frequently polluted; sewage disposal is by shallow pits open to flies and animals and so situated as to pollute the well. Fly culture conditions are usually in great perfection on farms. Barns and stables and their yards are generally too near the farm houses, abound in accumulations of manure and the ground churned to a filthy pulp by animals. The proper preparation of food is not understood. Bread is very frequently badly made, overfermented and not sufficiently baked; the yeast cells not being killed sour stomach and dyspepsia are provoked. For good health, too much smoked, pickled and salted pork is used. The frying-pan is overworked. Pickles and vinegar are abused. Oral hygiene is almost unknown in rural life; the teeth of the women and children are sadly neglected. Bath rooms are few and underbathing results. Much harm to rural health attends self-doctoring; the farmer must be raised out of the "patent-medicine" stage of ignorance.

The New Art of Ventilation

PROF. C. E. A. WINSLOW, New York City: Overheating and excessive moisture are the prime conditions to be guarded against in ventilation. Since human beings and various processes of combustion produce heat and moisture in all occupied buildings, it is essential that there should be always at hand some source of coolness to counteract them. This can best be provided for by constantly supplying air at a temperature somewhat below that to be maintained in the room. Good ventilation requires the lowering of the temperature of the room by cool air as soon as it reaches 68 or 70 F. This implies the use of direct heating in cold weather, to warm the room when it gets too cold, as the air-supply cools it when it grows too hot. An air-supply of 2,000 cubic feet per person per hour at 60 F. would be required to remove the excess heat produced by the average adult.

If the introduced air is at a lower temperature than the room it should obviously be introduced near the floor, while the heated air is removed from above. The ordinary type of downward ventilation used in schools necessarily fails as soon as the room temperature rises to that of the incoming air. The incoming air should generally be tempered in cold weather so that as it enters it may not produce discomfort on the part of the occupants. Window ventilation may be satisfactory in hospitals. It is wholly impracticable in factories and auditoria. It is very doubtful whether it will ever be generally adopted in schools. Finally, it is essential that the cool tempered air should be distributed from properly designed ducts through multiple openings sufficiently numerous to give even distribution without the discomfort caused by objectionable drafts.

Sanitary Questions Concerning the Immigrant in His Home Country and in the United States

DR. JOHN CONSTAS, Washington, D. C.: As a result of close contact with the foreign elements in this country for several years, I offer the following suggestions on the question of immigration to the United States of America, viz.: 1. Compulsory physical examination of prospective immigrants before leaving their village for the shipboard. No immigrants to be sold transportation except on presentation of a certificate showing the results of such an examination. 2. Distribution on board ship of literature on sanitation in all languages. 3. Immigrants suspected of having been in contact with typhoid fever and cerebrospinal meningitis patients should be treated as those having been in contact with other dangerous contagious diseases. 4. Distribution of literature in all languages on landing, emphasizing sanitary laws and the penalties inflicted for their breaking. 5. Boards of health should placard places where immigrants live with same literature in their native language. 6. Furnishing of screens at cost to those unable to purchase them. 7. Early and vigorous enforcement of sanitary laws. 8. Physicians should be invested with authority to enforce the sanitary laws. 9. Physicians treating immigrants should instruct them in all matters pertaining to sanitary and personal hygiene. 10. Frequent illustrated lectures on sanitary matters in immigrant quarters.

The Fight Against Malaria

DR. RUGE, R.N., Kiel, Germany: We must resort to all possible methods. According to the local conditions one or another method of combating the disease must be emphasized.

1. *Fight Against Mosquitoes.*—The direct extermination of the mosquitoes and their larvæ, also the protection from mosquito-bites.

2. *Quinin Prophylaxis.*—Prophylaxis which may have good results in one region may not do at all in another. None of the known methods of quinin prophylaxis, even if used in regular treatment, protects absolutely. As soon as fever develops, prophylaxis must cease and treatment begin.

3. *Sanitation.*—By drainage, reclaiming of marshes and ponds, regulation of river courses and cutting underbrush.

Mortality and Causes of Death by Occupations

DR. JACQUES BERTILLON, Paris, France: I have tabulated various occupations and professions with respect to degrees of frequency of various causes of deaths in each. I made 725 subgroups of professions and occupations and classified them into three major groups, under groups of professions in which tuberculosis is generally frequent; in which tuberculosis is rare, but liver diseases are frequent or moderately so, and in which liver and kidney diseases are rare, or professions exercising in the open-air without straining to rest. I found that with farmers, agriculturists, horticulturists, foresters, all causes of death are rare; that they are the most healthfully occupied class of workers. The least healthy persons are those engaged as wine merchants, brewers and handlers of liquor. All causes of death, except accidents, are extraordinarily frequent for this group. In the professions, exposed to the changes of weather and compelling the operatives to rest, all causes of death are frequent, but liver diseases are less frequent than one could imagine since alcoholism is very common in these professions. Diseases of the respiratory system are rare in all professions generally performed in confined places, but clerks in railroad offices are the only ones with whom tuberculosis is rare. Priests and professors separate themselves from the other liberal professions by the rarity of liver and kidney diseases.

Cost of High Living in Its Relation to Public Health

PROF. MAX RUBNER, Berlin: One of the greatest, if not the greatest, problems now confronting mankind is that of providing the race with proper nourishment. It is of such importance that every city should have a department in its government clothed with plenary powers of caring for this branch of the people's welfare. Changed conditions in the last half century have brought the question of feeding the human race to a critical point. The growth of the cities and the industrial workers as a class has complicated the problem to a point where it is becoming necessary for the city governments to maintain a jealous watch that all of their citizens receive the proper nourishment. School children should be watched particularly and, in the case of those children who fail to receive proper or sufficient nourishment at home, the deficiency should be made up. This is being done in some of the lower schools in Germany. There has been a distinct step backward in the organism of the working man. This is due to two causes, first, insufficient nourishment, and second, the fact that the new era of machinery has specialized and confined his physical exertions so that he gets little or no natural, general exercise. In order to have on his table the same articles which appear in the menus of the more wealthy, he has reduced the quantity of his nourishment to an insufficient amount. Then, too, cooking is a lost art as far as most women in this modern age are concerned. They marry and take on themselves the responsibilities of marriage without having mastered the first principles of food preparation, and without even having an idea as to which articles of food are desirable. This condition should not be so, and is a big factor in the high cost of living.

Interstate Commerce Law in Relation to Public Health

Hon. Judson C. Clements, Washington, D. C.: Public health officers should institute an investigation with a view to ascertaining the extent of mortality resulting from the pollution of highways from passing trains. It is only reasonable to suppose that much disease and consequent mortality results from the pollution of the highways both by refuse from passing trains and from water-carriers. If it can be proved that disease does result from the pollution of the highways, Congress will legislate to remedy the condition.

Cerebrospinal Meningitis

Dr. Simon Flexner, New York: I have examined nearly 1,300 cases of this disease in which the serum was used. These cases were representative, coming from all parts of the country. Of 1,249 patients, 849 recovered and 400 died, fixing the death-rate at 30 per cent. The normal death-rate in this disease before the discovery and the use of the serum was about 70 per cent. There has been an absolute reversal since the advent of the serum, 30 per cent. now die where before only 30 per cent. recovered. In the Louisiana epidemic, serum was administered to 176 patients, of whom 123 recovered. To seventy-four patients the serum was not administered. Of these, sixty-three died. The death-rate where the serum was not used was about 85 per cent. The action of the serum was alike on both whites and blacks in the Louisiana epidemic, but where the serum is not used the blacks stand far less chance of recovery.

Yellow Fever

Dr. Eduardo Liceaga, Mexico City: The physicians in the Mexican republic make sure that all of the mosquitoes are exterminated. Into the room which they intend to purge they carry large mosquitoes in tubes. If after they are fumigated, the insects are dead, they feel sure that all the pests are exterminated.

The Development of Vital Statistics in the United States Since 1900; Measures Needed for the Immediate Future

Dr. Cressy L. Wilbur, Washington, D. C.: The registration of births and deaths depends chiefly on the enactment and thorough enforcement of adequate laws for this purpose by the states. The difficulty of securing uniform and effective legislation by independent state action is shown by the development of the registration area for deaths prior to 1900. The rapid growth of the registration area since 1902 is due to the cooperation of the Census Bureau, since its establishment on a permanent basis, with the state authorities, the American Public Health Association, the American Medical Association and other organizations, a cooperation furthered by resolution of Congress on the subject.

The extension of the registration area during the past decade has been largely due to the adoption of the "model law" for the registration of births and deaths. There is necessity for properly compensated local registrars, each with a definitely defined district, burial permits, monthly returns of the original certificates to the state registrar, and adequate central supervision. All "county systems" seem to fail. There are essential differences between American and European methods of registration. American methods are best adapted to conditions in the United States and will ultimately yield fully satisfactory results. There are some difficulties in registration and possible revision of the model law, but with the aid of the American Medical Association and the American Bar Association, these will be overcome in certain minor respects. The failure of birth registration in the United States is due to weakness in the enforcement of law. There is great need of building up public sentiment that will demand the uniform and effective enforcement of registration laws throughout the United States

The Municipal Control of Plague

Surgeon-General Rupert Blue, U. S. P. H. S., Washington, D. C.: To eradicate plague from a city, it is necessary to have an organization for that purpose, and to have laws covering the necessary sanitation. The continued enforcement of rat-proofing laws in a city that has once been infected is emphasized as the best insurance against a recurrence of the disease. Plague is to be eliminated from the history of mankind by the application of similar principles wherever infection exists. By international regulations all vessels should be fumigated periodically to kill rats; infected ports should have a medical surveillance of outgoing traffic. Notification should include both epidemic and epizootic foci of the disease.

The Intercarriage of Typhoid Infection Between Urban and Rural Communities

Dr. Allen W. Freeman, Richmond, Va.: The principal factors transmitting typhoid infection between urban districts and from rural to urban districts are: 1. By persons: carriers (temporary or permanent), persons in the incubative stages of the disease and persons actually sick with typhoid fever. 2. By foods and drinks, including water, dairy products, garden truck, fruits, shellfish and possibly other foods.

The principal factors transferring typhoid infection from urban to rural communities or between rural communities are: 1. Persons infected in the cities or towns and incoming carriers. 2. Food of various kinds. 3. Night soil and manure carried out of cities for fertilizing purposes. 4. Stream pollution. 5. Railway trains.

Various means of controlling some of these factors are now being used and others are necessary. A careful, comprehensive, detailed campaign against the disease will inevitably result in a large reduction in the amount of infection thus transmitted, leaving any community free from the danger of exogenous infection and in a position to control the disease by an attack on the enemy generated within the city wall.

Thymol in Uncinariasis

Dr. C. Wardell Stiles and Dr. George F. Leonard, Washington, D. C.: Comparing sixty-one hospital treated cases with twenty-two home cured cases, the conclusion is reached that many cases of hookworm infection are cured by less than one maximal dose for the age group in question. In view of the foregoing fact and because many of the patients are ignorant and illiterate, and cannot be relied on to carry out instructions, the authors do not favor the administration of larger doses of thymol for home treatment than the present standard dose. The authors do not believe that treatment alone is a practical method of hookworm eradication.

(To be continued)

AMERICAN ROENTGEN RAY SOCIETY

Thirteenth Annual Meeting, held at Niagara Falls, N. Y., Sept. 11-14, 1912

(Continued from page 1210)

The Roentgen-Ray Examination of Goiter

Drs. André Crotti and Charles F. Bowen, Columbus, Ohio: Percussion is not to be relied on to detect the so-called intrathoracic goiter. The Roentgen ray furnishes an absolute means of diagnosticating this condition. Not only that, but it has been shown recently that in many cases of goiter, especially the exophthalmic variety, the thymus is enlarged. Such enlargement can be detected only by the Roentgen ray. Therefore the Roentgen examination should form an important part of the examination in goiter work. Many patients suffering from exophthalmic goiter who are operated on are not relieved of their symptoms. It has been shown that this is due to either an intrathoracic enlargement of the thyroid or a large thymus, which compresses the trachea or deflects it in its course, so that it is twisted. The diagnosis of thymus hyperplasia is possible in the majority of cases by means of the Roentgen ray. We have had five cases of this kind, in some of which the diagnosis of enlarged thymus was not made until it was too late. The Roentgen picture of this condition is so characteristic that it cannot be mistaken, and therefore the value of such an examination cannot be emphasized sufficiently. When the condition is present it is well to postpone operation for a while and subject the patient to Roentgen irradiation in the region of the thymus, until the size of the gland has diminished markedly, when the thyroidectomy can be done.

The thymus has also been removed successfully in these cases, and that operation is to be considered. The results reported are good. Our studies of these cases have shown that the thymus becomes markedly congested, and it is then that the patient suddenly chokes, cries out, and is dead in a few minutes. In one of our cases we were able to make a skiagram of the thymus in the state of congestion just before death. It was this case that pointed the way to the work we have done on the thymus gland in goiter. The patients are usually asleep when the spasm comes. They awaken suddenly, complain of a choking sensation in the chest, and death soon follows. The operation of thymectomy is not a difficult one, as such operations are viewed at the present time. The results which accrue from its performance justify the operation.

DISCUSSION

Dr. Sidney Lange, Cincinnati: In Germany the association between goiter and thymus has been known to exist for a long time, but the observation seems to have attracted little attention. These two glands are complementary—when the thyroid develops in size, the thymus recedes, and when one is removed the other enlarges. The secretions of the two glands seem to have a common physiologic action. There must be a close connection between the two glands. Cappelle studied a large number of cases of goiter in which operation had a fatal result. In from 92 to 95 per cent. of all cases he found an enlarged thymus. He believes that the thymus has something to do with the fatality. Some years ago, from purely theoretical considerations, Ziesser recommended that a thymectomy be performed before the thyroidectomy. His idea was that the enlarged thymus caused hyperthymization, excessive heart action and dilatation of the heart. If those conditions were counteracted, the thyroidectomy would not prove fatal.

Dr. Henry Hulst, Grand Rapids, Mich.: After thyroidectomy the thymus is apt to enlarge suddenly, say within five or six hours. Therefore this is probably not an inflammatory reaction but a vasomotor action, the result of an irritated or stimulated nervous system. If this could be prevented, death following the thyroidectomy would be avoided. I had a patient, a young woman, with a small thyroid and large tonsils. I did not see the necessity of Roentgen treatment, and therefore recommended removal of the tonsils, which was done. A week later tachycardia developed, the thyroid enlarged and the patient manifested all the symptoms of exophthalmic goiter. I gave her Roentgen treatment, but the goiter did not diminish much in size. The symptoms were benefited slightly and the patient was functionally cured. About a year later she developed abscesses in the throat, and all the symptoms of her goiter recurred. She also complained of pain in her right hand. The skiagram showed a cervical rib on the side where there was pain. This case illustrates what compression of the arterial system will do to these ductless glands. We should not forget cervical rib in this connection.

Dr. George E. Pfahler, Philadelphia: It seems to me that a persistent thymus arteriosus and a dilatation of the first portion of the arch of the aorta would give a picture similar to that of an enlarged thymus. That is a point to be borne in mind in making a differential diagnosis.

Dr. Percy Brown, Boston: This is a field in which we must proceed with deliberation. A large number of cases should be studied with relation to the possible causative factors of an enlarged thymus and its relation to the goiter. Dr. Crotti's clinical experience is exceedingly valuable, but from the point of view of roentgenology I would advise that we proceed with caution.

Dr. Russell H. Boggs, Pittsburgh, Pa.: Dr. Chevalier Jackson referred a patient to me, a boy about 4 years old, who was said to have swallowed a coin. I made a skiagram, but failed to find a foreign body. There was a shadow in the mediastinum which we took to be an enlarged thymus. Dr. Jackson did a thymectomy and the patient lived for about a year afterward.

Mr. H. W. Dachtler, Toledo: This work is a revelation to me. It may explain why some men have reported unfavorable results and others favorable results after operations on goiter. The enlarged thymus undoubtedly has something to do with the results following thyroidectomy.

Dr. A. J. Quimby, New York: Three years ago I had three thymus cases in succession. Two of the patients died. In one case no treatment was given. In a second a tracheotomy was done, but failed to give relief. The third patient had a thymectomy performed and is well and hearty to-day. The child was only 21 days old when operated on. The sternum was laid wide open and the thymus removed.

Dr. André Crotti, Columbus, Ohio: I reported only five cases because in these I was able to give the results of autopsy after operation. I have seen other thymus deaths, but did not report them because no skiagrams were taken of those patients. In one case I ligated both upper poles of the thyroid. The patient died suddenly. The post-mortem showed the thymus enormously enlarged. Another patient was an infant born under normal conditions on the morning of the day when I saw it. When it had a choking spell the nurse sprinkled a little cold water on its face, and the baby recovered. At 7 o'clock in the evening it had another choking spell and died. The autopsy showed a thymus larger than the heart. Thymectomy does not do so much good in adults as in children. Garré did a thymectomy in two adults, both of whom recovered. The thyroidectomy was then unnecessary, the patients recovering completely from the hyperthyroidism. In the first case the Graves' disease was far advanced. Much work has been done on the thymus in recent years, but the subject is still in its infancy, especially the physiologic relationship between the thyroid and the thymus. I have done a number of experiments myself, which I shall report later.

Progress of Ankle and Wrist Fracture

Dr. E. H. Skinner, Kansas City, Mo.: The functional result of an ankle-fracture depends on the proper reduction of the astragalus, so that the line of weight-bearing force which passes through the center of the tibia also passes through the center of the astragalus. The interpretation of the skiagram depends not so much on the shadow of the line of fracture as on the shadows of the relative position of the tibia and astragalus. One must judge of the injury therefore, by the position of the astragalus. An accurate knowledge of the normal anatomy of the ankle-joint and of the wrist-joint and the appearance of these joints in the skiagram is an absolute necessity. The secret of a proper reduction of a Pott's fracture lies in the correct adaptation of the astragalus to the tibia. A line drawn through the center of the tibia must extend through the center of the astragalus. This line is easily charted on the skiagram, so that a proper reduction of the fracture can easily be made. A skiagram taken after the reduction will show whether it has been done properly. If the anteroposterior skiagram shows the astragalus centered under the tibia, the prognosis of a functional result will be more favorable than any anatomic alignment of fragments.

In the case of the wrist-joint, in the normal extended hand, the long axis through the center of the radial shaft passes between the proximal epiphyses of the second and third metacarpal bones. A second line drawn at right angles to the first will pass through the tip of the ulnar styloid. If the styloid process of the fractured radial head is behind this line, the fracture is not properly reduced and the result will be a functionally imperfect wrist. Functional result depends on the proper adaptation of the carpal articulating surface of the radius. Normally this surface is tilted slightly forward. It is the tilting back of the radial head that interferes with the function of the wrist. In charting the wrist-joint one must insist on the whole radial styloid being distal to the second right-angled line.

(To be continued)

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arkansas: Regular, Little Rock, November 12. Sec., Dr. F. T. Murphy, Brinkley; Homeopathic, Little Rock, November 12. Sec., Dr. P. C. Williams, Texarkana; Eclectic, Marion Hotel, Little Rock, November 12. Sec., Dr. C. E. Laws, Fort Smith.

Connecticut: Regular, City Hall, New Haven, November 12. Sec., Dr. Charles A. Tuttle, 196 York Street; Homeopathic, Grace Hospital, New Haven, November 12. Sec., Dr. Edwin C. M. Hall, 82 Grand Avenue; Eclectic, New Haven, November 12. Sec., Dr. T. S. Hodge, 19 Main Street, Torrington.

Florida: Regular, Jacksonville, November 11-12. Sec., Dr. J. D. Fernandez.

Louisiana: Regular, Tulane University, New Orleans, November 4-6. Sec., Dr. A. B. Brown, 108 Baronne Street; Homeopathic, New Orleans, November 4. Sec., Dr. Edward Harper, 702 Macheca Bldg.

Maine: City Council Rooms, Portland, November 12-13. Sec., Dr. Frank W. Searle, 776 Congress Street.

Massachusetts: State House, Boston, November 12-14. Sec., Dr. Edwin B. Harvey, Room 159, State House.

Mississippi: Capitol, Jackson, October 22-23. Sec., Dr. W. W. Smithson.

Nebraska: State House, Lincoln, November 13-14. Sec., Dr. C. P. Fall, Beatrice.

Nevada: Carson City, November 4. Sec., Dr. S. L. Lee.

New Jersey: Capitol Bldg., Trenton, October 15-16. Sec., Dr. H. G. Norton.

New Mexico: Santa Fe, October 14. Sec., Dr. W. E. Kaser, East Las Vegas.

Texas: Dallas, November 13-14. Sec., Dr. J. D. Mitchell, Wheat Bldg., Fort Worth.

West Virginia: Wheeling, November 11-13. Sec., Dr. H. S. Barbee, Point Pleasant.

Michigan June Report

Dr. B. D. Harison, secretary of the Michigan Board of Registration in Medicine, reports the written examination held at Ann Arbor, June 11-13, 1912. The number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75, and not less than 50 in any subject. The total number of candidates examined was 102, of whom 100 passed and 2 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Bennett Medical College	(1912)	83.3
College of Physicians and Surgeons, Chicago	(1912)	82.4, 84,1, 84.5, 85.1, 86.3, 87.2, 87.4, 93.2.
University of Louisville	(1912)	79.8
Detroit Homeopathic College	(1912)	81
Detroit College of Medicine	(1912)	82.1
University of Michigan, Dept. of Med. and Surg.	(1912)	80.7, 81.1, 81.2, 81.4, 81.5, 81.9, 82.1, 82.5, 82.8, 83.4, 83.8, 83.9, 83.9, 84, 84.2, 84.3, 84.4, 84.5, 84.6, 84.7, 84.8, 84.8, 84.8, 85, 85.2, 85.3, 85.3, 85.3, 85.3, 85.6, 85.6, 85.7, 85.7, 85.8, 85.8, 85.8, 85.9, 86, 86.1, 86.1, 86.1, 86.2, 86.3, 86.4, 86.5, 86.5, 86.6, 86.7, 86.8, 87, 87, 87.1, 87.4, 87.6, 87.8, 88.1, 88.3, 88.4, 88.4, 88.5, 88.5, 88.6, 88.6, 88.6, 88.9, 88.9, 88.9, 89, 89.3, 89.7, 90.6, 92.5.
University of Michigan, Homeopathic College	(1912)	78.8, 80.3, 80.8, 82.5, 83.2, 83.9, 84.8, 85.6, 85.8, 86.3, 86.3, 87.5, 87.7, 88.7, 89.5.
Starling-Ohio Medical College	(1911)	79.8

FAILED

College	Year Grad.	Per Cent.
Laval University, Quebec	(1902)	79.5*
University of Naples, Italy	(1893)	87 9*

* Failed to make the required grade in one subject.

Missouri June Report

Dr. Frank B. Hiller, secretary of the Missouri State Board of Health, reports the written examination held at St. Louis, June 24-26, 1912. The number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 186, of whom 158 passed and 28 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Alabama	(1911)	82
University of Arkansas	(1910)	80
Rush Medical College	(1911)	84
Northwestern University Med. School	(1910) 85; (1911)	81
Chicago College of Medicine and Surgery	(1912)	80, 80
National Medical University, Chicago	(1904)	75
University of Kansas	(1912)	78
University of Louisville	(1912)	75, 85, 86
Kentucky School of Medicine	(1893)	76
Johns Hopkins University	(1911) 82; (1912)	82
Marion-Sims College of Medicine	(1898)	80
Ensworth Medical College	(1912)	75
St. Louis College of Physicians and Surgeons	(1911)	75
University Medical College, Kansas City,	(1912)	75, 75, 75, 77, 79, 80, 81, 81, 82, 85, 89.
Washington University, St. Louis,	(1896) 75; (1888) 82; (1901) 78, 78; (1912)	77, 77, 77, 77, 78, 79, 79, 79, 79, 80, 80, 80, 81, 81, 81, 81, 81, 82, 83, 83, 83, 83, 83, 83, 83, 83, 84, 84, 84, 85, 86, 86, 86, 87, 87, 87, 88, 89.
St. Louis University,	(1910) 78; (1912)	75, 75, 76, 76, 76, 76, 76, 76, 77, 77, 77, 77, 78, 78, 78, 79, 79, 79, 79, 79, 79, 80, 80, 80, 80, 80, 80, 81, 81, 81, 81, 81, 82, 82, 83, 83, 83, 83, 84, 84, 84, 84, 84, 85, 85, 85, 85, 85, 86, 86, 86, 88, 89.
Barnes Medical College	(1893) 77; (1904) 80; (1911)	83
Missouri Medical College	(1885) 75; (1886)	75
American Medical College,	(1912)	75, 75, 75, 75, 75, 75, 75, 76, 76, 77, 78, 78, 81, 81, 84, 85.
Kansas City Hahnemann Med. Coll.	(1903) 75; (1912)	76, 81
Creighton Medical College	(1912)	80
Long Island College Hospital	(1905)	83
Medico-Chirurgical College of Philadelphia	(1909)	81
University of Pennsylvania	(1912)	83
Jefferson Medical College	(1912)	77
Meharry Medical College	(1912)	75, 80
Wisconsin College of Physicians and Surgeons	(1912)	79
University of Edinburgh, Scotland	(1908)	89

FAILED

College	Year Grad.	Per Cent.
University of Arkansas	(1912)	69
University of Louisville	(1910)	59
Univ. Med. Coll., Kansas City	(1911) 49; (1912)	66, 66, 68, 72
St. Louis College of Physicians and Surgeons,	(1906) 58; (1908) 61; (1910) 42; (1911)	63.
Barnes Medical College	(1910) 68; (1911)	71
Ensworth Medical College	(1909) 36; (1912)	71
American Med. College,	(1911) 63; (1912)	67, 68, 69, 69, 70, 70, 72
Meharry Medical College	(1910) 63; (1911) 56; (1912)	48, 69
Milwaukee Medical College	(1912)	70

Alabama July Report

Dr. W. H. Sanders, chairman of the Alabama State Board of Medical Examiners, reports the written examination held at Montgomery, July 9-12, 1912. The number of subjects examined in was 10; total number of questions asked, 82; percentage required to pass, 75. The total number of candidates examined was 115, of whom 56 passed and 59 failed, including 2 osteopaths. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Atlanta College of Physicians and Surgeons	(1912)	75
Northwestern University Medical School	(1911)	80
University of Alabama	(1912)	75, 75, 76, 76, 76, 76, 77, 77, 78, 78, 79, 79, 80, 80, 80, 80, 82.
Birmingham Medical College	(1910) 75; (1912)	75, 75, 75, 76, 76, 77, 78, 79, 79, 80, 82, 83.
Tulane University of Louisiana	(1909) 81; (1911) 77; (1912)	75, 75, 77, 80, 85.
Johns Hopkins University	(1910) 79; (1912)	78, 84
University of Maryland	(1912)	78
Leonard Medical School	(1912)	77
Columbia Univ., Coll. of Phys. and Surgs	(1910)	82
Jefferson Medical College	(1902) 85; (1911) 79; (1912)	78
University of Tennessee	(1908) 75; (1912)	75, 76
Vanderbilt University	(1912)	75
Memphis Hospital Medical College	(1912)	75, 79
University College of Medicine, Richmond	(1912)	81
University of Virginia	(1910)	82

FAILED

College	Year Grad.	Per Cent.
Birmingham Medical College	(1911) 54, 68; (1912) 60, 62, 63, 63, 64, 64, 65, 65, 67, 68, 68, 69, 69, 69, 69, 70, 73; (1912)	*
University of Alabama	(1910) 67; (1911) 69; (1912)	57, 66, 70, 71, 72, 72, 73.
Howard University, Washington, D. C.	(1910)	72
Atlanta School of Medicine	(1911) 59; (1912)	54
Atlanta College of Physicians and Surgeons	(1912)	64, 67
University of Louisville	(1912)	42
Tulane University of Louisiana	(1911) 68; (1912)	71
Harvard Medical School	(1909)	73
Leonard Medical School	(1905)	57
Jefferson Medical College	(1912)	68
University of Pennsylvania	(1911)	72
University of Nashville	(1908)	73
Chattanooga Medical College	(1908)	73
Memphis Hospital Medical College	(1910) 55; (1911) 41, 62, 67; (1912)	64, 65.
Meharry Medical College	(1908) 51; (1910) 43; (1912)	63, 66, 69
University of Tennessee	(1912)	70
Vanderbilt University	(1912)	68
University of Virginia	(1909)	72

* No grade given.

The following questions were asked:

ANATOMY

1. Discuss the upper third of the humerus, giving its articulations. 2. Name the muscles proper to the shoulder, describing the deltoid. 3. Give the origin and the relations of the iliohypogastric and ilio-inguinal nerves in the inguinal region; also their distributions. 4. Describe the renal circulation. 5. Describe the right spermatic vein. 6. Name the groups of the mediastinal lymphatic glands, locating and describing the posterior group. 7. Describe the anatomy of the cecum and appendix. 8. Describe the structure of the mammary gland.

CHEMISTRY

1. Define the following terms: (a) valence; (b) atomic weight; (c) specific gravity; (d) chemical formula. 2. How does chlorin occur in nature? How may it be prepared or obtained? Give the properties and uses. 3. What reaction occurs when sodium bicarbonate is mixed with diluted sulphuric acid? Give the chemical equa-

tion. 4. Give the physical properties of bone; mention the chemical constituents and give the properties of the most important of these constituents. 5. Give the elementary constituents and name any carbohydrate; also the names and formulas of the products of its complete combustion. 6. Give the formula and name of: (a) an alcohol; (b) an organic acid; (c) a compound ether; (d) a hydrocarbon. 7. What occurs when a solution of sodium hydrate is mixed with normal urine? Explain the reaction. 8. Describe a test for indican. How may sugar be determined quantitatively?

PHYSIOLOGY

1. Discuss the distribution and function of the recurrent laryngeal nerve. 2. Describe the mechanism by which the pylorus is controlled. 3. Describe the metabolism of proteids with special reference to end-products. 4. Describe the mechanism by which the equilibrium of the body is maintained in the standing position. 5. Discuss the portal circulation. 6. Discuss briefly the histologic constituents of blood and the function of each. 7. Discuss the olfactory sense (the mechanism of smelling; the nature of the olfactory stimulus). 8. What relation has the vasomotor system to blood-pressure? What is the approximate normal adult blood-pressure and how ascertained?

ETIOLOGY, PATHOLOGY, SYMPTOMATOLOGY AND DIAGNOSIS OF DISEASES

1. Give the pathology and differential diagnosis of acute infectious cholecystitis. 2. Give the pathology of aortic incompetency and the mechanical effects of the lesion. 3. Give the etiology, pathology and differential diagnosis of hydronephrosis. 4. Give the pathology of mitral incompetency and the mechanical effects of the lesion. 5. Give the pathology and diagnosis of hookworn disease. 6. Give the incubation periods of measles, scarlet fever, small-pox and chicken-pox. 7. Give the diagnosis of abscess of the liver. 8. Give the diagnosis of cerebrospinal meningitis.

SURGERY

1. Discuss the relative merits of the three principal general anesthetics and tell how a patient should be prepared for the administration of any one of them. 2. Describe the process of repair of tissues and define healing by granulation. 3. In what varieties of gangrene would immediate operation be demanded without waiting for the line of demarcation? 4. Give technic of first service in accidental wounds, including incised, contused and lacerated wounds. 5. Give the management of a compound, comminuted fracture of the femur. 6. Give the proper procedure in a penetrating gunshot wound of the abdomen. 7. Name surgical conditions that cause indigestion. 8. Give diagnosis and treatment of stone in the right ureter.

OBSTETRICS AND OBSTETRIC OPERATIONS

1. Name the pelvic articulations, and describe briefly the true and the false pelvis. 2. Give the process by which the fetal blood is oxygenated; give the fetal circulation and the changes which take place in it after birth. 3. Describe the methods by which you would ascertain the position of the child *in utero*. 5. Give the mechanism of labor in the first position of the vertex, and name the diagnostic landmarks found on the fetal head. 6. Give probable causes of nausea and vomiting of pregnancy. 7. Give the indications and conditions requiring cesarean section, and give the technic of the operation. 8. Name the organisms causing puerperal infection, and give modes of external infection.

GYNECOLOGY

1. Name the uterine displacements, and give the cause of each. 2. Give causes and treatment of infantile uterus. 3. Name the neoplasms which may be found in the ovaries. 4. Give the classification of uterine tumors from a histologic and anatomic standpoint. 5. Give the early symptoms of carcinoma of the uterus. 6. What ducts in the female urethra may become infected, and to what may infection lead? 7. Describe the levator ani muscle. 8. Give the causes of dysmenorrhea.

HYGIENE AND MEDICAL JURISPRUDENCE

1. Define disinfectants, deodorants, germicides. 2. How long does a diphtheritic patient remain infective, and how may it be shown that the infective period has passed? 3. If on chemical examination nitrates and nitrites are found in water, would this fact condemn such water for drinking purposes? If so, why? 4. What is the difference between a parasite and a saprophyte? 5. Into what general classes are foods divided? Give examples of each. 6. Give the prophylaxis of uncinariasis. 7. What is coma? Give three causes of coma. 8. In what respects do gunshot wounds differ from other wounds?

DISEASES OF THE EYE, EAR, NOSE AND THROAT

1. What kind of tissue is the conjunctiva? Name the principal diseases that affect it, and give the management of two common and important ones. 2. Give the symptoms, causes and management of acute dacryocystitis. 3. In a penetrating wound of the cornea of some size what would happen? Give the management of the condition. 4. Give the symptoms, dangers and management of glaucoma. 5. Differentiate between impacted cerumen and a considerable degree of paralysis of the auditory nerve, and give the treatment of the former. 6. Discuss the subject of earache and its management. 7. Discuss the subject of aphonia. 8. Name two conditions that would demand laryngotracheotomy and describe the operation.

New Hampshire July Report

Mr. H. C. Morrison, Regent of the New Hampshire State Board of Medical Examiners, reports the written examination held at Concord, July 9-10, 1912. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 16, of whom 11 passed and 5 failed. Five candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Maryland	(1904)	85
Baltimore Medical College	(1912)	83
Medical School of Maine	(1910)	81
Tufts College Medical School	(1912)	84
Boston University	(1889) 93; (1910)	90
Dartmouth Medical School	(1912)	83
Long Island College Hospital	(1911)	77
Columbia University, College of Phys. and Surg.	(1911)	80
University of Nashville	(1911)	84
University of Vermont	(1911)	79

FAILED

College	Year Grad.	Per Cent.
Medical School of Maine	(1879)	73
Baltimore Medical College	(1907)	72
Maryland Medical College	(1912)	61, 73
Dartmouth Medical School	(1910)	62

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
George Washington University	(1907)	Dist. Colum.
Rush Medical College	(1882)	Wisconsin
Baltimore Medical College	(1898)	N. Dakota
University of Vermont	(1903) (1910)	Vermont

Nebraska August Report

Dr. C. P. Fall, secretary of the Nebraska State Board of Health, reports the written examination held at Lincoln, Aug. 13-14, 1912. The number of subjects examined in was 14; total number of questions asked, 10; percentage required to pass, 75. The total number of candidates examined was 15, of whom 12 passed and 3 failed. Four candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Northwestern University Medical School	(1912)	77.9
Rush Medical College	(1912)	80
Chicago College of Medicine and Surgery	(1912)	78.2
State University of Iowa, Homeopathic College	(1897)	82
University of Louisville	(1909)	86.2
Harvard Medical School	(1912)	83
Creighton Medical College	(1912)	75.9, 76.5, 77.4, 83.2
Cotner Medical College	(1912)	76
University of Nebraska	(1912)	86

FAILED

College	Year Grad.	Per Cent.
Ensworth Medical College	(1912)	68.4, 70
Creighton Medical College	(1911)	69.2

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Rush Medical College	(1894)	Maine
Hahnemann Med. College and Hospital, Chicago	(1911)	Tennessee
Iowa College of Physicians and Surgeons	(1889)	Iowa
Drake University	(1908)	Iowa

Book Notices

Digest of Comments on the Pharmacopeia of the United States of America (Eighth Decennial Revision) and on the National Formulary (Third Edition) for 1910. By Murray Galt Motter and Martin I. Wilbert. Paper. Pp. 784. Public Health Service of the United States, Hygienic Laboratory, Bulletin 84. 1912.

The present bulletin is the sixth of the series of "Digest of Comments" on the Pharmacopeia of the United States and the National Formulary. These books, which are now being revised, are recognized, as is well known, by the Food and Drugs Act of June 30, 1906, as the standard authority with reference to the identity, purity and strength of the medicaments therein described and hence are of direct interest and value as public health measures.

In the compilation of the present bulletin the available literature for 1910 has been reviewed and, in addition to routine matter of interest to the revisers of the Pharmacopeia and the National Formulary, the book contains comments on the proceedings of the United States Pharmacopeial Convention which was held in Washington in May, 1910. An effort has been made to digest the comments on the Pharmacopeial Convention and to give an outline of the proceedings so as to make them readily available for reference. The general principles to be followed in revising the Pharmacopeia, endorsed by the United States Pharmacopeial Convention, are reproduced and the comments on the nature and extent of the general principles are reflected at some length.

As in previous bulletins of this series, considerable space is devoted to the consideration of the possible development of international standards for potent medicaments, and the gradual compliance of foreign pharmacopeias with the provisions of the treaty signed at Brussels in 1906, embodying principles for securing uniformity in the nomenclature and dosage of potent medicaments, is noted. The extent to which the several pharmacopeias published since 1905 comply with the requirements of the Brussels Protocol has been analyzed and is given in the form of tables, accompanied also by a table showing the comparative scope and the content of the several pharmacopeias, and several tables indicating the extent to which the newer remedies have been recognized in recent editions of national pharmacopeias.

A table giving the comparative strength of preparations of potent medicaments included in the Brussels Conference Protocol and in the several pharmacopeias used in North and South America show the need for pan-American uniformity in preparations of this kind.

The references to materials used in clinical laboratories for the scientific study of disease and the comments on the development and standardization of disinfectants and other prophylactic measures for the prevention of disease will be of value to all physicians who are in any way interested in clinical laboratory investigations. As an illustration of the extent to which material of special interest to physicians has been recognized it may suffice to point out that the references to clinical tests cover twenty-one pages of text and that fifteen pages are devoted to the enumeration of references on serums and vaccines.

In addition to their direct use as a ready reference to the comments on the articles included in the Pharmacopeia and the National Formulary, these bulletins will also be found to be of value as a summary of the current literature relating to the pharmacy and therapy of widely used medicaments. The bulletin can be had on application to the Surgeon-General, U. S. Public Health Service, Washington, D. C.

Infant Mortality and Milk Stations. Special Report Dealing with the Problem of Reducing Infant Mortality. Work Carried On in the Ten Largest Cities of the United States. Together with Details of a Demonstration by Public and Private Agencies in New York City During 1911 to Determine the Value of Milk-Station Work as a Practical Means of Reducing Infant Mortality. Edited by Philip Van Ingen, M.D., Member of the New York Milk Committee, and Paul Emmons Taylor, Secretary of the New York Milk Committee. Paper. Price, $1. Pp. 176, with illustrations. New York Milk Committee, 105 E. 22d St., New York City, 1912.

This pamphlet of 176 pages contains a report dealing with the problem of reducing infant mortality as carried on in ten of the largest cities of the United States, together with details of a demonstration by public and private agencies in New York City during 1911 to determine the value of milk-station work as a practical means of reducing infant mortality. Among the subjects discussed are the factors concerned in the waste of infant life, a summary of what has been done in New York in recent years along this line; the results obtained in New York City as a whole, in 1911, the results obtained at individual milk stations, and a comparison of the figures obtained in New York with those of nine other large cities. This information is set forth in the text, in tabulated form and by graphic representations in the form of charts, curves and pictures.

Among the conclusions reached are the following: During the first part of the summer of 1911, although meteorologic conditions were not favorable to a low mortality in the cities studied, the reduction was very marked. This reduction was not due to chance, it is believed, but bears a close relation to the activity of the campaign. The interesting observation is made that the difference between cities in infant mortality rates is probably more a matter of public conscience and quality of official endeavor than of weather and character of population. It is believed that in the education of the mother in the care of herself and baby lies the strongest weapon for fighting infant mortality. This work has proved the usefulness of the milk-station, which is considered one of the most efficient educational factors in prevention; and it is believed that its usefulness can be greatly extended into other branches of infant and child welfare, such as prenatal work, the care of children under school age, follow-up work in the inspection of school children, etc. It is believed that, when efficiently managed, the milk-station is an economical means of forwarding the movement for infant welfare. While private agencies are useful in initiating milk-station work, yet all this work should sooner or later come under the supervision of the municipality. The report shows that with a low infant mortality, only 28 per cent. of infant deaths occurred during the three summer months in Manhattan, while the preceding ten years averaged 33.8 per cent. Notwithstanding the fact that the first part of July was the most unfavorable since 1901, the death-rate during that month was the lowest since 1901, not even taking into consideration the increase in population. This detailed report of intensive work in infant conservation through milk-station work is important as affording a definite basis for estimating the value of this phase of the infant welfare movement.

Die Goldschmidtsche Irrigations-Urethroskopie. Eine zusammenfassende Darstellung der Methode. Von Dr. A. Schlenzka. Paper. Price, 4.50 marks. Leipsic: Werner Klinkhardt, 1912.

This monograph on the use of the Goldschmidt urethroscope describes the uses of this instrument in the examination and treatment of the normal and diseased urethra. The first part is taken up with the description of the mechanics and optics of the instrument. Next are described the preparation of the patient and the use of the instrument in the normal and pathologic urethra.

The uses of the instrument in making instillations and operations under the eye are thoroughly described, particularly the Bottini operation. The book is well illustrated both by colored plates of the different pathologic pictures and by line drawings of the different instruments.

Herzmissbildungen. Ein Atlas angeborener Herzfehler in Querschnitten mit besonderer Berücksichtigung des Atrioventrikularsystems. Von J. G. Mönckeberg, A. O. Professor an der Universität Giessen. Paper. Price, 30 marks. 114 illustrations. Jena: Gustav Fischer, 1912.

Mönckeberg presents, in the form of an atlas, outline drawings of a series of cross-sections of hearts showing congenital malformations. The specimens selected were imbedded in paraffin, sectioned, and serial sections stained to show the relations of vessels, valves, musculature and "central fibrous body." The specimens shown include eight cases of septum defects and other anomalies in development of the aorta and its branches.

Medicolegal

Construction and Validity of Powers Conferred on State Board of Medical Examiners

(Barton vs. Schmershall et al (Idaho), 222 Pac. R. 385)

The Supreme Court of Idaho in sustaining a motion to quash, or denying a writ of mandate against the State Board of Medical Examiners, says that, under the provisions of section 1342 of the Revised Codes of Idaho, as amended in 1909, the legislature grants power to the board of examiners to determine the qualification of applicants to practice medicine: First, by examination; second, without examination on the applicant presenting to the board satisfactory proof of the existence of certain facts with reference to the qualification of the applicant. When application is made for license without examination, certain questions of fact are to be determined, as follows: First, that the applicant has been licensed to practice medicine by a similar board of another state; that is, whether the applicant has been licensed, and whether it was by a board similar to the examining board of Idaho. Second, that the applicant holds a certificate of registration showing that an examination has been made by the proper board of any state in which an average grade of not less than 80 per cent. was awarded to the holder thereof. Third, that the applicant was the legal possessor of a diploma from a medical college in good standing in any such state, which said diploma may be accepted in lieu of an examination as evidence of qualification. Fourth, that the scope of such examination was not less than prescribed in Idaho.

In determining these questions of fact, the board is not required to accept the statement of the applicant or his affidavit as conclusive proof that the board of any other state was in fact a similar board to the board of examiners of Idaho, or that the applicant holds a certificate of registration showing that an examination has been made by the proper board of any other state in which an average grade of not less than 80 per cent. was awarded to the holder thereof, or that the examination given him in another state was similar in scope to that conducted by the board of this state, or that the applicant was the legal possessor of a diploma from a medical college in good standing in any such state, or that the board issuing to him a certificate in another state accepted the diploma from the Bennett Medical College of Chicago, Ill., as a medical college in good standing in that state and in lieu of an examination. The statute does not in any way limit the medical board in determining the qualification of an applicant to any particular character or kind of proof, and the board is possessed with power to determine these questions on such evidence as will satisfy the minds of the members of the board as to whether or not the applicant is qualified as required by the law and the rules of the board.

The power thus conferred on the board of medical examiners has been considered by this court in a number of instances, in each of which it has held that the statute confers discretionary power and judgment on the board in determining the questions of fact presented by the application, and also the qualification of the applicant from his examination, and it might either grant or refuse a license according to the judgment of the board. In other words, where the statute requires an examination of an applicant, the statute also confers power on the board to determine the qualifications of the applicant and whether the examination shows the applicant to be qualified under the statute.

The legislature has the power to regulate the practice of medicine and surgery within the state, and in doing so it may require applicants to practice medicine and surgery to pass an examination under the supervision of an examining board, and such board may be given power to determine the qualifications of the applicant to receive a license, and the action of such board may be reviewed only in the manner and for the purpose provided by the statute.

In enacting a law regulating the practice of medicine and surgery within the state, the legislature had in mind the protection of the people of the state against those not qualified for such service. The members of the board under the provisions of the law are required to be graduates of reputable medical colleges in good standing, and learned and skilled in the theory and practice of medicine and surgery and of good moral repute. The legislature could not have selected a tribunal or board which could be more skilled or better qualified than one composed of persons qualified in the manner prescribed by the statute.

The court is unable to agree with the contention that "may" should read "must," and that the board must grant a license with examination only in the branches not covered by the examination held in another state, or that the board must grant a license without examination if the scope of such examination in another state was not less than prescribed in Idaho. Many authorities were cited with reference to whether the word "may" in a statute is to be construed as mandatory; but, as this court understands it, the construction to be applied to this statute is that "statutes will be construed with a view to ascertain the intent of the lawmaking power and to give force and meaning to the language used." No unusual interpretation should be permitted or is required in this case to give force to the clear policy and intent of the legislature in enacting this statute. The statute was intended to require a certain standard of proficiency and skill in order to qualify an applicant to practice medicine and surgery within the state, and to grant to the board of examiners the power to determine the proficiency and skill of the applicant. This statute is intended for the common good of the people of the state, and is clearly within the police power of the state. The determination of the questions of fact required to be established by an applicant for a license to practice medicine and surgery within this state may be reviewed in the manner prescribed by the statute, and, if the applicant has been deprived of any legal right, it may be corrected by the courts of the state; but the court will not interfere with or disturb the discretionary power conferred on the board.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Internal Medicine, Chicago

September 15, X, No. 3, pp. 169-296

1 *Influence of Adrenals Over Pancreas. R. Pemberton and J. E. Sweet, Philadelphia.
2 *Absorption of Food in Typhoid. E. F. Du Bois, New York.
3 *Effect of a Skin Irritant on Local Blood-Flow in Hand. C. I. Wood and P. G. Weisman, Ann Arbor, Mich.
4 Presence in Urine of Certain Pressor Bases. A. S. Granger, Los Angeles.
5 *Criticism of Two Percussion Methods for Diagnosis of Enlarged Thymus. E. A. Park and W. C. McGuire, New York.
6 Effect of Tuberculo-Toxin on Adrenal Function. L. H. Newburgh, Boston, and T. H. Kelly, Cincinnati.
7 Auscultatory Blood-Pressure Phenomena. L. M. Warfield, Milwaukee, Wis.
8 *Persistence of Action of Digitalis. R. A. Hatcher, New York.
9 Pellagra in Illinois: Condensed Report of Illinois Pellagra Commission.

1. **Influence of Adrenals Over Pancreas.**—The authors found that injections of epinephrin made when the flow, following removal of the adrenals, is at its height, inhibit the flow. Shortly after or before the blood-pressure falls to its previous level, the pancreatic flow returns. It can thus be repeatedly inhibited and it then repeatedly returns. The tendency to flow seems very strong. Since removing the adrenals induces a flow and since injections of epinephrin then inhibit the flow; and since the flow returns when the effect of the injection wears off (which last can be repeatedly demonstrated in one animal), it is difficult to escape the thought that there is normally some such relation between these glands.

2. **Absorption of Food in Typhoid.**—In the cases studied by Du Bois carbohydrates when given in amounts under 300 gm. a day were present in the stools only in traces, if, indeed, they were present at all. When amounts larger than 300 gm. were given, the stools sometimes contained 2 or 3 gm. of reducing bodies. The nitrogen of the feces averaged 1.12 gm. a day, and never exceeded 1.8 gm., amounts which are within normal limits. The loss was 7.1 per cent., which is a figure lower than that of previous observers. This, perhaps, may be due to the fact that the diet was less irritating to the intestinal tract. With the fats there seemed to be a diminution of both the percentage loss and the actual weight of fat in the feces as the disease progresses. Du Bois says it is hard to give averages which are fair, but it can be said that during the first three weeks of the attack and during the height of a relapse, the patients lose on an average 7.2 per cent. of the ingested fat. Later in the disease, with a falling temperature and decreasing toxemia, they lose about 4.5 per cent. The average loss for all cases examined was 6.02 per cent., which, though higher than the normal figure of 3 per cent. for a similar diet, is not enough higher to be of any clinical significance. The dried feces contained from 30 to 50 per cent. fat. However, very large amounts of fat were given. The stools of typhoid patients on the high calory diet resemble normal stools very closely. The indican of the urine, which is rather high during the early part of the disease, decreases steadily as the patient's condition improves. The indican excretion compares favorably with that of Folin's normal individuals. Du Bois concludes that typhoid patients throughout the disease can absorb carbohydrates and protein as well as normal individuals. They can absorb very large amounts of fat, but the percentage of absorption is somewhat lower than normal, especially early in the disease.

3. **Effect of Skin Irritant on Local Blood-Flow in Hand.**—In order to ascertain the effect of the irritants, determinations were made by Wood and Weisman simultaneously on the two hands while one was exposed to water containing the irritant and the other to ordinary tap water. In this manner it was possible to eliminate the variations in flow which occur in a single individual at different times. Scrupulous care was taken to maintain the two water baths at the same temperature in order to exclude the effect of local variations in temperature. They found that irritation of the skin by a mustard bath short of producing a definite dermatitis does not materially increase the rate of blood-flow through the hand relative

to the hand whose skin is not so irritated. They believe that the local redness is probably due to a dilatation of the cutaneous capillaries and venules without a corresponding dilatation of the underlying arterioles.

5. **Percussion Methods for Diagnosis of Enlarged Thymus.**—The authors' conclusion, from an anatomic study of autopsy cases is that percussion methods of the thymus, based on the theory of thymus mobility, are founded on a false anatomic hypothesis.

8. **Persistence of Action of Digitalins.**—An attempt was made by Hatcher to determine approximately the length of time during which the action of several of the digitalins persists after the introduction of suitable doses directly into the circulation. He attempted to estimate the latent action of the digitalins as well as that which induces symptoms which are readily observed; in other words, he tried to determine the length of time during which the action of a single large dose, or repeated doses, of these bodies persists, and the relative intensity of the persisting action after a given interval of time. His results were as follows: The production of the phenomena commonly called "cumulation" of the digitalins, depends on the relationships existing among a number of factors, including absorption, elimination and persistence of action, all of which are in need of investigation. The use of the term cumulation tends to perpetuate a misconception. The actions of the digitalins persist for periods of time which vary widely with the different members of the group, and with the species of animal employed. The actions of digitoxin and digitalis persist longer than do those of the other digitalins in common use. The cat shows this persistence of digitalis action much longer than the dog, rabbit or white rat. The cardiac actions of a single very large intravenous dose of digitalis or digitoxin may persist for a full month in the cat, but for only a few hours in the rabbit. The action of the largest sublethal dose of digitalin, ouabain or strophanthus persist for only a day, or, at most, a few days, in the cat. Hatcher says that it remains for the clinician to determine whether the long-lasting action of digitalis or the briefer action of strophanthus is to be preferred in a given condition of cardiac disease, but strophanthus cannot rival digitalis in general use until we learn more of the conditions governing its absorption from the gastro-intestinal tract, and of this we know practically nothing at present.

To avoid accidents, careful regulation of the therapeutic dosage of the digitalins is necessary especially when they are so used as to elicit action promptly during the period when the action of a previously used digitalin persists, and it must be remembered that every digitalin is a synergist of every other member of the group. All of the digitalins maintain their relative position with regard to activity, so far as he has tested them on different mammals by intravenous injection, and digitoxin has never been found by any observer to be as active as crystalline ouabain when tested on mammals in this way; hence there is no sufficient reason for the wide-spread belief that digitoxin is enormously toxic for man, as compared with other digitalins. No fixed ratio of activity can be determined for the digitalins when they are administered orally, because of great differences in the rate of absorption from the gastro-intestinal tract. The full effects of moderately large doses of digitoxin are not exerted on the heart at once even when they are administered intravenously, but severe symptoms of poisoning may be elicited in a few seconds, and death may occur within two minutes, after the intravenous injection of a very large dose of digitoxin.

The rabbit eliminates certain of the digitalins, at least, with a rapidity hitherto unsuspected, and previous studies of the so-called cumulative actions of these bodies, in which they were administered orally, or subcutaneously to rabbits, lead to wholly erroneous conclusions. Changes in the pulse-rate amounting to fifty beats per minute occur spontaneously in the cat and the rabbit, and large doses of digitalis often fail to elicit any constant changes in the pulse-rate of these animals; hence such changes as may occur after the administration of the digitalins to these animals afford no trustworthy indication of the persistence of action of the digitalins.

Further studies of the digitalins are in progress in Hatcher's laboratory, among the problems under investigation being those of absorption from the gastro-intestinal tract; the rate at which the digitalins leave the blood-stream; their elimination from the organism; their storage in the tissues, and their persistence of action.

Journal of Missouri State Medical Association, St. Louis

September, IX, No. 3, pp. 73-106

10 Vaccine Treatment of Skin Diseases. H. M. Lyle, Kansas City.
11 Prostatic Hypertrophy; Its Etiology, Pathology, Diagnosis and Treatment. W. T. Elam, St. Jospeh.
12 Anesthesia by Intratracheal Insufflation of Air and Ether. W. E. Leighton, St. Louis.
13 Medical Economics. A. H. Madry, Aurora.
14 Fractures of Larynx. W. E. Sauer, St. Louis.
15 Roentgen-Ray in Postoperative Sarcoma. W. L. Brosius, Gallatin.
16 Gastric Hemorrhage Occurring After Abdominal Operation. M. W. Myer, St. Louis
17 Two Phases of Chronic Appendicitis. J. C. Lyter, Moberly.
18 *Auto-Intoxication; Its Medical Aspect. J. M. Bell, St. Joseph.

18. Abstracted in The Journal, July 6, p. 59.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

September, LXVI, No. 417, pp. 341-508

19 Relation of Athletics to Reproductive Life of Woman. A. Parry, New York.
20 Pituitary Extract in Inertia Uteri. O. P. Humpstone, Brooklyn.
21 *Primary Uterine Inertia. G. H. Ryder, New York.
22 *Case of Streptococcemia Due to Streptococcic Infection of a Submucous Fibroid. H. N. Vineberg, New York.
23 Statistics in Radical Operation for Cancer of Cervix Uteri. J. W. Bovée, Washington, D. C.
24 *Perineorrhaphy in Principle and in Practice. A. Sturmdorf, New York.
25 Hodgkin's Disease Involving Uterus. D. S. D. Jessup, New York.
26 Consideration of Paragraph 79 of the "Page Law" and Method of Its Administration in This City. F. Bierhoff, New York.
27 Course, Prognosis and Treatment of Endocarditis in Children. W. C. Calhoun, New York.
28 Some Physical Conditions Underlying Backwardness, from Standpoint of General Practitioner. A. E. Schmitt, New York.

21. **Primary Uterine Inertia.**—Of five cases of primary uterine inertia treated by Ryder by the stimulating method, four of the five fetuses were lost. In nine cases treated by the "waiting" method, eight fetuses were saved. One was lost because of a prolapsed cord. In every case except one, labor finally started again spontaneously (one after three weeks, two within one hour, one within two days, and four within four days). After so starting the pains were satisfactory, so much so, that three had normal deliveries, and in the others sufficient progress was made to permit of easy artificial deliveries. The membranes were not ruptured artificially except in two cases, in one of which the cervix was entirely obliterated, and in the other the head was well below the brim of the pelvis. The inertia in these nine cases was as persistent as in the five, and Ryder is convinced that continued attempts to overcome it, especially rupturing of the membranes early, would have led to similarly poor results.

The danger of rupturing the membranes artificially in primary inertia, before the cervix is fully dilated, or before the head is well within the brim, is strongly emphasized. When from previous history, or appearance of the patient, inertia is apprehended, Ryder says, remedies to build up the patient's general health should be used, long before the onset of labor. Strychnin thus used, as advocated by Edgar, may be beneficial. But attempts to induce labor should not be made, unless indication is urgent. If labor must be induced, the dilating bag is better than the bougie, for it is less likely to cause rupture of the membranes. In primary inertia he does not rupture the membranes artificially, unless the cervix is entirely obliterated, or the head is well within the brim, for if inertia still persists, delivery must be accomplished entirely by the obstetrician, through a cervix not fully dilated, or with the fetal head not well molded. It is generally safer to let the membranes rupture spontaneously. The treatment of primary inertia therefore depends largely on whether the membranes are intact or not. When intact, waiting does no harm, and is usually the best treatment. If necessary, the uterus should be quieted with morphin or chloral. Trying to hurry the labor, or to whip the uterus to action, is often useless and dangerous, and in the absence of urgent indication should not be done. It is better to wait for labor to start again spontaneously. When the membranes are already ruptured, waiting for any length of time (over twelve to twenty-four hours) is usually dangerous, especially to the fetus, and active measures should be taken to end labor.

The treatment of secondary inertia is very different. In secondary inertia there is always some cause outside of the uterine muscle. This should be excluded, and no diagnosis of primary inertia should be made if such a cause be present. Primary inertia is most frequently seen and is of chief importance in the first stage of labor. It gives relatively little concern in the second and third stages. There does not seem to be marked tendency to post-partum hemorrhage after primary inertia, but this should be guarded against. Large doses of ergot are useful at the end of labor, and if the uterus does not contract, packing prevents hemorrhage. Cesarean section has a place in primary uterine inertia, and should be seriously considered even in the absence of obstruction. It is absolutely safe for the fetus, and is often safer for the mother than a hard forceps operation or a breech extraction.

22. **Case of Streptococcemia.**—When obscure toxemia or general infection suddenly manifest themselves in a patient with uterine myomata, Vineberg says we must bear in mind the probability of a bacterial infection of the growth and act accordingly.

24. **Perineorrhaphy in Principle and Practice.**—Sturmdorf describes his method of perineorrhaphy consisting in levator interposition and suture. The operation comprises four essential steps. 1. Exposure of the seat of lesion. 2. Mobilization of the muscles. 3. Suture interposition of the muscles. 4. Readjustment of the superficial coverings. From three to four interrupted, twenty-day chromic gut sutures coapt the muscles and close the intermuscular gap in front of the rectocele; each suture is passed from side to side not through but entirely around both muscles, encircling them so as to secure their broadest possible surface contact under the vaginal floor. The rectocele is not caught in the suture nor pinched between the muscles, the uppermost suture being inserted just high enough to normally appose the lower to the upper vaginal wall. In adjusting the superficial coverings no vaginal mucosa is removed; the transverse wound is converted into a perpendicular slit by properly applied traction, and the edges united side to side by continuous or interrupted plain gut suture. From the tip of the vaginal flap to the caruncles the suture includes vaginal mucosa only, while from the caruncles downward, each stitch is made to gather the skin and all of the fascial layers which are drawn from under the lateral edges of the wound toward the median line. The resultant comb of vaginal flap is tucked into the vagina and the operation completed by the introduction of a gauze strip to absorb the first oozings.

Journal of Kansas Medical Society, Kansas City

September, XII, No. 9, pp. 341-380

29 The Medical Profession. C. C. Goddard, Leavenworth.
30 Surgery of Thyroid. D. W. Basham, Wichita.
31 Closer Supervision of Pregnancy. H. L. Chambers, Lawrence.
32 Some Experiences as Health Officer. W. T. Grove, Eureka.
33 Pellagra. J. J. Tretbar, Hudson.

Journal of Infectious Diseases, Chicago

September, II, No. 2, pp. 141-293

34 Is Typhoid a "Rural" Disease? W. T. Sedgwick, Boston; G. R. Taylor, Scranton, Pa., and J. S. MacNutt, Orange, N. J.
35 Sporotrichosis in United States. G. F. Ruediger, Grand Forks, N. Dak.
36 *Simple Method for Isolating Anaerobes in Pure Culture. J. P. Simonds and A. I. Kendall, Boston.
37 *Experimental Infectious Endocarditis. E. C. Rosenow, Chicago.
38 *Variations in Complement Content of Serum and Plasma. F. B. Gurd, Montreal.
39 *Nature of Toxic Substance from Pneumococci. E. C. Rosenow, Chicago.
40 *Experimental "Rheumatic Myocarditis." L. Jackson, Chicago.
41 Study of Diphtheria Group of Organisms by Biometrical Method. M. E. Morse, Boston.
42 Toxicity of Broth, of Pneumococcus Broth Culture Filtrates and Nature of Proteolytic Enzyme Obtainable from Pneumococci. E. C. Rosenow, Chicago.

36. **Simple Method for Isolating Anaerobes in Pure Culture.**—The following method has been used with great success by Simonds and Kendall. Sixteen-ounce, French square, wide-mouthed bottles are plugged with cotton and sterilized by dry heat. With the bottles lying on their sides, sufficient blood agar is poured in to form a layer 2 to 5 mm. in thickness, and allowed to harden. As soon as the agar has hardened, the bottles should be turned on the opposite side, thus bringing the medium uppermost and preventing the water of condensation from running down on it. If sterile blood for blood agar plates is not available Dorset's egg medium to which 1 per cent. of dextrose has been added may be used. The medium is run into the bottles which must be kept lying on their sides, coagulated, and sterilized in the same way as Dorset's medium. By bringing up the temperature very slowly, the sterilization may all be done at once by heating in the autoclave for fifteen minutes under 10 pounds' pressure. As the colonies are difficult to see on this yellowish-white medium, this difficulty should be obviated by the addition of litmus to the medium before sterilization. Under the anaerobic conditions produced in the bottle after inoculation, the litmus is more or less completely bleached. After the readmission of air, however, the color soon returns and assists very materially, not only by rendering the colonies more easily visible, but also by differentiating acid producers.

37. **Experimental Infectious Endocarditis.**—Five strains of the cocci used by Rosenow were isolated from the blood and two from the tonsils of cases of subacute or chronic infectious endocarditis. All produced a variable amount of green on blood agar plates, all fermented inulin at one time or another, and at the time of the experiments the growths adhered to the surface of blood agar and formed clumps in broth. All the strains were freely susceptible to phagocytosis and non-virulent in the usual sense. Suppuration and diffuse peritonitis could not be produced. The cocci injected were usually grown both on blood agar and in ascites-dextrose-broth; in the latter case, the cocci were removed and suspended in suitable amounts of salt solution. The dose, relatively speaking, in most instances was exceedingly large, so large that the amount of the injected material was often sufficient to kill in twenty-four hours.

Localization on the valves, Rosenow says, is an embolic process and not due to implantation. The clumps of bacteria lodge in the capillaries, produce hemorrhage, and probably because of the relatively slight vascularity in the valves the organisms grow into clumps before leukocytes are able to cause their destruction. Hemorrhages and endocarditis occur at the apex of papillary muscles in the same way. Hemorrhages occur at the base of the semilunar valves also, and vegetations have been seen to grow from this region. In the rabbits which died or were killed soon after the injection, hemorrhages were observed in all experiments as follows: tricuspid valve, twenty-eight times; mitral, nine times; base of aortic semilunar valve, four times; base of pulmonary semilunar valve, three times; in papillary muscles (chiefly at apex), twenty times; kidney, usually glomerular, eleven times; subendocardial (other than papillary or valvular), four times; lungs, seven times. General subserous hemorrhages were seen six times. Valvular hemorrhages occurred repeatedly without hemorrhages elsewhere. This was especially true if the dose was not sufficient to kill the animal in twenty-four to forty-eight hours.

After repeated animal passage these strains of cocci change into pneumococci, both as regards form and pathogenic power. As virulence increases, clump formation disappears, they no longer adhere to solid media, and only rarely produce endocarditis, but, instead, cause death from bacteriemia or pneumonia. Fatal pneumococcemia without localization was observed eleven times; bronchopneumonia, seven times; and lobar pneumonia, five times. The strains isolated from the animals with pneumonia on further animal passage produced rapidly fatal pneumococcemia and not pneumonia. Pneumonia and endocarditis were observed in the same animals five times. The organisms isolated from the lung and peribronchial lymph glands in each instance resembled typical pneumococci while those from the depths of vegetations resembled closely the endocarditis strains.

Experiments with cultures of cocci isolated from chronic infectious endocarditis mixed with cultures of streptococci, experiments with mixed aerobic and anaerobic cultures of cocci from the throat and experiments with mixed cultures of *Streptococcus viridans* and the *Bacillus fusiformis*, and with the *Bacillus fusiformis* only, have convinced Rosenow that the conclusion drawn in his earlier papers that the cocci in question are modified and attenuated pneumococci has received additional support because growths from single cocci from strains isolated originally from the blood of cases of endocarditis as well as from throats, when passed through animals, take on cultural and pathogenic properties indistinguishable from those of typical pneumococci. His results also suggest strongly to him that the organisms belonging to this group may cause various forms of endocarditis designated as "simple infective endocarditis" in man as well as the malignant form of chronic infectious endocarditis.

38. **Variations in Content of Serum and Plasma.**—From a practical point of view Gurd's experiments demonstrate that the serum of guinea-pigs, unless they be the subjects of acute infections, may be depended on to contain a constant amount of complementary body available for serum reactions, granted that the blood from which it is procured is preserved in a definitely standardized manner especially in so far as this refers to temperature and time. Conversely, blood kept in haphazard manner cannot be depended on for employment in complement-binding reactions. He found that if, on removal from the body, the blood be placed at 37 C. for a period of from one-half to one hour, and subsequently placed in the ice-chest at a temperature of about 2 C. it may be employed with but little likelihood of experimental error arising therefrom during a period of from twenty-four to forty-eight hours.

39. **Toxic Substance from Pneumococci.**—The toxic substance obtainable from pneumococci Rosenow found to be soluble in ether. It is formed chiefly during retrogressive changes in pneumococci. Heating the clear toxic autolysate to 60 C. for twenty minutes destroys the toxicity, while toxic pneumococcus suspensions remain toxic even after boiling. Hydrochloric acid in weak solution destroys the toxicity of pneumococcus autolysates. The toxic substance is absorbed by blood charcoal from which it can again be obtained by shaking with ether. Autolyzed virulent pneumococci and nonvirulent pneumococci diminish the toxicity slightly while unautolyzed virulent pneumococci increase it. The toxic substance is probably a base which contains amino groups of nitrogen. Indications have been obtained showing that during pneumococcus infections toxic substances are produced which do not call forth any immunizing response.

40. **Rheumatic Myocarditis.**—The experimental production in rabbits of minute, disseminated regions of infection, their close morphologic correspondence to the focal lesions in the human heart in acute articular rheumatism, and the fortunately exceptional characteristics of the changes, which make comparison so easy lead Jackson to the suspicion that they all have a similar etiology. As is well known, the ordinary *Streptococcus pyogenes* produces in man, as well as in rabbits and other animals, minute abscesses with a marked infiltration of polymorphonuclear leukocytes, changes quite different from those forming the subject of this report. Involvement of the joints took place in many of Jackson's patients with epidemic sore throat, from whom the streptococci used to produce these lesions were obtained.

American Journal of Diseases of Children, Chicago

September, IV, No. 3, pp. 129-196

43 *Some Fundamental Principles in Studying Infant Metabolism. F. G. Benedict and F. B. Talbot, Boston.
44 Congenital Obstruction of Posterior Urethra: Report of Case in Boy Aged Five Years. J. H. M. Knox and T. P. Sprunt, Baltimore.
45 Summer Diarrhea; Heat; Humidity. L. T. Royster, Norfolk, Va.
46 *Hypodermic Use of Hematinics in Treatment of Anemia in Children, with Report of Cases. H. Lowenburg, Philadelphia.
47 Pellagra in Children. J. R. Snyder, Birmingham, Ala.

43. **Infant Metabolism.**—Although the results of their investigations on the whole are not yet ready for publication, the authors feel convinced of the importance of considering in all subsequent metabolism experiments the pulse-rate of the infant, and particularly the degree of muscular activity. The enormous variations in the total metabolism as affected by what might otherwise appear to be slight muscular activity, are such as to lead them to question seriously all experiments made in twenty-four periods, and they assert that all metabolism experiments on infants made without known controlled pulse-rates and without graphic records of muscular activity are lessened enormously in value by the absence of these important factors.

46. **Hypodermic Use of Hematinics in Anemia.**—The hypodermic injection of hematinics is said by Lowenburg to be a quick, safe and reliable means of treating the anemias of childhood. A combination of iron and arsenic compounds seems to have a better effect than either alone. Small doses of each give as good results as large ones. The tonic effect is noted almost immediately after beginning treatment. The injections should be made deep in loose tissues.

Journal of Medical Association of Georgia, Augusta

September, II, No. 5, pp. 137-176

48 Injurious Effects of Iodids and Bromids on Acute Inflammations, Especially Cystitis. E. B. Block, Atlanta.
49 Salvarsan in Treatment of Syphilis. E. G. Ballenger and O. F. Elder, Atlanta.
50 Use of Salvarsan. W. L. Champion, Atlanta.
51 Chronic Ulceration of Trigone and Vesical Neck a Sequel of Specific Urethritis. J. L. Farmer, Savannah.
52 *Two-Step Method of Enucleation of Prostate. A. L. Fowler, Atlanta.
53 *Kidney Symptoms and Diagnosis. M. L. Boyd, Atlanta.
54 *Value of Ureteral Catheterization. W. F. Shallenberger, Atlanta.

52, 53 and 54. Abstracted in THE JOURNAL, June 8, pp. 1780 and 1781.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

September, XV, No. 3, pp. 99-174

55 *Rupture of Liver; Report of a Case. G. B. Johnston, Richmond, Va.
56 Differential Diagnosis Pneumonia and Appendicitis. J. W. Lockhart, Omro, Wis.
57 Medicine in Lay Literature. B. M. Randolph, Washington, D. C.
58 Suppurative Diseases of Kidneys, Including Renal Calculus, Their Symptoms, Diagnosis and Treatment. J. F. Highsmith, Fayetteville, N. C.

55. **Rupture of Liver.**—Two years ago Johnston's patient was thrown from his wagon and the wheels crossed over the body at the level of the seventh, eighth and ninth ribs, at 5 p. m. At 7 p. m. the temperature was 95 F., pulse 62. Abdomen was soft; no complaint of any pain except of the broken ribs. At midnight, temperature was 98.6 F., pulse 80. About 4 a. m. he complained of pain in the abdomen. At 7 a. m. temperature was 101 F., pulse 124. There was great rigidity of the right abdominal muscles, especially of the upper half of the right rectus, and tenderness over the right hypochondrium. No vomiting or nausea. Leukocytes, 14,000 per c.mm. Differential count: polymorphonuclear neutrophils 94 per cent. The urine showed a few blood-cells and casts. A tentative diagnosis of rupture of the large bowel or gall-bladder, with beginning peritonitis was made. A long, free right rectus incision was made from the costal angle to about the line of the umbilicus. On opening peritoneum great quantity of blood in clots and free issued from the wound. The blood was rapidly removed.

Exploration revealed that the liver was ruptured. The incision was then extended by cutting through the fibers of the right rectus. The broken ribs lent great aid in exposing an enormous rent in the right lobe of the liver. This rent began with a Y-shape on the convex surface of the liver at its highest point, passed forward and mesially over the free border of the liver about one inch to the right of the gall bladder, and on to the under side of the liver as far as the junction of the cystic duct with the hepatic duct. The gall-bladder was collapsed, but there was no rent in it nor in any of its ducts. There was no free bile discoverable in the abdominal cavity, nor was there any other intra-abdominal injury. A blunt liver needle threaded with No. 4 catgut was passed deeply through liver tissue. Six or eight interrupted sutures from three-quarters to one inch apart were introduced to close the rent in the convex surface. The liver was then turned up, and starting at the rear extremity of the wound on the concave surface three or four interrupted sutures closed the wound to the free border. With the tying of the sutures hemorrhage was immediately stopped. The cavity was rapidly cleansed with wet saline sponges, a small cigarette drain was introduced into the right kidney pouch, a light drain was laid over the line of sutures and all brought out at the upper end of the incision. Rapidly placed through and through sutures closed the abdominal wound. The patient left the table in a desperate condition. Shock was extreme; pulse was 160 and barely perceptible. Subcutaneous saline, which had been started before the operation, continued through it, was kept up after the patient was put to bed. The extremities were bandaged and general treatment for shock instituted.

Patient reacted from the shock. Removal of the drainage commenced about eight days after operation. Bile made its appearance through the wound, but disappeared a few days after drainage was removed. Discharged six weeks after operation, wound entirely healed, and is at this time in perfect health.

Journal of South Carolina Medical Association, Seneca

September, VIII, No. 9, pp. 242-261

59 Intussusception of Ileum in Infants and Children. J. S. Horsley, Richmond.
60 Pellagra: Report of Case. R. T. Ferguson, Gaffney.
61 Complete Prolapse of Uterus, Complicated with Pregnancy. J. C. Harris, Anderson.
62 Examination of Nervous Patient. H. Crenshaw, Atlanta, Ga.

Journal of Cutaneous Diseases, New York

September, XXX, No. 9, pp. 515-586

63 Dermatitis Pustulosa Vegetans Recurrens. G. Pernet, London, England.
64 *Trichloracetic Acid as Keratolytic in Seborrheic Keratosis. D. W. Montgomery and G. D. Culver, San Francisco.
65 Single-Dose Roentgen-Ray Method. G. M. MacKee and J. Remer, New York.

64. **Trichloracetic Acid.**—Trichloracetic acid was found by the authors to act particularly well on epithelial structures and to be an excellent keratolytic, especially in seborrheic keratosis. It is, furthermore, their opinion that its good effect on these lesions is in some way connected with its behavior toward fat. Seborrheic keratosis is undoubtedly a fatty degeneration and is intimately connected with seborrhea of the general cutaneous surface. It is not strange that trichloracetic acid should have a selective action on fatty epithelium, as its near neighbor, glacial acetic acid, has a strong keratolytic action that has been for long used both by physicians and by the manufacturers of proprietary cures in the treatment of corns. Glacial acetic acid, although it acts powerfully on the surface both as a rubifacient and as a dolorific, is, however, far from having the profound cauterizing effect of trichloracetic acid.

New York Medical Journal

September 28, XCVI, No. 13, pp. 617-668

66 Dental Hygiene for Pupils of Public Schools. S. A. Knopf, New York.
67 Putrefactive Products of Intestinal Tract as an Etiologic Factor in Chronic Disturbances. C. C. Sutter, Rochester, N. Y.
68 Sanitary Control of Prostitution in Some European Cities. F. Bierhoff, New York.
69 Care of Mentally Disturbed, Not Permanently Insane. T. A. Williams, Washington, D. C.
70 *Microscopic Findings in Twenty-Four Cases of Malarial Hemoglobinuria. A. Woldert, Tyler, Texas.
71 Treatment of Acute Staphyloma of Cornea. P. J. Pontius, Philadelphia.
72 Ten Sex Talks to Girls. I. D. Steinhardt, New York.
73 Vaginal Cesarean Section Post Mortem. A. T. Hawes, Lynn, Mass.
74 Two Forms of Acute Intestinal Obstruction Within Five Months in an Infant One Year Old; Two Laparotomies; Appendectomy; Recovery. L. Neuwelt, New York.

70. **Microscopy in Malarial Hemoglobinuria.**—In this series (twenty-four) of cases of blackwater fever, the urine was examined by Woldert in seventeen cases. Observation of the whole series proved that at the onset of the paroxysm of hemoglobinuria the urine within a few hours changed from the normal color to a dark red or port wine color, due to the contained hemoglobin. This red or port wine color, did not in a single instance depend on the presence of red blood-corpuscles. Not one of the cases in the entire series of seventeen examined, could be properly classed as one of hematuria. In eight out of the seventeen cases examined, Woldert found that red blood-corpuscles were entirely absent in the urine. In seven cases, and two doubtful instances in which red blood-corpuscles were found, they were never present in sufficient quantity to give a red color to the urine. Free hemorrhage from the kidneys never occurred in any of the series of cases. In all instances the reaction for blood coloring matter was obtained in the urine, when examined for. The very large amount of albumin present in the urine, and the great amount of destroyed hemoglobin also present, Woldert says, indicates a high grade of dyscrasia. The suddenness with which the hemoglobin appears in the urine after a shaking chill, indicates that the excretion of blood coloring matter begins almost immediately after it has been thrown out of solution.

In most instances the urine was devoid of odor when first excreted, and seemed to require a longer time to undergo decomposition than normal urine. The reaction of the urine was in nearly every instance acid. Neither glucose nor indican were ever present. Woldert has never found bile present in the urine in malarial hemoglobinuria, unless he had good reasons for believing that it had been contaminated with vomitus, which, in these cases, is often composed largely of bile.

In some instances the amount of albumin and blood coloring matter present after boiling amounted to 50 per cent. of the entire bulk of the urine. The relation of uric acid to urea in cases of malarial hemoglobinuria apparently varies considerably. In one of my cases the relation was one part uric acid to ten of urea; while in another case the relation was one part uric acid to sixty-three of urea. In some specimens of urine, he repeatedly found certain round and concentrically arranged bodies, from 10 to 40 microns in diameter, often containing a darker brown dot or apparent nucleus. These bodies were composed of uric acid. Woldert frequently found bright, red crystals of hematoidin. He never found any special type of microorganism prevailing in the urine.

In several instances he found that disintegrated blood coloring matter (or destroyed hemoglobin), while under the cover slip, would arrange itself in the shape of tube casts. Of the seventeen cases in which the urine was examined, he found hyaline and granular casts, as ordinarily met with in nephritis, present in seven cases, and absent in ten cases. In nine cases out of the seventeen, he found bodies resembling tube casts, made up of disintegrated blood coloring matter. Woldert has never found in any instance evidence that nephritis developed as a sequela of hemoglobinuria. During the paroxysm of hemoglobinuria, nephritis unquestionably occurs in many cases.

Boston Medical and Surgical Journal

September 26, CLXVII, No. 13, pp. 419-454

75 Filterable Viruses, a Summary. S. B. Wolbach, Boston.
76 Subphrenic Abscess. A. C. Heffenger, Portsmouth, N. H.
77 Acapnia: Its Surgical Importance. F. J. Cotton, Boston.
78 Case of Pellagra That Had Not Been Outside of New England for Eighteen Years. R. I. Lee, Boston.

Journal-Lancet, Minneapolis

September 15, XXXII, No. 18, pp. 479-506

79 Transactions of Minnesota State Medical Association, Forty-Fourth Annual Meeting, 1912.

Journal of Indiana State Medical Association, Fort Wayne

September 15, V, No. 9, pp. 367-418

80 Gunshot-Wound of Stomach, Liver and Left Branch of Portal Vein; Recovery. J. V. Reed, Indianapolis.
81 Malignant Neoplasms of Accessory Sinuses. A. E. Bulson, Fort Wayne.

Medical Record, New York

September 28, LXXXII, No. 13, pp. 553-598

82 Unjustified Prejudice of Tuberculous Patients Against Sanatoria and Hospitals. S. A. Knopf, New York.
83 *Vaccines in Suppurative Otitis Media. A. C. Christie, U. S. Army.
84 Gall-Stones. H. Dewolf, Watkins, N. Y.
85 Vesical Calculi. L. Sexton, New Orleans, La.
86 Intestinal Obstruction, with Report of Cases. C. P. Farnsworth, Chamberlain, S. Dak.
87 Relation of Diet to Heart and Blood-Vessel Disease. L. F. Bishop, New York.

83. **Vaccines in Suppurative Otitis Media.**—According to Christie the use of vaccine treatment in acute suppurative otitis media should be confined to those cases which are resistant to local treatment, and then it should be used in addition to, and not to the exclusion of, such treatment. In

addition to these acute cases it is the general opinion of men who have used them that vaccines are of value in most subacute cases. In chronic cases their field of usefulness is much more restricted, depending probably on two factors, the amount of necrosis and the condition of the circulation in the mastoid. Enough cases have been reported by different observers to show that vaccines are an aid to the treatment of chronic cases even of long standing, but the more chronic the disease becomes the more is it likely that operative measures will be necessary to effect a cure.

Lancet-Clinic, Cincinnati

September 14, CVIII, No. 11, pp. 267-294

88 Tuberculin Dosage. L. B. Morse, Hendersonville, N. C.
89 Prognostic Significance of Albuminuria and Casts. C. N. McCloud, St. Paul.
90 Methods of Urinalysis Applicable to Insurance Examinations. S. H. Baxter, Minneapolis.
91 The Medical Society. W. Scott, Loveland, Ohio.

September 21, CVIII, No. 12, pp. 295-322

92 Medical Examiners from Standpoint of Medical Director. O. H. Rogers, New York.
93 Selection and Training of Medical Examiner. E. A. Babler, St. Louis.

Journal of Abnormal Psychology, Boston

August, VII, No. 3, pp. 161-232

94 Interpretation of "Professional-Cramp-Neurosis" as a Tic. T. A. Williams, Washington, D. C.
95 Hypnagogic Hallucination with Dream Characters. C. S. Yoakum, Galveston, Texas.
96 Edipus-Complex in Psychoneuroses. I. H. Coriat, Boston.
97 Anal Eroticism and Character. A. A. Brill, New York.
98 Versuchung Angst Attended by Visual Hallucinations of a Homicidal Nature. G. A. Young, Omaha, Neb.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

September 14, II, No. 2698, pp. 589-668

1 Nature, Origin and Maintenance of Life. E. A. Schäfer.
2 Influence of Muscular Exercise and Open Air on Bodily Functions. L. Hill.
3 *Intravenous Infusion Anesthesia. F. Rood.
4 Examination of Patients by Anesthetists. A. Wilson.
5 Comparison of Methods Employed for Inducing Anesthesia and Analgesia, Respectively. C. A. Leedham-Green, A. Ehrenfried and R. E. Kelly.
6 Use of Alkaloidal Bodies Prior to Inhalation. F. W. Bailey.
7 *Effect of Chloroform and Ether on Liver and Kidneys in Health and Its Significance in Certain Infective Conditions. R. E. Apperly.
8 *Cardiac Effect of Epinephrin in Chloroformed Subjects. A. G. Levy.

3. **Intravenous Infusion Anesthesia.**—Rood thinks it probable that this method of anesthesia will soon take its place as one of the recognized methods of inducing surgical anesthesia.

7. **Effects of Chloroform and Ether on Kidneys.**—The experimental work done by Apperly had for its object the determination of the extent and nature of the injury done to the cells of the liver and kidneys, by an acute infection, by chloroform and ether, the significance of a combination of the two, and finally a short series of experiments were done with the object of showing the value of glucose in combating the symptoms caused by such agents. After the first series of animals, experiments with ether were discontinued, as the results obtained were almost negative and merely bore out work which had already been very fully done. He found that chloroform has not only a profound effect on the cells of the liver, a fact which has frequently been shown, but that it has an almost equally harmful effect on the cells lining the tubules of the kidney, a fact which, he says, has never been sufficiently emphasized. The damage done to the kidney seems of even greater import than that done to the liver. For the chloroform not only acts on the liver cells and interferes with the metabolism of fats, thereby throwing out into the blood the poisonous fatty acids which cause an acid intoxication, but by its injury to the kidney cells interferes very seriously with their chief means of excretion. Ether, even in very large doses, does not have this harmful action on the cells of the liver and kidney to anything like the same extent.

The fact that the damage done in those animals which had subcutaneous injections was much greater than in those which had inhalations would seem to indicate that the higher the percentage of chloroform in the blood the greater its harmful effects, so that a few minutes very deep anesthesia may do more damage than an hour's light anesthesia, emphasizing the importance to the anesthetist of giving the minimum dose of chloroform to his patient consistent with the requirements of the surgeon. In view of the fact that acute infections, at any rate of the peritoneum, do cause definite degeneration changes in the liver, and changes, though less marked, in the kidney, Apperly says, it seems of importance that in cases of this kind chloroform should not be given unless absolutely necessary, on account of its harmful effects on the same organs, and that ether, which has not the same harmful action, should be used whenever possible.

8. **Cardiac Effect of Epinephrin in Chloroformed Subjects.**—In the course of some investigations on the heart beat in animals under chloroform Levy found that epinephrin exerts a very pronounced cardiac effect, and one that has an important clinical significance. Within a few seconds of the injection of 5 minims of the 1 in 1,000 solution, the pulse accelerates with a raised tension; it becomes more rapid, is less readily felt owing to diminished excursion, and it may or may not be perceptibly irregular at the wrist; a few temporary pauses may be noted, and then the heart suddenly ceases beating; the pupils dilate widely, and intense pallor supervenes. Respiratory phenomena then follow, a few deep breaths being taken, and then the respirations cease also. A few spasmodic efforts at respiration may be made, or even a short term of regular breathing may be induced by artificial respiration, but the heart still remains impotent. The heart may, however, recover temporarily, still with a small and rapid beat, only to fail once more, and in this way the pulse may be briefly felt after the respiratory collapse has occurred. If the cardiac recovery is well sustained the respiration is restored also, only to fail again with the second collapse of the heart. In more favorable cases the heart eventually becomes regular, the breathing is restored permanently, and all goes well. The conclusion drawn by Levy is that it is unsafe to inject epinephrin into the veins or vascular tissues of a patient lightly under the influence of chloroform. It may be safely injected just previous to induction with chloroform, that is, with the patient under no anesthetic at the moment, or into a patient fully under chloroform, or into a patient anesthetized to any degree with ether. Whatever the dose and whatever the dilution, and, in fact, whatever the other attendant conditions may be, in the case of light chloroform anesthesia a risk is always taken which is unjustifiable.

Lancet, London

September 14, II, No. 4646, pp. 743-806

9 Eye Symptoms and Early Diagnosis of Diseases of Nervous System. J. Hinshelwood.
10 Septicemia With Local Endocardial Lesion: Report of Nine Cases. J. Henderson.
11 Carcinoma and Sarcoma of Same Breast. E. H. Kettle.
12 Two Cases of Acute Pancreatitis; Abdominal Drainage; Appendicostomy: Recovery. W. Billington and B. G. Goodwin.
13 *Chronic Edema of One Leg in a Child. E. O. Hughes.
14 Prophylactic Use of Roentgen-Rays Before and After Operation for Malignant Disease. R. Knox.
15 Care of Consumptives. T. G. Lyon.
16 Subcutaneous Rupture of Kidney; Intraperitoneal Hemorrhage; Expectant Treatment; Recovery. E. G. Stanley.

13. **Chronic Edema of Leg.**—Hughes' patient, a girl, aged 6 years, had always been in good health except for a slight attack of measles some years before. Examination showed a fairly soft edema of the left foot, ankle and leg about half way up to the knee which was first noted a week before. There was no evidence of inflammation of any of the structures of the limb, and no sign of venous obstruction there. Deep palpation of the abdomen, which could be easily made, showed nothing abnormal. Further examination showed no clinical sign of disease in the circulatory system or elsewhere. The temperature was normal; the blood-pressure 90 mm. She was ordered a mild iron mixture and rest in bed. The continued absence, however, of any discomfort in the leg made this inaction hard to maintain. The edema, which diminished slightly during rest, increased when the leg

was set down, and rather quickly extended until in a month from the commencement it involved the entire limb, which measured 2½ inches more than its fellow. Four isolated speciments of urine taken at this time showed a density of 1.020 to 1.028, and a uniform trace of albumin; the early morning urine showed an equal trace. There were no casts and no bacteria. Two day specimens, slightly later, showed no albumin. The child has been allowed to attend school, and runs about with an elastic-web bandage applied to the leg. She gives a negative von Pirquet reaction. A short experimental course of thyroid and a longer one of calcium lactate have been ineffectual. The edema is rather firm and pits on pressure; and that part of the abdominal wall corresponding to the area drained by the left superficial epigastric vein is perceptibly bulkier than the same area on the opposite side. The surface of the left leg has less warmth than the other, and to the unaided senses the quality of the skin appears to be unchanged.

Annals of Tropical Medicine and Parasitology, Liverpool

September 12, VI, No. 3, pp. 301-325

17 Trypanosomes Infecting Game and Domestic Stock in Luangwa Valley, Northeastern Rhodesia. A. Kinghorn and W. Yorke.
18 Trypanosomes Obtained by Feeding Wild Glossina Morsitans to Monkeys in Luangwa Valley, Northern Rhodesia. A. Kinghorn and W. Yorke.

Journal of Obstetrics and Gynecology of British Empire, London

August, XXII, No. 2, pp. 65-118

19 *Investigation of Coliform Organisms in Healthy and in Infected Urinary Tract of Female, with Report of Patients Treated with Autogenous Vaccines. R. S. Williams, H. L. Murray and A. J. Wallace.
20 One Hundred Cases of Retrodisplacement of Uterus Treated by Gilliam Method of Round Ligament Suspension. W. D. Macfarlane.
21 Melanotic Sarcoma Clitoridis. F. A. L. Lockhart.
22 Fibromyomata of Uterus Complicating Pregnancy. J. N. Stark.
23 Chronic Ovarian Pain as Illustrated in Patient Finally Treated by Double Oöphorectomy. A. W. Russell.
24 Pelvic Hematocele Associated with Intrauterine Pregnancy. W. D. Macfarlane.

19. **Coliform Organisms in Urine.**—Typical *B. coli* (MacConkey) were found by the authors in a considerable percentage of female urines taken under conditions precluding all source of contamination. Although cases culturally identi-al, agglutination reactions proved that there are wide biologic differences between the various strains isolated. As male urines very rarely show the presence of this organism, it is easonable to suppose that the usual path of entry is by way of the perineum and urethra. When infection of the urinary tract is present the coliform organisms isolated show great variation in cultural reactions. Vaccines therefore hould be autogenous, and since the same case may show he presence of more than one organism, vaccines should be prepared from many colonies. Vaccine treatment of coliform nfections is of pronounced benefit. In acute cases, if due are be taken and the doses and intervals carefully regulated, very marked improvement can be very speedily produced n the vast majority of cases; but, to obtain this, very close upervision is necessary. A first dose in acute cases should never exceed ten millions, the intervals must be short and, if there be any doubt, opsonic indices should be taken. Sub-cute or chronic inflammations are equally hopeful, provided hat the doses are suitably increased, that it is appreciated hat the treatment should be coterminous with the presence f pus in the urine, and that this may be a somewhat lengthy rocess. Cure does not necessarily imply the sterilization of he urine.

Edinburgh Medical Journal

September, IX, No. 3, pp. 193-288

25 Orthoradiography of Heart and Aorta. W. H. Fowler and W. T. Ritchie.
26 Enucleation of Faucial Tonsil with the Guillotine. J. K. M. Dickie.
27 Mesothorium, Thorium X and Thorium Emanation and Their Therapeutic Use. D. Turner.
28 Two Cases of Separate Acromion Process, with Appearances Presented in Radiographs of Acromion Process and Upper End of Humerus During Ossification. J. W. Struthers.
29 Intussusception in Children; 400 Cases. A. Koch and H. P. T. Oerum.
30 The Insurance Act. A. S. Pringle.
31 Insanity Associated with Chloral-Bromid Poisoning and Brain Abscess. A. W. Neill and W. Muirhead.

Glasgow Medical Journal

September, LXXVIII, No. 3, pp. 161-239

32 Four Cases of Fracture of Larynx. W. Downie.
33 Case of Elephantiasis Occurring in Scotland. W. K. Hunter.
34 *Case of Contusional Pneumonia. J. W. Mathie.
35 *Insertion of Rectus Abdominis Muscle. A. B. Aitken.
36 Some Aspects of Medical Life in Old Glasgow. H. A. McLean.

34. **Contusional Pneumonia.**—Mathie's patient, a man, aged about 45 years, while cleaning the inside of a church window, fell, coming down on the top edge of a pew, and striking the left side in the region of the lower ribs. He was stunned by the accident and had to lie on one of the seats for about half an hour. Then, feeling better, he resumed work, but in a very short time had to cease and make his way home, which he did with difficulty. The accident took place about the middle of the day. Mathie did not see him till late at night, when he found him with a temperature of 103.6 F., and complaining of severe pain just where he struck, viz., over the lower ribs in the midaxillary line on the left side. There were no signs of bruising, or of fractured rib; of the latter fact one could be certain, on account of the fact that the patient was such a thin man that each rib could be followed along its length quite easily. Next morning his temperature was 101.6 F., and there was cough and colorless sputum, but no definite signs of lung implication. On the third day there was distinct tubular breathing and slight dulness over the back of the left lower lobe, and this became more marked on the succeeding days. The temperature kept about 102 F.; cough and pain continued, but were moderate in severity. On the sixth day of illness his temperature in the evening dropped to normal and the pulmonary signs soon cleared up. Examination of his urine shortly after the commencement of the illness revealed a large quantity of albumin.

On two or three occasions during the acute part of the illness, and twice in the week following the crisis, the patient passed some blood by the bowel, sometimes black and clotted, at other times red and more liquid. The source of this was not quite evident. The patient had had pneumonia twice previously.

35. **Insertion of Rectus Abdominis Muscle.**—Aitken examined fifty subjects to determine that the rectus abdominis has an attachment to the linea alba. He says that if, in exposing the posterior wall of the rectus sheath during the course of a median subumbilical laparotomy, the inner border of the muscle is raised by slipping under it a director and running the instrument from below upward, the muscle is left with a ragged edge, and the instrument tends at times to slip aside into the substance of the muscle. This does not occur if separation is effected from above downward, and suggests a definite attachment of the muscle to the linea alba. Certain of the inner fibers of the muscle fail to extend down as far as the symphysis pubis, but pass obliquely inward, and are attached to the linea alba by a series of little tendinous fasciculi, similar to those found at the insertion of the pyramidalis. Occasionally these tendons are not evident, and the muscle fasciculi appear to end directly in the fibrous tissue of the middle line. The upper limit of the insertion varies very considerably, but is usually from 2½ to 3 inches above the symphysis pubis. In none of the subjects examined did it extend above the inner extremity of the fold of Douglas, and it frequently fell short of this by 1 and 1½ inches, i. e., the attachment exists only where the posterior wall of the sheath is deficient or absent.

British Journal of Children's Diseases, London

September, IX, No. 105, pp. 385-432

37 Idiocy and Congenital Syphilis. H. R. Dean.
38 Prevention of Deafness in Children. M. Yearsley.
39 Massage in Wasting Diseases of Children. J. M. MacPhail.

Practitioner, London

September, LXXXIX, No. 3, pp. 301-444

40 Use of Pessaries. G. E. Herman.
41 Treatment of Eclampsia. G. B. Smith.
42 *Puerperal Infection. H. L. Murray.
43 Literature on Public Health. J. Priestley.
44 *Pruritus and Other Itching Diseases of the Skin. J. L. Bunch.
45 Vaccine Treatment of Acne and Allied Conditions. T. Galbraith.
46 Vaccine Treatment of Seborrhea. A. F. Savill.

47 Enucleation of Tonsil. L. Sewell.
48 Fangi: Thermal Mud and Peat Baths. T. D. Luke.
49 *Blood in Cancer; Treatment. S. Keith and G. E. Keith.
50 Practical Value of Opsonic Estimations. J. S. Dick.
51 Disease as Nemesis of Reproductive Inefficiency. A. J. Brock.

42. **Puerperal Infection.**—To administer an antistreptococcus serum in every case of puerperal infection is considered the proper treatment by Murray and he urges that this should be given early, and in large quantity. Not that it is all that could be wished, far from it; but the tendency to give it as a last resort, when the patient is obviously going to the bad, is deeply rooted and bound to react unfavorably on our idea of its utility. At worst, it is harmless; at best, it may be of distinct service. Streptococci will grow freely in a strong antistreptococcus serum, provided this is stale, and this, of course, is the condition in which one purchases it. The key which unlocks the bacteriolytic action is only found in fresh serum, and is known as the complement; therefore, when we give a bacteriolytic serum we rely on the patient to provide this fresh element. But, unfortunately, this reliance may be, at times, somewhat misplaced; because, first, the amount of complement in human serum varies very greatly, and is liable to become more or less exhausted, in acute infections; and, second, there is some experimental evidence that human complement is less efficient for horse anti-serum than horse complement.

The ideal way, therefore, to administer antistreptococcus serum is to give it with fresh horse serum. Such a serum, then, should be given early in every case, in which there is the least reason to regard local treatment as proving insufficient, and in good quantity, 10 c.c., repeated in twelve hours. If there is no improvement the brand of serum for the next administration should be changed, and, if necessary, a third tried. The patient is thereby given a better chance of receiving a serum more directly specific for her particular case. Encouraging results are gradually forthcoming in cases in which the patient's own organism has been used, especially when the patient herself is making a fair fight; that is to say, in cases in which the course tends to be somewhat subacute. Stock vaccines must never be given in acute infections. A vaccine is a powerful poison, and the repeated addition to the intoxication present, which is what the administration of a vaccine represents, can only be justifiable if a reaction, directly bearing on that intoxication, can be promised. The immediate and constant supervision by one accustomed to direct such treatment must be available in every case; even with the opsonic index, the regulation of the dosage is sufficiently difficult in acute illness.

Rational local treatment is not held by Murray to be contra-indicated by the presence of a generalized infection. In a case in which the patient is reacting to the infection, a certain amount of antibody is produced; improvement will depend on whether this amount is more than sufficient to compensate for the constant multiplication of the organisms. When a vaccine is given, it is with the idea of stimulating more fully the production of antibody by something which does not itself multiply; a relative advantage of antibody over organisms will thus be produced. A cureting is not to be countenanced, the risk of increasing channels of infection being out of proportion to the advantage of removing some of the infected material.

44. **Pruritus and Itching Diseases.**—A lotion which has given Bunch good results is the following:

℞	Gm. or C.c.		
Phenolis	4		ʒi
Glycerini	8	or	ʒij
Liq. picis carbonis	30		℥i
Aquam	ad 240		℥viij

The following mixture is also recommended:

℞	Gm. or C.c.		
Chloralis hydratis	4		ʒi
Camphoris	4	or	ʒi
Spt. coloniensis	30		℥i
Aquam	ad 240		℥viij

If there are many abrasions, it is better to use a weak solution of cocain or eucain in combination with liq. plumbi subacetatis. A paint of methylene-blue, 4 grains to the ounce, is sometimes successful, combined with pills containing one grain given night and morning, and although it turns the urine blue, this does not matter if it does not contain sugar. In localized pruritus, ointments, sprays, paints and varnishes have a much larger field of usefulness than in generalized pruritus, and these are usually made up with cocain, chloroform, aconitin or carbolic acid. When a localized pruritus proves resistant to such external applications, a rapid application of the actual cautery to the most irritating areas often causes great amelioration of the symptoms.

The high-frequency current applied with a glass electrode is occasionally successful; and ionization with thorium nitrate solution has given good results. But if it is desired to employ radio-active methods of treatment, it is, in Bunch's experience, much better to apply radium itself, especially if the area to be treated is small. For larger surfaces, ultraviolet rays or Roentgen rays sometimes act like a charm, and he has seen cases which resisted all other treatment cured, at least for a time, by such means. Excision of the affected area, if small, may occasionally be necessary, but division of the afferent cutaneous nerves, although sometimes practiced by surgeons, rarely commends itself on account of the resulting anesthesia and atrophy of the area involved, as well as other possible unfortunate sequelae.

49. **Blood in Cancer.**—The authors are still of the opinion that death from cancer, when there is no complication, is due to the poverty and destruction of the red cells, and to the actual and relative increase of the polymorphonuclears at the expense of the life-giving lymphocytes. Therefore, they believe that it is advisable not only to bring the blood to normal, even to increase the number of lymphocytes until they are in excess of the normal, but this lymphocytosis must not be carried too far.

Annales de l'Institut Pasteur, Paris

July, XXVI, No. 7, pp. 497-576

52 Tuberculosis in the French Colonies. (Enquête sur l'épidémiologie de la tuberculose dans les colonies françaises.) A. Calmette.
53 Study of the Aspergillus Niger. (Action combinée du manganèse et du zinc sur le développement et la composition minérale de l'aspergillus niger.) G. Bertrand and M. Javillier. (Recherches sur la sucrase de l'aspergillus niger.) G. Grezes.
54 Comparative Action on Albumin of the Putrefaction Microbes. (Action comparée des microbes de la putrefaction sur les principales albumines.) H. Tissier.
55 Virulence for Rabbits and Guinea-Pigs of Human and Animal Pneumococci. (Etudes sur le pneumocoque. V.) C. Truche and L. Cotoni.
56 Spirochetes Found in the Mouth. (Microbes spiralés de la bouche.) G. Repaci.

August, No. 8, pp. 577-655

57 *Anatomy of Normal Old Age. (Etude anatomo-pathologique de la vieillesse.) A. T. Salimbeni and L. Géry.
58 *Sugar-Producing Intestinal Bacteria; the Glycobacters. (Recherches sur les microbes amylolytiques de l'intestin.) E. Wollman.
59 The Schmorl Necrosis Bacillus. (Etudes sur le bacille d Schmorl. I.) E. Césari and V. Alleaux.
60 Cultivation of Anaerobes in Fluid Media. (Modifications à l'appareil vide-hydrogène pour les cultures anaérobies e milieux liquides.) R. Legroux.
61 History of Small-Pox in Sweden. (Mortalité par la variole e Suède de 1776 à 1875.) A. Pettersson.

57. **Pathologic Anatomy of Old Age.**—Salimbeni and Géry give a detailed study of the pathologic anatomic findings i the cadaver of a woman of 93 as a standard of physiologic ol age. The assumption of auto-intoxication from poisons gen erated in the digestive tract explains only part of the tissu changes. This probably is responsible for the macrophagi infiltration and sclerosis and a number of cellular lesions i the brain. The parts most directly in contact with the bloo are the ones that suffer from the digestive poisons. It is evi dent that still other factors must be incriminated in th changes of old age, among them ascending auto-infection i the origin of lesions in the pancreas, liver and salivary glands Another factor is the infinite series of small infections o intoxications from without, each destroying some patch o parenchyma; this is particularly evident in the kidneys. Th wearing out of the cells from long use is manifest in th acidophile changes in the liver, pancreas and hypophysis. Thi wearing out is especially evident in the lungs; no sclerosis no trace of inflammatory reaction was found in the lungs. N

cause is known to date for the progressive slowing up of cell reproduction everywhere except in the nails and hair and in malignant neoplasms. The hypoplasia which results is most marked in the organs which furnish the largest quantity of cells to the organism, namely, the lymphoid organs and the bone marrow. The distinction between old age and senility is strongly marked. When the causes inducing senility: auto-intoxication, auto-infection, hetero-infection, hetero-intoxication, have been multiple, senile lesions will develop early and intensely and the individual will succumb before reaching an advanced age.

58. **Sugar-Producing Microbes in the Intestines.**—Wollman and Metchnikoff apply the term proteolytic glycobacter and peptolytic glycobacter to the two types of microbes which transform starch into sugar in the intestines—the amylolytic microbes. They have never succeeded in isolating these microbes from man. Those described here were obtained from the ileum of a macacus monkey or from the dog. The action claimed for the glycobacter introduced to combat putrefaction in the intestines was mentioned in The Journal, September 7, p. 815. This bacillus is expected to transform the contents of the intestines and thus aid in warding off senescence.

Annales de Médecine et Chirurgie Infantiles, Paris

August 1, XVI, No. 15, pp. 449-480

62 Diarrhea in Infants. (De la diarrhée des nourrissons.) A. Rémy.
63 Curvature of the Spine of School Origin. (Déviation de la colonne vertébrale d'origine scolaire.) P. Redara.
64 Physical Training in the Lower Grades. (L'éducation physique à l'école primaire.) L. Dufestel.

August 15, No. 16, pp. 481-512

65 Inherited Taints and Craniotabes. (Craniotabes et hérédosyphilis.) C. Leroux and Labbé.
66 Meningeal Symptoms of Unknown Origin or Following Zona. M. Eschbach.

Archives des Maladies de l'App. Digestif, Paris

July, VI, No. 7, pp. 359-420

67 *Immediate and Ultimate Results of Operative Treatment of Gastric and Duodenal Ulcer. P. Caillé, G. Durand and L. Marre.
68 *Bronzed Diabetes. (Le diabète bronzé.) M. Labbé.

67. **Operative Treatment of Gastric and Duodenal Ulcers.**—Recent reexamination of forty-five out of 150 patients given operative treatment for ulcer in the stomach or duodenum showed that the ultimate outcome depended mostly on the age of the ulcer or duration of the stenosis of the pylorus, particularly the latter. When the ulcer or stenosis were of recent development at the time of the operation, the gastro-enterostomy cured permanently all disturbances. The pylorus was found permeable in many cases, the natural and the artificial outlet both functioning. This was noted among patients both with and without disturbance later. The ultimate outcome was gratifying in over two-thirds of all the patients. Few seemed to have failed to benefit by the operation. In the other cases of only mediocre results, the lack of care in the diet and excesses of various kinds evidently had conspired to annul the benefit derived.

68. **Bronzed Diabetes.**—Labbé reports a case which he says is the fifty-first on record. The patient was a previously healthy woman who began to suffer from intense thirst and during the following months gradually grew weaker and lost flesh, while sugar appeared in the urine. The glycosuria subsided on dieting at first, but later persisted unmodified, with other symptoms of diabetes and bronzing. The necropsy findings confirmed the assumption of diabetes from cirrhosis of the liver and pancreas plus the pigmentation. The disease seems to have originated in some toxic process of unknown origin. The blood-destroying and sclerosis-producing action of this process caused in turn on the one hand a hemolytic jaundice followed by hemosiderosis, and, on the other hand, cirrhosis of liver and pancreas. These lesions became clinically manifest in the pigmentation and the diabetes.

Archives Mensuelles d'Obstétrique et de Gynécologie, Paris

August, I, No. 8, pp. 49-96

69 *Abdominal Cesarean Section for Premature Separation of Placenta at Normal Site. (Pathologie et traitement du décollement prématuré du placenta normalement inséré.) S. Berggren.

69. **Premature Separation of Placenta at Normal Site.**—Berggren's patient was saved from her precarious situation by prompt abdominal cesarean section and removal of the uterine adnexa. It was not deemed necessary to do a Porro operation in this case. He analyzes a number of similar cases on record; in four the muscular wall of the uterus showed inflammatory lesions probably responsible for the anomaly; in eight other cases there was extensive hemorrhage in the uterus wall; albuminuria had been noted in four of the cases. The premature separation occurs generally in women who have already borne children. The experiences to date with operative treatment are reviewed. In Berggren's case the uterus contracted at once after extraction of the fetus, arresting the hemorrhage.

Journal de Chirurgie, Paris

May, VIII, No. 5, pp. 509-604

70 Technic and Results of Operative Correction of Claw Contracture of the Fingers: Two Cases. (La maladie de Volkmann.) J. Berger.

June, No. 6, pp. 605-776

71 *Solitary Non-Parasitic Cysts in the Long Bones. P. Lecène and C. Lenormant.

July, IX, No. 1, pp. 1-124

72 *Technic for Total Laryngectomy. J. Rouget.

71. **Solitary Cysts in Long Bones.**—A case of a large single cyst in the upper humerus is reported with skiagrams before and after treatment. Eleven other cases from the literature are reviewed and the suggestion made that these solitary cysts are probably more common than is generally supposed. The patients are generally previously healthy children or youths, free from rachitis, who begin to complain of vague pains in the humerus, femur or tibia, or possibly a bone in the hand or foot; sometimes there may have been a preceding local trauma. The pains may be sharp and tenacious or dull and mild, but keeping up for weeks and months. There are never at any time local signs of inflammation or a febrile reaction. The general health is not impaired. The swelling of the bone is generally of a regular ovoid or spindle shape; the soft parts do not adhere to the bone, and there is no enlargement of neighboring lymph-nodes. The enlarged bone is little if at all tender unless the seat of a recent traumatism. In some cases the bone had fractured without any signs of trouble having been noticed. Radioscopy differentiates the cyst at once. The rapid repair of the bone after evacuation of the cyst is most striking; even in case of fracture, healing is soon complete as soon as the cyst is emptied. It has no actual lining membrane, and seems to belong to the group of dystrophy of the bones peculiar to the young, having nothing in common with neoplasms or albuminous ostitis. In the case reported the cavity was plugged with the Mosetig-Moorhof iodoform paste filling and the arm was placed in a sling. The wound was not dressed for two weeks, when it was found entirely healed.

72. **Technic for Total Laryngectomy.**—Rouget's article has thirteen illustrations, three giving the details of the artificial larynx apparatus which he thinks is the best offered to date. He reviews the satisfactory results obtained with it; one patient operated on in 1904 can make himself understood even over the long-distance telephone.

Journal de Médecine de Bordeaux

June 30, XLII, No. 26, pp. 405-420

73 *Young Woman with Three Legs. (De la pygomélie chez l'homme.) A. Baudrimont. Commenced in No. 24.

July 7, No. 27, pp. 421-436

74 *Technic for Removing Very Large Goiter. (Intervention chirurgicale pour un énorme goitre colloide.) J. Lacouture and A. Charrier.

August 4, No. 31, pp. 485-500

75 Brain Tumors; Two Cases. (Tumeurs des centres nerveux.) E. Bilot and F. Papin.

73. **Pygomelus.**—Baudrimont gives the detailed history with photographs and necropsy findings in the case of a young woman with three legs and the stump of a fourth, who had long been exhibited as a museum "freak." The deformity confirmed the newer conceptions as to the nature of a pygomelus, namely, that the monstrosity results from the fusion of two beings.

74. **Operation for Very Large Goiter.**—The patient succumbed the day after the operation in the case reported, and this fatality teaches the importance of introducing a tracheotomy tube before removing the lobes of a very large thyroid, and also that the tube must be extra long, as the trachea cannot be depended on in these cases until the lower part is reached.

Presse Médicale, Paris

August 31, XX, No. 71, pp. 721-728

76 Technic for Suturing Blood-Vessels. (Les causes d'insuccès dans la suture vasculaire.) R. Danis.
77 The Immediate Results of Artificial Pneumothorax. R. Burnand.

Archiv für Kinderheilkunde, Stuttgart

LVIII, Nos. 4-6, pp. 241-481. Last indexed August 3, p. 406

78 Albumin Milk. (Erfahrungen mit Eiweissmilch.) J. Cassel.
79 Commercial Infant Foods. (Kindernährmittel im Handel.) H. Kühl.
80 Brain Tumor in Girl of Five with Blindness from Atrophy of Optic Nerve. (Hirngeschwülste im Kindesalter.) W. P. Shukowsky and A. A. Baron.
81 *Cutaneous Reaction to Diphtheria and Typhoid Toxins. F. v. Szontagh.
82 Case of Posterior Basal Meningitis. E. Hartje.
83 Measles and Its Mortality. (Die Hospitalmasern und Sterbecasuistik nach Masern.) G. E. Wladimiroff. (Die Masernepidemie des Jahres 1830, beobachtet in Elberfeld.) C. H. Pagenstecher.

81. **Cutaneous Reactions with Diphtheria or Typhoid Toxin.**—Szontagh reports extensive research on the way in which the skin of children reacts to inoculation of bacterial toxins. A positive reaction was obtained in 38 per cent. of the 448 children inoculated with diphtheria toxin, but only in four of the seventy-two inoculated with typhoid toxin. The tuberculin skin test was applied to the arm at the same time with the diphtheria toxin in 156 children, but there was no concordance between the results. The most pronounced reaction to the diphtheria toxin was obtained in the group of 47 per cent. responding positively among the 168 scarlet-fever patients tested. This confirms the assumption which he has advanced that scarlet fever and febrile sore throat are allied affections. The identity of the environment explains the multiplicity of cases in many instances, he thinks, where the affection is not of the generally accepted contagious types. The main point emphasized by his research is that different individuals react to the same agent in widely diverse ways.

Archiv für klinische Chirurgie, Berlin

XCVIII, No. 4, pp. 843-1102. Last indexed August 17, p. 582

84 *Incarceration of Joints. (Ueber Gelenkeinklemmungen und ihre Behandlung, mit bes. Berücksichtigung der Interposition des verletzten Meniscus im Kniegelenk.) M. Katzenstein.
85 Perineal Hernia. A. Exner.
86 Volvulus of Sigmoid Flexure. H. Finsterer.
87 Metastatic Paranephritic Abscesses. O. Harzbecker.
88 Anatomic Causes for Peristalsis of the Large Intestine. F. Rost.
89 *Diplococcus Peritonitis. H. Salzer.
90 Osteoplastic Restoration of Lower Jaw. (Klinischer Beitrag zu dem osteoplastischen Ersatz der Unterkieferdefecte.) G. Nyström.
91 *Operative Infection of the Pleura and Draining the Thorax. M. Tiegel.
92 *Continuous Draining for Ascites. (Versuche mit Dauerdrainage bei Ascites.) F. Franke.
93 Traumatic Pseudomeningocele. Helsted.
94 *Treatment of Cirrhosis of the Liver by an Eck Fistula. P. Rosenstein.
95 *Chondrotomy for Apical Tuberculosis. (Die Freund'sche Operation bei Lungenspitzentuberculose.) W. Kausch.

84. **Internal Derangement of Joints.**—Katzenstein has found that a joint can be thrown out of gear by even a very minute foreign body finding its way between the surfaces of the bones forming the articulation. The trouble is not so much mechanical as by the pain induced when the joint is moved, this pain causing reflex muscular contraction and thus arresting the movements of the joint. With a rheumatic shoulder trouble, the symptoms are the same as with a foreign body, and the trouble is probably incarceration of some product of inflammation. The knee may have some loose body of bone or cartilage, a fat tumor, the joint capsule may be torn or a semilunar cartilage injured by direct trauma or by a sprain in rotation, flexion or extension or by violence acting along its axis. As the loose cartilage gets between the surfaces forming the joint, there is sudden intense pain and the knee is drawn up. When the loose portion of the cartilage or capsule is permanently fixed between the joint surfaces, there is pain on long standing or walking. When a semilunar cartilage has been recently injured, there is generally effusion of blood into the joint with immobility of the joint and later circumscribed tenderness at the inner or outer cleft in the joint, and the cartilage is movable. Conservative treatment of a recent injury of a semilunar cartilage is promising, rest in bed, prevention of any strain on the knee, all aiming to favor the healing of the cartilage in its normal place. But if the injury is of longer standing, an operation is necessary to restore normal conditions. If the cartilage is much out of shape it will have to be removed, the results of which are always dubious. If it has retained its normal shape, it can be sutured in place. He regards the semilunar cartilages as so important that he never removes one unless absolutely necessary, and he makes a point of replacing it in its normal position, cutting the ligaments if necessary to obtain better access. The results of treatment on these principles have been most excellent in the twenty-three cases reported in detail with twelve illustrations showing the different types of injury.

89. **Diplococcus Peritonitis.**—Salzer warns that operative treatment of diplococcus peritonitis is dangerous in the first stage of the disease. Of the thirteen children operated on during the first stage, eleven died; in his own experience three died of the four thus treated. On the other hand, operative treatment at the proper time, namely, evacuation of the abscess by a laparotomy when the process has localized in the abscess, may be regarded as the only means to save the patient. In the after-treatment serotherapy might be useful. Differentiation is extremely important, as instead of the early operation required for appendicitis, the only safety is in delaying the operation until the abscess has formed. These patients are generally girls. In the midst of health they suddenly develop abdominal pain, vomiting and diarrhea, the child apparently very sick, with circles around its eyes, cyanotic face, herpes on the lips, the abdomen little if any distended, and of a peculiar soft, doughy resistance without special rigidity of the muscles, possibly slight tenderness in the ileocecal region, but the lung and heart are apparently normal. The incongruity between the severe clinical picture and the comparatively slight objective findings, even on palpation through the rectum, are characteristic. In Salzer's eight cases of acute pneumococcus peritonitis, only three of the children presented all the above symptoms, but all had the abdominal pains, vomiting and diarrhea; five had the herpes also, and four the cyanotic face. One child of 9 did not vomit, but the abdomen had a soft, doughy feeling and there was diarrhea. On account of slight rigidity in the ileocecal region, appendicitis was suspected and the abdomen opened. The appendix was normal, and only a little turbid serous effusion was found, which was evacuated. The child died. Bacteriologic examination of the blood would have possibly warned against the operation and the child might have been saved. The agglutination test is also useful to aid in the differentiation, and the blood picture is also characteristic—high leukocytosis, large polynuclear leukocytes with neutrophil granulations and a close and abundant fibrin network. Streptococcus peritonitis presents about the same picture as the diplococcus, even to the herpes. Of the two cases with this reported, one child died in a few days without an operation; the other was tided past the first stage and then a laparotomy was done and the child recovered.

91. **Operative Infection of the Pleura.**—Tiegel ascribes the frequent infection of the pleura in operations on the chest to the fact that the pleura is not able to stand the vicissitudes to which it is exposed when the thorax is opened, the chilling, drying, contact with sponges, instruments and hands. It seems to be much more sensitive than the peritoneum. Even when the operation has been concluded without direct infection, the pleura may become infected from the lung; this was demonstrated beyond question in two of his cases. His experimental and clinical experience has shown further that a postoperative pleural effusion, even when it is aseptic, is an important factor in the development of infection in the pleura and postoperative pneumonia. Consequently, the evacuation of this effusion is imperatively needed, and he has devised a valve drain which

seems to answer the purpose admirably. It is necessary to have the drain introduced at the proper point to actually evacuate the fluid and short enough not to project above the surface of the effusion.

92. **Continuous Drainage of Ascitic Fluid.**—Franke has done omentopexy in five cases to drain away ascites and the result was an entire success in three. The last patient thus treated was a woman of 57 with syphilitic cirrhosis of the liver and the operation cured the tendency to ascites. His failures in the other cases and in a number on record constrained him to seek a better way, and he thinks he has found this in diverting the luid into the subcutaneous tissue. In the two cases in which he has applied this technic, the patients were permanently cured of the ascites, as was demonstrated at necropsy. One was a woman of 48 with ascites from cirrhosis of the liver, the other a woman of 71 with chronic serous peritonitis. He gives an llustration of the different means in vogue for thus diverting he effusion and comments on the disadvantages of most of hem, which he thinks he has avoided by his technic. He uses nerely a silver wire to keep the hole open. The silver wire s loosely twisted double and then pulled into the shape of a etter H, only that one side is 10 and the other only 2 cm. ong. The wire on the short side is spread out in a flat figure-8 hape, and this is introduced into the abdominal cavity, the ong side fitting in the loose subcutaneous tissue above. The ffusion oozes out along the cross-piece, and its drainage and listribution are facilitated by three strands of silk passed over he long wire and spread out horizontally in six directions n the loose subcutaneous tissue. This operation permanently liverted the fluid from the abdominal cavity and the wire ealed in place without any inflammatory reaction, but the rogress of the underlying disease rendered a permanent recovry impossible. He thinks that mild, chronic, serous peritoitis might be cured by the measure and a number of other onditions materially improved.

94. **Anastomosis Between Portal Vein and the Inferior Vena ava in Treatment of Cirrhosis of the Liver.**—This operation, nown as Eck's fistula, has often been done in experimental esearch, and Jerusalem and Franke have worked out the echnic on the cadaver, devising special clamps to facilitate he procedure. The complete success of omentopexy in 20 er cent. of the 120 cases in which it has been applied (Credé. 910), shows that the assumption that the ascites is the esult of backing up from compression of the branches of the ortal vein by the shriveling of the liver tissue around them ertainly applies to a certain proportion of cases. In others ome other mechanism must be invoked, possibly irritative rocesses in the peritoneum. Rosenstein reports a case in hich he applied the Eck fistula technic in treatment of severe scites in a woman of 60, previously healthy and without uch disturbance from the cirrhosis except enormous ascites. he anastomosis was made without much difficulty, the veins eing held by a stout thread passed around each vein above nd below the field of operation; traction on the threads rrested the circulation in the veins at will and proved very seful in the course of the operation. The patient bore the peration well and it seemed to be a technical success, but the nticipated result was not attained. The ascites recurred as fore and tapping was necessary, but the intervals have grown nger and the amounts less, four weeks now being required for ccumulation of 7 liters of fluid instead of two weeks as at rst. Before the operation 10 liters had been evacuated at a me and at very short intervals.

95. **Chondrotomy for Apical Tuberculosis.**—Kausch has perrmed the Freund operation, severing the cartilage of the first b to mobilize the rigid upper aperture of the thorax, in five ses to date, and the interval since has been from three to er four years. All the patients were benefited apparently y the operation, and no harm was done in any instance nor the four operations of the kind that have been reported by hers. None of his patients seems to have been definitely red, but all are free from tubercle bacilli in the sputum and ve full earning capacity, although they occasionally cough a tle. He urges internists to pay greater attention to this ethod of treating apical tuberculosis rebellious to other measures or constantly recurring. In all his cases the ribs sprung apart at once the moment the cartilage was divided, thus providing better conditions for the functioning of the apex.

Beiträge zur klinischen Chirurgie, Tübingen

July, LXXIX, No. 2, pp. 233-475

96 Ligation of Jugular Vein for Otogenous Thrombosis: Thirty-Four Cases. (Unterbindung der Vena jugularis bei otogener Thrombose.) W. Krawtschenko.
97 *Arteriovenous Anastomosis for Gangrene of the Leg. (Die Wietingsche Operation.) H. Hauke.
98 Experimental Research on Etiology of Appendicitis. (Wurmfortsatzentzündung.) H. Boit and M. Heyde.
99 *Ultimate Outcome of Operative Treatment of Exophthalmic Goiter. (Dauerresultate der operativen Behandlung des Morbus Basedowii.) Weispfenning.
100 Appendectomy; 4,000 Cases. (Erfahrungen und Resultate unserer Perityphlitisbehandlung bei 4,000 operierten Fällen.) H. Hoffmann.
101 Fracture of the Heel Bone. (Neuere Beobachtungen über die Calcaneusfraktur.) C. Westphal.
102 Sprain Fracture of Young Bones. (Stauchungsbrüche der kindlichen und jugendlichen Knochen.) H. Iselin.
103 Experimental Gastric Ulcers. (Experimentelle Erzeugung von Magengeschwüren.) C. Licini.

97. **Arteriovenous Anastomosis for Gangrene of the Leg.**—Hauke reviews the experiences in this line on record and compares them with his work on the cadaver. His conclusions are decidedly unfavorable to the feasibility of the operation advocated and performed by Wieting. He is inclined to attribute the few successes realized to a natural spontaneous turn for the better.

99. **Ultimate Outcome of Operative Treatment for Exophthalmic Goiter.**—Weispfenning tabulates the details of sixteen cases of Basedow's disease in which more or less of the goiter had been removed by Kümmell from two to over twenty-one years before. Immediate benefit was evident in every one of the thirty-five patients given operative treatment, and in some this benefit proved permanent. The experiences related teach anew the importance of the blood-picture for detecting the hyperthyroidism in an early stage and for sifting out the really severe cases. An early operation not only offers the best chances for a successful outcome, he declares, but it may be regarded as harmless before the organism has been suffering too long from the toxic influences emanating from the thyroid.

Berliner klinische Wochenschrift

August 26, LXIX, No. 35, pp. 1645-1688

104 *Menstrual Mental Disturbances. (Zur Klinik des menstruellen Irreseins.) H. König.
105 Technic for Suturing Abdomen After Cholecystectomy. (Verschluss der Bauchhöhle nach der einfachen Cholecystektomie.) A Goldmann.
106 Influence of Hemolysins on Tissues Being Cultivated in Vitro. (Einfluss der Hämolysine auf die Kultur lebender Gewebe ausserhalb des Organismus.) S. Hadda and F. Rosenthal.
107 Technic for Artificial Pneumothorax. (Zur Technik des künstlichen Pneumothorax.) M. Bonniger.
108 Potato Medium for Cultivation of Tubercle Bacilli. R. Turro and J. Alomar.
109 Congenital Synostosis in the Forearm. (Zur Kenntnis der kongenitalen Vorderarmsynostosen.) E. Melchior.
110 Local Treatment of Duodenum Through Duodenal Catheter. (Behandlung des Dünndarms mit gasförmigen und vernebelten Medikamenten.) M. Skaller.
111 Acquired Hypersensitiveness of the Skin. (Erworbene Ueberempfindlichkeit der Haut.) A. E. Stein.
112 Modified Gram Stain. (Ueber eine Modifikation der Gramfärbung besonders mit Rücksicht auf die Gonokokkendiagnose.) V. Jensen.

104. **Menstruation Psychoses.**—Of the seven cases of transient mental disturbances occurring in connection with menstruation which König has encountered, three passed into a chronic phase in time; in the three in this group the mental disturbance had been first observed before the age of 20. In the four other cases they had not developed until 30 or 40, and the psychoses did not return later, none of the patients having shown any recurrence of the tendency for from three to seven years to date. He thinks that these menstruation psychoses must be comparatively common, but medical aid is not sought on account of the transient nature of the trouble. They have no special stamp beyond the tendency to recur in circles. In one of his cases a period of several days of agitation alternated with normal days, the normal period growing constantly longer until there was only one day of agitation and hallucinations, corresponding to the rise of the menstrual wave. The trouble subsided entirely by the end of the tenth month, and there has been no recurrence during the seven months since. Examination during the intervals for possible hysteria is very important in such cases.

Deutsches Archiv für klinische Medizin, Leipsic

CVII, Nos. 2-3, pp. 113-304. Last indexed August 3, p. 407

113 Innervation of Male Sexual Organs. (Innervierung der männlichen Geschlechtsorgane.) L. R. Müller and W. Dahl.
114 Apparatus for Respiration. (Universalrespirationsapparat.) F. G. Benedict (Boston).
115 Alcohol Useful in Severe Diabetes. (Zur Pathologie und Therapie der schwersten Diabetesfälle.) E. Grafe and C. G. L. Wolf.
116 The Carbon Dioxid Tension in the Alveolar Air in Acute Febrile Diseases. (Kohlensäurespannung in der Alveolarluft der Lungen bei akut febrilen Krankheiten.) L. S. Fridericia and O. Olsen.
117 The Mechanism of Respiration in Cardiac Dyspnea. (Die funktionelle Bedeutung der Atemmechanik und die Lungenventilation bei kardialer Dyspnoe.) R. Siebeck.
118 The Pulse in Elastic Arteries. (Die Pulsform in elastischen Arterien.) R. Friberger and E. Veiel.
119 Rapidity of Pulse Wave in Arteries With Palpable Thickening of the Walls. (Pulswellengeschwindigkeit bei Arterien mit fühlbarer Wandverdickung.) R. Friberger.

No. 4, pp. 305-410

120 The Nitrogen and Salt Content of Sweat in Kidney Disease. (Stickstoff- und Kochsalzgehalt des Schweisses von Nierenkranken.) P. Tachau.
121 Influencing of Resistance of Red Corpuscles by Blood-Destroying Substances. (Beeinflussung der Resistenz der roten Blutkörperchen durch hämatoxische Substanzen.) E. Handrick.
122 *Clinical Course of Paratyphoid B. Infections. H. Freund.
123 Paroxysmal Hemoglobinuria and Isolysins. J. Matsuo.
124 *Lymphatic Pseudoleukemia; Ten Cases. S. Laache.
125 The Electrocardiogram With Acute Parenchymatous Degeneration of the Heart Muscle; Phosphorus and Arsenic Poisoning. E. Schott.
126 Study of Paradoxic Movements of the Diaphragm. (Experimentelle Untersuchungen über die Aktionsströme des Zwerchfelles bei geschlossenem Pneumothorax.) C. Wellmann.

122. **Paratyphoid Infections.**—Freund reports seventy cases in the last two years in the Heidelberg clinic which were demonstrated bacteriologically and serologically to be paratyphoid infections. The clinical manifestations were extremely varied. In eight cases the symptoms were those of typical typhoid fever. The majority—about fifty—were diagnosed clinically as acute gastro-enteritis. It was very severe in four cases, resembling cholera. All these patients recovered under administration of camphor, epinephrin, caffein and injection of normal salt solution. He thinks it of great importance to distinguish these cases of paratyphoid gastro-enteritis clearly from abdominal paratyphoid. In the former there are no characteristic changes post mortem, while in the latter the necropsy findings are similar to those of typhoid. It is the severe gastro-enteritis, however, resembling cholera, which is most apt to prove fatal, while the abdominal paratyphoid has a better prognosis than typhoid. He thinks the gastro-enteritis cases have a very short incubation period, while that of the abdominal paratyphoid is about the same as in typhoid. In three of the cases the same patient had both forms, a typical abdominal paratyphoid following one or two weeks after an acute gastro-enteritis. In eight cases the symptoms were so similar to those of appendicitis that the patients were at first sent to the surgical clinic. The enlarged spleen and the severe diarrhea enabled them to correct the diagnosis. Examination of stools showed the paratyphoid bacillus in pure culture. In one case there was actually an appendicitis with perforation, evidently the result of localized paratyphoid infection. In seven cases there were gall-bladder complications, in four of which they were evidently caused by the paratyphoid bacillus, the others having had cholelithiasis before the gastro-enteritis. Clinically, it is important to note that all these patients were dismissed while still bacillus carriers. Two patients had pyelitis and one epididymitis, but in the latter case only staphylococci were demonstrated in the pus, so it was probably an intercurrent infection. Three patients had hemorrhagic nephritis during the attacks, but terminating in complete recovery; one patient with previously normal kidneys developed a chronic nephritis and a systolic heart murmur. She was in the clinic three months. Three cases are cited (Sion and Hegel) in which paratyphoid attacks were followed by endocarditis with recovery. There were a few cases which ran an atypical course. In two there was a long period of subfebrile temperature, returning to normal in one case on the sixty-sixth day, in the other on the thirtieth. Another patient had a typical attack of abdominal paratyphoid from July 15 to September 17; October 1 his temperature again rose to 39 C. The most striking feature was the blood-picture; leukocytes between 5,000 and 7,000, 65 to 73 per cent. being lymphocytes, mostly small ones. He continued to run a high remittent temperature, 36 to 39 C., until January 11. On the 205th day after first being taken sick he was entirely normal except for a moderate anemia. Throughout the second illness bacteriologic examination was negative. In several cases high lymphocyte counts were the rule—48 to 56 per cent. This seems to Freund to show that paratyphoid infection leaves a tendency to disease of the blood-forming organs.

124. **So-Called Lymphatic Pseudoleukemia.**—Laache reports ten cases diagnosed as lymphatic pseudoleukemia during the past twenty-five years at the hospital at Christiania, among the 10,000 patients that have been treated there. Eight of these cases were encountered during the last six years. In six of these cases post-mortem examinations were made. In one case there was extensive caseous degeneration of the lymph-nodes; this was undoubtedly tuberculous pseudoleukemia. In two cases (besides in one diagnosed from an excised gland during life) granuloma was demonstrated. The tenth case proved to be a round-celled sarcoma. Lymphatic pseudoleukemia includes, he says, two chief groups, the granulomatous and the sarcomatous. True sarcoma growths he excludes. The granulomatous form has many points of resemblance to tuberculosis, especially a high, often hectic fever, night sweats, tachycardia and diazo reaction in the urine. Therapeutically, the ordinary arsenic-roentgen-ray treatment prolongs life, but seldom for more than one or two years. The value of tuberculin has not yet been determined. Pinkus advises cutting out glands. From this, however, no benefit was derived in the one of these cases in which it was tried.

Deutsche medizinische Wochenschrift, Berlin

August 29, XXXVIII, No. 35, pp. 1625-1672

127 Hematuria. (Diagnose und Therapie der Blutungen aus dem Harnapparat.) L. Casper.
128 Bacteriologic Study of Lupus I. (Untersuchungen über den Typus der Tuberkelbazillen bei Lupus vulgaris.) F. W. E. Rothe and Bierotte.
129 Superior Bactericidal Action of 70 per cent. Alcohol Due to Its Action on Dry Albumin. (Warum wirkt gerade 70 percentiger Alkohol so stark bakterizid?) E. Frey.
130 Drainage Useless in Diffuse Peritonitis. (Zur Frage der Peritonealdrainage bei Peritonitis diffusa.) W. Scheidtmann.
131 *Retroperitoneal Hematoma. A. Wagner.
132 Congenital Dropsy. (Zur Lehre von der Schriddeschen allgemeinen angeborenen Wassersucht.) Loth.
133 *Chalazion. Wätzold.
134 Disease of the Lacrimal Duct. (Ueber die rhinogene Beteiligung der Tränenwege, insbes. den Zusammenhang der chronischen Dacryocystitis mit den Erkrankungen des Siebbeins und ihre Behandlung.) H. M. H. Rhese.
135 The Wassermann Reaction With Non-Activated Serum. R. Pereira.
136 Prophylaxis of Oxygen Poisoning By Keeping Air Moist. (Ueber Sauerstoffvergiftung.) A. Brüning.

131. **Retroperitoneal Hematoma.**—Wagner's patient was a young clerk who had received a blow in the left side during a football scrimmage. He continued in the game for an hour but then the pains became so severe that he was on the tabl by the seventh hour, the signs indicating internal hemorrhage A large tumor had also developed and the pallor and fluttering pulse resembled the picture of ruptured tubal pregnancy The urine was normal. The hematoma was evacuated an the patient was on his feet in two weeks. Nothing was foun to suggest a source for the hemorrhage. This was the cas also in another young man with a spontaneous hematoma i the left retroperitoneal space. He had repeatedly passed gall stones, and over a year before had been in the hospital fo ileus, from which he recovered without an operation. He ha never been quite strong since, and it is possible that there ma have been retroperitoneal hemorrhage at that time. Th tumor resembled a large ovarian cyst and contained old blood In a third case the hemorrhage started while the man was lifting a heavy weight. He kept at work for four weeks befor the increasing size and pain of the hematoma drove him t the hospital.

133. **Meibomian Cyst.**—Wätzold has been making an extensive study of chalazion, and states that it does not develo in the tarsal cartilage as generally taught, but spreads fro the inflamed meibomian gland through the loose tissue betwee the muscle and the tarsus. The primary inflammation yield to formation of granulation tissue, and recurring inflammatio in the meibomian gland keeps up the irritation. As it i practically a chronic process, its operative treatment is indi

cated, as a rule, under local anesthesia, scooping out the lump or enucleating it like an atheroma with knife or scissors after a perpendicular incision over the hard bunch.

Deutsche Zeitschrift für Chirurgie, Leipsic

August 1, CXVIII, Nos. 1-2, pp. 1-204

137 *Indications and Technic for Surgery of the Liver. (Ueber Leberverletzungen. Eine experimentelle und klinische Studie.) H. Finsterer.
138 *Compressed Air as Therapeutic Measure. III. (Der Luftkompressor im Krankenhaus.) F. Kuhn.
139 *Cancer of the Clavicle. (Ueber bösartige Schlüsselbeingeschwülste.) S. Johansson.
140 Gasserectomy with Overhanging Head. (3 Fälle von Totalexstirpation des Ganglion Gasseri bei besonderer Kopflage—überhangendem Kopf.) L. M. Pussep.
141 Technic for Aneurysm Operation. (Beiträge zur idealen Aneurysma-Operation. Ueber die zirkuläre Gefässnaht und über die Transplantation der Gefässe am Menschen.). K. Omi and H. Yamanouchi.

August 15, Nos. 3-4, pp. 205-402

142 *Invagination of Intestine for Which a Tumor Was Responsible. (Tumorinvagination des Darms.) E. Kasemeyer.
143 *Influence of Aseptic Inflammation on the Dissolving of Catgut. (Einfluss einer aseptischen serösen Entzündung auf die Katgutauflösung.) M. Callam.
144 Origin and Treatment of Fracture of Neck of Femur in the Young. (Schenkelhalsbrüche im Wachstumsalter.) G. Dencks.
145 An Unusual Form of Fetal Chondrodystrophy. G. Dencks.
146 Technic for Appendicitis Incision. (Zur Bewertung des erweiterten Zickzackschnittes bei Wurmfortsatzoperationen.) M. Cohn.
147 Removal of Entire Left Lower Jaw. (Die totale Exartikulation der Mandibula und ihr prothetischer Ersatz.) F. Erkes and F. Ernst.
148 Cause of Hemorrhage in Bed of Kidney. (Zur Frage der Herkunft der Massenblutungen ins Nierenlager.) E Koch and A. Läwen.
149 Gastrostomy and Plastic Operations on the Esophagus. A. Jianu.
150 Primary Cancer of the Appendix in Girl of 17. (Zur Kasuistik des primären Krebses des Wurmfortsatzes.) O. Butzengeiger.
151 Experimental Exclusion of Part of Intestine. (Die Darmausschaltung mit dem Verfahren von Parlavecchio.) M Dominici.

137. **Injuries of the Liver.**—Finsterer discusses some of the more important points in symptomatology and treatment, as studied in the literature and also in two stab wounds of the liver personally observed, one bullet wound and eight cases of injury from contusion. He reports further the results of experimental research which confirm the great diagnostic value of bradycardia following contusion of the liver. It is the result of the action of bile acid, and is thus a highly characteristic symptom. Even when, on account of excessive hemorrhage, the pulse did not grow slower, the absorption and elimination of the bile salts could be detected by appropriate tests. A subcapsular rupture of the liver may not entail the picture of anemia, and the abdomen walls may be rigid after a contusion, even when the cavity within is intact. The pulse is the most reliable guide. If it is strikingly slow at the first examination, injury of the liver may be suspected. This is still more significant when the bradycardia develops while the patient is under observation. Local pain in the liver, radiating toward the back or right shoulder is also significant; it was very pronounced in three of his eight cases of rupture of the liver. Also the spreading of the pain over the entire lower abdomen and the increasing rigidity of the walls, showing that some foreign substance, blood or stomach or bowel content, is spreading through the cavity. An exploratory laparotomy under local anesthesia is much less dangerous than puncture and should always be given the preference in the hospital. Finsterer reviews a total of 130 articles on surgery of the liver and describes the preferable technic.

138. **Compressed Air Massage.**—Kuhn gives several illustrations of the double-walled, compressed-air bag he uses for regional stimulation of the circulation. It expels the venous blood and lymph and stimulates production of new, healthy tissue. The compression is applied intermittently by a clockwork under control of the patient. The benefit was especially marked in old torpid leg ulcers and varices in general.

138. **Cancer of the Clavicle.**—Johansson reports three cases and summarizes thirty-six from the literature, citing six further cases. In the last forty years at the Stockholm surgical clinic, in the total sixty-two cases of sarcoma in a bone, the clavicle was the site in three, the upper jaw in eleven and the lower in nine, the femur in sixteen. The primary mortality with cancer of the clavicle is low but there is an unusual tendency to recurrence and metastasis.

142. **Invagination of Intestine from Tumor.**—Kasemeyer has encountered a case of this kind and collected 284 from the literature. The invagination was due to a cancer in 30 or 38 per cent. of the cases, and in two cases of sarcoma the patients were under 5; in two between 5 and 10, and in two between 10 and 20. The youngest carcinoma patient was over 20. The entire 284 cases are summarized and classified. They teach the necessity for operative treatment in all cases, with resection on suspicion of cancer.

143. **Experimental Research on Absorption of Catgut.**—An aseptic inflammation in the mice used for Callam's experiments always retarded the absorption of the catgut sutures. This finding sustains the assumption that an aseptic inflammation is a healing process; that is, the conditions which prevent the dissolving of the catgut also serve to protect the tissues involved against injury. The slower and the gentler the abnormal chemistry generated by the inflammation-causing agent, the more chance is given the tissues to rally their forces and combat the invaders. The facts observed also explain why antiseptic catgut is absorbed more slowly than the aseptic.

Medizinische Klinik, Berlin

September 1, VIII, No. 35, pp. 1413-1450

152 Treatment of Cataract. (Wann darf der graue Star operiert werden?) W. Goldzieher.
153 *Death Immediately After Removal of Adenoids and Tonsils in Out-Patient. Kafemann.
154 Case of Miliary Tuberculosis with Typhoid Bacilli in the Urine. W. Schott.
155 Influence of Drugs on Opsonic Index. (Ueber pharmakodynamische Einflüsse auf den opsonischen Index.) A. Strubell.

September 8, No. 36, pp. 1451-1484

156 Hemorrhage During Pregnancy. (Ueber seltenere Ursachen von Schwangerschaftsblutung.) v. Franqué. Concluded in No. 37.
157 Anesthetics in Obstetrics and Gynecology. (Ueber Schmerzlinderung und Schmerzverhütung in Geburtshilfe und Gynäkologie.) O. Bondy.
158 Pregnancy Psychoses. (Ueber Schwangerschaftspsychosen mit bes. Berücksichtung der Indikation zum künstlichen Abort.) Raecke.
159 Postmortal Contractions of the Heart. (Postmortale Herzcontractionen beim Menschen.) L. Drozynski.
160 *Operative Treatment of Puerperal Pyemia. O. Hoehne
161 Polycythemia. (Ueber Polycythaemia rubra.) J. Löwy.
162 Chemotherapy of Cancer. (Neuere Publicationen zur Chemotherapie der malignen Geschwülste.) R. Werner, S. Szecsi and V. Czerny.

153. **Fatality After Operation on Throat.**—The case reported by Kaufmann teaches the importance of having the patient in the hospital a day or so before the operation. The robust boy of 14 had very large tonsils and adenoids. He would not permit the completion of the attempted tonsillectomy under local anesthesia, so an appointment was made for him to be brought for general anesthesia. The mother was warned not to let him have anything in the morning but a little tea, but he ate a hearty breakfast and a pound of cherries. He vomited profusely and collapsed after the operation and could not be roused. The case teaches further that before doing such an operation under general anesthesia, roentgenoscopic examination should be made to determine whether there are enlarged lymph-nodes in the thorax. In this case the thymus weighed 40.5 gm. and many of the lymph-nodes were much enlarged. The heart was large and flabby but the heart sounds had been pure.

160. **Operative Treatment of Puerperal Pyemia.**—Hoehne reports a case of staphylococcus pyemia after extraction of the placenta by hand in which he successfully excised the local process. The ovarian vein was ligated twice above the palpated thrombus, and the ovary and tube on this side and a suppurating focus in the adjoining psoas were all removed together, severing connections with the thermocautery. After clearing out the field of operation as much as possible, the three veins forming the main iliac vein were also ligated and the entire field of operation was roofed with peritoneum, 30 c.c. of 1 per cent. camphorated oil was then poured in and the abdomen sutured. The chills ceased at once after the veins were ligated, and recovery was soon complete. The operation was undertaken the twenty-fourth day after delivery and sixteen days after a prophylactic injection of

30 c.c. of 1 per cent. camphorated oil. There had been twelve chills and the intervals were growing shorter when the operation was done.

Mitteilungen aus den Grenzgebieten der Med. u. Chir., Jena

XXV, No. 1, pp. 1-210. Last indexed July 13, p. 154

163 Mechanical Theory of Origin of Neoplasms. (Fall von angeborenen transversalen Kommissuren des Mastdarmes, mit bes. Berücksichtigung der mechanischen Theorie der Neubildungen.) N. Trinkler.
164 Spinal Cord Tumor Successfully Removed. (Fall von Rückenmarksgeschwulst der höchsten Cervicalsegmente. Operation. Heilung.) G. Söderbergh and V. Akerblom.
165 *Tardy Deformity of Cartilage. (Chondrodystrophia adolescentium s. tarda.) G. W. Schorr.
166 *Cause of Fatal Tardy Hemorrhage After Tracheotomy in Diphtheria. (Zur Kenntnis tödlicher Spätblutungen nach dem Luftröhrenschnitt bei Diphtherie.) G. A. Lallemant.
167 *Ultimate Outcome of Treatment of Trigeminal Neuralgia. (Vergleichende Untersuchungen über die Erfolge der chirurgischen Behandlungsmethoden bei Trigeminusneuralgie.) K. Otto.
168 *Iodin in Treatment of Tuberculosis. G. Hotz.
169 Intestinal Actinomycosis. F. König.
170 *Suppuration at Site of Lumbar Puncture. (Zur Frage der Sticheiterung nach Lumbalpunktion.) E. H. B. van Lier.
171 Operative Treatment of Actinomycosis of the Lungs. W. Bauer.
172 *Experimental Intravenous Serotherapy of Tetanus. E. v. Graff.
173 *Clinical Importance of Antitrypsin in Blood-Serum. E. Waelli.
174 Peristalsis and Antiperistalsis in Large Intestine. (Ueber die Peristaltik und Antiperistaltik des menschlichen Dickdarmes.) O. Roith.

165. **Tardy Chondrodystrophy.**—Schorr reports a case which had the appearance of tardy rachitis, but the pathologic process was found to be located in the zone of enchondral ossification, similar to the anomalies in fetal chondrodystrophy but differing in the fact that only bones were affected which had been developing previously quite normally. Three of the patient's sisters had the same anomaly, and in all it had manifested itself at puberty.

166. **Tardy Hemorrhage After Tracheotomy.**—Lallemant adds three cases to the six on record in which a fatal hemorrhage developed a few days after tracheotomy. The causes were necrosis from pressure of the cannula or arrosion of vessels from a diphtheric or phlegmonous process. The personal cases reported show that an inflammatory process may exist in the depths of the tissues, not macroscopically evident but yet capable of entailing suppurative destruction of the wall of an artery. The conditions therefore are those of ordinary arrosion; they have been mysterious and unexplained to date simply because microscopic examination had not been made.

167. **Comparison of the Results of Various Methods of Treating Trigeminal Neuralgia.**—Otto reviews the literature to date and the outcome in forty-two cases of trigeminal neuralgia in which surgical measures were applied at Kiel during the last twelve years. Thirty-six of the patients filled out the question-blanks inquiring as to their present condition. Comparing these data and the anatomic findings in 100 skulls and a number of cadavers shows that recurrence is the rule after peripheral operations on the trigeminal nerve. The interval is only a few months in most cases. Recurrence takes place also after resections at the base of the skull, but it is less frequent. Gasserectomy gives the best results, provided it is complete. It should be reserved, however, for the most desperate cases, especially those with involvement of all three branches. These disappointing results throw into still brighter light the efficacy of injections of alcohol; 70 or 80 per cent. alcohol is the best means yet known to block the nerves without injuring adjacent tissues. Deep injection at the base of the skull arrests the neuralgia at once, even in severe cases, and keeps the domain innervated by the treated branch without sensation for months. These deep injections can be repeated without danger; they are effectual then for a still longer period, but time only can show whether the patients are permanently cured. The method of locating the nerve introduced by Offerhaus is simple and easy, Otto says, even without practice. The round or oval foramen can thus be located with great certainty. (The technic was described and illustrated in The Journal, 1910, lv, 1152.) Otto reiterates that this alcohol injection method is free from danger and can be utilized for local anesthesia in this region for operative work.

168. **Iodin in Treatment of Surgical Tuberculosis.**—Hotz states that the organism reacts with a lively increase in the number of lymphocytes to the application of iodin in the five various forms of its administration; subcutaneous or intravenous injection of iodoform or tincture of iodin, inhalation or inunction, both in the tuberculous and the healthy. The marked lymphocytosis sets in the third day. He explains the benefit from iodin thus as a vital reaction, the first manifest sign of which is the lymphocytosis. The ferment of the lymphocytes acts on fat, including the fat of bacteria. Of forty-nine tuberculous joints he has treated on this principle, thirty-one healed without impairment of motility and thirteen healed with ankylosis; there were only five failures.

170. **Suppuration of Puncture Hole after Lumbar Puncture.**—The diagnosis in the case reported wavered between typhoid, sepsis and miliary tuberculosis. An abscess in the sacrospinal muscle was not discovered until the needle in the exploratory lumbar puncture had passed through it and carried staphylococci into the limpid spinal fluid. As the fluid was only slightly contaminated, no harm was done. The outcome was less favorable in another case in which lumbar puncture proved difficult on account of malformation of the spinal canal, and the meninges became infected. The patient before had had merely severe spinal symptoms without fever, but the evening of the day of the puncture the temperature ran up to 40 C. and the pyemia proved fatal. Necropsy disclosed an encapsulated suppurative meningitis and bilateral abscesses in the psoas but no diffuse meningitis. The meninges above had resisted the infection and the encapsulation had further protected them. The danger of infection from lumbar puncture has been so impressed on van Lier by these occurrences that he now proposes a prophylactic injection of hexamethylenamin before any lumbar puncture.

172. **Experimental Research on Intravenous Serotherapy in Tetanus.**—The results of the extensive research reported indicate that intravenous injection of serum is far more effectual than is generally recognized, most writers ranking it little above the subcutaneous route. The intravenous injection of the serum at the same time as intramuscular injection of the tetanus toxin regularly prevented the development of tetanus in the experiments, as also when the toxin was injected into the nerve. After the tetanus had developed, the intravenous injection prolonged life, and in some instances the animals recovered after local tetanus had developed. The main point, Graff emphasizes, is to give enough of the serum. The results are better in children than in adults, probably because larger amounts per bodyweight can be injected. The aim should be to use large amounts and a highly concentrated serum.

173. **The Clinical Importance of Antitrypsin in Serum.**—Waelli describes the results of research on the biologic antiferment tests by the various technics in vogue. He obtained concordant results with all the methods in 71 per cent. of sixty-four applications of the tests, and he discusses the mechanism and nature of the reactions. In health there is no increase in the amount of antitrypsin in the blood-serum, with rare exceptions, but an increased antitrypsin content seems to be constant with cancer and with exopththalmic goiter, and it occasionally occurs with tuberculosis and other infectious diseases. Positive findings are therefore an aid to some extent in the diagnosis of cancer. On the other hand, a negative reaction to the Brieger test renders the existence of malignant disease highly improbable. He tabulates in conclusion the findings in 120 clinical cases. (The Brieger technic was described in The Journal, July 4, 1908, p. 83, but modifications proposed and experiences with the test have been published since, for example, 1909, liii, 1782; 1910, liv, 500; 1910, lv, 353, and 1911, lvi, 627.) Waelli used Mandelbaum's modification of the antitrypsin test, a milk-agar instead of the Loeffler plate. Mandelbaum mixes with each 0.1 c.c. of the blood-serum increasing amounts of a 1 per cent. aqueous solution of trypsin, increasing from 0.3, 0.4, 0.5 to 4.5. The mixtures are well shaken up and a loop from each is inoculated in turn on milk-agar plates (two parts agar with one part milk are heated to 100 C., cooled to 50 or 60 C., and poured into the dishes.) Instead of eating out a hole (the

Dellenbildung with the Brieger technic on the Loeffler plates), the digesting power of the trypsin solution is shown by the clearing up (*Aufhellung*) of the milk-agar around the spot inoculated.

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August, XXXVI, No. 2, pp. 141-270

175 Technic for Treatment of Prolapse of Genital Organs. (Einige Bilder und Bemerkungen zur Erkennung der Beckenverschlussmittel vor und während der Prolapsoperation.) H. Sellheim.
176 Lipoid Content of the Placenta. B. Bienenfeld.
177 *Extraction of the Placenta by Hand. (Ueber manuelle Lösung der Placenta.) M. Rogoff.
178 Coagulation of the Blood. (Zur Blutgerinnungsfrage.) F Ebeler.
179 Coagulation of the Blood in Eclampsia. F. Ebeler and F. Engelmann.
180 Histologic Differentiation of Gonorrheal Salpingitis. J. W. Miller.

177. **Manual Extraction of the Placenta.**—Rogoff draws his conclusions from 973 cases of extraction of the placenta in the Moscow hospital from 1901 to 1911. He thinks the necessity for it arises generally from improper handling of the third stage by midwives. They should be instructed never to massage the abdomen or uterus after the birth of the child as it interferes with the normal contraction and relaxation of the uterus. Two hours is not too long to wait for delivery of the placenta. Interference should not be undertaken earlier unless there is indication for it; outward hemorrhage can be detected by observation and internal hemorrhage by the condition of the pulse. Before introducing the hand, Credé's method should always be tried. Sometimes the retention is caused by constriction at the contraction ring, and in such cases the placenta will be delivered spontaneously under chloroform anesthesia. The mortality in private deliveries is very high—higher than that of cesarean section or forceps delivery, on account of the extreme danger of infection, but in hospitals with extreme care to avoid infection it is moderate. In the Moscow hospital patients are given a douche of bichlorid, iodin or lysol solution immediately after the delivery of the placenta and afterward if the slightest abnormal odor appears in the discharge.

Münchener medizinische Wochenschrift

August 27, LIX, No. 35, pp. 1889-1936

181 Apparatus for Measuring Contamination of the Air in Rooms. (Ueber Luftuntersuchungen.) W. Weichardt and C. Kelber.
182 Biologic Importance of the Eosinophil Substance. (Zur Chemie der Zellgranula.) E. Petry.
183 *Bases for Serotherapy of Typhoid. (Grundlagen einer Serumtherapie des Typhus abdominalis.) R. Pfeiffer and G. Bessau.
184 Iodin Content of Human Ovaries. B. Zoeppritz.
185 Roentgenoscopy of Child Lung with Pleuritic Adhesions. (Die interlobare pleuritische Schwarte der kindlichen Lunge im Röntgenbild.) F. Eisler.
186 Advantages of Colloidal Tungsten in Place of Bismuth in Roentgen Work. (Kolloidale Wolfram als Ersatz für Wismut bei Röntgenaufnahmen des Magen- und Darmkanals.) R. Krüger.
187 *Serotherapy of Pregnancy Dermatosis. (Zur Serumbehandlung der Schwangerschaftsdermatosen.) F. Veiel.
188 *Familial Pseudoleukemia and Sarcoma with Inherited Tuberculous Taint. E. Braun.

183. **Serotherapy of Typhoid.**—Pfeiffer and Bessau conclude from the data at present on hand that the active therapeutic agent in all forms of serotherapy of typhoid is the specific bacteriolysin or lysins. The results achieved to date have been very modest, they say. It is possible, however, they admit, that the bacteriolysins might be so concentrated in the serum as to provide a suitable and effectual means of treating typhoid.

187. **Serotherapy of Pregnancy Dermatosis.**—Veiel reports a case of severe herpes gestationis in a woman of 36 at the eighth month of her sixth pregnancy. The inner and front sides of the thighs were covered with large vesicles and a serpiginous erythem developed on the trunk. The itching and nervous exhaustion were intense. A subcutaneous injection of 10 c.c. of the serum from a healthy pregnant woman near term was then made in the buttocks; the pruritus was somewhat modified the next day but recurred with its former intensity the following day. Then 20 c.c. of serum from the same donor was injected in the same way and the dermatitis was transformed in a few hours. By the next day there was scarcely any itching and no new vesicles had formed while the temperature was normal. The improvement persisted and a healthy child was normally delivered. The third day the temperature rose again and in a few hours a new crop of vesicles appeared on the thighs but they were small and there was little itching so that no further injection was given although an isolated vesicle developed occasionally during the following weeks before all traces of the dermatitis had entirely disappeared.

188. **Familial Malignant Lymphoma and Sarcoma.**—Braun relates that two brothers and a sister, all in the forties and residing in different German cities, developed malignant lymphoma, pseudoleukemia or sarcoma, all dying within six years. One was a physician, one an artist. There was a tuberculous taint evident in collateral branches of the family through four generations, but the parents were clinically free from it. The mother is still living in good health; the father died at 60 of heart disease. They had a common great-grandparent.

Therapeutische Monatshefte, Berlin

September, XXVI, No. 9, pp. 633-696

189 Suture of Blood-Vessels. (Die praktische Bedeutung der Gefässnaht.) Guleke.
190 *Intratracheal Insufflation for Artificial Respiration. (Meltzersche Insufflation bei Atemlähmung.) H. Stadler.
191 Laryngoscopy and Bronchoscopy. (Zur Bewertung der Autoskopie bei erschwerten Dekanülement und in diagnostisch unklaren Affektionen der unteren Luftwege.) Uffenorde.
192 *Sulphuric Acid Sterilization of Rubber Gloves. (Zur Frage der Sterilisation der Gummihandschühe.) C. Arnd and F. Rusca.
193 *Reform in Advertising Medicinal Articles. (Zur Arzneimittelliste des D. K. f. inn. Med.) C. Hirsch.

190. **Intratracheal Insufflation for Artificial Respiration.**—Stadler's patient was a tabetic, with severe crises at times, who developed primary paralysis of the respiration. There were no signs of motor paralysis, so a cerebral hemorrhage could not be incriminated. Artificial respiration by the usual means failed to restore the natural respiration by the end of half an hour, although the heart action was constantly good. Stadler then applied the Meltzer technic for insufflation of oxygen, and the aspect of the patient changed at once to that of health. Only the immovable chest showed that the man was not sleeping naturally. After two and a half hours, natural respiration suddenly started up and in a few minutes the patient became conscious again for the first time since the attack began. In a few hours he had entirely recovered and no signs of bronchial irritation developed later. Stadler urges the importance of the Meltzer technic as a means for artificial respiration, adding that an ordinary rubber bulb might be used when an oxygen tank was not at hand. Its chief efficacy is in case of asphyxia from spasm of the muscles of respiration.

192. **Sterilization of Rubber Gloves.**—Arnd and Rusca call attention to what they say is the most economical and efficient method of sterilizing rubber gloves without injuring them. The gloves are washed in running water and then dried after using. At evening they are placed in a 5 per thousand solution of sulphuric acid and left for ten or twelve hours, after which they are rinsed in salt solution and are then ready to use. They have been using this method for three years and are highly pleased with it.

193. **Reform in Advertising Medicinal Articles.**—Hirsch insists that the propaganda for reform should be supported by the public and the official authorities as the present methods of advertising are a constantly growing peril for the public health. Is it not humiliating for us, he remarks, to have our patients say that they wish to be treated with some new drug which they have read about in the newspapers! Even the most inveterate empiricist feels better when he knows the chemical composition, etc., of the drug he is using. Too often the "conclusions" in regard to the action of the new drug are based on a casual rather than a causal effect. He declares that any physician who gives a drug about which he knows nothing except what the advertisements say, is practicing rank quackery. Quackery, he continues, has three forces at work on its behalf, and one of these is the physician who does not keep up with the propaganda for

reform.—*Das Kurpfuschertum besitzt 3 wichtige "Zutreiber," 1) die Dummheit, 2) die Reklame, und 3) den Arzt der nichts gelernt hat.*

Therapie der Gegenwart, Berlin

September, LIII, No. 9, pp. 385-432

194 *Treatment of Enlarged Prostate. L. Casper.
195 *Differential Pressure Procedures in Treatment of Heart Disease. E. Albrecht. Commenced in No. 8.
196 Portable Apparatus to Generate Nascent Oxygen for Inhalation. (Ueber Inhalation von Sauerstoff.) P. Bergmann.
197 *Two-Route Method of Treating Mucosa. J. Wedeles.

194. **Treatment of Enlarged Prostate.**—Casper says that prostatectomy cannot be regarded otherwise than as a serious operation, and it should be undertaken only when it is strictly indicated and then only by the suprapubic route. He accepts as formal indications for it the persistence of painful tenesmus and dysuria rebellious to all treatment, and when catheterization is painful or impossible. When it is difficult to introduce the catheter there is always danger of the tip going astray. Recurring hemorrhage from the prostate is another indication for operative measures, as also recurring calculi when conditions impede proper crushing of the stones. Still another indication is an environment rendering aseptic catheterization impossible. On the other hand, prostatectomy should not be attempted with severe general nutritional disturbances, severe diabetes or extensive changes in the heart and kidneys, advanced arteriosclerosis or general chronic urosepsis.

Differential Pressure in Treatment of Heart Disease.—Albrecht gives here summaries of a number of the cases of heart disease in which he has systematically applied differential pressure procedures to act on the blood content of the heart by the changes thus induced in the pressure in the lungs, as described recently in Abstract 105 on page 976. He declares in conclusion that this method of treatment is applicable when all others have failed or are contra-indicated, and that it acts on the heart more directly than any other method, while the application can be graduated with exact dosage. It does not supplant the other methods of treating heart disease, but usefully supplements them.

197. **Two-Route Method of Treating Processes on Mucosa.**—Wedeles was surprised one day when he had treated a conjunctivitis with calomel to find the lesion intensely aggravated the next day; he then discovered that the patient had been taking an iodid for some time. The two drugs had evidently combined in the focus and generated mercuric iodid. The irritating action soon subsided so there was no further trouble by the end of the week, but the case suggested that this two-route method of administering drugs might be utilized for a caustic action from a powerful mercury salt generated in a cancer or other focus by this means.

Virchows Archiv, Berlin

June, CCVIII, No. 3, pp. 321-476

198 Tumor of Kidney Pelvis. (Mischgeschwulst des Nierenbeckens.) W. Fischer and K. Murakami.
199 Experimental Research on Genesis of Atypical Proliferation of Epithelium. T. Mori.
200 Aberrant Epithelial Cells in Skin. (Schicksal abgesprengter Epithelkeime in der Haut eines fünfmonatigen Kindes.) C. Firket.
201 Histogenesis of Endothelioma in Meninges. J. Fick.
202 Chromatophoroma of the Skin. Ribbert.
203 Tumor of Spermatic Cord. (Ein Mischtumor des Samenstranges.) T. Naegeli.
204 Experimental Scorbutus. (Experimentelle Erzeugung der Möller-Barlowschen Krankheit und ihre endgültige Identifizierung mit dem klassischen Skorbut.) K. Hart.
205 Marrow of Long Bones in the Horse. (Zur Kenntnis des Markes der Röhrenknochen beim Pferde.) E. Ackerknecht.
206 Antagonistic Action of Thymus and Epinephrin-Producing System. (Ueber das Verhältnis des Thymus zum chromaffinen System, über die Elemente der inneren Sekretion des Thymus und über das Verhältnis des Thymus und des chromaffinen Systems zum Sympathikus.) J. Hornowski.
207 Focus of Pigmented Necrosis in Liver. (Fall von herdförmiger biliärer Lebernekrose.) A. Roccavilla.
208 Diabetes from Compression of Pancreas by Chronically Distended Large Intestine. (Zur Kenntnis des enterogenen Diabetes.) A. Brosch.
209 Syphilis of the Lung. (Zur Kenntnis der Lungensyphilis beim Erwachsenen, zugleich über sogenannte muskuläre Lungenzirrhose.) T. Tanaka.
210 Giant Cells Clustering Around Degenerated Fibers. (Bildung von Fremdkörper-Riesenzellen um degenerierte elastische Fasern.) H. Schum.
211 Vater-Pacini Bodies in Pancreas. (Vorkommen von Vater-Pacini'schen Körperchen am menschlichen Pankreas und über eine krankhafte Veränderung derselben.) W. Ceelen.
212 Alveolar Echinococcus Disease in Man. V. Mirolubow.
213 Xiphopagus Operated On Soon After Birth; Surviving Twin in Good Health at Age of 52. (Nachtrag zu der Mitteilung von Dr. Böhm über einen Fall von Xiphopagen, 1866.) H. Coenen.

Wiener klinische Wochenschrift

September 5, XXV, No. 36, pp. 1343-1374

214 Technic for Phimosis Operation. K. Büdinger.
215 *The Question of Bacillus Carriers. (Ueber Cholezystitis und Dauerausscheider und den heutigen Stand der Therapie.) E. E. Pribram.
216 Sacral Dermoids. J. Winkler.
217 Rupture of the Quadriceps Tendon. R. von Rauchenbichler.
218 *Acute Ascending Spinal Paralysis. (Zur Frage der Landryschen Paralyse—Poliomyelitis acutissima.) R. Blum.
219 Medical Inspection of Schools from the Standpoint of Nervous Disease. (Neuropathologen als Schulärzte.) L. Haskovec.

215. **The Question of Bacillus Carriers.**—Pribram reviews the measures that have been adopted to date to put an end to the elimination of typhoid bacilli after recovery from the disease, but states that the results have often been disappointing and the ultimate outcome in the cases in which vaccine therapy was applied has not been published, to his knowledge. Dehler and a number of others have removed the gall-bladder without other cause than to arrest the elimination of typhoid bacilli in the stools, and a number of cases have been reported in which the stools were permanently free thereafter from the bacilli. Pribram, however, gives the details here of a case in which the elimination of bacilli continued months and years after the gall-bladder had been removed for other reasons. There was no known history of typhoid in the case, but the woman in 1904 had resided in a house in which two persons were having typhoid. She had had two years previously attacks of gall-stone colic and she may have become infected with typhoid bacilli at that time or it is possible that she may have been infected first and may have been responsible for the two clinical cases. Her gall-bladder was removed in 1908 on account of the gall-stone trouble. In 1911 she complained of dragging pains in the abdomen and paratyphoid B bacilli were found in the stools but no typhoid bacilli. She has continued to void the paratyphoid bacilli ever since, unaffected by the most diverse therapeutic measures, including thorough courses of hexamethylenamin and chloroform. This case teaches the folly of removing the gall-bladder solely as a means to get rid of the bacilli, as they persist in this woman although she long has had no gall-bladder. Pribram urges that the public health service should keep track of bacillus carriers and if they cannot be cured arrangements should be made to segregate them and supply means of support for them—not in idleness but in work free from danger to the community. He cites the case of our American "Typhoid Mary" as "a brilliant instance of hygienic forethought and care on the part of the state."

218. **Acute Ascending Poliomyelitis.**—Blum reports two cases of the most acute form of Landry's paralysis. The first patient was an entirely healthy Vienna woman of 25 who spent five days at Berlin with her parents. A strong draft blew through the sleeper on her way to Berlin. On her return she found her legs so weak that she could not stand and she felt exhausted. By the next day there was total flaccid paralysis of the legs and the tendon reflexes were abolished but there was no pain and no tender points could be found and the patient's mind was clear. The next day the flaccid paralysis had extended to the arms and by the third day there was a slight rise in temperature. By the fourth day swallowing was difficult, the heart action rapid, respiration shallow and fast and signs of pneumonia became superposed on the typical Landry syndrome, the patient dying in stupor the ninth day. There was no reason to suspect syphilis; the Wassermann reaction was negative. The patient had not had a sore throat nor intestinal trouble, not even a coryza or any infectious disease. The other patient was a previously healthy young man; the syndrome came on with severe pains and the young man died the third day, the paralysis not having extended to the arms in this case. The mind was constantly clear, the pulse 80. The treatment applied in the first case was aspirin, quinin and hydrotherapeutic measures, but the changes in the pulse and respiration soon required stimulants. Digitalis, caffein and oxygen displayed only transient benefit.

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LXXI, Nos. 1-2, pp. 1-448. J. Veit Festschrift. Last indexed September 14, p. 908

220 Sterilization of the Hands. (Kritik der Händedesinfektionsmethoden.) R. Schaeffer.
221 Is Eclampsia an Immunity Reaction? A. Bauereisen.
222 The Visible Blood-Vessels in the Female Bladder. (Zur Lehre von den kystoskopisch sichtbaren Blutgefässen der weiblichen Blase nebst Bemerkungen über die didaktische Verwendung derselben.) F. Fromme.
223 *Insufficiency of the Liver and Creatinin Metabolism During Pregnancy. (Zur Frage der Leberinsuffizienz und des Kreatininstoffwechsels während der Schwangerschaft und bei den Schwangerschaftstoxikosen.) T. Heynemann.
224 *Nitrogen, Phosphorus and Sulphur Metabolism During Pregnancy. (Untersuchungen über den Stoffwechsel von Stickstoff, Phosphor und Schwefel bei Schwangeren.) E. Landsberg.
225 Advantages of Opening and Spreading the Uterus in the Wertheim-Schauta Operation for Genital Prolapse; 110 Cases. W. Stoeckel.
226 *Embryonal Tissue Inclusions in Origin of Tumors. (Zur Kenntnis der normalen und abnormen embryonalen Gewebseinschlüsse und ihrer pathologischen Bedeutung.) R. Meyer.
227 *Hemostasis with Abdominal Hysterectomy for Cancer. (Blutstillung bei der abdominalen Karzinomoperation.) F. Fromme.
228 Transplanted Ovary Does Not Get Normal Blood-Supply. (Kann ein transplantiertes Ovarium sich ebensogut entwickeln wie ein in loco gebliebenes?) M. Kawasoye.
229 Biologic Tests of Pregnancy. (Ueber den Lipoidgehalt und die Kobrahämolyse aktivierende Fähigkeit des Serums Schwangerer und Nichtschwangerer.) R. Roemer.
230 Obstetrics in Private Practice. (Statistisches über 600 Geburten der Privatpraxis.) H. B. Semmelink.
231 *Determination of Calcium Content of Blood. (Der Kalkgehalt des menschlichen Blutes, besonders beim Weibe und eine praktisch-klinische Methode denselben quantitativ zu bestimmen.) A. J. M. Lamers.
232 Repeated Spontaneous Rupture of the Uterus. G. Becker.

223-4. **Alleged Insufficiency of the Liver in Pregnancy.**—Heynemann devotes over fifty pages to the report of his chemical research on the liver functioning and creatinin metabolism during pregnancy. He states that he found nothing to suggest any special typical injury of the liver from the existence of a pregnancy and nothing to suggest that the liver is especially involved in the production of eclampsia. Landsberg comes to practically the same conclusions, declaring that a pregnancy is a purely physiologic process, favorable rather than harmful for the woman's organism as a whole. He insists that the changes in the functioning of the organism should be regarded as physiologic, necessary and beautifully adapted to their purpose.

226. **Aberrant Embryonal Cells.**—Meyer recently exhibited a collection of 300 colored photographs of tumors originating in aberrant embryonal cells, and he here gives a catalogued account of them and expatiates on the processes involved. Thirty-six illustrations in the text explain the salient points.

227. **Hemostasis with Abdominal Hysterectomy for Cancer.**—The two cases reported by Fromme show that venous hemorrhage may occur at the close of an operation of the kind, rebellious to tamponing and impossible to control by ligation of the vessels owing to their being embedded in tough fascia tissue or because the hemorrhage issues from an opening in the sacrum. It is easy to control the hemorrhage, however, with two or three long clamps, the handles left protruding when the abdominal wound is sutured around them. The presence of the clamps did not disturb the healing process in the two cases reported; he advises not to remove the clamps for forty-eight hours.

231. **Determination of Calcium Content of the Blood.**—Lamers reviews recent research which is confirming more and more the importance of the calcium content of the blood as a factor in health and disease. He found the percentage low in the four women with eclampsia whom he has had opportunity to examine. Drennan called attention last year to the abstraction of calcium salts from the mother's blood by the fetus as a possible cause of eclampsia. Lamers' research on fourteen non-pregnant and thirteen pregnant women showed a higher calcium content in the pregnant. He has devised a reliable technic for quantitative determination of the calcium content of the blood: The blood is prevented from coagulating by addition of extract of leeches and the plasma is pipetted after centrifuging. The plasma is evaporated and burned to ash and this is dissolved with dilute hydrochloric acid and the resulting calcium chlorid filtered. The filtrate is rendered slightly alkaline with ammonium hydroxid, and then ammonium chlorid and acetic acid are added until there is a weak acid reaction. It is then heated to the boiling point and a few drops of ammonium oxalate are added and after a few minutes it is heated again and more drops of the oxalate added and the whole set aside in a warm place for four hours. The precipitate is then filtered and hot diluted sulphuric acid is poured on the precipitate in the filter until all the calcium oxalate has been transformed into calcium sulphate and oxalic acid, after which it is rinsed with hot water until no further sulphuric acid can be detected in it with barium chlorid. The oxalic acid in the filtrate is then quantitatively determined by titration. He uses for this a 1/50 normal solution of potassium permanganate until the fluid turns a permanent pink.

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LXXVI, Nos. 1-2, pp. 1-166. Last indexed August 31, p. 755

233 Atony of the Stomach. (Atonia ventriculi.) K. Faber.
234 Inclusions in Red Blood-Corpuscles After Splenectomy for Hemolytic Anemia. (Ueber merkwürdige Erythrozyteneinschlüsse bei einem Fall von Milzexstirpation.) O. Roth.
235 *Experimental Research on Autoserotherapy. G. Eisner.
236 Changes in Chlorid Content of Blood with Gastric Secretory Disturbances. (Aenderungen des Chlorgehalts im Blutserum bei Sekretionsstörungen des Magens.) W. Arnoldi.
237 *Tests of Pancreas Functioning. (Untersuchungen zur funktionellen Prüfung des Pankreas.) J. Wertheimer.
238 Favorable Influence of Meat Extractives on Utilization of Vegetable Foods. (Einfluss der Extraktivstoffe des Fleisches auf die Ausnützung vegetabilischer Nahrung.) H. Wolff.
239 Influence on Eosinophil Cells of Epinephrin, Pilocarpin and Physostigmin. (Ueber den Einfluss sympathiko- und autonomotroper Substanzen auf die eosinophilen Zellen.) G. Schwenker and H. Schlecht.
240 *Reduction of High Blood-Pressure by Dieting. (Diätetische Beeinflussung pathologischer Blutdrucksteigerungen.) V. Hecht.
241 The Blood-Picture with Endemic Goiter and Means to Influence It. (Ueber das Blutbild bei endemischem Kropf und seine Beeinflussbarkeit durch Schilddrüsen- und Joddarreichung. J. Bauer and J. Hinteregger.
242 *Two Cases of Fatal Yellow Atrophy of the Liver After Salvarsan. (Zur Frage der Leberveränderungeu nach Salvarsan.) Severin and Heinrichsdorff.

235. **Autoserotherapy.**—Eisner has been trying on animals Gilbert's method of treating serofibrinous pleurisy, especially the tuberculous, by aspirating from 1 to 3 c.c. of the pleural effusion and reinjecting it into the subcutaneous tissue without withdrawing the needle. A reaction followed in every instance when the rabbit or guinea-pig was tuberculous. Leukocytosis regularly followed the injection also in all cases; this may explain the favorable results reported by many clinicians from this autoserotherapy.

237. **Tests of Pancreas Functioning.**—Wertheimer has been giving Ehrmann's palmin test a thorough trial (described in THE JOURNAL, Aug. 31, 1912, p. 755), and extols its simplicity and reliability. No other ferments occurring in the gastro-intestinal canal can disturb the findings, and they can be utilized also for qualitative determination of pancreas secretion. The patient takes a palmin test breakfast: 30 gm. of rice flour are dissolved in 200 c.c. of water slightly salted and warmed. Then 75 gm. of liquefied palmin is stirred into the porridge and the stomach content is siphoned out two or two and one-half hours later. Some of the stomach content is thoroughly mixed in a reagent glass with a mixture of nine parts petroleum ether and one part benzol. The supernatant fluid is decanted and a 3 per cent. solution of copper acetate is added. If there are any free fat acids in the stomach content, they pass into the ether-benzol mixture and stain it green when the copper acetate solution is added. If the reaction is negative, the test should be repeated under addition of $NaHCO_3$. If the pancreas is working properly the result will be positive. If it persists negative, this can be explained only by functional incapacity of the pancreas or obstruction of its outlet. The experiences in a number of clinical cases are tabulated; in some a retention stomach tube was used which permitted instructive findings.

240. **Dietetic Treatment of Pathologic High Blood-Pressure**—Hecht states that regulation of the diet and physical and mental repose will soon bring down a pathologically high blood-pressure without fail, and in many cases reduce it to normal. The diet must be regulated to restrict intake of meat, fluids in general, alcohol, salt and condiments, while giving the prominent place to fresh vegetables, served with

the water in which they are cooked. He gives typical instances to show the benefit from these measures in fifteen cases of high blood-pressure with much corpulence, in eight of high blood-pressure with sclerosis of the kidney and albuminuria, and in eight without these. Appropriate regular gentle exercise is an important aid.

242. **Yellow Atrophy of the Liver Under Salvarsan.**—In one of the two fatal cases reported the changes in the liver did not become clinically manifest at a time to suggest their connection with the salvarsan. But this was evident in the second case, and in both the age of the changes in the liver coincided with the time since the salvarsan had been given, and in both arsenic was found in the organs and especially in the liver.

Zeitschrift für Urologie, Berlin

August, VI, No. 8. pp. 621-726

243 Cystopurin as a Disinfectant for the Urine. G. Krebs.
244 Diverticula in the Urethra. (Ueber Harnröhrendivertikel.) W. Denk.
245 Determination of Length of Individual Posterior Urethra. (Untersuchungen über die Länge der Pars posterior urethrae bei Urethritis und Urethroprostatitis.) H. Lohnstein.

Zentralblatt für Chirurgie, Leipsic

August 31, XXXIX, No. 35; pp. 1185-1216

246 *Improved Technic for Stasis Hyperemia. (Hyperämie oder Lymphstauung?) Gelinsky.
247 Chip from Scapula to Close Defect in Skull. (Zur Frage der Deckung von Schädeldefekten.) W. Röpke.

246. **Improved Technic for Hyperemia Treatment.**—Gelinsky's observation has convinced him that the benefit from Bier's therapeutic obstructive hyperemia can be obtained equally well by constriction too loose to arrest even the venous circulation. The best results are obtained when the constricting bandage induces merely an edematous swelling of the limb, without signs of hyperemia. The more superficial the inflammatory process, the smaller and leaner the limb, the looser effectual constriction can be applied. Erysipelatous processes respond most readily, while processes in the knee require maximal constriction. The inflammation spreads in the lymphatics and lymph spaces, so it is rational to assume that the constriction arresting the circulation of lymph is the main factor in the benefit from stasis hyperemia treatment, and that this alone suffices. The pain is arrested and no inconveniences follow this slight compression which does not require supervision. It is an important aid in warding off complications after machinery injuries of the hands requiring suturing of tendons, etc.; it is also valuable in prophylaxis after an emergency operation on a joint on the battlefield. For children and thin women, the elastic bandage need not be stretched at all; for robust men and very fat women it can be drawn out 0.5 cm. to each 10 cm. stretch. The soft rubber elastic bandage used is distributed over the entire upper arm from elbow to axilla but for the thigh it is wound in superposed layers. This modification of Bier's original technic for obstructive hyperemia permits its extensive use in general practice, and Gelinsky commends it to all as combining all the advantages of the original technic while avoiding all its drawbacks.

Zentralblatt für Gynäkologie, Leipsic

August 31, XXXVI, No. 35, pp. 1137-1176

248 Midwives and Puerperal Morbidity. (Einschränkung der inneren Untersuchung durch die Hebamme und ihr Einfluss auf die Morbidität des Wochenbettes.) D. Grünbaum.
249 *Calcium Content of Blood. (Der Kalkgehalt des menschlichen Blutes.) G. Linzenmeier.
250 Hypophysis Extracts. (Zur Wirkung der Hypophysenextrakte.) F. Lehmann.

249. **Calcium Content of the Blood.**—Linzenmeier calls attention to Lamers' method (described in Abstract 231 above), as a notable advance, expatiating on the importance of the calcium content as recent research seems to have demonstrated that the calcium metabolism is in the charge of the glands with an internal secretion, and that the ovary in particular has a predominant part in it. This makes it necessary for gynecologists to welcome a simple chemical test which will give an oversight of the subject of calcium metabolism. Linzenmeier, however, declares that the examination should be made of the whole blood, not of the plasma alone, as the blood-corpuscles may contain calcium. This renders the addition of the leech extract unnecessary and thus simplifies the technic. Linzenmeier advises further to use a little more blood than the 20 c.c.; with such a small amount the limits of error are too close.

Gazzetta degli Ospedali e delle Cliniche, Milan

August 27, XXXIII, No. 103, pp. 1073-1080

251 Semiflexed Attitude of the Leg as Sign of Appendicitis. (Il segno della gamba nell'appendicite.) L. Minervini.

August 29, No. 104, pp. 1081-1088

252 *Keeping Patient Under Influence of Narcotics in Treatment of Acute Meningitis; Two Cases. (A proposito di un tentativo terapeutico fortunato in due casi di meningite acuta.) T. Silvestri.

252. **Treatment of Acute Meningitis.**—Silvestri reports a favorable outcome in very severe epidemic meningitis in a girl of 15 and a young man whom he treated by keeping them constantly under the influence of bromids and calcium lactate supplemented by chloral and morphin, ice to the head and revulsion along the spine. This treatment was based on (1) his success with it in a case of puerperal mania, one of typhoid delirium and in two children with convulsions and high fever; the morphin was omitted for the children; (2) on Stroganoff's success with his prophylactic chloral treatment of eclampsia, and (3) on the research and experiences which have shown that inflammation is prevented or checked by arresting with an anesthetic the reflexes starting in the focus of inflammation. The calcium lactate was selected for its sedative action on the innervation of the vegetative system, its restoring action on the central nervous system, its harmlessness, its efficacy in treatment of convulsions in general, and its prophylactic action in respect to poisons causing contracture, and its property of arresting the production of effusions. The girl had four relapses of the meningitis in the five weeks before convalescence was complete. The young man rapidly recovered but was left with otitis media from which a diplococcus was cultivated.

Policlinico, Rome

August 25, XIX, No. 35, pp. 1261-1296

253 Pathology and Treatment of the Thymus. (Malattie del timo.) T. Pontano.

August, Medical Section, No. 8, pp. 335-382

254 Hemorrhagic Erosions of the Stomach with Cancer in the Pancreas or Cirrhosis of the Liver; Two Cases. G. Cappello.
255 Case of Congenital Heart Disease. (Ricerche grafiche in un caso di malattia congenita e combinata del cuore.) C. Pezzi.

August, Surgical Section, No. 8, pp. 337-384

256 Pathogenesis of Traumatic Peritonitis Without Perforation of the Intestines. G. Frattin.
257 Hypophysis Tumors. (Struma ipofisario iperplastico con acromegalia e contributo alla patologia e chirurgia dei tumori ipofisari.) N. Leotta. Commenced in No. 7.

Riforma Medica, Naples

August 24, XXVIII, No. 34, pp. 925-952

258 Kala-Azar in Children. (Considerazioni spora 63 casi di anemia da Leishmania osservati nella Clinica pediatrica di Palermo.) R. Jemma.
259 *The Vaccinated and Revaccinated Among 2,979 Small-Pox Patients at Palermo 1911-1912. (L'immunita vaccinica dei vaiolosi e gli innesti immunizzanti practicati nei lazzaretti.) G. Pollaci.

259. **Small-Pox.**—Pollaci states that in the city and province of Palermo there have been 6,353 cases of small-pox since 1910, with 2,060 deaths. He cites the details of 2,979 cases at the two isolation hospitals in his charge. His data indicate that the protection from vaccination expires after five years. Vaccination in childhood is of little protection against contracting the disease in adult life, but it still has a marked attenuating influence on the small-pox. Fifty-four of the patients had been revaccinated, but the four deaths in this group were in patients with preexisting tuberculosis, syphilis or heart disease, with one exception.

Brazil-Medico, Rio de Janeiro

August 8, XXVI, No. 30, pp. 305-316

260 The Armadillo as the Host of Trypanosomes. (Sobre um trypanosomo do tatu, Tatusia novemcincta, transmittido pela Triatoma geniculata Latr. 1811. Possibilidade de ser o tatu um depositario do Trypanosoma Cruzi no mundo exterior.) C. Chagas.

Hospitalstidende, Copenhagen

September 11, LV, No. 37, pp. 1009-1032

261 Case of Pulsating Exophthalmos Cured by Ligation of Common Carotid. J. Ipsen.

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SOME CAUSES OF STERILITY AND IMPOTENCE IN THE MALE *

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As the body-growth ceases in adolescence, the nutritive surplus no longer used in growth overflows periodically through the genital organs. Thus during the week preceding the menstrual flow, a woman's weight increases from 3 to 7 pounds, this increment being lost soon after the advent of the flow. In certain lower animals the discharge of ova and spermatozoa is as plainly excretory as is the voiding of urine in higher forms; even in frogs and fishes the testis discharges its spermatozoa and the kidney its urine through one and the same channel; in the very king of beasts, man himself, while the kidney is provided with a new and private sewer, the ureter, the testis continues to use the frog's old urinary duct, now called epididymis and vas deferens. This excretory function of the testis and its duct illumines both its intimate alliance with the kidney and its frequent infection from the blood.

That the formation of spermatozoa by the testis is unnecessary to the normal life of the individual is proved by the human subjects of bilateral retention of the testes, who exhibit normal masculinity including sexual desire and power, although their testes produce no spermatozoa. Many other familiar observations show that the essential value of the testis to the individual is not spermatogenesis, but the transformation of overgrowth into energy. Spermatogenesis waxes and wanes with the animal's nutritive surplus; it ceases during starvation but is excessive in the overfed barnyard fowl and in the human glutton; it is absent in many animals during the winter though active in the warmer months; it ceases in many wild animals while imprisoned indoors, but is revived by an outdoor life.

This secondary function of the testis, spermatogenesis, may be arrested by influences too slight to disturb the primary function, namely, the energizing of the animal. Thus a certain exposure of the testis to the x-ray arrests spermatogenesis without impairing general nutrition or sexuality. The replacement of a dog's testes into the abdomen does not impair his sexual power, but abolishes the production of spermatozoa. Moreover, certain influences which arrest spermatogenesis do not prevent ovulation; thus, after transplantation of ovary or testis to another animal, ova may ripen but spermatozoa are not produced. In my studies on the sterility of mules it was found that while both male and female exhibit sexuality, yet the testes of the one never produce spermatozoa, while the ovaries of the other may furnish mature ova. Iwanoff in Paris has observed that the male offspring from the union of American buffalo bulls with domestic cows are sterile, because their testes, like those of the mule, fail to produce spermatozoa; the female offspring of such union, however, are fertile by buffalo bulls. The male offspring of this latter union (three-fourths bison) produce spermatozoa.

The fact, by the way, that the adult testis transplanted into a castrated animal, while failing to produce spermatozoa, nevertheless preserves the sexual desire and power of the castrate, suggests a more promising method of conserving sexuality in the human subject than Brown-Séquard's orchitic extract. It might be as successful as has been the continuance of menstruation in castrated women by transplanted ovaries, abundantly demonstrated by Tuffier and others.

My apology for exploiting this familiar topic is a desire to dispel the still prevalent delusion that spermatogenesis is the essential function of the testis; that vasectomy or damage to the ejaculatory ducts during perineal prostatectomy impairs sexual power by preventing the discharge of spermatozoa. The facts cited and many others prove that neither the discharge nor even the production of spermatozoa is necessary to sexuality. The investigation of childlessness should begin not with the curettage of the wife, but with microscopic inspection of the husband's semen. That the testes of a sexually vigorous man may produce no spermatozoa was proved in a patient in whom I opened the caput epididymis and expressed the contents of the rete testis without finding spermatozoa. It is certain that blood-infections, including mumps and typhoid, may destroy spermatogenesis without impairing masculinity; and there is reason to believe that sterility thus produced is not rare.

CONSERVATION OF ENERGY BY INTERSTITIAL CELLS

What becomes of the energy destined for incarnation in spermatozoa, when the production of these is prevented by retention of the testis or other local influence? Such testes invariably present one striking feature, namely, a pronounced increase in the number and size of the interstitial cells. Whatever be the local agency which arrests spermatogenesis, this exaggerated activity of the interstitial cells is evident; conversely, the resumption of spermatogenesis after the repair of damage done by the x-ray or other agency is accompanied by a decrease in the number and size of these cells. It seems then probable that both interstitial and tubule cells are transformers of energy; that they divide the pabulum suitable for such transformation; and that arrest of spermatogenesis by local cause, such as the x-ray, may preserve to the animal through the increased activity of the interstitial cells some of the energy otherwise expended in spermatozoa. Many clinical observations support this suggestion; for example, a stallion 4 years old was castrated, two normal testes being removed from the scrotum. His sexual vigor continued undiminished, and he became unmanageable; finally an abdominal exploration was made and a third testis found and removed, after which the animal subsided into a gelding. In this third testis there were no spermatozoa or spermatic tubules, while the interstitial cells were excessive in size and number.

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* Chairman's Address before the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912; read in the Symposium on Genital Pathology and Surgery.

VASOLIGATION

If, as many facts indicate, this speculation shall prove to be well founded, a possible means for conserving both general and sexual vigor is available. For in studying in animals the effects of ligation of the vasa, I was impresssed with the excess of interstitial cells induced thereby. If the outlet of one of an animal's testes be thus closed, the other remaining open, and both be removed several months later, the interstitial cells of the occluded side are found to be distinctly more numerous than those of the other. The reason for this seems to be the reduced activity of spermatogenesis in the occluded testis. It is noteworthy that in the mule, that symbol of energy and endurance, the testis normally presents these two features—lack of spermatozoa, and exuberance of interstitial cells.

Clinical observations on this question are too few and ambiguous to be convincing. In two cases in which I ligated the vasa to arrest a true spermatorrhea and thus relieve psychic depression, the consecutive improvement in nutrition was not immediate, as might be expected from autosuggestion, but was gradual during several months. In one of these cases the ligatures were subsequently removed, whereupon spermatozoa reappeared in the seminal fluid, but not in the urine. In former years the adenomatous prostate was often reduced in size by vasectomy; and it is now similarly reduced by x-raying, not the prostate, but the testicles. These two measures, which produce the same results on the prostate, have just one common effect on the testis; namely, decrease of spermatogenesis and increase of interstitial cells. I might add that whenever I feel justified in occluding the vas for any purpose, I now do this with a silk ligature, not by vasectomy, over which the ligature has two advantages: first, that it surely occludes the vas, while the excision of a piece of this duct has been repeatedly followed by spontaneous restoration of its lumen in men and in dogs; second, that by tying, the canal of the vas is merely occluded, not obliterated; and it may be restored by removing the ligature—a more simple procedure than late anastomosis of the cut ends imbedded in cicatricial tissue. It would seem not only that vasoligation might properly supersede vasectomy for the permanent sterilization of defectives now authorized by seven states in this country, but also that vasoligation opens a new therapeutic field in the temporary occlusion of the vasa. The arrest of spermatorrhea and decrease of too frequent emissions have been demonstrated; increase of general and sexual vigor is still problematic.

DUCTLESS GLANDS AND TESTES

The close relation between the ductless glands and the testes is exploited in an already voluminous literature, clinical and experimental. In this multitude of undigested observations may be discerned a new field of clinical pathology and therapy. We have already learned to recognize the results of certain pronounced lesions of these glands, such as cretinism, the Fröhlich syndrome, acromegaly and certain forms of infantilism and of precocious puberty; and we have seen these morbid conditions sometimes cured by the administration of thyroid, and by operation on the hypophysis. Incontinence of urine has sometimes been arrested by thyroid substance, asthma relieved by epinephrin, deferred puberty stimulated through the reduction of a persistent thymus; and we are beginning to recognize in minor lesions of these ductless glands the pathology of certain sexual disorders which we have hitherto, through lack of knowledge, called "neuroses." That the syndrome called sexual neurasthenia, for example, commonly ascribed to abuse of the sexual function, may be produced by thyroid disease, has been repeatedly demonstrated.

Another sequence is illustrated in a case reported two years ago under the caption "retrograde puberty." This patient when 27 years old had a pulmonary abscess, followed by gradual atrophy of the testes, abolition of sexual power, loss of body hair and nocturnal polyuria. In the following twelve years no erection occurred. The symptoms suggested pituitary disease, although the x-ray revealed nothing abnormal in that region. After pituitary substance, thyroid and epinephrin had proved useless, the administration of adrenal substance (including the cortex as well as the medulla of the gland) was followed by marked decrease of polyuria (from 1/30 to 80 ounces daily), distinct enlargement of the atrophied testes, erections and finally cohabitation — though always without orgasm or emission. This improvement has been maintained over two years, except for brief periods when the remedy was discontinued. During such periods the polyuria increased and sexual power diminished.

This case illumines that interesting type comprising men sexually normal, except that masturbation, coitus and erotic dreams alike fail to induce orgasm or emission; it also further illustrates the synergy between the adrenal cortex and the interstitial cells of the testis, exemplified in the precocious puberty of the infant Hercules type.

TESTIS AND ITS DUCT-EXCRETORY ORGANS

The recognition of the testis as an excretory organ illumines the frequent invasion of its tubules by mumps, typhoid and colon bacilli, *Spirochæta pallida* and other blood-infections. Moreover, just as damage to the kidney tubules from blood-infection often occurs without the symptoms of acute nephritis, so the excreting tubules of the testis also may be injured without the signs of acute orchitis; in short, chronic orchitis, producing sterility and impotence, may, like chronic nephritis, result from infections of the throat, intestine or other remote region, without acute symptoms in the testis.

The human epididymis is the modified kidney of cold-blooded vertebrates; its convoluted tubules are still lined with ciliated cells identical with those of the frog's kidney. That its phylogeny inclines toward its early urinary rather than its later genital affiliation is indicated by its freedom from injury under circumstances which cause degeneration of the testis, such as hybridism and exposure to the x-ray. It seems plausible that this ancient kidney, the epididymis, should, like its successor, the mammalian kidney, be liable to infection from the blood-current, and that some infections of the lower seminal duct — vesicles, prostate, urethra —may proceed downward from the epididymis, just as many infections of bladder and urethra descend from the kidney. That the tuberculous infection often does thus descend from epididymis to prostate is now generally recognized; but that other infections of the genital duct pursue the same course is not so commonly understood. Yet there are many cases recorded in which acute pyogenic infection of the epididymis, the urethra being uninfected, has been derived from the blood. Among recent examples is Gruber's case of staphylococcus pyemia; the left epididymis, vas and vesicle were full of pus, while testicle and urethra were free from infection.

Evidently we should enlarge our conception of epididymis infections, hitherto dominated by the gonococcus, so as to recognize their frequent origin in the blood as well as in the urethra. Even anterior urethritis may be an extension of infection beginning in the upper genital tract; the urethral discharge which sometimes follows the epididymo-orchitis of mumps, even in children, is an example. Many observers have described acute nongonococcal urethritis and speculated as to its etiology, without mentioning the possibility of a descending infection from the upper seminal duct. Acute and chronic prostatitis also may result from endogenous as well as exogenous infections.

The seminal vesicle is known to harbor gonococci for an indefinite period; it seems plausible that it, like the gall-bladder, may long harbor bacteria derived from the blood-stream. Huet has proved this for animals in which, after recovery from experimental infection, the pathogenic bacteria used were found in the vesicles even when other organs were sterile. Marchildon found the Eberth bacilli in vesicles and prostate of two patients dead from typhoid; Gould found them in fluid expressed from prostate and vesicles after recovery from typhoid.

Chronic indurations of the epididymis, without history of acute swelling, are common in elderly men, often with coexistent hydrocele. In operating for hydrocele I have in late years incised the chronically hardened epididymis, finding small pus collections and identifying streptococcus, *B. coli* and in one case the spirochete, the latter two clearly derived from the blood.

CATHETERISM OF EJACULATORY DUCTS

The pus infections of the male genital duct remained until the twentieth century practically free from surgical interference; even the accessible epididymis has always harbored gonorrheal pus, undisturbed by surgery. We now know that epididymis, vas and vesicle become infected from either end of this tube; that our usual medical treatment of these pus tubes in the male is as impotent as was the similar treatment of pus tubes in the female formerly practiced. We have learned to drain the vesicles by incision through the perineum or ischiorectal fossa; to inject medicated solutions into vas and vesicle through a vasostomy, and to incise the infected epididymis and tunica vaginalis. Yet these measures may fail to eradicate the infection in those frequent cases in which occlusion of the ejaculatory duct causes stagnation of secretions.

Catheterism of these ducts is desirable. That their minute orifices may sometimes be entered through the urethroscope was shown in 1895 by Klotz, who thus injected a liquid into the vas and epididymis. By filling vas and vesicle with milk through a vasostomy, and massaging them from the rectum, the recognition of these minute orifices is simplified; and in cases in which the duct was patulous, I have succeeded not only in repeating Klotz' success (without the epididymitis, which was averted by the vasostomy) but also in passing a filiform into the vas. With the aid of the newer urethroscopes and of vasostomy, sounding and catheterism of the ejaculatory ducts should become practicable and valuable.

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SURGICAL TREATMENT OF PROLAPSE OF THE UTERUS AND WALLS OF THE VAGINA

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In reviewing the records of St. Mary's Hospital from Sept. 30, 1889, to Sept. 1, 1912, I find that 629 women have been operated on for prolapse of the uterus. The patients coming to this hospital are largely from agricultural communities. The majority of these cases were of the more serious forms of this condition brought about by changes in the tissues, the result of repeated pregnancies aided by physical exertion due to the occupation of the patients. In all of these patients the cervix presented itself at the vulvar orifice or protruded from the vagina with more or less of the vaginal wall. In many of the senile cases the entire uterus and a large portion of the bladder and rectum composed the constituents of the prolapse.

It is a curious fact that, while erosion and ulceration of the cervix are comparatively common, there were but two cases of malignancy recorded. This observation, however, cannot be accepted for its face value, since cases of malignant disease with prolapse may have been classified only as carcinoma of the uterus. The inference is interesting as showing that chronic irritation in a cervix exposed to the air and therefore dry may not have so great an influence in the causation of adenocarcinoma as might occur under moist conditions. Both the cases which occurred in our series were epitheliomas.

These cases of prolapse can readily be classified into three groups:

The first includes those occurring during the child-bearing period, in which usually there is supravaginal hypertrophy of the cervix. This elongation may amount to from 3 to 7 inches. The vaginal face of the cervix protrudes from the vulva but the body of the uterus maintains a position in the pelvis. The resulting cystocele and rectocele are seldom of extreme degree.

The second group includes those cases ordinarily seen during the age period of from 45 to 55 years when the child-bearing function is no longer of consequence. The uterus is still of fair size.

In the third or senile group of cases will be found elderly women in whom the uterus has undergone advanced atrophy. This organ, with the cystocele and retrocele and often the entire vagina, lies outside of the body.

The cystocele is usually the most striking feature in these cases, especially those found in Groups 2 and 3. It is a condition most difficult to remedy, and one which must be remedied to cure the patient. So long as hydrostatic pressure is brought to bear on the anterior vaginal wall by urine which remains below the pubic arch, I do not know of an operation which will relieve the patient. A permanent cure can be effected only by some method which will restore the bladder to a situation above the pubic arch.

The older operations for cystocele, those of Martin[1] and Stoltz,[2] for example, have long been abandoned because the scar tissues which were formed by narrowing the vagina failed to control this phase of the condition. The secret of cure in all of these cases therefore lies in loosening up the bladder and by some means restoring it to its position in the upper pelvis and lower abdomen.

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1. Martin: Medical and Surgical Gynecology, Pozzi, i, 499.
2. Stoltz: Medical and Surgical Gynecology, Pozzi, i, 508.

I. TREATMENT OF PROLAPSE DURING THE CHILD-BEARING PERIOD

Prolapse during the child-bearing period must be treated so as not to interfere with the child-bearing function. It should be remembered that many of these patients continue to bear children in spite of the prolapse.

We have found that high amputation of the cervix, not closer than one-half inch to the internal os, in connection with the external operation on the round ligaments, as originated by Alexander,[3] and with some type of perineal operation which elongates the posterior vaginal wall, will readily cure at least 96 per cent. of these patients. The cystocele is usually due to protrusion of the cervix, and since this protrusion is nearly always accompanied by supravaginal elongation of the cervix, the anterior vaginal wall, carrying with it the bladder, can be transplanted upward several inches by high amputation of the cervix. Occasionally, in amputating the cervix, we have loosened the tissues about the cervix posteriorly and laterally, exposing the uterosacral ligaments so that they could be shortened simultaneously.

Since the uterus in these cases is freely movable and comes into place readily, we prefer the external to the internal operation on the round ligament unless there be complications within the abdomen. The external method gives quite as good results as the internal and the patient will usually be more comfortable subsequently.

It is certainly true that an internal operation on the round ligament of any type is sometimes followed by chronic distress and pain, which is exceedingly rare following the external operation. The external operation is an excellent means of maintaining a movable uterus in position, yet it is an operation with but a small field of usefulness because uncomplicated retroversion seldom requires treatment.

We have complete records of the physical examination of many thousands of women. While the normal position of the uterus in the majority of women, perhaps 75 per cent., is more nearly anterior than posterior, it must be acknowledged that in at least 25 per cent. and at various ages retroposition exists. The condition will be found as often in the young girl as during the child-bearing period and after the menopause, and it is probable that retroposition of the uterus is even more common than these data would suggest. It is altogether probable that a uterus in retroposition is often lifted into the anterior position by the bimanual examination itself, before its position is definitely determined.

In performing operations in the upper abdomen, it has been our practice for some years to make a complete examination of the abdomen with the gloved hand and we have found retroposition of the uterus to exist in at least 50 per cent. of the women examined. The evidence thus obtained, however, is robbed of some of its value, since these patients were under an anesthetic, which might influence relaxation of the uterine supports.

At one period the Alexander operation was practiced indiscriminately by many surgeons. Fixing a movable retroversion for the cure of neurasthenic symptoms was an easy matter, but it did not cure the patient. We often forget that the brain and nervous system are as large and as heavy as the liver, and that the production of thought, sensations, etc., is the function of the central nervous system as much as the production of bile is one of the functions of the liver. Disturbance of the function of the brain and nervous system results in disturbed thoughts or sensations, which extend to all parts of the body. I have no sympathy with the view so often advanced that neurasthenia, neuroses, etc., always depend on physical causes independent of the brain and nervous system, just as though the nervous system had no right to have functional disturbances.

When it is considered that a large percentage of women have retroposition of the uterus, and that about 22 per cent. have a markedly movable kidney, it can be seen how little chance the neurasthenic has to escape an operation if the mere presence of such conditions is taken as evidence. As much also may be said of prolapse of the stomach and colon.

The external operation was also applied in a large number of cases of adherent retroversions and in those in which the symptoms were the result of inflammation of the ovaries and tubes, rather than the result of the position of the uterus. All of these causes have led to the abandonment of an operation which gives definite and valuable results when properly performed on patients needing it.

On a number of occasions I have heard surgeons say that the permanence of an operation on the round ligaments depended on whether or not there were to be future pregnancies. It should not be forgotten that the round ligaments are non-striated muscle fibers and part of the wall of the uterus itself, which has been projected forward to the spine of the pubes. The round ligaments undergo hypertrophy during pregnancy and involution following pregnancy. We have not found that repeated pregnancies have influenced the ultimate results in these cases. It has been a noticeable fact that in cases of prolapse during the child-bearing period the round ligaments are unusually well developed.

We have performed the external operation on the round ligaments about as it was done by its originator; that is, an oblique incision 2½ inches in length is first made, ending over the spine of the pubes. The superficial layer of the superficial fascia is divided and the hemorrhage carefully checked to prevent staining the field. Opening the deep layer of the fascia exposes the pillars of the ring and the intercolumnar fascia. The intercolumnar fascia is separated with a pair of forceps and a two-pronged blunt retractor is introduced into the lower angle of the wound. Traction is then made downward in such manner as to draw on the attachments of the round ligament to the spine of the pubis; this will ordinarily draw about ¾ inch of the cord, which will be recognized readily by its pinkish color, out of the canal. It must be remembered that the only part of the ligament which, when shortened, will affect the uterus is that which lies within the peritoneal investment. I have known the cord to be shortened without affecting the position of the uterus because the portion shortened lay only within the canal itself and did not draw on the uterus at all.

The perineal restoration which completes the combined operation for prolapse in the child-bearing period should be based on principles which will be referred to later.

II. TREATMENT OF PROLAPSE DURING MIDDLE AGE

The operation which we have used with great satisfaction in this group of cases, in which marked cystocele occurs and in which the uterus is not atrophic, is the Watkins[4]-Wertheim[5] operation. While we have performed the operation for years, I think we have done it more satisfactorily since using the technic of Frankenthal.[6] The principles of the Watkins-Wertheim operation are correct inasmuch as the bladder is first separated from the vagina and then from the anterior wall of the uterus, thus restoring the bladder to the abdominal cavity and drawing the fundus of the uterus forward into a complete anteversion with suture to the anterior vaginal wall so that the bladder will lie within the abdominal cavity on the posterior wall of the uterus. When the bladder fills with urine it exerts upward traction instead of downward pressure. Since in many of these cases the prolapse began in the child-bearing period, and supravaginal elongation of the cervix is present, amputation of the cervix may be necessary, as it may be too long to lie in the hollow of the sacrum without flexion. If the Watkins-Wertheim operation be done during the child-bearing period, which is not often necessary, the fallopian tubes must be separated from the uterus. If the uterus be not sufficiently large, that is, approximately near the normal size, this operation will fail.

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[3] Alexander: Surg., Gynec. and Obst., vii, 408; Text-Book of Gynecology (Wood), Ed. 2, p. 594.

[4] Watkins: Surg., Gynec. and Obst., May, 1909.

[5] Wertheim: Surg., Gynec. and Obst., January, 1907.

We have had two cases of our own and have reoperated in three others in which an atrophic uterus subsequently not only failed to hold the bladder up but was forced entirely out of the body. These cases were cured by the vaginopelvic fixation method as described hereafter. In some cases in which the cystocele was not so prominent a feature, we followed the plan of making a partial instead of a complete separation of the bladder from the uterus and attaching the anterior wall of the vagina to the uterus beneath the bladder much as was done in the Mackenrodt[7] method of vaginal fixation for cure of the retroversion.

III. TREATMENT OF PROLAPSE IN ELDERLY WOMEN

The most generally useful operation for prolapse of the uterus in all types of cases beyond the child-bearing period is one which we have practiced for about eighteen years and for want of a better name have called the "vaginopelvic fixation operation." It is especially applicable to those patients with a small uterus in whom the Watkins-Wertheim method cannot be applied and in all cases in which there is disease of the uterus which requires hysterectomy, or coincident disease of the ovaries and tubes. It is applicable, however, in all cases in which the Watkins-Wertheim operation can be used, and as a rule we prefer it in those cases requiring amputation of the cervix in connection with the Watkins-Wertheim operation. In our experience the patients have been more comfortable after this method.

The principles on which this operation depends are very simple. The vaginal wall with its attachments to the cervix lies outside of the body. By removal of the uterus and usually of the ovaries and tubes, the round and broad ligaments can be secured high in the pelvic cavity and that part of the vaginal wall which was attached to the cervix outside the body is fixed to the round and broad ligament stumps inside the pelvis.

Failures have been extremely rare following vaginal fixation. The few failures which occurred were due to lack of care in making the fixation of the wall of the vagina to the stumps of the round and broad ligaments. The vaginal wall should be made to surround the stumps in such a manner as to furnish broad areas for union. Hysterectomy without such firm attachments only makes conditions worse, since the entire vagina prolapses subsequently, a condition which is exceedingly difficult to rectify. For the relief of complete prolapse of the vaginal walls following hysterectomy, we have practiced two methods. In the very old patient, when there was no object in saving the vagina, we removed it, allowing the bladder and rectum to come in contact. Vaginectomy is easy of accomplishment and a number of these elderly patients were promptly relieved of great distress by this means. When it is an object to save the vagina, as it is in most instances, vaginal fixation from above is practiced and the vagina is attached to the round and broad ligaments through an abdominal incision. Or, if the original hysterectomy was supravaginal, we implanted the stump of the cervix in the muscles of the abdominal wall.

Kocher[8] has developed an operation which marsupializes the entire body of the uterus. The abdomen is opened in the median line, the uterus is drawn up, and the peritoneum drawn about the cervix, the abdominal walls and aponeurosis being made to grasp the uterus just above the cervix. The fundus of the uterus is then implanted so that it can be felt as a rounded tumor just beneath the skin. If the patient be in the child-bearing period, the tubes are disconnected from the uterus. Kocher has practiced this operation for a number of years with great satisfaction. Two excellent modifications of this method have been produced by Crile[9] and Eastman.[10]

We have used the Kocher method on a number of occasions in two groups of cases: The first includes those in which prolapse existed and it was necessary to perform an abdominal operation for another purpose; the second group comprises the occasional cases in which a prolapse has existed for years, with thinning of the vaginal walls, making them parchment-like. This condition occurs only in the senile patient and is usually associated with atrophy of the round and broad ligaments as well as of the uterus and vagina. The contra-indication to the Kocher method is a short vagina.

Few organs in the body have been so much written about as the female perineum, which shows that a certain amount of dissatisfaction has existed with methods in use for its repair. In the early nineties I found a little book written by one of Tait's assistants, on "Tait's Flap-Splitting Perineal Operation." It was curious to observe how this master surgeon anticipated the modern operation for perineal repair. The Tait operation,[11] which has been generally condemned, was long called the "skin-perineum operation," because its principles were not understood. Much of this misunderstanding grew out of personal antagonism to its brilliant but eccentric originator. Tait was the father of modern abdominal surgery. Tait in England, Péan in France and Price in America led the contest which placed surgery of the abdomen on a sound basis.

Tait's perineal operation had two important principles. First, it uncovered the muscles and structures, which had been separated, so that they might be accurately sutured together. Previous to Tait's time the essential features of perineal operations were "bat wings," "butterfly" and other methods of removing mucous membrane. The form of the denudation is essential as it necessitates grasping and bringing together the deeper structures of the perineum to close the denudations. Tait lifted the mucosa from the body of the perineum by careful separation at the mucocutaneous line, keeping inside the opening of Bartholin's glands. Many thick and painful perineums have been caused by dividing Bartholin's duct and by changes engendered thereby in the gland itself. Tait opened the perineum as one would open the abdomen in order to gain access to the parts to be repaired.

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[6] Frankenthal: THE JOURNAL A. M. A., July 3, 1909, p. 16.
[7] Mackenrodt: Monatschr. f. Geburtsh. und Gynäk., 1896, iv, 489.
[8] Kocher: Text-Book of Operative Surgery, 1911, p. 706.
[9] Crile: Cleveland Med. Jour., July, 1905.
[10] Eastman: Surg., Gynec. and Obst., 1911, p. 160.
[11] Tait: Medical and Surgical Gynecology, Pozzi, ii, 363.

The second principle is one which I believe has not been generally recognized. The mucosa is lifted well off at each angle, but the dissection is not made deep in the midline. The apex or crest of the rectocele is then pushed upward and held inside the vagina; this traction draws on the torn fibers of the external and internal sphincters of the rectum. In closing, the lateral muscular structures were brought together and united with the torn sphincter fibers, restoring proper direction to the anal canal. This upward and inward traction of the crest of the rectocele also elongates the posterior vaginal wall. Tait carefully avoided the mucous membrane and skin in suturing and thereby avoided infection and pain.

Those interested in the type of perineal operation which deals with the muscular and fascial structures will find two articles of great value, one by Harris[12] on the transverse perineal muscles, and one by Hill[13] dealing with those muscles which are derived from the levator ani. The modern perineal operation exposes and sutures the perineal muscles and fascias with as much anatomic accuracy as would be developed in an operation for inguinal hernia.

Curiously enough, the worst type of rectocele may not be associated with prolapse, but exists as a true rectal hernia through the perineal body in which a circular opening with well-defined margins will be found just above the external sphincter. The sac lined with mucosa may be the size of an egg or an orange as it projects from the vagina. This condition is best corrected by separating the rectal structures from the posterior vaginal wall through the perineum in the usual manner. The sac is then drawn out through the anal orifice, after the sphincter has been thoroughly stretched. Following its extrusion it is caught in a clamp and cut away.

With a running suture of catgut the mucosa is closed and the suture line left protruding from the anus until it retracts. The method of suturing the mucosa is similar to the Pilcher[14] hemorrhoidal operation. After disposing of the rectal mucosa, the ordinary perineum is made as already explained. This method was first described by Noble,[15] and by its use we have effected permanent repairs in a number of cases in which there had been relapse after repeated operations by other methods.

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[12] Harris: The Journal A. M. A., Dec. 9, 1899, p. 1450.
[13] Hill: The Journal A. M. A., April 4, 1908, p. 1101.
[14] Pilcher: Ann. Surg., 1906, xliv, 275.
[15] Noble: South. Med. Jour., April, 1909.

Manson and the Parasitic Theory.—We speak nowadays glibly of "hosts" and "alternative hosts;" we no sooner find a parasite than we seek for the animal in which it abides during a period of its existence and undergoes developmental changes therein. When Manson conceived the idea that the mosquito conveyed the infection, and further, when he proved that in the mosquito the filaria embryos underwent processes of development necessary for the continuance of their species, it is safe to say no such conception had ever entered the brain of man, and certainly never had been proved by anyone. The part played by the mosquito in filaria was a discovery that revolutionized science; it served to start mankind on a new tract of thought and a fresh field of investigation.—*Journal Tropical Medicine and Hygiene.*

THE HYGIENE OF SWIMMING-POOLS *

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The care of swimming-pools in educational institutions and athletic clubs has of late years attracted considerable attention. Notable studies have been made, among which may be especially mentioned those at Brown University, and by Dr. William J. Lyster at the University of Pennsylvania. Gymnasia which are frequented by a large number of persons may act as foci of infection. It seems possible that a swimming-pool with a limited supply of water, when used by a large number of persons, may serve to convey from one to the other pathogenic organisms. In this connection the danger from typhoid fever seems to attract the attention of many people. There is no doubt that contaminated water may produce this disease in swimmers as the water is not infrequently taken into the mouth.

The men's gymnasium at the University of Wisconsin is much overcrowded and it was felt that a study of conditions as found in both the men's and the women's pools would be of unusual benefit. This was undertaken by the hygienic laboratory, and the work was done mainly by Mr. E. J. Tully, the chemist of the laboratory. Both chemical and bacteriologic analyses were made. A study has been made of the increasing contamination of the pools between the changes of water, and also the value of hypochlorite of lime in controlling the bacterial conditions. The methods followed in the analyses were those laid down by the Committee on Standard Methods for Water Analysis of the American Public Health Association.

The swimming-pool in the men's gymnasium is 80 feet long, 20 feet wide, and ranges from 4 feet to 10 feet in depth with a capacity of 97,000 gallons, approximately. The tank is emptied, cleaned, and filled with water from Lake Mendota once each week. The lake water is warmed during the winter and maintained at a temperature of 70 F. Approximately 275 men use the tank each day until Saturday, when the number is much increased. The bathers are required to take a shower-bath before entering the pool.

The swimming-pool in the women's gymnasium is 60 feet long, 20 feet wide and ranges from 3½ feet to 7 feet in depth, its capacity being approximately 70,000 gallons. Water from Lake Mendota is used in this tank also, but is filtered through coke and scrap-iron before entering the pool. The pool is emptied each Friday and the tank allowed to air until Monday, when it is refilled, and bathing begins Monday afternoon. The water is kept at a temperature of from 75 to 80 F. Only about fifty persons use the tank per day, and every person is required to take a shower-bath before entering the pool. Lake Mendota is rich in lower plant life and during the summer the water often acquires a disagreeable smell on account of these vegetable growths. Formerly much sewage from the city of Madison and lake shore settlements emptied into the lake and several outbreaks of typhoid fever have occurred which were attributed to the use of lake water. Of late years septic tanks and filter-beds have been used and this condition has been much improved. A large number of examinations were made, only some of which are presented here, but these are typical of all. Bacteriologic and chemical analyses were made of the boys' tank in January, March and April, 1910, and in January and February, 1911; samples were collected in the girls' swimming-pool during the same months of 1911. In 1911 and 1912 experiments with hypochlorite of lime were carried out, as is shown by the table. Control samples were taken from the inflow pipe at the same time that the samples from the tank were taken.

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* This article is abbreviated in The Journal by omission of the tabulated details. The complete article appears in the Transactions of the Section and in the author's reprints.

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

The first series of examinations was made in January, 1910. Two samples were collected daily, morning and afternoon. The plating and inoculations of the fermentation tubes were done within fifteen to thirty minutes after the taking of the samples.

Table 1 gives the results of the first series of examinations from Jan. 18 to Jan. 29, 1910.

The results show that the number of bacteria gradually increases, the maximum being reached about the middle of the week, followed by a decrease until Saturday, when a considerable increase is again apparent. This is probably due to the large number of bathers using the tank on Saturday. The colon bacillus is usually present in 10 c.c., and sometimes in 1 c.c. of lake water. During the two weeks of this examination the colon bacillus was generally present in 10 c.c. and only occasionally in 1 c.c. of the tank water. The increase in the chlorin content was slight. In all the examinations the chlorin content showed very slight increase.

Table 2 gives the bacteriologic and chemical results for the week of Jan. 16, 1911. The fluctuation in the number of bacteria is closely similar to that shown in Table 1, and the amount of chlorin corresponds closely. The chemical analyses show a small but gradual increase in free ammonia, albuminoid ammonia, nitrites and total nitrogen. The amount of nitrogen as nitrates remains constant, while the chlorin increases slightly. In general, the chemical results show the presence of considerable nitrogenous organic material in the lake water, and the initial increase in the number of bacteria present is due, no doubt, to the natural growth of bacteria in a favorable environment, and is probably not caused to any considerable extent by the addition of polluted material. As the amount of chlorin present is about the same, there is here also little evidence of additional pollution. The examinations showed that the hygienic condition of the boys' swimming-pool was generally very good.

Tables 3 and 4 give the results of the examinations of the water in the girl's swimming-pool. This pool is used by fewer students and the water is filtered before entering the tank. It will be seen that the results show a very satisfactory condition of the water and indicate that the method of filtration yields a satisfactory degree of purification.

Table 5 shows the bacteriologic and chemical results after 1 liter of urine had been added to the water in the pool in order to determine whether or not any material increase in the nitrogen and chlorin content would be manifest in the daily analyses. The urine was added Monday afternoon, February 6, after a sample had been taken at the pipe. The maximum count on gelatin was relatively quite high and the counts remained high during the week. The agar counts were somewhat low, but *B. coli* was constantly present in 10 c.c., 1 c.c. and occasionally in 0.1 c.c. Its continued appearance in 1 c.c. was significant in this series, because it was absent from 1 c.c. of the pool water in most of the experiments. There is no essential difference between the results of the chemical analyses of this series and those shown in Table 2. In general, the chemical results showed that nitrogen determinations were more delicate than chlorin determinations as an index of the sanitary condition of the pools.

Experiments were carried out in the laboratory on the action of hypochlorite of lime in purifying the water in the swimming-tank. The first step necessary was the determination of that amount of available chlorin per million which would produce practically sterile water. Samples of water from the boys' swimming-pool containing 250 c.c. each were treated with hypochlorite of lime in the proportion of 0.5 part and 1 part of available chlorin per million for thirty minutes. The bacterial content of the samples was materially reduced and the colon bacillus generally destroyed with the use of 0.5 part of available chlorin. When 1 part of available chlorin per million was used the water became practically sterile and all traces of the colon bacillus disappeared. The results are shown in Table 6.

The next experiment consisted in putting the hypochlorite of lime into the swimming-tank and making a series of examinations. The results are given in Tables 7, 8, 9 and 10. These tables show that to obtain satisfactory results, the hypochlorite of lime must be added in sufficient quantities to give 1 part of available chlorin per million. They show further that when the tank is being used the effect lasts only about three days, after which there is considerable increase in the number of bacteria present. To obtain entirely satisfactory results under the conditions as they exist at Wisconsin, hypochlorite of lime in the proportion mentioned must be added to the swimming-pool twice each week.

Table 10 shows the results when the hypochlorite of lime is added daily in small amounts, reaching finally a maximum of 1 part of available chlorin per million. They are seen to be unsatisfactory.

CONCLUSION

It must be admitted that contagious diseases can be spread by means of artificial swimming-pools, and that if the water contains the germs of typhoid fever they can be taken into the system. With ordinary waters and with a pool of good capacity, the change once a week keeps the water in fairly good condition. The addition of hypochlorite of lime is a simple, cheap and safe procedure which insures absolute safety.

THE RELATION OF INTERSTATE WATERS TO THE SPREAD OF TYPHOID*

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Interstate waters are the source of water-supply for many millions of people. The number actually dependent on interstate or international sources is constantly growing. Sanitary conditions in the drainage area of the Great Lakes and the drainage basins of the Missouri, the Mississippi, the Ohio and other great rivers are becoming more important because of the increasing demands on these waters as sources of public supply. With the increase of population especially in sewered cities there is a coincident increase in direct sewage pollution of these waters. It has been the common practice in American cities to use these interstate waters for sewage disposal. This method of sewage disposal by dilution has an enormous advantage because of low cost over other methods involving more or less purification. In so far as nuisance is concerned, there was usually stream flow or volume of water sufficient to ensure proper dilution. No criticism can be made of cities which employ this method for economic reasons provided they furnish proper safeguards to their own public water-supply and that they do not pollute or endanger the supply of other cities. Unfortunately until recently nearly all cities situated on these great waterways furnished water without filtration or treatement and at the same time discharged their unpurified sewage into the same interstate water. In the case of lake cities the water-works intakes often received contamination from their own sewage, while the cities on the great rivers furnished pollution for the intakes of other cities situated down-stream.

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* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

Under these conditions it is not strange that very high typhoid fever rates prevailed in these cities and that from time to time massive explosive outbreaks occurred.

TABLE 1.—ANNUAL DEATH-RATES FROM TYPHOID FEVER PER HUNDRED THOUSAND POPULATION IN SOME LARGE AMERICAN CITIES ON THE GREAT LAKES AND THE MISSOURI, MISSISSIPPI AND OHIO RIVERS

City	1906	1907	1908	1909	1910
Chicago	18.3	17.7	15.3	12.6	13.7
Indianapolis	39.2	29.4	26.4	22.3	28.5
Louisville, Ky.	67.7	67.9	44.2	45.0	31.7
New Orleans	29.6	55.5	33.1	28.4	31.5
Detroit	22.3	28.3	22.3	20.5	23.0
Grand Rapids, Mich.	39.1	32.4	31.8	17.2	28.3
St. Paul	21.1	17.1	12.0	18.9	19.5
Minneapolis	32.9	25.9	17.8	21.0	58.7
Kansas City, Mo.	37.8	39.9	35.0	29.3	54.4
St. Louis	11.9	14.1	13.0	16.2	14.9
Omaha	28.2	23.5	22.1	36.8	86.7
Buffalo	23.6	29.2	20.7	23.8	20.4
Cincinnati	71.5	46.4	18.6	13.3	8.8
Cleveland	20.2	18.9	12.6	13.3	17.9
Columbus, Ohio	37.1	38.3	110.5	19.6	18.1
Toledo, Ohio	45.0	36.4	40.1	41.7	37.2
Pittsburgh	141 3	130.8	46.6	24.6	27.8
Memphis, Tenn.	42.4	38.8	37.0	48.8	27.4
Nashville, Tenn.	74.4	82.6	59.5	52.0	48.9
Milwaukee, Wis.	30.5	25.7	17.4	21.4	45.7

A glance at the accompanying tables will show the excessive prevalence of typhoid fever in these cities compared with cities in northern Europe.

TABLE 2.—ANNUAL DEATH-RATES FROM TYPHOID FEVER PER HUNDRED THOUSAND POPULATION IN TEN EUROPEAN CITIES

	Average for 5 Years, 1901-1905	1906	1907	1908	1909	1910
Stockholm	3	2	2	1	0.5	1.8
Christiania	3	4	2	2	1.7	1.6
Munich	4	2	3	3	1 9	1.4
Edinburgh	8	3	3	2	1 2	1.3
Vienna	4	5	3	4	2.8	3.8
Hamburg	4	4	3	4	3.3	4.1
Berlin	4	4	4	4	4 2	2.9
Dresden	4	7	2	6	4.2	2.2
Copenhagen	8	4	2	7	2.7	3.6
London	8	6	4	5	2.2	3 3

For many years there seemed to be a general understanding that sewage must be kept away from the public water-supply. It might be discharged into the same body of water provided the point of discharge was "down-stream" from the intake. In river cities this principle disregarded the rights of the communities situated down-stream, and their intakes were thus exposed to pollution. In cities on the Great Lakes the curious fallacy was prevalent that there was a normal lake current setting consistently in one direction and that if the intake were placed "down-stream" in relation to this current it would be safe from sewage pollution. Thus in Lake Erie the current was supposed to be from west to east, and the intakes were invariably placed to the westward of the sewage outlets.

TABLE 3.—ANNUAL DEATH-RATES FROM TYPHOID FEVER PER HUNDRED THOUSAND POPULATION IN FIFTEEN OTHER EUROPEAN CITIES

City	1909	1910
Frankfort	1.5	0.9
Antwerp	1.0	2.3
Bristol	2.8	2.1
Nuremberg	2.6	...
Birmingham	5.0	3.9
Belfast	5.2	3.9
Lyon	5.8	4.4
Leeds	7.2	3.8
Liverpool	8.4	3.9
Sheffield	9.4	3.0
Rotterdam	6.4	6.5
Amsterdam	3.8	6.7
Paris	8.4	5.6
Bradford	4.3	9.2
Leipsic	8.3	7.5
Total average rate...	5.3	4.5

TABLE 4.—TYPHOID FEVER RATES IN LARGE EUROPEAN AND AMERICAN CITIES

Unit of Comparison	Aggregate Population	Deaths per 100,000 from Typhoid Fever, 1910
Thirty-three principal European cities in Russia, Sweden, Norway, Austria-Hungary, Germany, Denmark, France, Belgium, Holland, England, Scotland and Ireland	31,500,000	6.5
Fifty American cities of 100,000 inhabitants or over	20,250,000	25.0
Excess of deaths from typhoid fever in American cities	....	18.5

Another instance of the insecure measure of protection which formerly seemed to satisfy public demand in preventing pollution of intakes is furnished by the Niagara River cities. Buffalo, the Tonawandas, Lockport and Niagara Falls all have intakes which were supposed to be safe because the sewage-polluted current hugged the shore in a ribbon ordinarily about 300 feet wide, and the intakes were placed from 700 to 1,500 feet from shore to avoid this polluted shore water.

We know now from bitter experience that currents on the Great Lakes are notoriously unstable and cannot be expected to protect water-works intakes for more than a portion of the year. We know also that the width of polluted shore water is variable and inconstant, and cannot be depended on except in quiet weather.

Some of our big progressive cities spent large sums of money to escape the sewage pollution by extending the intakes further out into the lake and by diverting sewage from the source of water-supply. These measures afforded but temporary relief and merely postponed the inevitable treatment or filtration of the public water-supply. The obvious remedy — water purification — which gives prompt protection, seems to have been reached last and in nearly every instance was applied only after other expedients had failed.

STORAGE AS A PURIFYING AGENT

The storage capacity of the Great Lakes is enormous. Let us take Lake Michigan as an example. Lake Michigan is 307 miles long and has a maximum width of about 118 miles. The maximum depth is 870 feet. With this storage capacity its power to oxidize and purify organic matter can scarcely be overestimated. The effect of storage of Lake Michigan water is accentuated by the comparatively small outflow (an average of only 57,000 cubic feet per second through the straits of Mackinac). For example, compared with Lake Huron, the area of water surface is nearly the same (over 22,000 square miles) and the maximum depth of Lake Michigan is about 100 feet greater than that of Lake Huron. The outflow of Lake Huron at Port Huron is about 210,000 cubic feet per second while the outflow from Lake Michigan is only about one-fourth as much. This means longer retention of polluted inflow from rivers and sewers and more opportunity for purification before discharge through the straits at Mackinac. It would take Lake Michigan many years to empty itself at its present rate of outflow if all inflow were prevented. Under these circumstances the quality of Lake Michigan water must be good provided we can get it far enough from the polluting inflow of rivers and sewers. Unfortunately the zone of polluted water extends a considerable distance out into the lake from the water-fronts of the cities and the mouths of the large rivers; further, this zone of pollution has no constant boundaries because of currents due to wind and flood, but threatens under unusual weather conditions far beyond the point which seems safe in quiet weather.

These facts make it extremely difficult if not impossible both from the engineering and the economic points of view to obtain pure water near our large lake cities every day in the year by simply extending a pipe out into the lake without filtration or treatment of the water.

When cities have a public water-supply polluted by sewage, or admittedly exposed to pollution, the obvious thing to do is to filter or treat the water and protect the public from infection. Unfortunately there is a deplorable tendency to abuse the town upstream and to spend years in an effort to compel (usually without legal process) sewage treatment in the offending municipality. In other cities where the pollution is due to their own sewage, years are lost in the discussion of methods of sewage purification, while the dangerous untreated and unfiltered water is furnished to the citizens.

In regard to sewage disposal, it must be remembered that no general rule can be formulated which will cover with justice every case. Each municipality becomes a separate problem and local conditions must be studied. Remedies for correction of improper sewage disposal will differ according to the local conditions. Even if all the sewage from our large cities and towns was prevented from reaching the lakes and rivers, it would be impossible to prevent pollution from reaching these waterways in times of storm and flood, so that sewage disposal even carried to the degree of sterilizing the effluent does not give us a substitute for water filtration or treatment. While it is impracticable to prevent pollution of the Great Lakes and other interstate waters, it is possible and imperatively necessary that such pollution be controlled and kept within safe bounds. It would be very foolish from an economic standpoint not to avail ourselves of the cheapest and simplest method of sewage disposal, namely, disposal by dilution, provided that this may be done without danger to the water-supplies of other communities and without putting an unreasonable burden and excessive responsibility on the filter-plants of those communities. The point to which this method of disposal may be permitted must be determined by local conditions.

Disaster occurs from using sewage-polluted water-supplies for one of three reasons: (1) failure to purify; (2) inefficient purification; (3) failure to supply the purified water to all.

The failure to instal a purification plant is usually due to an undue confidence in a water-supply which is safe "most of the time." It is difficult for some to understand, without a severe lesson, that it is not sufficient to have a water-supply that is safe for 360 or 361 days in the year, and to these officials it seems scarcely justifiable to require expensive purification for the sake of the four or five days in the year during which, due to weather conditions, pollution may take place. Such a supply, with a favorably placed intake, may escape pollution for more than a year. There was no evidence of serious pollution of the water-supply of the city of Erie during the year 1909, yet the appalling disaster of January and February, 1911, showed that pollution could take place under certain weather conditions.

One large city using unfiltered lake water is so sure that the water is pure that examination is made only occasionally. One of the largest lake cities using an unfiltered supply exposed to sewage pollution makes a bacterial count daily, but restricts its effort to detect sewage pollution to the antiquated and indefinite test of inoculating a guinea-pig occasionally with a small portion of a broth culture.

Poor filter efficiency is often responsible for disaster in the shape of typhoid outbreaks and may be due to several causes. The slow sand type may give poor filter efficiency when sufficient extra units are lacking, necessitating excessive rates and placing of "green" filters in service. Excessive rates, too little coagulant, insufficient capacity of sedimentation tanks and insufficient storage are common operating and structural faults of the mechanical type. Sometimes a properly constructed plant is struggling with a raw water which has a high bacterial content and even with fair filter efficiency yields an unsafe effluent. Probably the greatest single cause of a poor effluent from filter-plants is inefficient operation by unskilled men. It is absolutely essential for good results that bacteriologic examination, including *Bacillus coli* estimation, be made at least once daily, and in slow sand plants from each unit separately.

The man in charge must be able to do this. In mechanical filter-plants or with hypochlorite plants he must also have the necessary skill to adjust his chemicals with nicety according to the changes in the raw water. With such a man in charge of a properly constructed plant a safe effluent is assured at all times. When struggling with a bad raw water, he will use hypochlorite as an adjuvant with good results. He will study the peculiarities and fluctuations of the constituents of the raw water and adjust his treatment accordingly.

The most serious defect in sanitary control of our water-supplies is the lack of proper daily bacteriologic examination of the water and quantitative estimation of the *B. coli* content. In some of the lake cities there is proper daily bacteriologic examination of the water-supply, but in many of them there is either an imperfect examination or none at all. One city with a slow sand filter-plant of three units and a consumption equal to the safe filter capacity of the beds operates these without rest, putting the units in service "green" and with an occasional examination of the water once or twice a month. As a result this city in 1910 had a typhoid fever death-rate of over 300 per hundred thousand.

As an instance of high rate due to failure to furnish filtered water to all the people, the experience of Pittsburgh is interesting. The filter-plant in Pittsburgh was first put in operation November, 1907. But a small portion of filtered water was supplied at first and this was mixed with the unfiltered supply. The amount of water filtered was increased until October, 1908, when the supply of that part of the city between the rivers — about three-fifths of the total population — was filtered.

The south side, a little less than one-fifth of the entire population, was supplied with filtered water in March, 1909. The former city of Allegheny, recently annexed, is not yet supplied with filtered water. This part of the city includes a population of about one-fourth of the entire city.

There was a remarkable decrease of typhoid fever in Pittsburgh progressively coincident with the increase of area supplied with filtered water. In spite of all this remarkable reduction two points stand out prominently: First, the rate is still high (1910), and second, the seasonal distribution suggests water as a prime factor. Explanation of these two points is furnished by a study of the cases as shown in Table 5, from which it is clear that water was responsible for the high rate, and that this high rate was due entirely to the abnormal rate in Wards 21 to 27 inclusive.

TABLE 5.—TYPHOID FEVER DEATHS BY WARDS, PITTSBURGH, 1910 *

Ward	Population	Typhoid Deaths	Ward	Population	Typhoid Deaths
1	11,623	3	15	20.141	3
2	14,386	1	16	20,833	1
3	26,462	3	17	25,213	3
4	25,055	11	18	17,994	1
5	24,495	2	19	23,482	3
6	26,261	3	20	18,648	2
7	13,263	1	21	22,506	11
8	18,204	0	22	15.716	9
9	17,795	6	23	21.799	13
10	21,205	3	24	17.354	6
11	17,066	2	25	16,037	5
12	22,342	2	26	15.291	6
13	24,080	2	27	15,291	6
14	13,074	1			

* These figures were furnished by the health department of the city of Pittsburgh.

Total population of Pittsburgh	533.905
Total deaths, typhoid fever	115
Death-rate per 100.000, entire city	21.3
Death-rate per 100,000, Wards 1 to 20	13.4
Death-rate per 100.000, Wards 21 to 27	46.9

Wards 1 to 20 were supplied with filtered water. The aggregate population of these twenty wards was 401,622. The typhoid death-rate per one hundred thousand in 1910 was 13.4. Wards 21 to 27 comprise the old city of Allegheny and have a total population of 132,283. This section received unfiltered water. The typhoid death-rate per one hundred thousand in this section in 1910 was 46.9.

THE SIGNIFICANCE OF TYPHOID FEVER FROM AN INTERSTATE STANDPOINT

The spread of typhoid fever from one state to another is a national problem and to prevent this spread it is necessary to reduce the prevalence of typhoid fever in cities and states, so that at once it is a national problem and a local or state problem as well. The careless pollution by sewage in one state by A, of a stream used as a water-supply without filtration in another state by B, is an illustration of interstate spread of typhoid fever which is common enough. In such an instance A, the town polluting the stream, insists that B, the town below, protect itself by filtering its water-supply; B insists that A, the town above, should render its sewage innocuous before discharge into the stream. As a matter of fact both may be right and both of these two great agencies for preventing water-borne typhoid may be necessary. It is difficult for these warring communities to adjust their differences and decide just to what point sewage purification must be carried at A, in order that too great a strain and too great a responsibility may not be placed on the filter-plant at B. The significance of polluted water-supplies in large industrial centers from an interstate point of view is enormous. Trains and steamboats take their water-supplies at such points and this polluted water is drunk by the passengers throughout the trip.

Excessive prevalence of typhoid fever in any city which by reason of its commercial or industrial importance attracts large numbers of visitors has an important bearing on the spread of typhoid from one state to another. The same is true of other cities which because of great natural advantages, the beauty of their surroundings or other reasons attract thousands of tourists and visitors from other states. For these reasons, the prevalence of typhoid and the character of the water-supply in cities like Pittsburgh and Detroit, Niagara Falls or Mackinac Island becomes a matter of serious moment from an interstate point of view. The excessive prevalence of typhoid fever for years in Niagara Falls and Pittsburgh was not only a matter of local or even state concern, but a grave national danger as well.

Great reduction in the typhoid fever rate has been effected recently by the installation of filter-plants in Pittsburgh, Philadelphia, Cincinnati, Columbus, Ohio, and Escanaba, Mich.[1] Hypochlorite treatment of the water has produced remarkable results in lowering the typhoid fever rate in Erie, Pa., Omaha and Minneapolis. In spite of these encouraging results in certain cities, much remains to be done in cities which are still using unpurified surface water for public supplies.

The problem of sewage pollution of interstate waters with special reference to the spread of typhoid fever has been studied intensively by me for the past eighteen months. During that time my investigations have covered the entire drainage area of the Great Lakes within the United States from Duluth, Minn., to Ogdensburg, N. Y.[2] As a result of this study certain fundamental facts seem to stand out prominently in the discussion of this problem:

1. The primary necessity from a sanitary point of view is safe water-supplies 365 days in the year without waiting for solution of sewage-disposal problems.

2. In spite of the most elaborate methods of sewage purification, pollution of these waterways will take place at certain times, so that sewage purification cannot be considered a substitute for the inevitable purification of water.

3. Because of winds and currents, floods and thaws, the boundaries of the zone of shore pollution are constantly changing. The only way to secure safe water every day in the year, without unjustifiable expense, is by some method of water purification.

4. Sewage purification may often be an aid and sometimes a necessity to improve the quality of the raw

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[1] Hyg. Lab. Bull. 83.

[2] McLaughlin, Allan J.: Sewage Pollution of Interstate and International Waters, with Special Reference to the Spread of Typhoid Fever, Hyg. Lab. Bulls. 77 and 83.

water, but will rarely, if ever, make one of these surface supplies absolutely safe. For this reason it must be considered as secondary to water purification in preventing water-borne diseases.

5. The use of streams for sewage disposal within permissible bounds is an economic advantage, and absolute prohibition of this use is unjustifiable.

6. This use of streams is sound in principle and safe in practice when proper restrictive control is exercised.

7. The permissible limit of pollution of each river, lake or waterway can be fixed only by careful study of the waterway, and of the uses which must be made of it and to which it is best adapted.

8. Although prevention of all pollution is impossible, control of pollution is feasible and imperatively necessary. The absolute prohibition of discharge of sewage into these waters is scarcely justifiable and the legality of such legislation would be extremely doubtful.

9. The discharge of sewage should be under control and permitted when possible for economic reasons within certain limits. The permissible limit of such reasonable use should be fixed by official standards of the raw water after a careful sanitary survey and consideration of the purposes for which the waterway is necessary or available.

10. These official standards would have to be made for each problem separately and independently, it being manifestly impossible to attempt to fix any general standards of raw water to cover all cases. The acceptance of these basic facts will tend to prevent unjustifiable generalization in a problem in which each city is a law unto itself. By allowing a reasonable use of these interstate waters in the reception of sewage or sewage effluents subject to such restrictions coupled with water purification which will amply protect the public health, the more intensive processes of sewage purification may in many cases be avoided. A city may thus be saved a very great expense which could only be justified on sentimental and not on practical grounds.

To attempt the impossible is not only to court certain failure, but further, such attempts make difficult later efforts of a more conservative and practical nature.

ABSTRACT OF DISCUSSION

Dr. H. M. Bracken, Minneapolis: Some people argue that the purification of sewage should be required to such an extent as to leave the streams into which it is discharged fit for drinking purposes. On the other hand, some engineers go to the other extreme at present, if I understand their position, maintaining that streams are natural sewers, and that they should be used as such, even to the point of creating a nuisance. I think it will have to be admitted that streams must be used for the carriage of sewage; but partial purification of the sewage before its discharge into streams should also be insisted on, so as to make the filtration of the water for domestic use less burdensome.

Nature's Cold-Storage Plant.—The markets of Irkutsk, Siberia, are an interesting sight, for the products offered for sale are in most cases frozen. Fish are piled up in stacks like so much cordwood, and meat likewise. All kinds of fowls are similarly frozen and piled up. Some animals brought into the market whole are propped up on their legs and have the appearance of being actually alive. But, stranger yet, even the liquids are frozen solid and sold in blocks. Milk is frozen into a block in this way, and with a string or a stick frozen into and projecting from it. This, it is said, is for the convenience of the purchaser, who is thus enabled to carry his milk by the string or stick handle.—*American Food Journal.*

A FURTHER RESPONSE TO SOME CRITICISMS OF THE COLLOID-CHEMICAL THEORY OF WATER ABSORPTION BY PROTOPLASM

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A. R. Moore has recently published two articles[1] on edema which are in essence a criticism of some views which I have expressed on this subject.[2] Were it not for the fact that one of these articles has enjoyed a publicity which my efforts have not been able to obtain, it would be needless to publish a response that is a mere repetition of what has been said before and which proves Moore's contentions neither original nor binding.

The facts brought out by Moore in his first paper may be summarized as follows:

When frogs' muscles are placed in Ringer's solution (a mixture of sodium, calcium and potassium chlorid) they do not gain in weight, or they may actually lose. When an "M/8" Ringer solution is used Moore found the muscle to maintain its weight, while when an "M/6" Ringer solution was employed the muscle lost. (It would be of interest to know what Moore means by these abbreviations which mean when written out, respectively, "one-eight molecular" and "one-sixth molecular" solutions. No chemist could understand these terms as applied to a mixture of three salts, and were he to take Moore at his word the solution prepared would be anything but the Ringer solution known to physiologists.) When varying amounts of lactic acid are added to these solutions Moore found that the muscles did not lose so greatly in weight or that they actually gained. These are old facts with which everybody agrees. Their explanation has been frequently given.[3]

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[1] Moore, A. R.: Can the Presence of Acid Account for the Edema of Living Muscle? Univ. of Cal. Pub. in Physiol., 1912, iv, 111; Fischer's Theory of Edema and Nephritis, The Journal A. M. A., Aug. 10, 1912, p. 423.

[2] Fischer, Martin H.: The Physiology of Alimentation, New York, 1907, pp. 182, 267; The Swelling of Fibrin (with Gertrude Moore), Am. Jour. Physiol., 1907, xx, 330; Further Experiments on the Swelling of Fibrin, Arch. f. d. ges. Physiol. (Pflüger's), 1908, xxv, 99: Analogy Between the Absorption of Water by Fibrin and by Muscle, ibid., 1908, cxxiv, 69; The Nature and Cause of Edema, The Journal A. M. A., Sept. 5, 1908, p. 830; Swelling of Eyes and the Nature of Glaucoma, Preliminary Communication, Arch. f. d. ges. Physiol. (Pflüger's), 1908, cxxv, 396; Swelling of Eyes and the Nature of Glaucoma, ibid., 1909, cxxvii, 1; Corneal Opacities, ibid., 1909, cxxvii, 46; Remarks on a Colloid-Chemical Theory of Hemolysis, Kolloid Ztschr., 1909, v, 146; The Antagonistic Action of Neutral Salts on the Swelling of Fibrin in Acids and Alkalies (with Gertrude Moore), ibid., 1909, v, 197; The Passive Congestion Edemas of Kidney and Liver (with Gertrude Moore), ibid., 1909, v, 286; Edema as a Colloid-Chemical Problem with Remarks on the General Nature of Water Absorption in the Living Organism, Kolloid-chem. Beihefte, 1910, i, 93; Edema: a Study of the Physiology and the Pathology of Water Absorption by the Living Organism, New York, 1910 (also available in German and shortly in Russian); The Treatment of Glaucoma with Subconjunctival Injections of Sodium Citrate (with Hayward G. Thomas), Ann. Ophth., January, 1910; The Nature of Cloudy Swelling, Kolloid Ztschr., 1911, viii, 159; Further Remarks on a Colloid-Chemical Analysis of Nephritis, ibid., 1911, viii, 201; Contributions to a Colloid-Chemical Analysis of Absorption and Secretion (Absorption from the Peritoneal Cavity), Kolloid-chem. Beihefte, 1911, ii, 304 (available in English in Cincinnati Lancet-Clinic, 1912, cvii); Some Practical Points in the Treatment of Nephritis, Ohio State Med. Jour., August, 1911; The Nature, Cause and Relief of Glaucoma, Tr. Am. Acad. Ophth. and Oto-Laryngol., 1911, p. 193; Nephritis: an Experimental and Critical Study of Its Nature, Cause and the Principles of Its Relief, New York, 1912 (available also in German and shortly in Russian); The Contraction of Catgut and the Theory of Muscular Contraction (with William H. Strietmann), Kolloid Ztschr., 1912, x, 65 (available in English in Cincinnati Lancet-Clinic, 1912, cviii, 205); The Absorption of Water by Nerve Tissue (with Martin O. Hooker), Kolloid Ztschr., 1912, x, 283; A Response to Some Criticisms of the Colloid-Chemical Theory of Water Absorption by Protoplasm, Biochem. Bull., 1912, i, 444; The Theory and Practice of Perfusion, Kolloid-chem. Beihefte (with James J. Hogan, 1912, iii, 385; Physical Chemistry in Pharmacology and Therapeutics, Section in F. Forchheimer's "System on Treatment," 1912.

Muscle consists, in the main, of protein material. When an acid is added to a protein its capacity for taking up water is greatly increased (it swells). If to the acid any salt is added (even such neutral salts as the chlorids of sodium, potassium and calcium) the swelling is greatly inhibited. The same thing happens in muscle. As soon as muscle is cut out of the body (separated from its blood-supply) it produces abnormal amounts and abnormally strong acids. If such a muscle is laid in water it therefore swells. The addition of more acid from the outside only increases the tendency to swell. If a salt or a mixture of salts is added (Ringer's solution) the swelling is inhibited, and if we add enough salt the muscle can be made to lose water. A "physiologic salt solution" or a "Ringer solution" is nothing but a sodium chlorid solution or a mixture of sodium chlorid with calcium and potassium chlorid (to which some add sodium bicarbonate as in Locke's solution), which, among other things, does not permit skeletal or heart muscle to swell appreciably when removed from the body.

Moore does not believe this. From his three experiments he feels that he is justified in concluding what is by no means new:

> It appears . . . that the muscle acts primarily as an osmotic system and secondarily as a colloid.

Moore makes the mistake of not regarding a "physiologic salt solution" or a "Ringer solution" as a man-made mixture which has been found by experimental means to be a better thing than water with which to bathe an excised muscle, but as a divine substitute for blood. Any number of facts show it to be nothing of the kind, but only a solution which, without having any markedly specific poisonous action, counteracts the effect of the acid produced in a muscle removed from its circulation. The laws of osmotic pressure are not being outraged when a muscle removed from its circulation is placed in water, for as long as the muscle is in the body it does not swell even though we drink great quantities of distilled water. Out of the body it swells at once, for no other reason than that out of the body the acid production is greater, so that the colloids acquire a greater hydration capacity. This colloidal swelling is further aided by the fact that in distilled water or in salt solutions of low concentration the muscle loses salt to the fluid in which it lies. In any salt solution, such as Ringer's solution, the acid production in the muscle occurs just the same, but the loss of salts from the muscle is inhibited or prevented altogether, and as there is an antagonism between acids and salts, as we have pointed out repeatedly,[4] the destructive action of the acid on the muscle does not so soon make itself felt in this as in distilled water. The Ringer solution, which Moore regards as "isotonic" with the excised muscle, would be found "hypertonic" if he tried it on the muscle still in the body, for out of the body the acid content runs higher.

In his second paper Moore says:

> It has been clearly pointed out by R. Beutner, and I have shown, that if instead the muscles be put into salt solutions, preferably isotonic, to which acid has been added, such muscles first act like osmotic systems and only later like purely colloidal ones.

We are glad to know that Moore agrees half way with us. Beyond this it becomes an ironical fact that Moore should not know that an American, Edward B. Meigs,[5] whose splendid work on muscle has found little recognition here, first raised and tried to answer the osmotic half of the question, on the basis of experimental findings that really have to be met. The subject has been dealt with in detail by William H. Strietmann and myself.[6] Our considerations would seem to indicate that there is no support for believing that any of the phenomena of water absorption in muscle are "osmotic." All the phenomena of contraction, relaxation, tetanus, residual contraction, the staircase, fatigue, etc., can be mimicked point for point by catgut, and the chemical conditions which bring these about are identical with the chemical changes that characterize these phenomena in the living muscle. Further, all the phenomena and the experiments which in muscle are designed to prove its "osmotic" behavior can be mimicked in catgut. Surely Moore would not maintain that several-months-old dry catgut has any "living" osmotic membranes left tucked away within itself.

As a matter of fact, the entire conception of an "osmotic membrane" about cells is an impossibility. An osmotic membrane is a "semipermeable membrane;" it allows a solvent (water) to pass through it, but holds back the dissolved substances. A semipermeable membrane about a cell would therefore permit water to pass in and out according to the laws of osmotic pressure, but no dissolved substances. Oxygen, carbon dioxid, salts and all manner of food metabolites could therefore neither enter nor leave the cell. It is known, of course, that physiologically these substances must do both, so the membranes are said to be "partially permeable." As soon as this is granted, those differences in osmotic concentration no longer exist which make it possible for the water to move; again it is known that physiologically this must also be possible. On the osmotic basis, we may have our choice but we cannot have both.

The colloid-chemical conception of absorption and secretion meets no such obstacles. Water and dissolved substances may here both move, independently of each other, and in the same or opposite directions, governed by the laws of equilibrium and as demanded by the facts of physiology.

Moore continues:

> It can easily be shown that acid content does not account for the swelling of muscle in Fischer's "artificial edemas." These edemas are produced by ligating the leg of a frog just above the knee, severing above the ligature and keeping the preparation in distilled water. It was found that these preparations increased in weight. Without attempting to obtain any direct evidence on the point, Fischer lets us assume that this increase in weight is due to the accumulation of acids within the amputated leg. I repeated the experiment and kept the preparations in tap-water for twelve hours. The result in each case was an increase in weight of 20 per cent., as shown in the accompanying table.

EXPERIMENT SHOWING EDEMA BY ABSORPTION OF WATER

	Weight		
Preparation	At Beginning, Gm.	After 12 Hours, Gm.	Increase in Weight, Per Cent.
No. 1	3.750	4.540	20
No. 2	3.805	4.630	20

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[3] See the first five references in Footnote 2.

[4] Fischer and Moore, G.: Am. Jour. Physiol., 1907, xx, 330, and subsequent papers.

[5] Meigs, Edward B.: Am. Jour. Physiol., 1910, xxvi, 191; Ztschr. f. allg. Physiol., 1908, viii, 81; Am. Jour. Physiol., 1908, xxii, 477; Am. Jour. Physiol., 1909, xxxix, 358.

[6] Strietmann, William H., and Fischer, Martin H.: Kolloid Ztschr., 1912, x, 65; reprinted in English in Cincinnati Lancet-Clinic, 1912, cviii, 205.

> At the end of the experiment the preparations were opened and the muscles found to be irritable. When the lymph and muscles were tested with acid fuchsin and neutral red, they were found to be neutral. Clearly, then, acid accumulation does not take place in the artificial edemas which Fischer has devised to prove his hypothesis.

Again Moore agrees with us on certain experimental findings, but the reasoning in the last paragraph is bad. Does Moore wish to go on record as maintaining that any amount of abnormal acid production in a muscle at once does away with its "irritability?" And why should lymph and muscle show an acid reaction to acid fuchsin or neutral red? I have never anywhere maintained that for an edema to develop the tissues had to be acid "in reaction." I have always said that there occurred an abnormal production or accumulation of acid in the tissues. This at times, though not of necessity, becomes sufficient to betray itself to an indicator. As the acid content of a tissue rises the acid combines with the protein (and certain other basic constituents) to form the acid-protein combination which has the greater capacity for holding water; but this acid-protein combination need not have an acid reaction to an indicator, as we have known from biochemical studies[7] on pure proteins since 1895. Clearly then an acid accumulation may take place in these artificial edemas without Moore being able to find it with his indicators. That it does occur has been known for over fifty years and does not depend for proof on any of my experiments. To use only the recent and the best work in this line it is sufficient to cite Fletcher and Hopkins, who found the acid content of the muscle to rise from the first minute of its excision. How then can Moore, with his faulty methods, say that there is no abnormal acid production at the end of twelve hours? As a matter of fact, the most sensitive indicator for acids which we have to-day is the swelling of a hydrophilic protein colloid. K. Schorr and R. Chiari could discover, through the swelling of a protein colloid, the difference in the acid content of ordinary distilled water and the specially distilled water that is used for conductivity experiments in our physicochemical laboratories. Such fine differences have heretofore been demonstrable only by electrical methods.

Moore says in his second paper:

> Fischer . . . leaves unanswered the all-important question, Can acid accumulation account for the edema of living muscle?

All my writings on water absorption by the tissues are an answer to this question, though I confess to less skill in differentiating between a "living" and a "dead" muscle than Moore. It would be well for Moore to indicate what criterion he accepts as evidence of "life" in a muscle. On reading Moore's paper one would be led to believe that this is the presence or absence of rigor mortis, or possibly the presence of "irritability." A muscle in rigor mortis is contracted as much as possible, and since ability to contract when touched with electrodes is usually chosen as a sign of its "irritability" (and I do not think Moore used any more refined laboratory method than this), how could this determine whether the muscle was dead or not?

Even disregarding such obvious crudities in Moore's reasoning, acid accumulation can yet account for the edema of "living" muscle. All authors (except Moore) are agreed that the production and accumulation of acid in any organ runs up from the moment its circulation is interfered with, and if water is available it swells. Yet this organ retains for varying periods and in varying degrees evidences of "life." So a muscle, after removal from the body, and while its acid content is steadily increasing, is still capable of contraction when touched with electrodes, for hours maybe after it is removed from the body, as every one knows. As the acid runs up in the muscle it shows some of the evidences of "fatigue," and if water is available it swells. The slow, stiff, muscular movements of an edematous patient mean the same thing. Even under physiologic conditions a muscle may develop an edema. Whenever a muscle is exercised it produces acid (it is the cause of the contraction), and an active muscle absorbs water in a way that an inactive one does not, as we have known since Ranke's[8] studies.

Moore says:

> On the other hand, Kantor and Gies have shown that free acid must be present in a solution in which fibrin threads are suspended in order that such threads may swell.

This statement has been answered several times before,[9] and Gies[10] and I now agree in all essentials.

Again, Moore says:

> Von Fürth correctly calls attention to the fact that Fischer's colloidal theory of edema seeks to explain only the imbibition of water by the cells, while as a mater of fact the greater part of the fluid of an edema is outside the cells, lying between the tissues.

This argument was originally raised by Felix Marchand and was anticipated and answered in my first writings.[11] The fluid in edema lies both in the cells and between them. But what except water-saturated colloidal material lies between the orthodox cells? Even the mysterious "lymph-spaces" are not holes filled with air but contain water-saturated colloidal material (lymph) which behaves like the more solid material that makes up the cells. All this has been discussed a dozen times.

It is worthy of note that critics like Moore, who, in their own theoretic considerations, could only ignore all that lies between the "osmotic membranes" with which they surround their cells, constantly attack these colloid-chemical views which alone have been able to explain the behavior of the intercellular tissues and fluids. The intercellular substances, including blood and lymph, behave as do the cells themselves. The water in the intercellular substances, in the blood and in the lymph, is carried as hydration water, just as the water in the cells; and these can be and are given an "edema" under proper circumstances, as truly as any other protein colloidal constituent of protoplasm, be this cell or what not.

Moore continues:

> Fischer's later work on "Nephritis" consists of an application of the experiments and arguments used in connection with edema to the more special problems of nephritis, and so criticisms of much the same character as those given on the earlier work apply here.
>
> Briefly stated, the reasons for his theory are three:
>
> 1. Fibrin dissolves in acid or in alkaline, but not in neutral solutions, and this, to Fischer's mind, is what takes place in the cells of the nephritic kidney, thus giving rise to albumin in the urine. In order that the analogy may hold, then the secreting cells of the kidney must be acid in reaction.

Not at all. As acid is added to a neutral protein it combines with this, and the acid-protein combination has a greater hydration capacity. As the amount of absorbed water rises the protein becomes more and more soft, and finally liquid; that is to say, it goes into solution; but unless an amount of acid has been added beyond the combining capacity of the protein for it, a readily appreciable increase in the number of free hydrogen ions, (on the presence of which an "acid reaction" at all times depends) does not occur. These are elementary facts of modern chemistry.

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[7] Sjöquist, J.: Skand. Arch. f. Physiol., 1895, v. 277. Cohnheim, Otto: Ztschr. f. Biol., 1896, xxxiii, 489. Spiro, K., and Pemsel, W.: Ztschr. f. physiol. Chem., 1898, xxvi, 233. Bugarszky, S., and Liebermann, L.: Arch. f. d. ges. Physiol (Pflüger's), 1898, lxxii, 51. Fischer: Nephritis, New York, 1912, p. 23.

[8] Ranke: Tetanus, Leipsic, 1860.

[9] Fischer: Nephritis, New York, 1912, p. 184; Biochem. Bull., 1912, i, 452.

[10] Gies, William J.: Biochem. Bull., 1912, i, 461.

[11] See the first ten references in Footnote 2.

In stating my second reason, Moore begins:

> 2. It is shown by means of tables quoted from Höber that urine from nephritides is more acid than that of normal persons.

The combination between protein and acid is still of a disputed character, but in the low concentrations which are alone under discussion, in "living" protoplasm the combination is reversible. In other words, the acid after being put into a protein can be washed out again. If water (urine) is placed in contact with an acidified protein (nephritic kidney protoplasm) the water will have a higher acid concentration (to satisfy the laws of chemical equilibrium) than if the water is placed in contact with a less acid or a neutral protein. Hence, finding the urine of nephritics more acid than normal urine indicates that the protoplasm with which this has been in contact has a higher acid content than the normal kidney. The laws of equilibrium are always the same.

Moore continues:

> Farther on in the book Fischer states (p. 184): "The presence of some abnormal acid in the urine does not yet prove that the actual acidity of the body as a whole has risen."

And it does not. To find an abnormal acid is a qualitative discovery, not a quantitative one. The finding of lactic acid in the stomach is the discovery of an abnormal acid there, but it does not prove that the actual acidity of the stomach contents has risen; in fact, in this illustration it means just the reverse, as in carcinoma.

Moore continues:

> It is hard to see then how the abnormal acidity of the urine could be used as an argument for the acidity of any part of the body as, for example, the kidneys.

Not if one knows the laws of chemical equilibrium, and will distinguish between the quantitative and the qualitative elements in the discussion as I do in my books and as Moore seems unable to do.

Moore resumes:

> 3. Artificial albuminuria may be produced in rabbits by the injection of sufficient quantities of tenth-normal hydrochloric acid.
>
> It is curious to note that Fischer goes to great pains to demonstrate that normal kidney tissue is neutral in reaction to acid fuchsin and sodium indigo sulphonate.

It was not necessary for me to demonstrate the neutral reaction of normal tissues and normal body fluids. Fraenkel, Farkas, Höber, etc., did this to perfection years ago. For the rest, Moore twists about one of my arguments which is correct as stated in my book, but not as he states it in the converse. Moore must know that many of our conceptions of the "secretion" of dissolved substances by the kidney depend on certain staining reactions of the kidney substance with acid fuchsin and sodium indigo sulphate. I have merely pointed out that a normal kidney does not stain with these dyes, and by discussing the staining reactions of proteins in the presence and absence of acid, have insisted that the staining of a kidney with these dyes is evidence of an abnormally high acid content in it. What some of the older authors considered "physiologic" in their experiments, I have therefore taken to be pathologic, and the anuria, the casts and albumin found in these older experiments prove that the kidneys in these animals were not in a "physiologic" condition. But absence of staining does not prove that the acid content of the kidney in any given kidney is not raised above the normal. A certain minimum of free hydrogen ions is necessary before any indicator betrays their presence, and while the hydrogen ion concentration in a kidney may be well beyond the normal concentration, it may not yet be sufficiently high to betray itself to acid fuchsin or similar indicators.

Moore then says of my work:

> He then records a large number of experiments in which albuminuria was induced in rabbits by the injection of tenth-normal hydrochloric acid, made isotonic with sodium chlorid solution, but scrupulously avoids telling whether the kidneys in such cases were neutral or acid in reaction.

The injection of acid certainly increased the "acid content" of the body (including the kidney). That is the essential point, and an argument as to whether the kidneys were neutral or acid "in reaction" would add nothing. They might have been either without affecting the argument.

Moore says:

> If sections of kidney in a case of artificial nephritis should test acid to indicators we should have good reason for trusting Fischer's theory.

This would contribute to the positive side of the argument, as when a kidney stains with acid fuchsin; but for obvious reasons absence of such findings proves nothing.

To quote still further:

> In order to satisfy myself on that point I injected a 2,200-gm. rabbit with 175 c.c. tenth-normal hydrochloric acid made isotonic with serum by the addition of 2.5 mol sodium chlorid. The temperature of the solution was from 35 to 37 C. The injection occupied one hour. One-half hour after the injection had ceased the rabbit was catheterized and the urine found to give an abundant precipitate with phosphotungstic acid. The rabbit was killed by a blow on the head, the kidneys at once removed and sections of them tested for acid with neutral red and acid fuchsin. The result in all cases indicated neutrality of the secreting cells. Occasionally slight staining took place in the lining of the collecting tubes, just as in normal kidney.
>
> Here, then, is a case of albuminuria, induced by acid injection, in which the kidney tissue retains its neutral reaction.

Certainly.

Then Moore says:

> If more be needed to indicate the insecure basis on which the acid theory of nephritis rests I might refer to the fact that Fischer himself has shown that injections of solutions of the three sodium salts, sodium chlorid, sodium iodid and sodium bromid, frequently, though not always, cause albuminuria in rabbits. Burnett found that when sea water is made isotonic with blood-serum and injected into rabbits it gives rise to albuminuria.

Large quantities of solution have to be injected, and the lower the concentration of the salt the greater the likelihood of an albuminuria and a generalized edema.

I have explained this finding before.[12] Such large injections are all associated with an abnormal generalized production and accumulation of acid, as is evidenced by the rapid breathing, the fast heart, the cyanosis of the animal, etc.

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[12] Fischer: Edema, New York, 1910, p. 204.

> And yet Fischer advocates to physicians the use of injections of salt solutions in cases of nephritis.

And still does.

> If one can, for a moment, forget the skilful and convincing style in which the book is written, and set before oneself the meager evidence which Fischer uses for his theory, the lack of a few fundamental facts at once becomes apparent. . . . He goes on to argue most plausibly that edema in the living animal body is caused by an excessive accumulation of acid. He completely fails to prove that such is the case.

Moore concludes:

> It would seem to be wisdom on the part of those engaged in the practice of medicine to view with extreme caution the use of any theory in practice which is founded mainly on argument based on a minimum of experimental evidence. It has been shown how slender is the experimental basis for Fischer's theory of edema and nephritis, and I should say that no matter how skilfully that writer has put his argument, his theory at present has no place in the practice of medicine.

I am constrained to say that it is difficult to answer in good humor such words, which lie well beyond the recognized limits of scientific discussion.

THE PURPOSE AND LIMITATIONS OF BIO-ASSAY *

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A century ago, when a physician prescribed, for instance, tincture of opium, he had no way of knowing how much opium his patient would receive save by referring him to some druggist with whose preparations the physician had had previous experience. The evils of this confusion were so apparent that the country had hardly achieved political independence before the medical profession began to agitate for some means of providing uniformity in the materia medica. This agitation culminated in 1820 in the first publication of the first U. S. Pharmacopeia.

Although this work consisted merely of a list of crude drugs with formulas for preparing from them various galenicals, it represented an effort to reach at least an approximate agreement throughout the country in the activity of the commonly used remedies. The sixth revision of the Pharmacopeia, published in 1882, marked another great epoch in the progress toward exactitude in therapeutics, for in this edition was first officially recognized the importance of regulating the quality of the crude drugs from which were to be manufactured the various medicines. There were added, with this in view, not only a description of the appearance of the vegetable drugs, in order that sophistication and adulterations might be the more readily discerned, but also methods for the chemical determination of the percentage of alkaloids in opium and cinchona.

This last innovation was the beginning of an advance in practical therapeutics the importance of which can scarcely be overestimated and an aid for which the medical profession must forever remain indebted to pharmacy. In the early enthusiasm over chemical assays the professions believed that they had found the panacea which should cure all the evils of uncertainty dosage. It seemed simply a question of time before chemists should discover the active principles of all the potent drugs, and having discovered these, what seemed simpler than to find a means for their quantitative extraction?

Pharmaceutical chemists, especially in this country, attacked the problem with an energy and a determination which would have stormed a Gibraltar. But thirty years of endeavor, while they have greatly extended and perfected the methods of chemical assays, have demonstrated that there are inherent limitations in the art which may perhaps never be overcome.

There is apparently a great group of principles which it is at present impossible to separate in anything approaching completeness or purity. Indeed, up till now the chemical assay has been applied satisfactorily (with one or two exceptions) only to those drugs containing alkaloids, and not to all of these. The U. S. Pharmacopeia VIII, at present official, contains 140 crude vegetable drugs, of which fifty-three are capable of exercising an appreciable effect on the system when given in single dose—that is, are physiologically active. Of these fifty-three only fifteen are officially required to be standardized and it is doubtful if any chemist can satisfactorily test the others. In other words, less than one-third of our potent vegetable drug remedies are susceptible of assay by chemical means. This lack becomes all the more painfully evident when we remember that in the thirty-eight non-assayed drugs are included such powerful substances as lobelia, digitalis, cannabis indica, veratrum, ergot, squills, etc.

The idea of using tests on the lower animals as a means of determining relative therapeutic efficiency seems, like most other important scientific advances, to have been one of gradual growth, so that while many men deserve much credit for their part in its development no one may claim the glory of having been its originator. The thought existed in an embryonic form at least as far back as 1880, but it has reached a conscious, purposeful existence only in the present century. Within the last few years it has been exalted to the position of a fetich; it has been apotheosized by commercial interests and therapeutic incense burned to it as the deliverer from all pharmacologic uncertainties. As one who has been privileged to serve as an acolyte in the temple of this therapeutic deity I thought you might perhaps be willing to listen for a few minutes to what are, in my opinion, the purposes and the limitations of the so-called physiologic assay.

THE BIO-ASSAY

The underlying principle of physiologic standardization, or as those engaged in this work prefer to call it, the bio-assay, is to determine the quantity of a given sample of drug required to produce some easily recognizable effect on a lower animal. By comparing this with the amount of a standard preparation which will produce the same reaction, one can figure out the relative therapeutic dose. In other words, some physiologic or toxic effect, which may or may not represent a useful therapeutic action, is taken as a criterion of the remedial efficiency of the sample. For instance, in testing digitalis the following method is often employed: Frogs of the same species are carefully weighed and injected with doses of the drug to be tested which are, respectively, smaller, the same and larger than the amount of a stand-

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* Read in the Symposium on Drug Standards in the Section on Pharmacology and Therapeutics, of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

ard preparation shown by previous experiment to be just sufficient to arrest the heart in systolic spasm within a period, say, of twelve hours. After this period has elapsed the three series of frogs are examined and if those which received the smallest dose are alive and those which received the middling and larger dose are killed the preparation is deemed to be of just standard strength.

In this instance the toxic power of digitalis to cause systolic spasm in the frog's heart is used as an index of its therapeutic potency, although of course we do not employ the drug for this purpose clinically. It is probable that the toxic qualities of physiologically active drugs bear more or less relation to their useful physiologic activities, although in the case of such substances as digitalis, which contains several active ingredients, we cannot be absolutely certain that this ratio is a close one. The work of Hatcher as to the comparative poisonousness of strophanthin and digitoxin for the frog and the mammal shows that we must be a little cautious in drawing too positive opinions of the absolute value of the "heart toxic unit" as indicative of the proper dosage of members of the digitalis series.

While the bio-assay must be acknowledged as a great step forward in the direction of accuracy in our materia medica, its field of usefulness is at present pretty narrowly limited by certain factors, some of which seem to be inherent in the method and some of which are due to the comparatively undeveloped status of the art. As yet we cannot apply this test with any real satisfaction to more than one-third of those substances which I have mentioned as being in need of some standardization.

The chief reason that the list of agents susceptible to this test is so short and one not likely to be greatly extended in the near future is the necessity of an end-reaction—to borrow a chemist's term—which is at once clearly defined and bears some relation to the physiologic utility of the drug. To take as a standard for veratrum the amount required to kill is useless because the drug kills by its effects on the respiration, while it is used clinically for its influence on the circulation and it has several alkaloids which differ much in their influence on the circulatory and respiratory mechanisms. The great value of phenolphthalein to the chemist as an indicator of alkalinity lies in the smallness of excess of alkali needed to produce a deep purple color in a colorless solution; if the change was a gradual one, first a faint pinkish hue which became more and more pronounced as the alkalinity increased, it would be almost useless for its present purposes as a reagent. It is for an analogous reason that our efforts at the standardization of cannabis indica have been so futile. A small dose of this drug given to a dog produces a slight but not recognizable disturbance of the central nervous system, and the dog seems perhaps a shade quieter than ordinary or perhaps a little unsteady in its movements; but who can say that this may not be due to some accidental circumstance? As the dose is increased the toxic manifestations become more marked until the merest tyro could recognize the characteristic symptoms, but at no time is it possible to mark sharply any certain stage in the poisoning.

There are two other present-day practical limitations to the application of this bio-assay; one, however, time will probably remove. These are, first, the absence of lack of agreement as to the reliability of methods which have been suggested even for those drugs with well-marked physiologic end-reactions; second, the inadequate supply of qualified experts to make the tests. It is as foolish for a pharmacist without practical training in animal experimentation to attempt the physiologic standardization as it would be for one who had never held a test-tube in his hand to try a chemical assay.

I wish to call attention to what is in my opinion the most serious source of weakness of all, at least as far as the practicing physician is concerned. Suppose we have a drug with a sharply cut physiologic action, and suppose we have a good method of bio-assay for it, and a skilled and careful pharmacologist makes the test and finds that the sample is of good quality, what promise have we that it will be up to standard when it reaches the patient? Do you know that it is the custom of drug manufacturers to keep all galenicals from nine months to two years before they put them on the market? Do you know that after the drug leaves the makers it may stand on the jobber's shelves another year or two before it goes to the retailer? And heaven only can tell how long it has been reposing in the apothecary shop when the patient comes in with the prescription of some optimistic doctor who relies on the manufacturers' shibboleth, "physiologically standardized." You recall the little tin soldier that was covered with rust: it was passing fair when the little boy blue tested and put it there. But the years they come and the years they go and the rusty musket in the hour of need fails in the battle against disease. Is it the fault of the bio-assay?

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ABSTRACT OF DISCUSSION

MR. C. E. VANDERKLEED, Philadelphia: Dr. Wood has pointed out one of the most difficult problems with which the furnishers of standardized preparations have to contend, namely, the question of deterioration. It is true that the alkaloidal drugs for the most part are quite stable. With regard to some of the other drugs which are not so amenable to chemical assay, for the standardization of which we must depend on the physiologic or bio-assay, this problem of deterioration is very difficult to solve. We know that a fresh ergot of good quality will produce a marked rise in blood-pressure when the solution or extract is injected intravenously into an animal. We know also that the fresh drug will produce a blueing of the comb when injected into the muscles of certain roosters. The third thing we know about ergot is that it contains not less than 0.15 per cent. of total alkaloids. All these observations are true, irrespective of the question whether or not the particular phenomena indicate the therapeutic usefulness of that drug. The forth point is that no one isolable active principle can be depended on to produce the effect of ergot active principle. The fifth is that such a preparation when made up will rapidly deteriorate. To test protection against this deterioration we prepared in the laboratory of H. K. Mulford & Co. a fluid extract of ergot which possessed the qualities I have enumerated and put up four portions of it in four different ways, as follows: The first portion was put in ordinary pint bottles, set on the shelf and taken down from time to time for removal of portions for testing. A second portion was put up in 1-ounce sealed packages. A third portion was put up in packages not sealed, rather loosely stoppered. A fourth portion was put up in 1-ounce ampules from which the excess of air was removed, i. e., vacuum ampules. At the end of the year we tested all four portions by means of the chemical assay and the blood-pressure test. When the preparation was originally tested in May, 1911, a maximum rise of 45 mm. in blood-pressure was produced. At the end of the year, May 6, 1912, that portion put up in vacuum showed a maximum rise of 49 mm. That portion which had been put up in tightly corked sealed packages, but not in vacuum, at the end of a year gave a rise of 30 mm. The loosely corked material gave a rise of only 16.5 mm. and the preparation which had been opened from time to time and parts used, gave 15 mm. as the maximum rise. The original chemical test showed 0.163 per cent.

total alkaloids; the vacuum package at the end of the year showed 0.168 per cent. The package which had been opened from time to time showed less than 50 per cent. of the original. It is evident therefore that the preservation of preparations of this kind in vacuum is a step in the right direction.

Dr. C. B. Lowe, Philadelphia: It may be possible for the pharmacists to work out the limit of activity of these preparations and that limit could be placed on the containers and then they should be marketed only in this way.

CHLOROMA

A CLINICAL STUDY OF TWO CASES *

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It is interesting and instructive to follow the history of chloroma. During the ninety years since the first description, frequent changes have developed in the conception of this rather peculiar disease process.

The earlier observers were unable to classify its bizarre clinical picture with the predilection of tumor localization to the cranial and facial bones, the growths of greenish color, and associated painful exophthalmos, deafness and visual disturbances.

The conclusions in vogue were frequently upset as the knowledge of the pathologic anatomy and histology of the greenish tumors, and, later, of the hematology developed, and while in recent years a more careful study of chloroma, which is still a rare disease, has brought a clearer idea of the separate phases, the ultimate nature of the disease process is still unsolved.

The number of examples of chloroma described during the past nine decades, including doubtful cases, numbers about ninety.

Interesting reviews of reported cases are given by Lang[1] (1894, fourteen cases), Heyden[2] (1904, thirty-seven cases), Dock-Warthin[3] (1904, thirty-eight cases), Weinberger[4] (1907), Benjamin-Sluka,[5] Fabian[6] (1908, fifty-seven cases), and Lehndorff[7] (1910, seventy-three cases).

The first description was given by Allan-Burns[8] in 1821. In the next fifteen years only three cases were reported, Mackenzie[9] 1831, Balfour[10] 1834, Durand-Fardel[11] 1836. The green color of the tumors is prominently mentioned by these early writers, and Aran,[12] in 1854, referred to the process as *cancer vert* or green cancer.

The name, "chloroma," was first proposed by King[13] in 1853, and in using this title he refers to it as if it were well known, yet no previous reference to it can be found.

Many of the earlier writers regarded the process as sarcoma, with the primary site in the periosteum of the cranial and facial bones, and metastases in the internal organs. This was the view expressed by Huber[14] in 1878, and Chiari[15] in 1883, both of these writers preferring the name "chlorosarcoma." Virchow did not mention it in his first edition of tumors, but considered it in 1866 when he classed it as sarcoma.

Huber's description of his case in 1878 constitutes the first instance in which a blood examination was made, but the significance of the blood-changes was not recognized.

A leukemic blood-picture was first confirmed *in vivo* by Waldstein,[16] in 1883, who regarded the disease as extending clinically into the field of pernicious anemia and leukemia, yet because of its unusual course, he felt it could not be reconciled with leukemia. This observation withdrew chloroma from the field of malignant tumors.

Von Recklinghausen,[17] in 1885, definitely associated chloroma with leukemia, because of the similarity of the two processes in histologic structure; he regarded the lymphoid character of the tumors and their multiple dissemination in tissues of lymphoid nature, as the real nature of the process.

Dock,[18] in 1893, was the first American writer to refer to the disease in detail, and independently of von Recklinghausen made a strong argument for a relationship between chloroma and leukemic processes; he called special attention to the similarity in clinical picture, regarding the disease as a lymphoid process with a clinical expresssion similar to leukemia or pseudoleukemia; he also referred to a distinct histologic difference between chloroma and periosteal sarcoma, in that giant cells or signs of ossification were not present in the lymphoid growths of chloroma.

Subsequently to this contribution attention has been mainly directed to the study of the blood-changes and now chloroma is mentioned largely in works on hematology, or referred to as a form of lymphatic leukemia.

The most important contribution on the basis of hematologic studies was the discovery of a second type of chloroma, the myeloid chloroma, by Turck[19] in 1903, Klein-Steinhaus[20] and Sternberg[21] in 1904, which further extended the conception of the process.

Singularly enough, the most characteristic and prominent symptom, the greenish color of the tumors, has been studied the least, and thus far very little definite knowledge obtains in regard to it.

While opinions still vary as to a closer definition, there is at present a general agreement that chloroma belongs to the primary diseases of the lymphoid hematopoietic apparatus, or is a general disease of the blood-making parenchyma.

It is interesting to note that the two cases which form the basis of this study came under observation within the course of the same year, and in each instance first came to the attention of my surgical colleague, Dr. Oliver J. Fay.

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* From the Department of Internal Medicine, Drake University Medical School.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* Because of lack of space this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

[1] Lang: Arch. gén de méd., 1893, ii., 63; 1894, i, 555.

[2] Heyden: Inaug. Diss. Rostock., 1904.

[3] Dock-Warthin: Tr. Assn. Am. Phys., 1904, p. 64.

[4] Weinberger: Ztschr. f. Heilk., 1907, xxviii, 1.

[5] Benjamin-Sluka: Jahrb. f. Kinderh., 1907, lxv, 87.

[6] Fabian: Zentralbl. f. allg. Path. u. path. Anat., 1908, xix, 49.

[7] Lehndorff: Ergebn. d. inn. Med. u. Kinderh., 1910, vi, 221.

[8] Allan-Burns: Observations on Surgical Anatomy of Head and Neck, Baltimore, 1823, p. 386.

[9] Mackenzie: Treatise on Diseases of the Eye, 4 Ed.; Philadelphia, 1855, p. 91.

[10] Balfour: Edinburgh Med. Jour., 1835, xliii, 319.

[11] Durand-Fardel: Bull. Soc. anat. de Paris, 1836, xi, 195.

[12] Aran: Arch. gén. de méd., Series 5, 1854, iv, 385.

[13] King: London and Edinburgh Monthly Jour. Med. Sc., 1853, xvii, 97.

[14] Huber: Arch. f. Heilk., 1878, xix, 128.

[15] Chiari: Ztschr. f. Heilk., 1883, iv, 177.

[16] Waldstein: Virchows Arch. f. path. Anat., 1883, xci, 12.

[17] Von Recklinghausen: Tagebl. d. 58 Versamml. deutsch. Naturf. u. Aerzte Strasburg, 1885, p. 421.

[18] Dock: Am. Jour. Med. Sc., 1893, cvi, 152.

[19] Turck: Mitt. d. Gesellsch. f. inn. Med. u. Kinderh., 1903, p. 39.

[20] Klein-Steinhaus: Zentralbl. f. allg. Path. u. path. Anat., 1904, xv, No. 2.

[21] Sternberg: Beitr. z. path. Anat. u. z. allg. Path., 1904, xxxvii, 437.

Case 1.—*Family History.*—Dorothy X, 19 months of age, was seen with Dr. C. D. Busby, Brooklyn, Iowa, Oct. 29, 1910. Father of the patient is a farmer, in good health; the mother is well; two older children in the family are in good health; the general family history is negative.

Previous History.—The patient's birth was normal, and she has had no illness previous to the beginning of the present condition. The mother stated that in the eight weeks before consulting a physician, the child had not seemed as well as usual. At first a mild diarrhea was a feature, she became peevish and restless, the appetite was impaired, and a moderate fever developed occasionally, all of which was attributed to dentition disturbances, and Dr. Busby was not called until a few days previous to my visit, and then only because of a swelling in the right upper eyelid, and the discovery of a large "lump" in the left side of the abdomen. It was also at this time that my colleague, Dr. Fay, was consulted for advice as to surgical treatment, which in his opinion was not indicated.

Examination.—Oct. 29, 1910, the patient appeared restless, distressed and pale. Her mental state was clear. The right upper eyelid was swollen and slightly ecchymosed. There were no exophthalmos or retinal changes; the pupillary reflex was normal; the scalp was not tender and presented no special abnormalities. A limited number of lateral cervical lymph-nodes were palpably enlarged. The chest was of normal shape and the spine was straight and flexible. The heart and lungs were normal. The abdomen was distended principally in the upper portion; free fluid was not demonstrable.

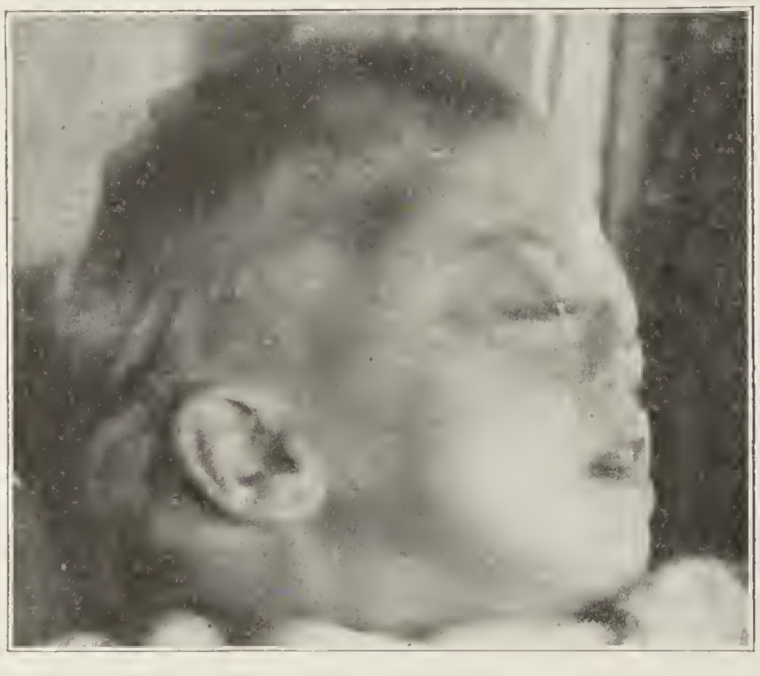

Fig. 1.—Dorothy X., aged 19 months; duration of illness, four months. Exophthalmos, blindness, periosteal tumors of the cranial and facial bones. Photograph taken three weeks before death (Case 1).

The liver was enlarged, being palpable 2 cm. below the costal margin. The spleen extended below the costal margin, the edge being palpable as far forward as the median line, and as low as the umbilicus; the consistency was firm; the surface was smooth, with the notch well defined. The enlarged spleen constituted the "lump" that had been noted by the mother. The axillary and inguinal lymph-nodes were not enlarged. The extremities were normal. Pressure over the long bones and the sternum did not cause pain. The urine findings revealed an acid reaction and specific gravity, 1.016; albumin, sugar or pathologic sediment were not present. A test for albumose was made with a negative result.

The blood examination revealed the following: hemoglobin 70 per cent. (Tallqvist), red cells, 4,190,000, leukocytes, 18,800. Differential count of 200 white cells: polymorphonuclears, 33 per cent.; lymphocytes, 23 per cent.; large mononuclears, 42 per cent.; myelocytes, 2 per cent.; special changes in the erythrocytes were not noted at this examination.

Diagnosis.—In view of the enlarged spleen and associated blood findings, a tentative diagnosis of leukemia was proposed, although the exact type was difficult to determine.

Course.—Through the kindness of the attending physician, Dr. Busby, I received frequent reports in regard to the child's condition, blood-counts, and a large number of carefully prepared blood-spreads for examination. The blood rapidly assumed the character of a severe anemia, the hemoglobin percentage became low, the red cells were gradually reduced in numbers, and with this erythrocythemia, changes in form and size, poikilocytosis, polychromasia, and nucleated red cells were noted; the leukocytosis became more marked, with a large mononuclear non-granular or large lymphocyte type of cell predominating. The patient became rapidly weaker, digestive disturbances were more marked; within three weeks after the first examination a prominence of the left eye was noted, with the development of a number of distinct tumor-like swellings in the scalp over the region of the temporal and parietal bones. With this report a diagnosis of chloroma was entertained.

On December 7 I was privileged to see the patient a second time, and was impressed by the marked change in the appearance from that noted at the examination five weeks previous. The child was very pale, greatly emaciated and appeared listless and drowsy. A marked proptosis existed in both eyes, both upper lids being discolored by an extensive extravasation of blood. The scleræ were of a pearly icteric hue. The conjunctivæ were pale. The general surface of the scalp was irregular by reason of numerous circumscribed swellings. Of these there were a number on the temporal, parietal and occipital bones. The lower portion of the frontal bones bulged forward prominently, evidently owing to growths from the upper wall of the orbit. These growths varied in size from 1 to 3 cm. in diameter, being flat sessile growths, firmly connected with the periosteum of the cranial bones, and where not covered with hair presented a dark greenish color, which showed well through the thin and anemic skin.

Behind the right ear were two small nodules of hazel-nut size, freely movable, which also presented a greenish color. The deformity in the skull and upper portion of the face produced by the tumor formations gave the facial aspect a peculiar "frog-like" appearance. Several photographs of the patient were secured at this examination (Figs. 1 and 2).

The anterior and posterior cervical lymph-nodes were enlarged, though not more noticeably than at the previous examination. The axillary and inguinal lymph-nodes were slightly enlarged. There were no localized swellings to be detected over the sternum, ribs or long bones. Numerous moist râles were heard over the lower portions of both lungs. A systolic murmur was heard over the entire precordium. The abdomen was distended, although the spleen did not appear to be as large as formerly, extending only 3 cm. below the left costal margin. The liver was palpable and slightly enlarged. The extremities were emaciated. Partial bowel and bladder incontinence was present. The body temperature was 101 F., pulse 140 and respiration 42.

The blood examination revealed: hemoglobin, 40 per cent. (Tallqvist); red cells, 1,650,000; leukocytes, 55,200. Differential count: neutrophilic polymorphonuclears, 41 per cent.; eosinophilic polymorphonuclears, 4 per cent.; large mononuclears, 51 per cent.; large lymphocytes, 4 per cent. The erythrocytes revealed the changes peculiar to a pernicious anemia and a moderate number of megaloblasts were observed.

The clinical picture of chloroma was so distinct that a diagnosis could be made without difficulty.

After this time the child failed rapidly and soon became totally blind; the eyes discharged freely and she suffered severe pain, especially about the head and eyes. The patient died Dec. 27, 1910, at the end of a four months' illness. A post-mortem examination unfortunately was not permitted.

The study of the clinical symptoms in this case was specially interesting because the picture of chloroma developed, as it were, "under the eye," and permitted a diagnosis to be made fully forty days before the death of the patient.

The sequence of events included general weakness, splenic tumor, severe anemia, leukocytic formula of lymphatic leukemia, followed by the characteristic tumor formation with the coincident changes peculiar to chloroma.

Case 2.—*Family History.*—Ruby W., aged 3 years, was seen with Dr. O. J. Fay, Sept. 28, 1911, on account of enlargements of the skull in the temple region, ecchymotic suffusion of the upper eyelids and pallor of the skin. Her father and mother are alive and well. She is the youngest child in the family, there being two older children which are in good health.

Previous History.—The patient's birth was normal, and she has been a strong and healthy child until the present illness, which, according to the mother, began two and one-half months ago, with gradually increasing pallor and physical weakness; about a month ago both temples began to swell, being more marked in the right, which swellings have continued to enlarge. The right eye soon became prominent and both upper lids appeared swollen with deep-seated ecchymosis under the skin. The appetite was impaired; vomiting was not present. The bowels were normal; the patient had gradually lost in weight, and during the last month the abdomen has apparently enlarged.

Present Condition.—The patient is very pale, the skin having an icteric hue; the mucous membranes are pale; her mental state is clear; the face presents a peculiar broadened "frog-like" appearance; exophthalmos is present in both eyes, being more prominent in the right. Both temporal regions are prominent and bulging, owing to the presence of flat sessile growths firmly adherent to the periosteum, and evidently to a certain extent extending into the bone itself; behind both ears several distinct tumors are present, which are hazel-nut in size, with flat base, and of dark greenish color. The tongue is normal. The mouth and teeth are in good condition. Vision and hearing are slightly impaired.

The lymph-nodes of the cervical axillary and inguinal region are not specially enlarged. The chest is emaciated and symmetrical, but expansion is equal. The lungs are normal. The heart is not enlarged; a faint systolic murmur is heard over the basal region; the beat is accelerated, the pulse being rapid, regular and of normal tension. Temperature is normal. The abdomen appears enlarged in the upper half, and palpation reveals a marked enlargement of the liver, the lower border extending to the umbilicus line; its surface is smooth and not specially sensitive. The spleen is palpable 2 cm. beyond the left costal margin. Free fluid in the abdomen is not demonstrable., The extremities present no abnormal change.

The urine is acid, specific gravity, 1.016; albumin, sugar and glucose are not present.

Blood-findings: hemoglobin, 50 per cent. (Tallqvist); red cells, 1,800,000; leukocytes, 13,000. Differential count of 200 white cells: polymorphonuclears, 54 per cent.; large mononuclears, 33 per cent.; lymphocytes, 13 per cent. The red cells revealed marked changes in form and size, and poikilocytosis, polychromasia and a few normoblasts were noted.

Diagnosis.—The characteristic facial aspect of the patient, localization of tumors, exophthalmos, hemorrhages and leukemic blood-picture permitted the diagnosis of chloroma.

Course.—The patient was seen a second time Oct. 12, 1911, when the accompanying photographs (Figs. 3, 4, and 5) were secured. The child appeared weaker, the exophthalmos, periosteal tumors and anemia all being more prominent. The blood-picture was practically the same as at the first examination. From this time the patient failed rapidly, the exophthalmos and cranial tumors becoming specially prominent, and she died Oct. 24, 1911, about three and one-half months following the first appearance of any appreciable symptoms.

It was distinctly unfortunate that an autopsy was not permitted in either of these two cases; the permission to take the photographs was secured under the greatest difficulties, so that the refusal of a post-mortem examination was not surprising, even though it was a great disappointment.

In the general consideration of chloroma, we must admit that it constitutes a rare picture in human pathology, and that its clinical expression preserves a more or less constant symptom-complex, even though well-marked variations from the common type are observed. It is distinctly an affection of early life, as one-half of the cases observed occurred in childhood. The youngest patient on record, a child 10 months of age, was observed by Paviot and Fayolle[23] and the oldest, a man 68 years old, was reported by Butterfield.[24]

Of the seventy-three cases gathered from the literature by Lehndorff, fifty occurred in the male sex.

The disease apparently has very little relation to previous disease conditions, and usually is found in healthy children of healthy parents. Rickets is occasionally mentioned; hereditary lues was not definitely present in any instance, and there is no definite relation given to any previous or accompanying infectious disease. Trauma apparently has no relation to the disease.

With the experience of recent years, and a better conception of the chloroma picture, a tendency has developed to disregard a distinct clinical type or symptom-complex as characteristic of chloroma. Pfeiffer,[25] in 1906, referred to chloroma of the skull as the typical clinical type, and this is the form which is usually observed, presenting a clinical picture which can be easily recognized.

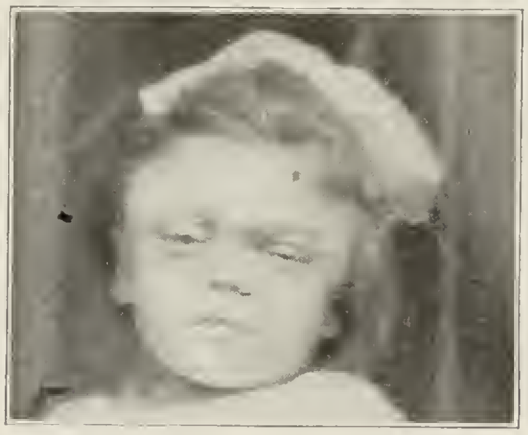

Fig. 3.—Ruby W., aged 3 years; duration of illness, three and one-half months. Periosteal tumors (lymphoma) of temporal, parietal and frontal bones. Unilateral exophthalmos. Photograph taken four weeks before death (Case 2).

The characteristic pathologic anatomic changes in the form of lymphoid tumors and associated blood-changes are a significant feature of the disease, and offer a logical explanation for the sequence of occurrence and rather definite association of the characteristic symptoms.

The painful exophthalmos, with gradual developing visual disturbance, earache and deafness, frequently first directs the patient to the specialist, and that probably accounts for the fact that the earlier cases reported were first seen by the oculist or the aurist. In rare instances, the internist is consulted by reason of the progressive anemia, general weakness and purpuric or hemorrhagic manifestations. When once the disease is manifest, it takes a rapid course, being more marked in younger patients. The average duration is from three to four months. Only in rare instances (Huber,[14] Schmidt,[26] Dock,[18] Stienon[27]) was a course of more than a year reported.

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[23] Paviot and Fayolle: Prov. Med., March 20, 1897, p. 139.
[24] Butterfield: Folia hematol., 1909, viii, 179.
[25] Pfeiffer: München. med. Wchnschr., 1900, xlvii, 1909.

The spread of tumors in the cranial and facial bones explains most of the characteristic symptoms. Tumors in the orbit produce a marked prominence and crowding of the bulb, giving rise to the symptom of exophthalmos, and, as the lids are unable to cover the bulb, the sight soon becomes disturbed and finally destroyed. As the tumor spreads on the facial bones and the temporal region, the deformity produced in the skull leads to a peculiar "frog-like" aspect, which permits of an easy diagnosis at the first glance.

By the predilection of the tumors for the periosteum and dura mater of the cranial bones, the involvement by pressure of the cranial nerves is easily explained. It is peculiar that only three nerves are usually involved, the optic, by reason of orbital pressure, the facial and the auditory, on account of the involvement of the temporal bone.

The exophthalmos is usually associated with pain, because of the crowding of the bulb, and in this respect differs from other forms of exophthalmos. The gradually developing deafness is often preceded by marked roaring in the ears, and a very distressing earache. Involvement of the facial nerve gives rise to paresis, and, again, to distinct facial paralysis.

In regard to general symptoms, aside from these which may be directly attributed to the tumor formation, there is an early weakness noted in all cases, and the patient soon becomes bedridden. The sensorium often remains clear to the end, although in the later stages apathy, stupor and a coma may supervene. As the anemia becomes more marked the patient assumes a cachectic appearance and various symptoms attributable to the anemia become manifest. Of these, hemorrhages into the submucous and subcutaneous tissues are a prominent feature. Vomiting, hematemesis, diarrhea and dysentery are occasional symptoms. Icterus is rare.

Since the work of Recklinghausen and Dock suggesting that chloroma is closely related to leukemia and generally accompanied by leukemic blood-findings, greater attention has been directed toward the study of the blood and the blood-making organs. It is significant that in the more recent studies a greater importance is given to qualitative changes in the blood-elements, so that frequently a leukemic blood-picture has been recognized even though the general number of white cells was not much above the normal figure.

Two distinct forms of chloroma are now recognized, the lymphatic and the myeloid, the former being much the more frequent. The leukocytic formula in lymphatic chloroma is generally characterized by an absolute or relative increase of large mononuclear non-granular cells, while other cell types, particularly in granular forms, are proportionately diminished Very marked examples of absolute leukocytosis are reported, as Dock[18] 743,500, Rosenblath[31] 300,000, Stevens[32] 491,600, Stienon[27] 1,880,000, while again cases are reported with very low leukocyte figures, as Bramwell,[33] Meller[34] 6,800. In some instances the predominating leukocyte has been a small lymphocyte, but these observations are evidently quite exceptional.

Considerable discussion prevails in regard to the significance of these large mononuclear cells. There seems to be a consensus of opinion that they are not types of normal blood, but are pathologic cell forms; the greatest interest is centered in them in connection with chloroma, whether they are to be regarded as cells of the hematopoietic parenchyma that have become differentiated and atypical, or as neoplastic cell elements.

It is interesting to note that while these cell forms have been observed in cases of leukemia they have usually prevailed in those leukemic processes that were characterized by lymphosarcomatous development in different tissues.

In both forms of chloroma the hemoglobin content is usually greatly diminished, the red cells becoming also variably reduced in number from 3,000,000 down to 1,000,000, and even less per cubic millimeter. The color index is usually minus. The morphology of the red cells is such as characterizes the different severe anemias, and changes in form and size, poikilocytosis, polychromasia, and occasional basophilic degeneration, have been observed.

Nucleated red cells, as normoblasts and megaloblasts, are frequently noted. The erythroblasts are seen to be most numerous in the younger patients. The anemia usually becomes more pronounced in the later stages of the illness and is often augmented by external influences; as excessive hemorrhage through epistaxis, hematemesis, hematuria, etc.

Chloroma seems to be specially characterized by the malignancy of its manifestation, the tendency to aggressive proliferation, giving it the character of leukosarcomatosis as designated by Sternberg,[21] Paltauf,[35] and others.

DIAGNOSIS

The diagnosis of chloroma is in most instances easily made at the first examination, but again may present considerable difficulty. The characteristic predilection of the tumors for the cranial and facial bone, exophthalmos, facial paralysis, visual disturbances, deafness, deformity of the skull, with a characteristic "frog-like" aspect, are so distinctive as to be recognized at the first glance. When these symptoms prevail as they do in a large majority of the cases, a classification of a definite clinical type is justified. The associated blood-changes are the usual findings, but the blood-picture cannot at any time be regarded as specially pathognomonic o chloroma. The blood examination may be helpful in differentiating between the two special types of chloroma As the lymphoid infiltrations present themselves more prominently in other tissues the clinical picture will no be so distinct. A considerable number of chloroma cases without localization of tumors of the cranial or facia periosteum have been reported more recently. In fact of the fifteen cases of myeloid chloroma now on record only two presented the symptom of exophthalmos, and ten of the cases had no periosteal involvement at all either in the cranium or any of the bones of the body

In the differential diagnosis, malignant tumors — especially osteosarcoma — are to be considered; in thos cases in which the tumor formation is not prominent, th clinical picture may resemble pernicious anemia acute sepsis, scorbutus or a septic diphtheria. With better conception of the disease process, chloroma is now being diagnosed more frequently than formerly, as i evident from the noticeable increase in the number o cases reported within recent years.

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[26] Schmidt: Inaug. Diss., Goettinger, 1895.
[27] Stienon: Arch. d. mal. du cœur, des vaisseux et du sang, 1909, ii, 497.
[31] Rosenblath: Deutsch. Arch. f. klin. Med., 1902, p. 1.
[32] Stevens: Glasgow Med. Jour., 1903, p. 1.
[33] Bramwell: Brit. Med. Jour., 1902, p. 453.
[34] Meller: Arch. f. Ophth. (Graefe's), 1906, lxii, 130.
[35] Paltauf: Mracek Handb. d. Hautkrank., IV Wien., 1909.

PROGNOSIS

The prognosis of chloroma is like that of acute leukemia and similar processes in which the hematopoietic system is primarily involved, in that the outlook is distinctly hopeless. The course is always more rapid and malignant in the younger individual.

TREATMENT

In view of the nature of the disease process, treatment can be directed only toward a relief of certain symptoms of the disease, particularly hemorrhage. No form of etiologic therapy exists. The *x*-ray has been applied with no appreciable result.

PATHOGENESIS AND CONCLUSIONS

With the etiology of chloroma still obscure, any discussion of pathogenesis, definition or classification must be dependent on careful clinical studies, and a critical consideration of the views of the different observers.

Two views evidently prevail at the present time in regard to the nature of chloroma; in one it is identified with leukemia, and the other regards it as a sarcomatosis.

A number of observers (Pappenheim,[39] Sternberg[21]) hold the extreme view that all leukemias are to be regarded as malignant hyperplastic processes, and thus would harmonize the two prevailing views.

Of particular mention among the later publications is the article of Schridde,[40] who classifies chloroma with the pure new growths of the blood-making organs, describing the lymphatic type as chlorolymphoma, and the myeloid as chloromyeloma.

In the same work Borst[41] refers to chloroma as sarcoma of the lymphomyelo-erythroblastic tissues, with occasional leukemic blood-findings.

There is a tendency, in proposing different names for the process in question, to be influenced by the particular view that the author may entertain of the pathogenesis. In this respect the term chloroma, which designates it as a tumor, is hardly as appropriate as it might be.

A satisfactory definition of either leukemia or chloroma will hardly be acceptable until the etiology of the systemic affections of the hematopoietic tissues is more clearly understood.

In the light of present knowledge the following conclusions can be proposed.

1. Chloroma is not a distinct disease entity.
2. It belongs to the primary diseases of the blood-making parenchyma.
3. It is a generalized systemic affection of the lymphoid hematopoietic apparatus characterized by the tendency to malignant growth and heterotopic localization of its greenish pigmented infiltrations.

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ABSTRACT OF DISCUSSION

Dr. Alfred Stengel, Philadelphia: Chloroma is generally regarded as a form of tumor, though the blood-picture is distinctly that of leukemia. On the other hand, there are cases of leukemia in which, in the later stages or sometimes throughout the clinical course, tumor-like growths appear in the skin. Histologically, the growths are similar to the leukocytic infiltrations or masses in other places. There is, therefore, a suggested relationship in both directions between these diseases.

Dr. E. Libman, New York: Five years ago I made some observations on chloroma which are, I believe, of diagnostic value. A man was admitted to the hospital with the clinical picture and blood-findings of acute leukemia. In the blood there were many cells that looked like the giant-cells one sees in some cases of lymphosarcoma. Although no bone tumors were evident, I therefore suspected that the case might belong in the so-called leukosarcoma group and might be a case of chloroma. In cases of chloroma it appears at times that some of the masses are not pigmented or very slightly so. At the autopsy the retroperitoneal nodes were found to be green. There were no bone tumors. Later I had another case of chloroma without evident bone tumors, which was diagnosed in the same way. A third case occurred in which the blood-findings were present, but no autopsy was allowed. I showed specimens from these cases to members of men prominent in our profession, including Dr. Rolleston, Sir William Osler and Professor von Mueller. Later Dr. Butterfield published a paper in the *Folia Hæmatologica* confirming my belief in the diagnostic value of the cells I had seen, when they were present in abundance. He referred to my two cases, the specimens of which he had seen. The cells are better recognized by seeing them or seeing pictures of them than by any description that I can give. They are characterized mainly by having a very large, irregular, polymorphous nucleus. A good plate is to be found in Dr. Butterfield's paper. It is to be hoped that further observation will be made along these lines to determine the exact value of the presence of these cells for diagnosis.

Dr. Wilder Tileston, New Haven, Conn.: In connection with Dr. Bierring's paper there should be mentioned a clinical syndrome bearing a close resemblance to chloroma, namely, malignant disease of the adrenal gland with metastasis to the orbit and cranium, a condition which especially occurs in young children, frequently giving rise to hemorrhages in the eyelids, exophthalmos and cranial tumors. The clinical picture, with the exception of the blood, is almost exactly similar to that of chloroma. There is nothing abnormal found in the blood except possibly a secondary anemia.

Dr. Walter L. Bierring, Des Moines, Iowa: There is a general tendency to recognize a relationship of chloroma to leukemia and other diseases of the hematopoietic system; in the condition referred to as chloroma there is a tendency to tumor formation or proliferative changes of a malignant nature which have their origin in the blood-making apparatus. It is quite possible that when the causes of these various reactive processes are more definitely understood the relationship of these different conditions will be more closely established. While chloroma usually presents a distinct clinical picture, the atypical forms that have been recognized make it difficult to class it as a distinct disease entity. All this indicates that chloroma is a general disease of the hematopoietic system. Because of the nature of the disease process the prognosis is distinctly unfavorable, and none of the usual remedial measures employed in the other diseases of the blood-making organs have proved of any virtue in connection with chloroma.

RECONSTRUCTION OF BALL-AND-SOCKET JOINTS

PERCY WILLARD ROBERTS, M.D.
NEW YORK

Having succeeded in reconstructing a tuberculous hip-joint so as to eliminate the disease and produce a new and apparently serviceable head on the femur, I desire to make a preliminary report on the operation and submit one case, which has demonstrated the feasibility of the procedure, with comments on others still under treatment.

An astragalus removed from a paralytic foot showed such striking similarity of contour, when held in certain positions, to the head and neck of the femur, and presented so large an articular surface (see illustration) that it suggested to me the possibility of using a portion of the bone as a graft to replace the femoral head when impaired by accident or disease.

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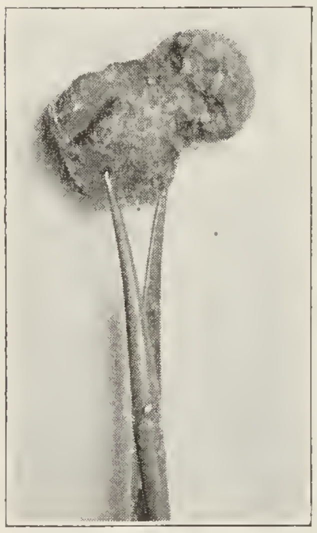
[39] Pappenheim: Folia hæmatol., 1910, ix, 143.
[40] Schridde: Aschoff's Lehrbuch d. path. Anat., 1909, i, 100.
[41] Borst: Aschoff's Lehrbuch d. path. Anat., 1909,, ii, 559.

CASE REPORT

June 18, 1912, at the City Children's Hospital, a girl of 8, who had for over two years been bedridden from tuberculous ostitis of both hips, was submitted to operation. An abscess extending half way down the thigh was present on each side and both hips were stiff. The astragalus of the right foot was removed in the usual way and placed in salt solution, while the wound was closed and a plaster dressing applied. The abscess on the left thigh was then evacuated by incision and the wound closed by suture.

When the hip-joint was opened it was found that the half-destroyed femoral head was bound securely to the acetabulum by dense adhesions. These were cut and the head was freed, turned into the wound and sawed off at the middle of the neck. An ivory pin 1 inch long and three-sixteenths in diameter, threaded its whole length, was then screwed into the stump of the neck, and after the removal of a part of the body of the astragalus the remaining portion was screwed down hard onto the cut end of the femur. Secured in this way the parts held firmly. The newly formed head was replaced in the acetabulum, the wound closed and the leg put up in a long plaster spica.

The subsequent history was without incident. After forty-eight hours the temperature remained normal, the soft tissues healed by first intention, the abscess disappeared, and at the end of ten weeks the graft was found united and the patient had about 30 degrees of voluntary motion. Disease in the opposite hip, which was not operated on, remains active.


Astragalus from a child of 14, held in position to show its resemblance to the femoral head.

OTHER CASES

Four other patients have been operated on and are still in plaster. Two of these were infected before operation, each having several sinuses discharging foul pus. While little can be expected of them, operation seemed justifiable because of their bad condition and they have progressed without pain or rise of temperature after forty-eight hours, and their general health is improved. The third case was a pathologic dislocation following acute epiphysitis with entire destruction of the head and neck, and the fourth was a patient with tuberculosis of both hips with abscesses which had not broken down. All are apparently doing well and a report on these will be made later.

Should the operation prove to be as practical as present experience indicates, its wide application to a number of conditions now more or less hopeless of relief by other forms of treatment will be apparent to those who have to deal with impaired hip-joints. Among such conditions are those cases of bilateral tuberculous hip disease in which at present the result is usually two stiff hips, rendering locomotion without crutches most difficult or impossible; pathologic dislocations in which the head and neck of the femur are destroyed; congenital dislocations in which maintenance of reduction is impossible owing to malformation of the femoral head; old fractures of the neck of the femur with non-union, and osteo-arthritis of the hip, in which men of middle age are incapacitated for work and their only hope lies in an ankylosed joint.

It would seem reasonable to assume, too, that the period of treatment of tuberculous hip-joint disease may be reduced by operation from three or more years, the time required by brace or plaster treatment, to four or five months, with the likelihood of less atrophy and deformity.

Transplantation of the astragalus may also be of service in ostitis of the shoulder.

If possible, it is, of course, desirable to obtain the astragalar graft from another patient in need of operation for deformity of the foot, as has been done in some of the cases referred to. There can be no serious objection, however, to making an autotransplantation. The observation of results in a large number of cases of astragalectomy done by various operators at the Hospital for Ruptured and Crippled, Mount Sinai, Post-Graduate and City Children's hospitals, with which I am connected, has furnished convincing proof that an astragalectomy properly done leaves a foot which is functionally almost perfect and in which the deformity is trifling.

Further results in this operation for the reconstruction of ball-and-socket joints will be published in a subsequent paper.

40 East Forty-First Street.

THE SPEECH RELATION OF CLEFT PALATE OPERATION *

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The surgery of cleft palate in the course of its evolutional progress through constantly changing but, as we believe, steadily improving technic and operative methods, has finally become established on a sufficiently firm basis to warrant the assumption that any palate fissure may be closed by a surgical operation. This progress has also brought with it a realization that merely covering the roof of the mouth by carrying tissues across the palate fissure even though union may be ever so perfectly secured is not of itself sufficient to insure good speech results. More healthful nasal and oral conditions may thus be secured. The effect of improved respiration, together with the beneficial influence of local healthfulness on general health, may always be expected and these results alone are well worth all that undertaking the operation implies without consideration of speech improvement. Beyond this, individuals requiring this treatment may be assured that they will speak more easily and even more clearly than before operation. Between these results and the perfect speech that is so desirable there is a wide division and in this intervening doubtful area may be found many widely different more or less influential factors, each of which should receive due consideration in determining both the surgical methods and prognosis.

When we remember that speech is governed by the sex, character, mental capacity, training, state of mind, nervous conditions, general bodily health and past and present development influences, it should bring a realization that only one of all these factors, that of sex, lies completely beyond the possibilities of therapeutic or surgical improvement. Even the sex influences on the sound of the voice may be surgically altered, though its improvement may be questionable. Under some conditions, exceptions must also be made with regard to character, mental capacity and prenatal developmental influ-

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* Read in the Section on Stomatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

ences, because these are sometimes beyond control according to our present knowledge. All the other influences become more and more susceptible to improvement as advancement in our understanding of psychopathic, neuropathic and other pathologic states increases the range of recognized opportunities in the direction of speech control. The causes of defective speech, according to Cohn, are: stammering, stuttering, nasal defects or malformations of hard and soft palates, deaf-mutism and defects of speech due to diseases of the central nervous system. Ballinger's enumeration is as follows: defects of speech of nasal origin, defects of speech of epipharyngeal and faucial origin; defects of speech of lingual origin; defects of speech of laryngeal origin; defects of speech of thoracic and abdominal origin; deaf-mutism; defects of speech due to malformations of palates, and defects of speech of central origin.

In my own work on "The Surgery of Oral Diseases and Malformations" I have grouped the foregoing classifications of defective speech causes into nervous, anatomic and mechanical influences. Radical divisions of this character, it will readily be understood, cannot arbitrarily be insisted on, because factors belonging to each one of these classes are inseparably dependent on and associated with those that might be classed in some other division. Congenital absence of the sense of hearing or defective brain development or nervous affections common to defectives, in so far as they may prevent or militate against speech, are for the greater part beyond any surgical or medical control. Certainly their control lies outside the field of oral surgical treatment except such nervous affections as may be benefited by the treatment of buccal conditions. All methods that may be helpful should be employed when indicated to assist such individuals toward the establishment of more stable conditions of the nervous system, in order that every possible assistance of this nature may be given speech function.

In undertaking the treatment of these cases, the most difficult feature often rests on the decision as to whether the condition is one favorable for improvement or due to causes that cannot be corrected. To those who have not seen large numbers of harelip and cleft palate cases, and who may therefore be unfamiliar with the frequency of the occurrence of other defects among such individuals, it may seem like a confession of ignorance for me to state that notwithstanding the unusual opportunities for such observations that many years of practice limited to this surgical field has given, I constantly find it more instead of less difficult to determine satisfactorily just how much or how little the factors, other than those which anatomic defects represent, may be influential in each particular case.

All who have had experience in the treatment of defectives of any character will readily appreciate the importance, when applied to the treatment of one form of speech defect, of the notable fact that all degrees of speech imperfection are found among such individuals even when their mouths appear to be quite perfect. A more general realization of this feature of speech consideration may be facilitated by calling attention to the wide differences of sound and pronunciation in speech among all people whether normal or otherwise. Obviously, the surgical closure of a palate fissure cannot be expected to overcome a speech defect the underlying cause of which is some factor other than those which concern the physiologic action of the parts, as influenced by the anatomic defects.

Therefore, when there is a combination of influences of this character associated with cleft palate the improvement of speech may be expected only in so far as these other imperfections, in addition to the anatomic defects, may be overcome. The influence of wrong speech habits which can be benefited only by patient systematic training after the palate fissure has been closed I have fully described in previous articles published in THE JOURNAL[1] and elsewhere, in my work on oral surgery, the surgery of oral diseases and malformations, but I call attention to this feature of the subject in order that my full appreciation of this aspect of the question may be understood since it is with other factors that the present consideration is more particularly concerned.

Preliminary considerations having thus included and recognized the significance of all factors comprehended within the wide range of influences that may make for or against improvement of speech in these cases there seems, therefore, little danger that I may be misunderstood when I state that study and experience have convinced me that in most cases the correction of defects by postoperative speech training and the rapidity of speech improvement under all circumstances will be accelerated in proportion as the results of our surgical operations in both uranoplasty and staphylorrhaphy more nearly approximate the normal in the reproduction of bone and soft tissues in the palatal region. This study includes experience in the speech-training of patients whose palates have been closed according to the methods that I employ, as well as other methods, and of patients whose palates were not fissured but who had defective development of the hard palate, although the palatal vault was perfectly covered with soft tissue and the velum apparently complete and whose speech defects were often worse than those of patients with open palate fissures. With this end in view, I have endeavored to ascertain exactly what measure of normal development might be secured by the methods of uranostaphylorrhaphy that are chiefly employed, by conducting a series of experiments on dogs during the past two years. I was enabled to do this through the courtesy of Parke, Davis & Co., who placed their laboratory for pathologic research at my disposal, and through the valuable assistance of Dr. N. S. Ferry, who is in charge of that laboratory.

Everything was accomplished in the most painless manner possible. A few minutes before the operation, each puppy was given an injection of chloretone so that when brought into the operating room, it was in a state of absolute muscular relaxation, and so profoundly insensible to nerve stimulation that it was impossible for it to suffer even the fear and discomfort which might otherwise have been incidental to the administration of ether, under the direct influence of which the operation was performed.

These experiments are still in progress but I believe that sufficient evidence has already been secured to warrant a report at this time with deductions therefrom applied to the subject of our consideration.

The recognized distinct types of operation for palate closure are as follows:

Compression by crowding together the segments of a palate divided by fissure in such a manner as to force the parts into contact, as recommended for young infants by Garretson, Brophy and others.

Turning over the flaps by reversal of the soft tissues on one side of the palate surface and attachment to the opposite side, according to the practice of Lane for young infants, and the late Dr. Ferguson of Chicago for persons of more advanced age.

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[1] THE JOURNAL A. M. A., Feb. 1, 1908, p. 342.

Fracture of palate bones. The method of sawing through the palate bones from behind forward, fracturing with forceps, and wiring in such a manner as to approximate the bony fragments sufficiently to bring the soft parts together, was devised by Ferguson and earnestly advocated for many years by Mears of Philadelphia, who did so much for the advancement of oral surgery. After having become practically obsolete, the method has recently been improved by Roe.

Anterior end of flaps detached. Detachment of a flap from the anterior portion of the palatal mucoperiosteum and carrying it across the fissure, as in the Davies-Colley operation.

Mucoperiosteal flaps. Fissure closed by lowering the palatal arch and sliding the flaps across the bone surfaces in such a manner as to bring them in contact in the median line, a method chiefly due to von Langenbeck and improved and altered from time to time by many other operators.

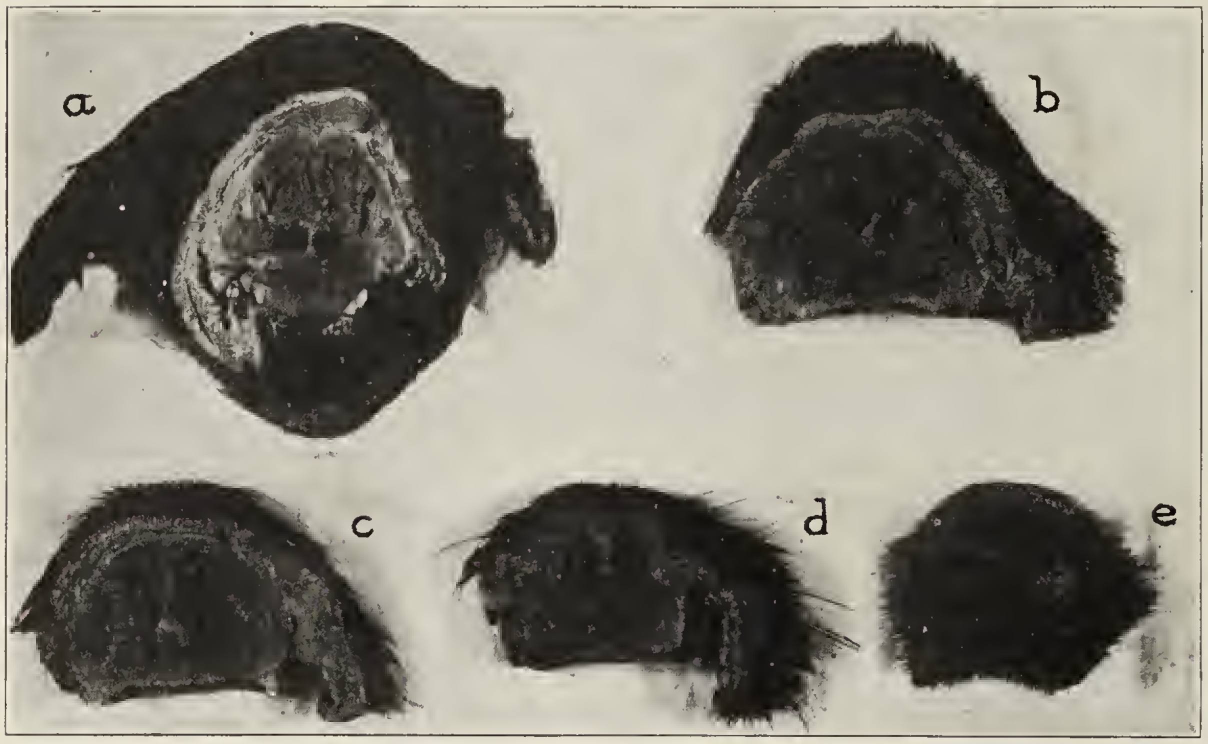

Fig. 1.—Sections from the head of a normal puppy 6 months old.

PALATE COMPRESSION

I have long had reason to believe that this method should unhesitatingly be condemned, because compression so exerted necessarily contracts the parts in such manner as to narrow the nares and crowd the erupting teeth out of place or totally destroy at least some of them. This leads not only to later disfigurement, through disarrangement of the dental arch, but also to loss of growth and development of mouth, nose and face, so that when adult life is reached the best speech is impossible, and the fullest possibility of good appearance prevented.

Unfortunately it sometimes happens that these cases, when apparently successful, and so reported, in later years prove to be more seriously damaged than the unsuccessful ones in which the parts have drawn apart at an early date, and thus, to some extent, overcome the contraction.

Numbers of children and young persons who have had palates closed in early infancy by direct compression are living examples of the truth of this statement. Deviated nasal septa, contracted nares and diseases attendant on these conditions, extending in various degrees throughout the extent of the nasal mucous membrane, affections of the middle ear, mastoiditis with associated deafness, contracted palates with teeth developing toward the central portion of the mouth, with almost hopelessly deformed dental arches and insufficient space for tongue movement in speech, fully attest the truth of this conclusion.

The evidence of the sections through the heads of puppies at 6 months old shows with absolute perfection exactly what does occur in alteration of intranasal form, when growth of the upper maxillary bones is so arrested as to interfere with the normal width across the palate, which, whether it occurs through adenoids, enlarged tonsils, mouth-breathing, the malocclusion incidental to irregular dental arches, or through forcible compression and the introduction of retaining wires in closure of cleft palate or otherwise, inevitably produces, in greater or lesser degree, the same results and the invariable chain of pathologic conditions which affect not only the local structures but general health and development as well. The sections shown in Figure 1, a, b, c, d, e, and Figure 2, a, b, c, d, e, were cut from the heads of the control pup and one of several puppies 8 weeks old which were operated on by passing wires through the maxillæ from a point above the roots of the teeth on one side above the palate and out at a corresponding point on the opposite side. These wires were secured by silver plates clamped with shot so arranged on the inside of the tissues of the cheek as to interfere as little as possible with muscular action. The palates were compressed sufficiently to force the upper teeth inside or in lingual occlusion with the lowers, so that the upper and lower jaws of these puppies were placed in about the same occlusal relation that exists with growing children whose bicuspid teeth meet the corresponding lower teeth in lingual (inside) occlusion instead of buccal (outside) or normal occlusion. Not nearly so much force in compression was used as would be necessary to close a palate fissure according to the method of this character which was formerly widely practiced on infants with cleft palate. One puppy was kept without operation as a control and all were allowed to develop until they reached the age of 6 months. This, it was estimated, would approximately correspond to the age of a child 8 years old. The puppies were then killed, the heads frozen and sections cut through the nose and upper jaws at short intervals.

In the course of this experimental work on dogs, other symptoms were noted in the puppies that were similar to those found in children with high contracted but otherwise normal palatal vaults whose upper jaws are similarly, even though more naturally constricted. The dogs operated on developed a high degree of nervousness which corresponded to the nervous condition of such children, and inasmuch as the nervousness of the dogs was apparently caused by the effect of buccal and nasal conditions, it offered a fair explanation of the clinical experience that such children almost invariably become less nervous after an expansion appliance has been inserted and a measure of maxillary and nasal relief thus afforded.

The almost perfect resistance of the pharyngeal and bronchial mucous membrane of healthy dogs to the action of pathogenic bacteria has been proved by experimentation; this is lost when the air passages are obstructed from any cause. The marked susceptibility to infection thus produced in these puppies was undoubtedly accountable for congestion of the lungs found in one of the experiment puppies and other evidences of disease in others. This was exactly in accordance with the frequent colds, bronchitis, and tendency to pneumonic affections that are characteristic of all mouth-breathing children.

The enlarged maxillary sinuses of the experiment puppies, when compared with the slit-like openings of the normal dog, are also in accord with the clinical evidence that individuals affected by high narrow contracted palates and nasal defects almost invariably have enlarged and (as is now becoming better understood), diseased nasal accessory sinuses also. Post-mortem bacterial examinations of such sinuses, and the frequency with which they have been found to contain pneumococci, have emphasized the pathologic importance of these findings.

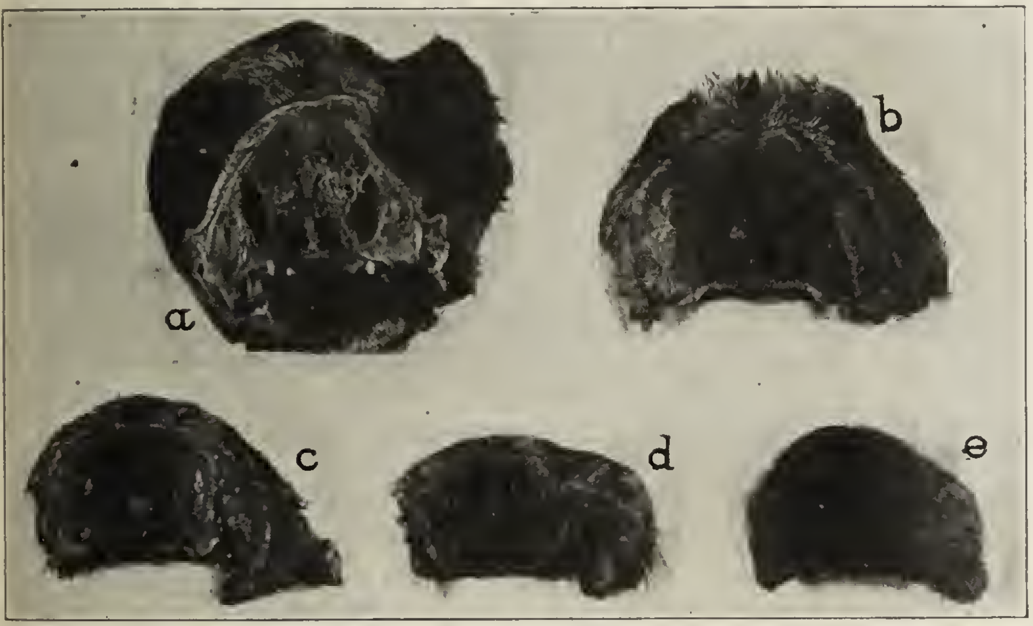

Fig 2.—Sections from the head of a puppy 6 months old, with jaws arrested in development across the palate by wiring at 8 weeks old. All these sections show plainly the effect of restricted jaw growth in reducing the size of the nares. Section c, cut through the point at which growth was almost entirely prevented, shows almost complete nasal stenosis. Section b, marked deflection of the nasal septum, and Section a, both maxillary sinuses greatly enlarged.

FLAPS INVERTED

The second type of operation was tested by cutting sections of bone from the palates of puppies, thus converting them into cleft palates. The fissures in some of these animals were closed by making incisions along the alveolar border on one side down to the bone, raising the mucoperiosteal tissue of the palate from the external border toward the center, reversing it, sliding the border under a mucoperiosteal flap raised by separation along the border of the fissure of the opposite side and suturing the parts in this position, the purpose being to follow, as nearly as possible, the methods of Lane and Ferguson. The fissures in other puppies were closed by freeing the anterior end of the mucoperiosteal flap with a broad posterior pedicle, reversing and suturing it under a flap similarly raised on the opposite side which was left with the mucous membrane in its normal situation (Figs. 3 A and 4 A) as in the Davies-Colley operation. Due allowance must be made for the difficulties attendant on dog operations of this character, particularly the disadvantages of postoperative treatment; nevertheless, the jaws of these puppies as they were after the healing process was completed and with the soft tissue stripped to expose the bone fissure demonstrate clearly that there is no evidence whatever of bone reproduction (Figs. 3 B and 4 B). It therefore seems reasonable to conclude that this type of operation is objectionable, because through the disturbance of the natural anatomic arrangement of the tissues, occasioned by turning the periosteum upside down, bone-growth does not take place as it might if the periosteal surfaces were merely moved across and brought together in natural position. Therefore, the result of all such operations, even though successful in giving a covering to the palate, is to cause formation in that region of more or less thickened fibrous tissue. Such tissues may yield to normal expansion as growth proceeds, and thus not seriously contract the width of the palate or nose, but when developed, the part cannot have the firm, resounding properties of a bony palate, nor will it have the fixed resistance to the attachments of the muscles that will be necessary for proper speech function.

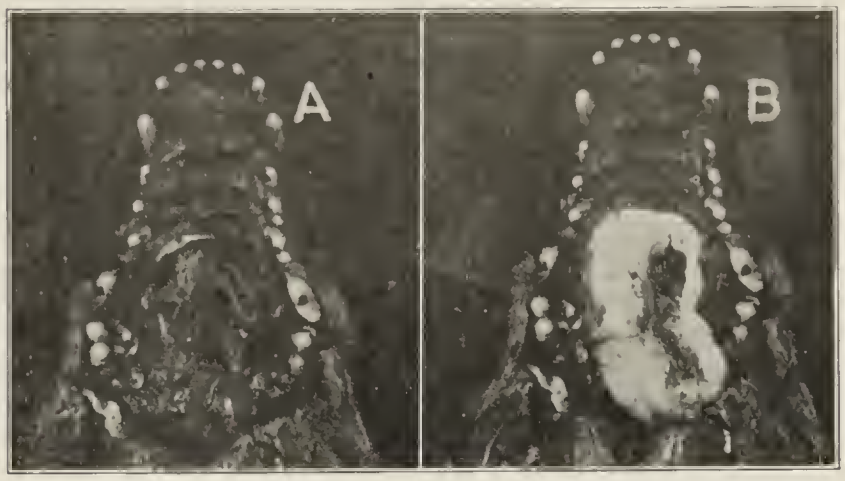

Fig. 3.—A, the result of operation on a young puppy in closure of a palate fissure cut through the hard palate in imitation of the form of a congenital human cleft palate as described in the text; B, head of same puppy with the mucoperiosteum removed, showing no bone development in the region from which the bone structure had been removed.

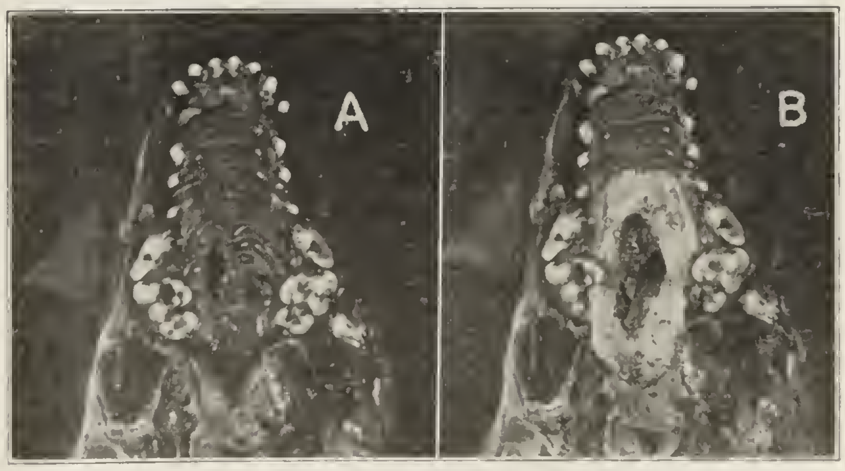

Fig. 4.—A, the result of operation on a young puppy in closure of a palate fissure cut through the hard palate in imitation of the form of a congenital human cleft palate as described in the text; B, head of same puppy with the mucoperiosteum removed, showing no bone development in the region from which the bone structure had been removed.

The importance of this finding can best be appreciated by consideration of cases, previously referred to, of defective speech without apparent palate fissure. Many examples could be cited of cases in which there was not and never had been fissure through the palate, beyond in some instances a bifid uvula, and yet these individuals had all the speech defects of patients with complete fissures through both hard and soft palates and their inability to profit by speech-training seemed to be fully as great.

Careful examination disclosed in every instance that though union of the soft tissues of both the hard and the soft palates was complete, there had been an arrested development of the palate bones which left the hard palate short, or with the outlines of a notch in the median portion, which would have been a cleft palate had it not been covered by soft tissue. Such cases are not generally recognized and not infrequently more or less long-continued treatment has been attempted in an effort to stimulate the action of the palate muscles by the use of electricity or otherwise, because the speech defect has been regarded as due to partial paralysis of these muscles. As a matter of fact, the real cause is a deficient palate bone development whereby the fixed attachments of the muscles of the velum palati at the hard palate are so altered that proper function in its lowering and raising is impossible, and for this reason the development of the soft palate as a whole is incomplete.

Operation on a number of these patients for correction of this palate condition has led to considerable improvement, but the trouble is so insidious and yet so difficult to overcome that any operation which at the outset contemplates producing a similar condition should be avoided.

OTHER DEFECTS

Other speech defects that may be considered to be directly due to postoperative imperfections, such as deformities due to injury of the premaxilla or its misplacement in operation, to nasal defects that should be avoided during harelip operations, the velum too short or too tightly drawn or so stiffened by scars after staphylorrhaphy as to be incapable of the necessary free movement, lip deformities, occasioned by imperfect operations or other causes, which affect speech, and deformities of the dental arch or other factors that antagonize correct psychologic action in such effort—all these defects, which might properly be described in detail under the title of this article if the time limitations permitted, must be postponed for future consideration.

It should be borne in mind, however, that all of them may be benefited by corrective operative treatment, but their prevention should be the dominating thought in determining operative methods. This can only be accomplished by avoiding all unnecessarily forcible treatment in early infancy, and in the selection of the type of operation to be performed, it should be remembered that every effort must be made to retain all tissues in as nearly their normal situation and relation as may be compatible with the requirements of the conditions governing the closure of the palate fissure. This necessarily implies systematic treatment from the very earliest period of infancy if possible. Each operative procedure should lead step by step to the next in order that each may be more easily and perfectly accomplished.

445 Milwaukee Street.

ABSTRACT OF DISCUSSION

Dr. M. I. Schamberg, New York: For a long period of time the main question in connection with palate work was to be able to close the palate, and everyone worked with that end in view, and often disregarded the ultimate speech results. I feel confident that this helpful piece of research will be looked to as one of the greatest steps in advance.

Dr. M. H. Fletcher, Cincinnati: I would like to ask Dr. Brown how much training the patient may need in learning to speak? How perfectly may these cases be restored, and do the patients really learn to speak perfectly? I suppose in most of these operations the patients have to be drilled in learning to speak. Assuming that an operation has been performed on a child of 10 years, does the patient learn to use the muscles and produce perfect sounds as we know them?

Dr. G. V. I. Brown, Milwaukee: Dr. Fletcher's question covers the whole field of speech-training, and the real basic purpose of the work as we undertake it. I generally prefer to get the palate closed before opportunity has been given to acquire bad habits of speech; if possible, before any adverse changes have occurred in the muscles, the nasal accessory sinuses or the face. When such persons have reached a sufficiently advanced age, wrong speech sounds are almost impossible to overcome. Most cleft-palate patients know the nature of their defects only through other people. They are not directly conscious of their abnormal voice sounds. I have met this difficulty by taking phonographic records of the speech in such cases and when the graphophone spoke back to them so that they could hear their own voices in that way, the effect was the same as another individual speaking. They then recognized the defective sounds. Some of the patients whose palates I have closed in infancy, and who are now grown up, have speech that is not entirely satisfactory—not nearly so much so as some who have been operated on later in life. Some people pick up sounds quickly; they seem to have a natural activity in the use of the tongue, as some people have of the fingers, and learn very readily. I have known people fully developed, whose names I could not understand as pronounced by them when they first came, and in two years have met these people after operation, and they spoke very distinctly. I would not leave the impression that one is not cognizant of their defects of speech, but these people go out into society, take their natural parts in conversation and have interests in life that were not possible for them before. In time they become useful people. Then again there are others who do not seem to improve at all. It is impossible to avoid the speech-training feature in these cases, because the success of palate work really depends on that result. I think, however, that the speech-training idea has been exaggerated. In other words the speech of these patients has probably been bettered in proportion to the degree of approximation of normal anatomic conditions without which no amount of training could be effective. The purpose of the experiments on dogs was to demonstrate as nearly as possible just what the results of uranostaphylorrhaphy really are when performed according to the different methods, and to determine which one more nearly approximates natural conditions. The patients that give me the most trouble are those who have never had cleft palate and yet have many speech defects that are the same as those indicating that deformity. In such a case, under an anesthetic we examine the nose, throat, palate and pharynx very carefully and try to determine exactly what the physical defects are; we also endeavor to ascertain if the speech imperfection be due to some central condition governing the control of the parts or otherwise. Naturally, in all cases the success of treatment must depend on these two conditions.

Mental Hygiene: Its Importance.—Jan. 1, 1910, there were 187,454 insane persons in institutions in the United States, a number which exceeds the combined enlisted strength of the United States Army, United States Navy, and United States Marine Corps; and it also exceeds the number of students enrolled in all colleges and universities in the U. S.

PELLAGRA

OBSERVATIONS ON SOME OF ITS NERVOUS MANIFESTATIONS *

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NEW YORK

The incidence of inclination and the opportunity to observe have led me to depart from the beaten path of clinical routine and attempt to consider superficially some of the neurologic aspects of that more or less widely prevailing condition, known as pellagra—a disease old in itself but comparatively little known in the United States until within recent years, prevailing widely in the Southern states and constantly on the increase. Isolated cases are now being found more or less frequently in the North. Every state in New England, with the exception of New Hampshire, has reported two or three cases. New York and New Jersey have each reported a few, and Pennsylvania a larger number. There are doubtless a few cases not reported at all, because the diagnosis is not sufficiently clear. In 1907, while on a brief trip south I was shown a few undoubted cases, and in October, 1911, a further opportunity for more critical observation was furnished by an automobile trip from New York to Jacksonville, passing through the states of Virginia, North and South Carolina, Georgia and Florida. Isolated cases were looked up, and diagnoses and observations were made by my meager knowledge and experience, with valuable aid from some of the physicians connected with the Rockefeller Commission.

The disease is, perhaps, of equal interest to the gastro-enterologist, the dermatologist and the neurologist, although, in general, it may be briefly defined as a trophoneurosis. The types vary in races and in those situated far apart. In some cases, the gastro-intestinal symptoms predominate, possibly in those whose digestion always has been weak. In persons of an unstable nervous system, the nervous symptoms will predominate. One authority goes so far as to say that a majority of the people of the South are suffering from one form or another of corn-bread poisoning, as he terms it, and that numberless persons with indigestion who eventually recover and hundreds of persons with so-called auto-intoxication in reality have but manifestations of corn-bread poisoning.

It is difficult to group the psychic symptoms under any of the usual classifications of insanity, as every new case brings a new point of view. Most of the confirmed cases of pellagra are to be found in insane aslyums, and it is to the men in charge of these institutions that we are indebted for the greater part of our knowledge of the mental symptoms. The exact relation of insanity to pellagra should attract further study and observation as to whether the majority of patients were first insane and later pellagrinous, or vice versa. An important point in favor of the conclusion that many insane persons have later become pellagrous is to be found in the character of the skin lesions, many of which show face, arm and neck lesions belonging to the early rather than to the late stages of the disease. Many pellagrins seem quite sane; others show a mental depression and vague unrest, with a sense of impending disaster. There is scarcely any of the long train of neurologic symptoms and stigmata that may not be found in pellagra—neurasthenic fancies, paresthesias, lightning pains, resembling those of tabes, tremors of the hands and tongue and of the facial muscles, resembling disseminated sclerosis, the Romberg symptom, weakness in the limbs, exaggerated reflexes, erratic movements due to muscular spasm, convulsions, etc.

The typical cases commence with a disordered digestion or a stomatitis, diarrhea and mental disturbances, these symptoms occurring each year, having a remission in the summer and getting worse in the fall, the nervous symptoms increasing in severity with each attack. There are patients in whom perfect health has been the rule, with perhaps an attack of malaria, who apparently recover; later, nervous symptoms begin to appear. The patient gets bewildered, easily dazed, melancholy, makes mistakes in business, and may or may not have maniacal attacks, slow speech, unsteady gait, untidy habits. Six months afterward, the erythema appears on the exposed parts of the body, resembling sunburn, usually symmetrical in position, shape and outline, often accompanied with occipital headache, anorexia, pains in back and neck, dryness and burning in mouth and throat. Delusions and hallucinations are rare. The vertigo of pellagra is a symptom made much of by Italian observers. Lapses of memory similar to what is known as psychic epilepsy may occur. Refusal of food and suicidal tendencies may occur; tremors of the upper extremities are common, while incoordination is rare. The gait is usually of a spastic-paralytic type, rarely ataxic, indicating a lateral tract rather than a posterior column involvment. The skin sensibility is irregular; sometimes there is an increased sensibility to electric currents. The reaction of degeneration is rarely found. The thermal and tactile senses are sometimes lacking. The investigation of sensation is very unsatisfactory, owing to the patient's altered condition of intellect and the unreliable character of his replies to questions. Skin reflexes are usually normal. Patellar reflexes increase, but later in the disease they may be lost.

The vasomotor disturbances consist of a dilatation of the veins, with sometimes an edema. This motley array of nervous symptoms and their chaotic arrangement would seem to make the diagnosis a difficult one for even the experienced alienist or neurologist. The coexistence, however, of oral, gastric and intestinal irritation, diarrhea, and the later development of the characteristic erythema confirms the diagnosis. The whole mental and neurologic picture is indicative of a toxemia, with a subsequent degenerative change in cells of the central nervous system, notably the cortex cerebri. The most definite changes in the spinal cord would point to an involvement of the lateral tract and cross pyramidal tracts. In general, the nervous symptoms most clearly resemble a neurasthenia interspersed with periods of excitement and delirium. Some cases, with mental defect, slurring speech, tremor of the facial muscles and of the tongue, suggest a general paresis. Remissions and relapses are frequent. Heredity seems to play no part in the etiology.

In Italy, the disease is said to be confined to the lower classes, poverty and pellagra being interchangeable terms. In this country, all classes seem to be affected alike. Usually the victims are robust and well nourished before becoming affected. It is believed, however, that mental stress, the strain of our more or less strenuous life, undue worry over trifles, misfortune of

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

sufficient magnitude to upset the nervous system, bringing about a lowered resistance, may be partially responsible for the disease. There was a definite history of corn products having been used for food in most of the cases which I observed. It is interesting to note, in addition to the corn-meal theory of causation, that many patients with hookworm disease have later developed pellagra. To solve the relationship between the two should be an interesting study.

In the few isolated cases which I observed in the Northern states, one particularly at Ossining, New York, in 1908, another at Passaic, New Jersey, last year, and still another on Long Island, the early part of this year, there was quite a decided difference in appearance from those cases observed in the South. These patients had all originally lived in the Southern states, with a corn-food history, but had discontinued it to some extent on coming north. All showed the symmetrical patches of erythema, but in a more or less dried-up condition, and without the history of periodic occurrence. The nervous symptoms had taken on a different hue; hope had taken the place of fear, and renewed energy the place of apathetic indifference. Whether this change in the character of the nervous symptoms was purely psychic or due to the different diet or to climatic changes is problematical. It would be interesting in the future for physicians coming in contact with cases of pellagra in the Northern states to note whether patients had formerly resided where pellagra was prevalent, or whether they had been resident natives of the one locality.

Corn-food products as an etiologic factor are worthy of investigation, even in the North. For the past two years I have made observations along this line, and am firmly convinced that the spoiled-corn theory is of sufficient interest to stimulate further observation along that line. Throughout the country at large, particularly in the North, more and more corn is being raised each year, much of it for ensilage purposes. It is not uncommon for seed corn to be in storage for weeks before being planted, and in a particularly wet season, or if not stored in a dry place, to overheat, and even commence to grow, thus unfitting it for seed. Corn of this kind is often ground up and used for food for both man and cattle, and, occasionally, fed to poultry without being ground. Although I have never been able to trace any direct bad results to the use of such corn as food for human beings, I have in several instances seen flocks of chickens, those eating the whole grain, affected with a strange malady, with which the farmer was unfamiliar, the symptoms being largely a staggering gait and a refusal to take food and drink, the fowl remaining in seclusion until death claimed it.

No claim is made that these studies are at all scientific; they are of a very superficial character, and my only object in offering them as a contribution is to stimulate further studies and observations, especially in the Northern states, where isolated cases are appearing from time to time. One should be on the alert for it in all out-patient clinics, and even in private practice. It is well to remember that there is not necessarily an erythema in the early stages. Students in the London School for Tropical Medicine are taught to make a diagnosis of pellagra without an erythema. Prevailing conditions point to an increase in the number of cases as time goes on, and we should fit ourselves to do our part toward the elucidation of a comparatively new and vastly important pathologic condition.

46 West Forty-Eighth Street.

ABSTRACT OF DISCUSSION

Dr. Paul V. Anderson, Richmond, Va.: There is no mental classification which exactly fits pellagra. One of my patients was maniacal; almost all of the patients are depressed. Apprehension is a marked feature in almost all cases; the patients fear some impending danger. There is frequently in cases of pellagra a history of ill health for a number of years. Quite a number of my cases were diagnosed as neurasthenia three or more years before marked mental symptoms developed. Two or three patients were also treated for rheumatism. The course of the disease in most cases has been practically three years. The gastro-intestinal symptoms develop first and, although diarrhea is always present at some time during the trouble, it is not always constant, and, at times, there is constipation or a constipation alternating with a diarrhea. In the first summer, there may be only a slight erythema on the exposed surfaces. Especially noticeable is the fact that as the erythema disappears and as the parts scale, there is left a smooth, purplish and glistening surface. A slight diarrhea and more or less emaciation are present in addition to the erythema. Apparently the patient recovers, but there is a recurrence in the second summer; the patient may again apparently recover, but in the third summer, as a rule, the mental and nervous symptoms develop, and at this period many patients die. Death frequently comes slowly, however. The patients become markedly emaciated; they totter about, with feet spread widely apart, and with ataxic gait. Some complain of agonizing pains in the legs and back and frequently just before death there is marked opisthotonos. Dr. Tucker, of Richmond, Va., in a report of eighty-eight non-institutional cases, has well brought out the neurologic points of this disease.

Dr. G. H. Moody, San Antonio, Texas: Practically all the patients are anemic, and all are neurasthenic or psychasthenic. I think that in all cases the nervous and mental symptoms will show up rather early, unless the case improves. They are frequently the first symptoms present for several weeks. I have seen patients recover without developing more mental symptoms than some little anxiety and apprehensiveness, such as has been described. The anxiety characteristic is so constant as almost to constitute an anxiety psychosis. The prognosis in these cases is better than was formerly believed. Authentic reports of 90 per cent. mortality have been made, but these were from pauper cases which naturally could not have the best attention in all respects. Good attention, good nursing, rest and proper nutrition and hygiene are very important in the treatment of these cases. Drug medication is of questionable importance. Figuring on the proposition of a protozoan disease, a Wassermann was made in a number of cases with negative findings. Salvarsan was given in half a dozen cases; each improved at least temporarily, and three of the patients apparently recovered. Many of the improved patients do not seem to get back entirely to normal; they remain somewhat neurasthenic and somewhat below normal in nervous and mental stamina and in self-reliance. I believe that pellagra occurs more frequently in neurotic individuals, and for that reason I do not know how much of the neurotic tendency might have been present had there been no development of pellagra. The medicinal treatment of pellagra outside of that purely symptomatic is sodium cacodylate.

Dr. B. R. Tucker, Richmond, Va.: I do not think that pellagra is primarily a nervous disease. I have investigated several hundred non-institutional cases, with the hope that it possibly might be found to be primarily a nervous disease. Lombroso spent his life in trying to prove that corn was the cause of pellagra, and disseminated a view which has taken hold all over Europe and this country until recently. In a very careful study, covering 105 different points, of eighty-eight cases of which I have complete statistics, I find that nine of the patients did not like corn; the question covered not only corn-bread, but corn-cakes, and even such things as corn-syrups, corn-whisky and any form in which corn is taken. Dr. Hill has said that if spoiled corn was the cause of pellagra, the Southern army would have been annihilated during the Civil War without any lead. Most Southerners are corn-eaters; in the North corn is eaten in the form of corn-flakes, corn-syrup and corn-meal and possibly in other ways. There is no such thing as pellagra from corn poison. In the investigation of these early cases, I never saw a case that occurred in a person who did not seem to have been previously debilitated. The early diagnosis of pellagra is rather difficult. Any person may be nervous and have diarrhea; if you are going to rest on those two symptoms you certainly are making an astute diagnosis. There are two forms of the disease, the fulminating form, which goes on to death in two or three months, and the chronic form, which may recur sometimes for years. It has been stated that the second year is worse than the first, and the third worse than the second, both from the mental standpoint and the standpoint of cutaneous and gastro-intestinal symptoms; I do not believe that this is so. Many cases are improved the second year. I have found that some of my patients had had unrecognized pellagra for five or six years, but most were in the first year of the disease, which started as a gastro-intestinal upset, if a very severe stomatitis be included, in over 90 per cent. of the cases. The sequence of symptoms was, as a rule, gastro-intestinal, cutaneous and then nervous and mental. The nervous and mental symptoms formed no regular symptom-complex; they were simply the individual reaction of the patient to an infection or a toxemia. I agree with Dr. Spiller, who in his examination of the cord in some cases of Dr. Anderson, stated that he thought from the appearance of the cord that pellagra was probably of infectious origin. From the early clinical history of cases, which begin with stomatitis, gastritis and usually diarrhea (and these are often forgotten unless one goes very carefully into the history), and which then show cutaneous symptoms, and at the same time or later manifest nervous and mental symptoms, the disease looks like an infection with the cutaneous manifestations as trophic disturbances, and the mental and nervous manifestations as toxic disturbances of a gastro-intestinal infection.

Dr. Tom A. Williams, Washington, D. C.: Pellagra is not a nervous disease. I should not regard the skin lesions as trophic; I consider them as toxic, just as eczema is toxic. What we really have here is an active agent in the nature of a toxin, producing these symptoms. A very important symptom, sialorrhea, is often overlooked, but when taken into consideration, together with violent acute diarrhea, lasting several weeks sometimes, one does not require the pellagra to make the diagnosis, more especially when the gastro-intestinal symptoms are accompanied by some signs of the mental inhibition which is characteristic in some stages of the disease. I do not agree with the statement that the disease does not conform, mentally speaking, to any well-known clinical picture. The disease is typical; it might be the prototype of a well-known picture of mental disease, namely, the *confusion mentale* of Chaslin, which is the mental syndrome shown in pellagra. It is the toxic psychosis. The type of the disease is a confusion of ideas and an inability to react in the usual way. The anxiety state may be in some cases secondary to the feeling that one is severely ill and about to lose one's mind. These conditions of confusional insanity may be well seen in the mental disturbances resulting from alcohol. The confusional state may be maniacal depressive, or it may be subject to definite delirium with more or less systematized delusion, varying with the time and degree of severity of the case.

Dr. D. E. Hoag, New York: The gait in the few cases which I saw seemed to be of a spastic type. I do not think any of them were ataxic. Whether that gait varies from time to time, whether it is spastic this week and ataxic a few months later, I do not know. My object in bringing a paper like this before a Section of this kind was to see if there was anything in the early symptomatology of the disease, so far as nervous symptoms are concerned, that would fit in with any of our neurologic syndromes. If there is ever going to be a possible serum that may be used, it would have to be used in the early stages. Consequently, it would be valuable to recognize the symptoms in their very incipiency.

I disagree with the observation that pellagra always occurs in the anemic and weak, for I inferred from the answers to my inquiries that it often did occur in the robust and strong.

A CASE OF TRAUMATIC PSYCHOSIS ASSOCIATED WITH AN OLD DEPRESSED FRACTURE OF THE SKULL, FRONTAL REGION; OPERATION; RECOVERY *

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AND
A. S. TAYLOR, A.B., M.D.
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We deem this case of sufficient interest to report for the following reasons: It was a case of a traumatic psychosis which had already been treated for a year and four months in a private hospital for the insane, without improvement, before it was seen by us. There was a history of an old compound fracture of the skull over the right inferior frontal region, sustained about eleven years prior to the onset of the psychosis. A surgical operation revealed an area of depression of the inner table of the skull, at the site of the old injury, corresponding to the right middle and inferior frontal convolutions. And, lastly, after the operation for the removal of the depressed bone there was a rapid recovery from all symptoms and a restoration of the patient to his family and his business. The operation was performed in January, 1911, so that sufficient length of time has elapsed to enable us to look on the recovery as permanent.

REPORT OF CASE

History.—The patient was a man, aged 50, single, born in New York. He was the fourth of twelve children; his birth was at full term and unattended with difficulty, but as an infant he was "sickly." No mental or neuropathic heredity was ascertained. From youth until the age of 40 the patient drank to excess. He contracted gonorrhea, but denied luetic infection. From the age of 10 he had earned his own living and assisted in the support of his family. In the year 1898, a private business venture not succeeding, he became worried, drank more heavily, and one evening, while under the influence of liquor, shot himself in the head with a 32-caliber revolver. He was not rendered unconscious, and was able to walk several blocks alone to a hospital. The hospital records merely note the removal of a bullet for compound fracture of the skull and the discharge of the patient after dressings had been applied. No anesthetic was taken for the extraction of the bullet, and no ill effects followed. The patient continued at work and there is no record of a psychosis at this time. He also continued to drink some after this, but less than formerly, until 1902. Since 1902 he has been a total abstainer.

For eight months, in 1898 and 1899, he had gleet, and in 1901 a mild attack of gout in the left foot. Sexual impotence had existed since some time prior to the suicidal attempt.

Onset of Symptoms.—Mental and nervous symptoms began in July, 1909. This was eleven years after the head injury and seven years after the patient had stopped drinking. The symptoms were of gradual onset and development. At first there were impaired digestion, a feeling of soreness all over, cold sweats, pains in the head and insomnia. Then supervened a loss of usual self-confidence and capacity for work, followed by a fear of being alone and other anxious fears. When alone he had impulses to jump from the window and a general panicky feeling. He lost 40 pounds in weight in six weeks. All attempts to do work only increased his symptoms and developed pains in the back and a feeling of oppression in the chest. At times he would weep and laugh hysterically. There was hardly a sustained or true melancholia, but more or less depression undoubtedly existed.

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

Hospital Treatment.—In September, 1909, or two months after the head pains and other symptoms began, believing he was insane and fearing that he might again attempt suicide, he went of his own accord to a private hospital for the insane and remained there as a voluntary patient. In this asylum, he was much more comfortable. The records there have not been made accessible to us, but the patient said that one night the head pains were so severe he thought he was going to die. After remaining in the hospital for a time, and feeling better, he made several visits to his home. He found, however, that even a day's visit home developed his symptoms, both physical and mental, so unbearably, that he invariably hurried back to the hospital before the visit was completed. His longest visit home was less than a week. This was in December, 1909, three months after his admission. All of his symptoms had improved at the hospital, he said, but they returned with double force at home. His pains and oppressive feelings were greater at home and his fears intensified. The symptoms improved again as soon as he entered the asylum portals, all except his feelings of incapacity and inadequacy. This experience was duplicated at every visit. Thoughts of work would throw him into a panic. His family and friends could not understand his condition; and as his general bodily health seemed to be excellent, they repeatedly urged him to come out, and told him that his illness was purely imaginary. Shortly after his week's visit home in December, 1909, the head pains, which had been for five months occasional only, became more constant. They seemed to radiate upward and backward from the old injury. Also a sort of hissing sound in the right ear, which had existed since the injury (from concussion?) was more noticeable. He continued idly in the hospital for over a year, however, before he came to consult one of us (Atwood), in December, 1910.

Examination.—His weight then was 235 pounds; height, 5 feet, 7 inches. On examination there was a slight scar with depression of bone over the inferior frontal region well to the right. The cranial nerves were free except that there was slightly diminished hearing, right side. There were no objective neurologic symptoms; no paralysis, convulsions or anesthesia; no contraction of visual fields. Arteries were normal. There was a small umbilical hernia; also a small hydrocele. The heart's action was irregular (from smoking?). The patient had the habit of yawning and yawned frequently while in the office. A Wassermann-Noguchi test turned out to be negative. Mentally some delay and fatigability in the reactions existed, with moderate depression and at the same time a tendency to *Witzelsucht*. The symptoms previously mentioned were described by the patient clearly and in detail. He wanted to know, himself, whether there could be a physical basis for them in the old head injury. The head pains which he had had for fourteen months, at first occasionally, and for a year or longer more persistently, were described, as stated, as radiating especially upward and backward from the site of this injury. When the examination was completed, the patient decided that he would not remain in town with his family, even for lunch. He hastily said that he was not opposed to an operation; then hurried back to the asylum, fearing an accession of symptoms. Careful analysis of the urine and feces showed an absence of auto-infection factors.

After consultation with Dr. Taylor, an operation was decided on as offering a possible means of relief, prolonged hospital treatment having failed to produce any improvement. And while the private hospital staff strongly advised against operation, the patient himself said that there was something wrong inside his head and insisted on exploratory operation, inasmuch as his mind would never be settled until he knew definitely. Operation was performed by Dr. Taylor at the New York Hospital in January, 1911.

Postoperative History.—Since the operation, the patient has been free from pains, depression, psychic fears, feelings of incapacity, etc. His mental reactions soon became more prompt and there was soon less fatigability. The hissing in the ear disappeared gradually. Sexual power has returned. Patient was kept under occasional observation for several months and his general health looked after. He soon expressed a desire to get back to work and secured his old position as a buyer ten weeks after the operation. Later he was given an interest in his firm.

That portion of the cortex involved in the old injury was in a so-called silent area of the brain, the middle and inferior frontal convolutions of the right side. There was apparently some softening of the brain tissue where compressed but no change in color or presence of scar tissue was discovered.

REPORT BY DR. TAYLOR

An osteoplastic flap, with beveled edges, involving the temporal ridge and outer part of the right frontal bone, and the anterior part of the squamous portion of the temporal bone, was turned down with the base pointing obliquely toward the zygoma. On the inner surface of this flap, just beneath the bullet wound in the outer table, was a circular depression of bone about 2 cm. in diameter and projecting toward the brain about 0.5 cm. The area of brain just beneath this depressed inner table felt distinctly softer than that which surrounded it, but when the dura was opened the brain was of normal color. Aspiration showed that no subcortical cyst was present.

The dura was closed with catgut. The bone flap was laid back in place; the muscle and fascia were sutured with chromic gut and the skin was closed with silk. No drainage was used.

Convalescence was uneventful. The wound healed by primary union. After a year's time the scar was scarcely visible.

14 East Sixtieth Street—115 West Fifty-Fifth Street.

ABSTRACT OF DISCUSSION

Dr. L. Pierce Clark, New York: If one were confronted with the symptoms of this case, independent of the history of injury, one would at once place it in the category of anxiety and fear neuroses. I am not certain that the two elements, the brain injury and the neurotic symptoms, are associated even here. The main point is to recognize that the structural disease has been a provoking or determining agent and as such should be removed. Proper weight should be apportioned to both sides of the question. An organic and functional disease in one and the same case may coexist and yet be unrelated in causation to one association.

Dr. Tom A. Williams, Washington, D. C.: One of the most potent factors in the induction of psychogenic abnormal reactions is physical disease. This case of Drs. Atwood and Taylor is a very clear illustration of the obtunding of the cerebral functions by injury, predisposing the patient to whatever psychopathic factors there were in his environment and to the manifestation of morbid reactions which were in fact psychogenic.

Another factor is that recently alluded to by Dr. Angell. Patients in the condition of toxicosis are prone to morbid psychic reactions, and the possibility of recurrence in psychogenic cases is often due to the physical state. I am not reactionary in this respect, because no one is more alive to the importance of psychogenic reactions than I am; but I would like to protest against the extreme view of immediately concluding that every psychogenic symptom must be attacked by analytic procedure until one has exhausted the physical factors, which are easier to remedy.

Dr. Albert E. Sterne, Indianapolis: In any case in which a definite injury has been sustained, it is justifiable to investigate the site of injury. Conditions frequently arise in which an injury has been superimposed on a known psychogenic state. As I understand it, the injury in this case was caused by a bullet wound self-inflicted; prior to the injury there must have been some element of a psychopathic character, not necessarily that the man was insane, but that he was not of sound mind. There are other classes of cases which must be taken into consideration in an analysis of this kind. That this man carried a strong autosuggestive element through the years intervening between injury and operation with the knowledge that he had tried to injure himself, and that he had inflicted damage, and that that alone could produce psychogenic impulses without anything else must also be admitted; that the removal of that chief element to which his introspective ideas had been turned through all these years, through operative measures, would be followed by relief, especially when no organic disease was found at operation, and where no cortical cyst existed, should not be cause for surprise. I usually puncture the lateral ventricle, especially where there is any evidence of tinnitus in the ear. The effect of the operation and the momentary drainage would undoubtedly be followed by a good psychic influence. Yet there are other cases of traumatic type in which this element is not so much in play. A man is injured; the question of a damage suit does not arise, the complaint of constant mental trouble and notably of headache is shown, and the question arises whether or not operation is advisable or justifiable. In such cases a careful analysis should be made, the serologic findings of the spinal fluid should be carefully gone into and the urine investigated. Not infrequently we find in those cases in which there has been head injury and in which the question of momentum is more important than the question of impact; the question of body weight in falling is of importance, and the so-called compression syndrome has followed, that the patients are not improved by operation because secondary cellular changes have occurred which cannot be benefited by operation. But in cases in which the psychic influence of the operation is important, and in which oftentimes there are psychic manifestations such as this case showed, benefit undoubtedly will be derived from the operation itself. I refer altogether to conditions arising remotely to injury and not to those immediately following traumatism. In the latter cases, I advocate careful investigation as to the extent of damage at the time of injury, if possible.

DR. S. GROVER BURNETT, Kansas City, Mo.: Dr. Sterne refers to the patient's mental state prior to the injury.

I recently operated on a man who had been hit on the head with the blunt end of a scythe, causing a depressed, linear fracture of the skull. At the time I saw him he had been in an asylum for a year and had returned home, receiving no special care. His mental symptoms were those of a melancholy depression without the sadness. He had a profound loss of memory for language expression, both spoken and written. He presented no special physical symptoms except those referring to his writing and performing certain intellectual movements with the opposite foot; he had lost the memories for certain intellectual movements of the right foot. He could write from dictation and could copy, but he could not write of his own accord, so far as forming thought and putting it on paper was concerned. He had lost, in part, the memories of the mechanical expression essential to externalize his own thought in language spoken. He had lost the memories for expressing his thoughts in writing as well as the memories for all facial expressions of emotions, including the natural smile.

Dr. Mills has recently located the cortical center of the mechanical expression of the emotions in the right pre-rolandic area. In my case the trauma is in the left pre-rolandic area, in the posterior part of the first and second frontal convolutions of a right handed man whose difficulty was in arousing the educational memories necessary to put the muscles of expression into functional activity.

At the seat of the lesion we found a distinct depression. On opening the skull the bone formation was seen to be thin in the fracture line, but a thick depression on each side of the fracture line remained. Nature having absorbed the osseous substance in the direct line of fracture. The membranes were found to be massed and adherent; scar tissue had formed over the pre-rolandic area, over the posterior portion of the superior frontal and down onto the middle frontal convolution. The brain was pale and pulseless. After the adhesions were broken up the pulsation returned. There was some hemiplegia after the operation, but it soon disappeared. The patient is still in the sanatorium, but he has recovered his memory for smiles; the blank putty-like, expressionless condition of the face has disappeared. He has recovered from the incomplete loss of memories for externalizing speech and the complete loss of memories for externalizing writing of his own composition. This man now talks well, smiles well and thinks with less effort; instead of saying "I cannot think," as was formerly the case, he thinks slowly, but methodically and with reasonable ease.

DR. CHARLES E. ATWOOD, New York: Our patient was making $5,000 a year as a buyer. He had not been insane at the time of his suicidal attempt, so far as I could ascertain. He was in active business at the time, but was drinking more than customarily. Immediately after learning that some private business matter had gone awry and being unnerved by the liquor, he attempted suicide. His attempt was apparently abortive; he did not fall to the ground; he was not unconscious; he walked to the hospital two blocks away for the removal of the bullet. There is no neuropathic history in his family on either side of the house. The mental symptoms for which the operation was done came on eleven years after the injury and seven years after he had stopped drinking. There was no toxic condition of the system that could be ascertained by the ordinary tests in common use. The effect of the operation itself we hoped would be beneficial, even if we found nothing. We tried to make as much of an impression in a suggestive way as we could as to the value of the operation. We deemed that a legitimate procedure. The responsibility of operation rested on Dr. Taylor and myself. We were opposed by the hospital authorities and the family thought the patient had nothing the matter with him. But in view of the fact that there undoubtedly were associated symptoms of psychic origin, we thought that these would be benefited by the suggestion of the operation and the subsequent suggestive treatment. The man had been in a lunatic asylum for a year and four months, and was content to remain there. When he went out for a day he hurried back. He was of no use to the community and his family was suffering. The operation brought about an immediate change. He never went back to the institution; he went directly home from the hospital and has remained there ever since.

DR. ALFRED S. TAYLOR, New York: I should like to know why Dr. Sterne aspirates the lateral ventricle in every case in which the head is opened. In our case, the area of brain that lay immediately under the depressed bone was distinctly soft to the palpating finger. There was no evidence of change to the visual examination. I had an idea that we would find a cyst underneath that softened area, but that proved not to be the case. There was no evidence of increased intracranial pressure, and therefore it did not seem to me that an aspiration of the ventricle was desirable. I did not think we would get anything from it, considering the origin of the case and the fact that there had been no symptoms referred to ventricular distention.

It is desirable to do osteoplastic operations in this type of cases. The inner surface of the bone can be shaped very readily and the bone flap laid back so as to give proper protection to the membranes and brain substance itself. It seems to me somewhat of an error to remove the bone completely from depressions of this type and dispose of it, because so frequently adhesions between the membrane and the overlying soft tissues follow, which lead to further disturbances of one type or another.

Eugenics.—Eugenics broadly has to do with all measures that make for the improvement of conditions affecting the life of human beings. Race culture, the application of the laws of sanitation to the housing of the people, clean streets, destruction of disease-carrying insects, suppression of dust nuisances, the supply of pure water, clean milk and wholesome food, the protection of workers from the effects of dangerous callings, the securing proper hours of labor for children and women, the limitation of preventable diseases, notification, quarantine and segregation.—Harvey in *Journal of the Medical Society of New Jersey.*

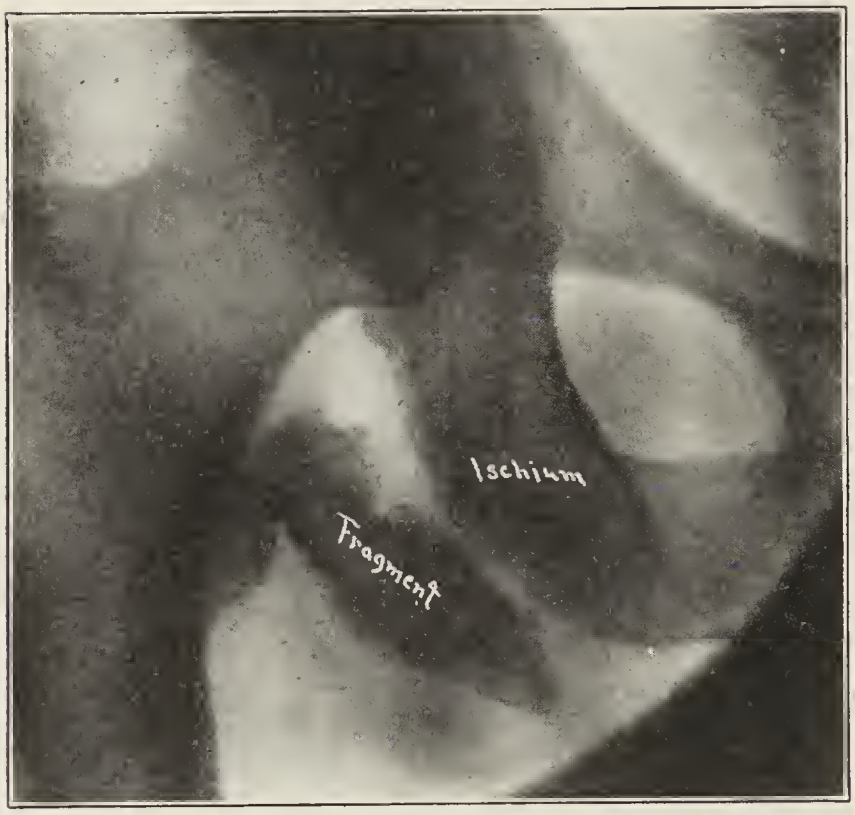
FRACTURE OF THE TUBEROSITY OF THE ISCHIUM DUE TO MUSCULAR ACTION

John M. Berry, M.D., Albany, N. Y.

Fracture of the tuberosity of the ischium is comparatively rare. The only mention made of it by Scudder in the latest edition of his work is the statement that it is extremely rare. Stimpson mentions six cases collected by Malgaigne. Cotton in his recent book states he has no doubt that it may occur, and he has seen a number of cases in which that diagnosis had been made, but none in which it was justified.

History.—The patient, an Italian aged 23, three years before I saw him, while running in a race "felt something crack" in his left buttock, and fell forward to the ground. He was able to get up and walk, but there was severe pain and soreness in the left buttock. The acute symptoms gradually subsided, but pain, soreness and weakness persisted. The condition at last became so annoying that he decided to seek relief.

Examination.—Three years after the injury, I found the patient to be healthy, well-nourished and muscular. He complained that he could not sit on a hard chair with comfort on account of soreness in the left buttock; also that there was pain in the same situation when he attempted to bend forward; and that, while he was standing in certain positions, movements of the left leg caused pain and an audible grating. The left buttock appeared to be very slightly larger than the right. Just to the outer side and below the normal position of the tuberosity of the ischium a hard mass, apparently 4 or 5 cm. in length and of indefinite width and thickness, situated deep in the tissues, could be made to move under the fingers. Movements of the mass caused the same pain of which the patient complained. A stereoscopic radiogram was taken (see illustration), which showed that the mass was a detached fragment of the tuberosity of the ischium that had been displaced outward, downward and somewhat backward. The displacement was caused by the pull of the "hamstring" muscles which arise from that portion of the tuberosity of the ischium, and undoubtedly the fragment was detached by the strong action of these muscles while the patient was running.



Radiograph showing the detached fragment of the tuberosity of the ischium. A stereoscopic view showed that the upper end of the fragment was close to and behind the lesser trochanter of the femur.

Operation and Result.—The patient was given a general anesthetic, and the fragment removed through an incision over it and parallel to the long axis of the leg. He made an uneventful recovery. The patient was last seen one month after the operation. There still remained a slight soreness in the left buttock, but otherwise the condition was satisfactory.

180 Washington Avenue.

Special Article

THE CASE FOR PASTEURIZATION *

EDWIN O. JORDAN, Ph.D.
CHICAGO

Few practical sanitary questions have aroused so lively and even intense feeling as the pasteurization of milk. Pasteurization has been called a "makeshift" and a "mere makeshift"; the secretary of the Illinois State Board of Health has referred to it as "an unreliable remedy for an uncertain danger." It is declared to be "an incentive to uncleanliness," to "encourage slovenliness" on the part of the producer and milk-dealer and to postpone indefinitely the time when only "clean, raw milk" shall be marketed.

On the other side there are equally enthusiastic advocates. The controversy over the merits of pasteurization has now been going on for some years and there are reasons why it seems desirable at present to summarize the evidence accumulated for and against the pasteurizing process.

PASTEURIZATION

Like many similar terms, the name "pasteurization" has been loosely applied. This is in part due to the early use of the term by scientific writers for exposure to temperatures below the boiling point without exact specification of the temperature used and the time of exposure. Confusion was at first unavoidable since exact data were not available. Through the work of T. Smith,[1] Russell and Hastings,[2] Hesse,[3] Rosenau[4] and others it is now established that the tubercle bacillus in milk loses its infective power for guinea-pigs when the milk is heated to 60 C. (140 F.) for twenty minutes. If the milk is maintained at 65 instead of 60, a shorter time will suffice. Other pathogenic bacteria sometimes present in milk, such as the bacilli of typhoid fever and diphtheria, are more readily killed by heat than the tubercle bacillus. As the result of many experiments it has been found that it is not safe to use temperatures lower than 59 or 60 C. (139 or 140 F.), since such temperatures do not insure destruction of pathogenic forms. On the other hand, it is desirable to keep the temperature to the lowest point that will still be bacterially effective, in order to minimize changes in the milk due to heating.[5] Exposure of milk in properly constructed pasteurizers to a temperature of 60 to 65 C. for twenty minutes surely destroys the tubercle bacillus and other pathogenic bacteria and does not affect appreciably the chemical or the "biologic" properties of the milk. That such a standard can be applied to work carried on under practical as well as laboratory conditions has been shown by many experimenters.[6]

Certain types of pasteurizing machines need to be carefully controlled in order to insure that the total volume of milk is heated to a definite temperature and held there for a sufficiently long period. Schorer and Rosenau,[7] after careful experiments on the germicidal efficiency of a large commercial pasteurizer, conclude that a liberal factor of safety is necessary. They recommend 145 F. (63 C.) as the best temperature to meet practical conditions and advise that the milk should be held at this temperature from thirty to forty-five minutes. They also find that a single holding-tank is not so trustworthy as two, three or four in a series.

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* This article is abbreviated in The Journal by omission of the tabulated details. The complete article appears in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

[1] Smith, T.: Jour. Exper. Med., 1899, iv, 233.

[2] Russell and Hastings: Rep. Wis. Agric. Exper. Sta., 1900 xvii, 170.

[3] Hesse: Ztschr. f. Hyg., 1900, xxxiv, 347.

[4] Rosenau: Bull. 42, Hyg. Lab., U. S. P. H. S., Washington 1908.

[5] From a commercial point of view the destruction of the cream line brought about by too high temperature is a marked disadvantage.

[6] See, for example, Rosenau: Bull. 56, Hyg. Lab., U. S. P. H. S. Washington, 1909, p. 639. Trautmann: Gsndht. Ing., 1909, xxxii 731. Hanne: Gsndht. Ing., 1911, xxxiv, 489.

Although the establishment of a reliable working standard has been made possible through the experiments above referred to, a source of confusion for the general public still exists in the misuse of the term "pasteurization" by purveyors of milk. This is a kind of misbranding that concerns closely public health administration. At present it is possible in most American cities to sell milk as "pasteurized" which has never been subjected to proper control. Much of the existing procedure is simply pasteurization falsely so called. Milk heated to a temperature as low as 55 C. (131 F.) may perhaps keep somewhat longer than raw milk, but cannot be regarded as bacteriologically safe. Again, milk-dealers often use machines designed to expose milk for a brief period to a high temperature, such a method being known as the "continuous" or "flash" process in contradistinction to the "holding" process. Experiments have shown that, bacteriologically considered, the flash process is less reliable than the holding process. Several types of "pasteurizing" machines are marketed, and the efficiency of each type and to some extent that of individual machines can be determined only by actual experiment. Observations made under laboratory conditions are not directly applicable to pasteurization on a large scale.[8]

It is plain that to subject milk to an uncertain and variable temperature for an indefinite and variable time does not entitle the resulting product to the name "pasteurized." Hence the necessity to-day for an official technical definition of the term "pasteurization." The available data exist or can be readily secured. City ordinances should be drawn in a uniform manner, inspection and control of pasteurizing appliances and methods should be carried out, licenses should be issued and misbranding made a legal offense.

THE DANGER FROM RAW MILK

There is no doubt that many diseases are conveyed by raw milk. Bovine tuberculosis may be transmitted to man through the milk of tuberculous cattle. The danger is greater for children than for adults. Park and Krumwiede[9] have found that from 6 to 10 per cent. of the deaths from tuberculosis among New York children under 5 years of age are caused by bacilli of the bovine type. The final report of the British Royal Commission on Tuberculosis (1911) sums up the results of en years' investigation in the following words: "The evidence which we have accumulated goes to demonstrate hat a considerable amount of the tuberculosis of childhood is to be ascribed to infection with bacilli of the bovine type transmitted to children in meals consisting argely of the milk of the cow."

Typhoid fever is often caused by infected milk. In cities with a pure water-supply milk is probably the most common vehicle of infection. Trask[10] has compiled a list of 179 typhoid epidemics traced to milk, 107 of which occurred in the United States, forty-three in Great Britain, twenty-three in continental Europe, three in Australia, one in New Zealand and two in Canada. To this list should be added 138 outbreaks tabulated up to 1895 by Hart[11] and by Busey and Kober.[12] In Table 1, I have added a brief description of twenty-nine additional outbreaks kindly collected for me by Miss Edith Prindeville, making a total of 346.

Infection of milk with the typhoid bacillus as far as known never takes place from the cow itself, but always through human agency in the person of some typhoid convalescent, mild case, or "carrier," who either infects the milk directly during the process of collection or transportation or is indirectly the source of infection by excretal contamination of the surroundings of farm or dairy. Improper disposal of excreta on a farm may lead to infection of the milk in many ways, especially through contamination of the well-water used in rinsing utensils and through fly infection.

Diphtheria, like typhoid fever, may be caused by raw milk contaminated through human handling. Hart[11] has tabulated seven milk-borne outbreaks of diphtheria, Busey and Kober[12] twenty-one, Trask[10] twenty-three, and two are tabulated in Table 3, a total of fifty-three.

Wide-spread epidemics of scarlet fever are sometimes caused by milk. In Boston, during the first twenty days of January, 1907, 367 cases of scarlet fever suddenly appeared, and simultaneously about the same number of cases developed in Cambridge and neighboring towns.[13] About 84 per cent. of these cases were supplied by a single milk-dealer. A milk-taster who was employed by this dealer suffered from symptoms suggesting scarlet fever and had a daughter similarly affected. The method of tasting the milk consisted in plunging a long spoon into the can to be tasted, lapping the spoon, shaking it and plunging it into the next can. "The spoon was produced from a dirty pocket, and was plunged into the milk without washing or without rinsing between the lapping of the spoon and immersion into the next can." In Chicago in 1906 and 1907 an average of 135 cases of scarlet fever had been reported weekly for the six weeks ending January 11. The week ending January 18 there were 348 cases, and the following two weeks 1,005 and 1,689 cases, respectively. Shipment of milk from a suspected dairy was stopped, January 25, and the epidemic then slowly subsided.[14] Evanston and other north shore suburbs of Chicago to which milk was sent from the same dairy also suffered from scarlet fever at the time of the Chicago outbreak. Hart[11] has recorded fifteen, Busey and Kober[12] fifty-nine, Trask[10] fifty-one, and I twelve (Table 2), a total of 137 epidemics of scarlet fever traced to milk. There is no good evidence that cows actually suffer from scarlet fever. Savage,[15] however, has suggested that the well-known Hendon outbreak[16] and similar instances in which sick cows have been thought to be implicated may be explained on the assumption that animals suffering from a bovine disease of the teats and udder may acquire a local and secondary infection with the as yet unknown organism of scarlet fever. This view is supported by observations of Dean and Todd,[17] who isolated undoubted diphtheria bacilli from the teat lesions of cows affected with an eruptive disease of the udder. The evidence obtained led these investigators to infer that the presence of the diphtheria bacilli was due to a superadded infection.

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[7] Schorer and Rosenau: Jour. Med. Research, 1912, xxi, 127.

[8] See, for example, Schorer: Am. Jour. Dis. Child., 1912, ii, 226.

[9] Park and Krumwiede: Jour. Med. Research, 1911, xxv, 313.

[10] Trask: Bull. 56, Hyg. Lab., U. S. P. H. S., Washington, 1909, p. 23.

[11] Hart: Brit. Med. Jour., 1897, i, 1167, 1229, 1292.

[12] Busey and Kober: Report of Health Officer of District of Columbia, 1895, p. 299.

[13] Rep. Mass. State Board of Health, 1907, p. 491.

[14] Hemenway: THE JOURNAL A. M. A., April 4, 1908, p. 1115.

[15] Savage: Proc. Roy. Soc. Med., Epidemiol. Sec., 1911, iv, 73.

[16] Rep. Local Govt. Board, Med. Officer's Suppl., 1885, p. 73.

[17] Dean and Todd: Jour. Hyg., 1902, ii, 194.

Outbreaks of milk-borne septic sore throat of a severe and often fatal type have been observed in England. Savage[15] has recorded eighteen such outbreaks, some of them very extensive (Colchester, 600 cases). A similar epidemic with 548 reported cases occurred at Christiania[18] in 1908. In the United States Winslow[19] has made a report on a very extensive outbreak occurring in Boston and vicinity in 1911 and involving over 1,000 cases and about fifty deaths. Similar outbreaks have been observed in Baltimore[20] and in Chicago.[21] Milk-borne outbreaks of gastro-intestinal catarrh have also, although rarely, been reported.[15] In countries where Asiatic cholera prevails this disease is not uncommonly conveyed by means of milk. Other diseases, such as anthrax, hydrophobia and foot-and-mouth disease are theoretically communicable through cow's milk to man, but from the public health point of view the danger from these diseases seems much less than from the infections previously mentioned.[22]

The relation of milk to infant mortality needs special consideration. To determine the effect of milk on the health of infants involves many difficult and intricate questions. Cow's milk is not the normal food for human babies and it is often impossible to discover to what extent digestive disturbances in young children are due to the natural unsuitability of the milk as a food substance and to what extent they are due to abnormalities in the milk. In general it is true that during hot weather raw milk with a high bacterial content is much more likely to produce illness or to predispose infants to illness than a fresh, clean milk containing few bacteria. During cool weather neither the health nor the mortality of infants seems to be appreciably affected by the number of bacteria milk contains. The evidence, as far as it exists, indicates strongly that milk destined as infant food should be as clean and fresh as possible, but it does not indicate the precise way in which stale and dirty milk produce their evil effects. Infants, like adults, are of course liable to specific infections conveyed in cow's milk and, as pointed out, are especially liable to contract tuberculosis from germs coming from the cow.

Since milk-borne diseases are to a considerable extent due to the use of milk from diseased cattle, to uncleanly dairy surroundings and to careless handling, it has been generally assumed that contamination and infection can be prevented by sanitary control of the process of milk collection and transportation. One important object of the campaign for clean milk and inspected milk so effectively waged by the medical milk commissions in this country has been the prevention of disease transmission. There is no doubt that the amount of milk-borne infection can be greatly lessened by such procedures as examination and testing of the dairy cattle, insistence on scrupulous cleanliness of the dairy surroundings and dairy employees, elimination of the house-fly, the reporting of infectious diseases developing on the dairy farm and among all employees, and, in a word, by all precautions that bacteriologic experience can suggest.

The question is beginning to be asked, however, whether it is humanly possible to eliminate all important sources of infection, even by strict regulation and watchful supervision.[23] The discovery that entirely healthy persons can be the bearers of virulent disease germs and can convey these germs to objects with which they come in contact has already had an important effect on public health practice and is nowhere more significant than in connection with the control of milk-supply. The New York City milk-supply comes from 44,000 farms, and probably over 200,000 persons are concerned in its production.[24] The Chicago milk-supply is derived from over 12,000 farms. Even supposing that the large body of individuals that are in close contact with the milk during collection, transportation and distribution can be properly trained and disciplined in some of the methods of the bacteriologic laboratory, unforeseen changing and shifting in the personnel is necessarily always taking place. Furthermore, a permanent and healthy employee may suddenly acquire a virulent disease germ and perhaps become a "carrier" over night, without there being any reason for him or his employers to recognize that he has become dangerous or to lead in any way to suspicion of his condition. A new milker may be engaged in a certified dairy and even if he is subjected to prior bacteriologic examination may conceivably be an "intermittent typhoid carrier," i. e., discharging typhoid bacilli only at intervals. Such a person may become dangerous within a few weeks or even a few days after he is taken on. He may never have been treated by a physician for typhoid fever and may have no ground whatever for supposing that he has suffered from the disease. In this case careful questioning and even bacteriologic examination might fail to elicit any cause for suspicion. The inefficiency of ordinary hand-washing is shown by such observations as that of Winslow,[25] who found the colon bacillus present on the hands of between 5 and 10 per cent. of all persons examined; it is well known that nurses in typhoid fever hospitals who are presumably cognizant of their danger nevertheless frequently become infected. Whether it is practicable to enforce bacterially effective hand cleansing in all milkers is a matter on which there may be some room for doubt. Nor can the danger from infective droplets, discharged from the mouth by coughing, sneezing, speaking or laughing be overlooked. Flügge and his pupils have shown that such droplets may float for some time (thirty minutes) and to some distance (3 or 4 feet). A slight unconscious cough by a milker who is well, but a carrier, may be the means of conveying infection to the milk. It is hardly necessary to add that most pathogenic bacteria when introduced into milk do not remain quiescent or even begin to die off as happens when they pass into water, but enter on a course of rapid multiplication which may result in spreading infection through a large volume of mixed milk.

Such considerations have to some extent been supplemented by concrete instances of the spread of the disease through the agency of carefully guarded milk-supplies.

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[18] Sömme: Lancet, London, 1908, i, 1707.

[19] Winslow: Jour. Infect. Dis., 1912, x, 73.

[20] Hamburger: The Journal A. M. A., April 13, 1912, p. 1109.

[21] Miller and Capps: The Journal A. M. A., April 13, 1912, p. 1111; June 15, 1912, p. 1848.

[22] The newly discovered abortion bacillus, the causal organism in the contagious abortion of cattle, is not certainly known to be pathogenic for man, but the possibility that it is so cannot be ignored (Smith, Theobald, and Fabyan, M.: Centralbl. f. Bakteriol., lvi). This bacillus has been found rather frequently in market milk (Circ. 198, Bureau of Animal Industry, U. S. Dept. of Agricul., March 2, 1912)

[23] It is worthy of note that the majority of the Commission on Milk Standards appointed by the New York Milk Committee voted in favor of the pasteurization of all milk, including certified milk. See Standard Rules at the end of this article.

[24] Monthly Bull., New York Health Dept., October, 1911.

[25] Winslow: The Occurrence of the Colon Bacillus on the Hands, Jour. Med. Research, 1903, x, 463.

An epidemic of diphtheria among the students and faculty of the University of Minnesota occurring in May, 1911, was traced to milk from a dairy said to be one of "the cleanest and best regulated" in the Minneapolis district.[26] A personal letter from Dr. R. H. Mullin, director of the laboratory of the Minnesota State Board of Health, giving me permission to quote, states that "investigation of the dairy and of the workers connected with it demonstrated that one of the four men who had charge of the milking carried the granular form of diphtheria bacilli in his throat, although he had not suffered from sore throat or any other symptom of diphtheria." Bolduan and North,[27] in reporting a large epidemic of typhoid fever traced to a carrier of forty-six years' standing, call attention to the fact that milk may be infected by a chronic typhoid carrier, even though the carrier be cleanly in his habits. The particular dairyman implicated in this outbreak "was a better-class dairy farmer who kept his hands and his dairy much cleaner than the average dairyman. Moreover, he was personally clean."

One of the most striking instances of this sort is the outbreak of septic sore throat in eastern Massachusetts, reported by Winslow,[28] Darling,[29] Richardson[30] and Goodale.[31] This extensive epidemic, which involved more than 1,000 cases and caused fifty deaths, was clearly traced to an infected milk-supply. In Brookline, for example, 61 per cent. of the total cases occurred in houses supplied with this particular milk, whereas only 13.8 per cent. of the total number of houses received this milk. The implicated milk-supply from the Deerfoot farm had enjoyed the highest reputation for many years. Unusual precautions, detailed in Winslow's article, were taken to safeguard all stages of collection and handling. Regular examinations of the milk were made by a well-known Boston bacteriologist (Professor Prescott), and reference to these showed that a very low bacterial count obtained throughout the month when the epidemic occurred (May, 1911), fully one-half of the samples examined being below 10,000, the common standard for the best "certified" milk. Winslow, after a searching investigation, declared that he was "at a loss to suggest any other precaution that could have been taken to guard against infection with human germs or that were not taken in this instance," and he concluded that "if, in spite of such precautions, the Deerfoot milk became infected, any raw milk-supply may at any time become infected." In a discussion of the paper cited above, Rosenau[32] states that the epidemic "goes to show that it is impossible to produce raw milk hat may sometimes not convey some such danger," and Sedgwick[32] affirms that "the greatest lesson of all is the utter inadequacy of milk inspection." Since experts familiar with the conditions on the Deerfoot farm could find nothing to criticize in the methods there employed, t is clear that the theoretical objections to the use of raw milk are justified by actual events.

An example of danger narrowly averted is afforded by he experience of a dairy furnishing certified milk in Essex County, N. Y.[33] The visiting physician discovered that one of the milkers had a sore throat and high fever and promptly isolated him. The disease proved to be scarlet fever and a few days later another employee became ill with the same disease. Efficient isolation and disinfection were carried out and the Milk Commission directed the heating (first to 185 F. and later to 150 F.) of all milk taken from the dairy. The disease did not spread. This instance is not merely a tribute to the value of inspection; it is also an illustration of the slender margin of safety. Whether daily and competent medical inspection of all dairy employees and their families is a burden that the milk business can properly be asked to bear is a question for careful consideration. As already pointed out, even such inspection, unless supported by bacterial examination, is not competent to discover the healthy carrier of diphtheria bacilli.

THE ADVANTAGES OF PASTEURIZATION

Assuming that pasteurization is definitely and legally recognized as an exposure for twenty minutes to a temperature of 60 to 65 C. (140 to 149 F.) or is defined in some similar way in accordance with the available bacteriologic data, what are the advantages, if any, to the public health from the general pasteurization of milk-supplies? Theoretically, general pasteurization should reduce the amount of milk-borne disease. Does it in point of fact do this? Unfortunately, the data are very meager.

There are few if any instances in which the conditions satisfy the requirements of a scientific experiment, where change from a raw milk-supply to an effectively pasteurized one has taken place abruptly, and has been accompanied by no essential change in other hygienic factors. Sudden and radical changes in the character of a city water-supply often take place, but not in that of a milk-supply. As a rule the pasteurization of city milk is introduced gradually and is not of uniform efficiency. In some cities the "flash" method is employed exclusively,[34] in others the "holding" method, but in most cities both methods are in use. Official control of the pasteurizing process is at present far from effective and it is impossible in many cases to be sure what proportion of the city milk is really pasteurized in the strict bacterial sense. For these reasons the actual effects of general pasteurization cannot often be demonstrated.

At the same time evidence is accumulating as to the efficacy of pasteurization in preventing milk-borne disease. There are some specific instances like the one reported by Rosenau, Lumsden and Kastle,[35] who found that the lowest proportion of typhoid fever cases on any milk-route in Washington in 1906 and 1907 was on the route of the only dealer who sterilized his milk-bottles and pasteurized the milk.

It is generally known also that typhoid fever is as a rule more prevalent in the cities of the United States than in European cities of corresponding rank. This is true even of those American cities possessed of a perfectly good public water-supply. The most plausible explanation for the existence of this high typhoid rate in American municipalities is that the almost universal practice in Continental Europe of heating milk shuts out this food as a common source of typhoid fever, while in this country the general use of raw milk opens the door wider for infection by this channel.

It is a tempting hypothesis that the striking decrease in typhoid fever that has occurred in some American cities in the past few years is in large part due to the increased proportion of pasteurized milk sold in these cities. In Chicago, for example, about 2 per cent. of the milk-supply had been pasteurized prior to 1908. In July, 1908, an ordinance was passed to take effect Jan. 1, 1909, requiring pasteurization of milk from herds untested with tuberculin. This led quickly to a pasteurization of something over one-half of the total milk-supply. In 1910 it was estimated that 75 per cent. of the supply was subjected to the heating process. Table 1 gives the death-rate from typhoid fever in Chicago for the years since the opening of the drainage canal, an event which was accompanied by cessation of the extreme city water-supply pollution which had previously prevailed.

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[26] Diphtheria and Milk in Minneapolis, THE JOURNAL A. M. A., July 1, 1911, p. 30.

[27] Bolduan and North: THE JOURNAL A. M. A., Jan. 6, 1912, p. 7.

[28] Winslow: Jour. Infect. Dis., 1912, x, 75; Boston Med. and Surg. Jour., 1911, clxv, 899.

[29] Darling: Boston Med. and Surg. Jour., 1911, clxv, 904.

[30] Richardson: Boston Med. and Surg. Jour., 1911, clxv, 907.

[31] Goodale: Boston Med. and Surg. Jour., 1911, clxv, 908.

[32] Boston Med. and Surg. Jour., 1911, clxv, 910.

[33] North, Eng. News, 1909, lxii, 106. See also Thirty-Third Ann. Rep. N. Y. State Board of Health, 1909.

[34] Schorer: Jour. Am. Pub. Health Assn., 1911, i, 851.

[35] Rosenau, Lumsden and Kastle: Bull. 44, Hyg. Lab., U. S. P. H. S., Washington, 1908.

TABLE 1.—CHICAGO TYPHOID DEATH-RATE AFTER OPENING OF DRAINAGE CANAL

Year	Typhoid Fever Deaths Per 100,000 Population	Year	Typhoid Fever Deaths Per 100,000 Population
1900	19.8	1906	18.5
1901	29.1	1907	18.2
1902	44.5	1908	15.8
1903	31.8	1909	12.6
1904	19.6	1910	13.7
1905	16.9	1911	10.8

Av. prior to 1908,* with 2 per cent. or less of milk pasteurized..24.8
Av. of the lowest three typhoid rates prior to 1908............17.9
Av. 1909, 1910 and 1911, with 50 to 75 per cent. of milk pasteurized..........12.4

* 1908 omitted as being a year of transition, and toward its close of increasing pasteurization.

Whether or not the marked decline in the Chicago typhoid death-rate since 1907 is really the effect of pasteurization, the coincidence is worthy of attention.

In Boston a similar decline may be observed (Table 2).

TABLE 2.—BOSTON TYPHOID DEATH-RATE

Year	Typhoid Fever Deaths Per 100,000 Population	Year	Typhoid Fever Deaths Per 100,000 Population
1891-1895	31.1	1906-1910	16.0
1896-1900	30.6	1911	9.1
1901-1905	22.4		

Average of the lowest typhoid rates prior to 1909.............16.9
Average of 1909, 1910 and 1911...........................11.5

In 1910 about one-half of the Boston supply was said to consist of heated milk, in 1911 a still larger proportion. In 1911 only 479 cases and 63 deaths from typhoid fever were reported, the smallest numbers absolutely as well as relatively ever recorded in the sanitary history of the city.[36] Other factors have doubtless been at work to reduce the amount of typhoid fever, but it is hard to resist the conclusion that the increasing use of heated milk is largely responsible for the recent striking diminution.

In New York City a regulation effective Jan. 1, 1912, provides for compulsory pasteurization of the great bulk of the milk-supply. The effect of the measure on the city's health will be watched with interest and a decline in milk-borne disease may be confidently predicted.

Perhaps the advantage most frequently urged for pasteurized milk is its effect in reducing infant mortality. Such statistics as the oft-quoted figures from the infants' hospital on Randall's Island, New York,[37] showing an average reduction in infant death-rate from 41.81 in the year before pasteurization to 21.75 in the years following the installation of a pasteurizing plant, no other change in hygiene or diet being made, certainly indicate a beneficial effect. The well-known investigation by Park and Holt[38] in New York City showed that infants fed with heated milk of average quality did much better in warm weather than infants fed with precisely similar milk in a raw condition. These observers state that "the difference was so quickly manifest and so marked that there could be no mistaking the meaning of the results."

In New York and a number of other American cities the pioneer philanthropic work of Nathan Straus has made possible the establishment of milk depots from which pasteurized milk has been distributed. The establishment of such milk depots has been followed in every instance known to me by a noteworthy reduction in infant mortality. Freeman,[39] as the result of his studies in the city of New York, came to the conclusion that by far the most important agency in bringing about the "striking decline" in infant mortality was the general adoption of pasteurization and sterilization of milk for infant feeding. It is of course not possible to attribute the total reduction in infant death-rate to the use of heated milk, since usually other factors, such as education of the mothers in methods of feeding, the use of milk modifications and similar improvements have been simultaneously put in force, but there seems little doubt that at least some share in the reduction is to be credited to the use of pasteurized milk. Further detailed studies of the effect of pasteurized milk on the health of babies would be of value.

The low cost of pasteurization[40] as compared with farm inspection is a point in its favor. Even assuming that farm inspection were as efficient as pasteurization in preventing the delivery of living disease germs to the milk-consumer, the cost per case of disease prevented would probably be much greater by the inspection method than by the pasteurization method. The economic advantage of pasteurization to the milk dealer by preventing rapid souring is sufficiently obvious and need not be dwelt on here.

OBJECTIONS TO PASTEURIZATION

Many objections have been urged against pasteurization. Some of these have reference to the inherent nature of the process, others to remediable defects in current procedure. To declare that pasteurization is "a fraud" because some unscrupulous dealers try to palm off heated dirty milk for clean raw milk is about as reasonable as to maintain that weights and measures should not be used because they make practicable cheating under the guise of accuracy. It is self-evident that the process of pasteurization should be regulated and controlled and that pasteurized milk like raw milk should not be sold except under official sanction. If "commercial pasteurization" is to-day carried out on wrong lines, municipal regulation must set it right. To insist that inspectors may be corrupt is not an indictment of pasteurization but of municipal government or, some may choose to say, of democracy. In point of fact, municipal supervision and regulation are exercised efficiently to-day in more complicated matters than the pasteurization of milk. It is clear that some of the oft-repeated objections to pasteurization are based on a mere matter of deceptive labeling. Calling milk pasteurized does not make it so. Objections to "commercially pasteurized" milk do not hold for properly heated milk.

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[36] In 1856, when typhoid fever first appears under a separate heading, there were seventy deaths in a population of 163,820, and only once before 1911 was a lower number than this recorded—sixty-four in 1907.

[37] Bull. 56, U. S. P. H. S., 1909, p. 243.

[38] Park and Holt: Arch. Pediat., 1903, xx, 881.

[39] Freeman: Med. News, Sept. 5, 1903.

[40] In Chicago the cost is said to range from one-thirtieth of a cent per gallon for large plants to 0.85 cents per gallon for one small plant. (Report of Senate Committee of the Forty-Sixth General Assembly to investigate the tuberculin test and the pasteurization of milk and its products.)

It is sometimes alleged that pasteurization does not avoid the danger of milk transmission of disease, since fresh infection of the milk after pasteurization may occur. There is no doubt that the danger is a real one, as is shown, for example, in the case reported by Davies and Hall.[41] In the outbreak investigated by these writers, typhoid fever appeared in an institution in Bristol, England, and was traced to milk which, through handling by a carrier, had become infected after sterilization. Such a possibility may be met and should be met by requiring commercially pasteurized milk to be delivered in the original package. Heinemann[42] pointed out some time ago the advantages of narrow-necked bottles with tightly fitting caps, of the same type so successfully used in the bottling of pasteurized beer. With the proper apparatus the cleaning of such bottles offers no obstacle. North[43] has obtained remarkably satisfactory results in treating milk by the ordinary beer pasteurizing process, over 99.5 per cent. of all bacteria being destroyed. The great advantage of the method, however, is the security it affords against recontamination. In the method described by Carter,[44] raw milk conforming to Boston requirements (less than 500,000 bacteria per cubic centimeter) is drawn into bottles each of which is provided with a crimped metal-capped cork seal similar to those used on beer bottles. After sealing, the bottles are heated under official inspection to 150 F. for thirty minutes and are then delivered to the consumer in the sealed and final package. By some such method, infection of pasteurized milk *en route* can be altogether avoided. Once in the home it is in little if any more danger of contamination than other raw foods. I am aware that some writers have asserted that if disease germs are ever introduced into pasteurized milk they multiply more rapidly than in raw milk, but there is no experimental or epidemiologic evidence to support this view.

An objection to the use of pasteurized milk which perhaps has been more widely quoted than any other, dates back to the work of Flügge.[45] This observer drew attention to the fact that milk, after being heated, might contain bacterial spores which later under favorable conditions could germinate. He also isolated three species of peptonizing bacteria from heated market milk which were able to cause the death of laboratory animals when injected. Milk-cultures of these bacteria fed to puppies were thought to produce illness, and in one instance death. Flügge's experiments seem to have been carried out with samples of milk of unspecified origin which had been heated at the boiling-point for considerable periods. Such observations are not applicable to the pasteurizing process. Colwell and Sherman[46] have since found that pasteurization at 60 C. appears to restrain peptonizing to about the same extent that it restrains souring. They also state that pasteurization "apparently had no constant effect in rendering the milk either more or less liable than raw milk to the development of offensive odors." Ayers and Johnson,[47] furthermore, have shown in a comprehensive study of commercially pasteurized and raw market milk that commercially pasteurized milk always sours through the development of lactic acid bacilli which survive the heating process. The thermal death-point of one lactic acid organism isolated from milk was found to be 75.6 C. (168 F.) when heated in milk for thirty minutes. They also found that the relative proportion of the groups of peptonizing, lactic acid and alkali-forming bacteria is approximately the same in effectively pasteurized milk and in raw milk. Bacterial increase in efficiently pasteurized milk and in clean raw milk is about the same under similar temperature conditions. There is, therefore, no ground whatever for the assertion that pasteurization, by destroying the lactic acid bacteria, leaves the field open for the development of "dangerous" peptonizing forms. As pointed out by Rosenau,[48] Flügge's contentions for the most part have not been confirmed and we have to-day practically no positive evidence in regard to the bacterial productions of poisons in milk.

A curious objection which is sometimes advanced is that the "life" of the milk is destroyed by heating and that this impairs the value of the milk as human food. In this crude form the objection is evidently meaningless. Even if the destruction of milk enzymes by heat is implied by such an objection there is hardly more foundation for the claim. The enzymes in milk are for the most part resistant to temperatures of 60 to 65 C. for at least twenty minutes.[49] In some cases, however, as with superoxydase (katalase), heating at relatively low temperatures (56 C.) will cause partial weakening or (62 C.) complete destruction. The feeble germicidal power that milk has for certain bacteria is also weakened by temperatures in the neighborhood of 60 C. The leukocytes present in normal milk are killed by heating, but there is no reason to believe that the maintenance of the integrity of these cells from the cow is in any way important in the process of assimilation in the alimentary tract of man.

There are unquestionably changes produced in milk by heating, especially in the labile compounds represented by the enzymes and antibodies of various sorts. Not a particle of evidence exists, however, for ascribing to such substances a favorable influence on human digestion and metabolism. The enzymes in raw meat or in raw potatoes are for all we know as useful as those in raw milk. It may be asked why bovine enzymes should be supposed to add anything to the efficacy of the enzymes normally present in the human alimentary tract. Until positive demonstration has been made that some benefit is obtained from the ingestion of milk enzymes, little importance can be attached to purely hypothetical considerations of this character.

With respect to other changes produced in milk by heating, it may be said that while boiling produces decomposition and precipitation of the proteins, precipitation of salts, coalescence of the fat globules and other alterations which affect the palatability, and possibly for some children the assimilability, of the milk, pasteurization is open much less, if at all, to such objections. By this process, carefully controlled, changes in the chemical and physical properties of the milk are inappreciable.

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[41] Davies and Hall: Proc. Roy. Soc. Med., Epidemiol. Sec., 1908, i, 171.

[42] Heinemann: Arch. Pediat., June, 1908.

[43] North: Jour. Med. Research, July 15, 1911, p. 111.

[44] Carter: Jour. Am. Pub. Health Assn., 1911, i, 664.

[45] Flügge: Ztschr. f. Hyg., 1894, xvii, 272.

[46] Colwell and Sherman: Jour. Biol. Chem., 1908, v, 247.

[47] Ayers and Johnson: Bull. 126, Bureau of Animal Industry, Washington, November, 1910.

[48] Rosenau: Bull. 56, U. S. P. H. S., 1909.

[49] Kastle and Roberts: Bull. 56, U. S. P. H. S., 1909, p. 322. Seligman: Sommerfeld's Handbuch d. Milchkunde, 1909, p. 306.

EFFECT OF PASTEURIZED MILK

After all theoretical objections have been canvassed, however, the practically important question remains to be answered whether infants fed with pasteurized milk are any better or any worse off than those fed with raw milk. Putting aside for the moment the question of the conveyance of specific infection or the possible deleterious influence of large numbers of bacteria, what is the effect on individual metabolism of milk heated for twenty minutes at 60 C. as compared with that of the same milk in a raw condition. It is well known that some experienced clinicians are inclined to attribute such conditions as scurvy or rickets in young children to the continued use of heated cow's milk, but on the other hand it is pointed out that similar metabolic derangements are observed in children fed with raw cow's milk or even in breast-fed infants. Brennemann's observations,[50] indeed, indicate that raw milk is much more likely than boiled milk to produce large hard curds which are surely a hindrance to digestion. No distinction is noted in some of the reported cases between boiled milk and pasteurized milk, and the data printed are often far from complete. Speaking broadly, there is no doubt that many infants can be fed without appreciable ill effect for long periods with heated milk — boiled or pasteurized — but this, perhaps, does not justify us in assuming that some individuals may not be injuriously affected. As regards boiled milk, rather convincing observations have been lately put forth by Janet Lane-Claypon.[51] There it is shown that while infants, like other young animals, thrive best on the milk of their own species, it is immaterial as far as nutrition is concerned whether the milk is boiled or not. Infants fed with milk drawn from the breast of a wet-nurse and boiled previous to use appear to thrive just as well as when the same milk is given fresh. At the end of a year the babies fed on boiled milk showed no greater percentage of rickets than breast-fed babies.

As the case stands there is no conclusive proof that infants are injured by being fed properly pasteurized milk instead of the same milk raw: on the whole we may rest reasonably assured that pasteurized milk is under most conditions as good for infants as clean raw milk.

Objection to pasteurization on the ground that it permits the continuance of uncleanly methods of collecting and handling has little weight. A simple test for the presence of dirt in the milk, such as that in use by the Chicago Health Department, may be applied to pasteurized as well as to raw milk.[52] It is self-evident that unless milk comes up to a certain standard neither delivery of the milk raw nor pasteurization of the milk should be permitted. In any case, some standard must be established and upheld.

HOME PASTEURIZATION

"Home pasteurization" of milk is sometimes urged as preferable to pasteurization on a large scale by milk dealers. Under some conditions it is probably true that pasteurization can be carried out effectively in the home, but in many cases proper and uniform treatment can hardly be hoped for. As a rule attempts to induce householders to "boil the water" lead to less satisfactory sanitary results than centralized purification of the water-supply under expert supervision. With a little skill in laboratory manipulation, a good thermometer and some time and patience it need not be a difficult matter to pasteurize milk successfully in the home. Unfortunately these requisites are not always found. There is reason to think that "home pasteurized" milk is in general heated to an overhigh temperature and is not rapidly enough cooled.

Among the many attempts to reduce home pasteurization to a mechanical procedure involving a few simple operations rather than careful watching, Freeman's home pasteurizer is the most successful.[53] Only fresh, clean milk should be used and the process should be carried on under proper hygienic conditions. In the directions given by Nathan Straus for the use of a modification of the Freeman pasteurizer, the bottles of milk after being warmed for five minutes are immersed up to the lip in boiling water. After the source of heat is removed the bottles are left standing in the gradually cooling water (covered) for twenty-five minutes. They are then taken out and quickly chilled with cold water and ice. According to the figures given by Straus, eight 3-ounce bottles may be treated in this way by immersion in 5 quarts of water while eight 6-ounce bottles need 6¾ quarts of water, and six 1-pint bottles 9 quarts.[54]

THE NECESSITY FOR MUNICIPAL CONTROL

All the foregoing considerations point unmistakably to one of the greatest needs in municipal health administration in many American cities to-day, namely, the enforcement of a pasteurizing ordinance. The observations of Koehler and Tonney[55] in Chicago exemplify the immediate need for municipal control of the pasteurizing process. While it is probably true that a certain amount of the highest grade clean, raw milk (certified) will continue to be asked for, the expense requisite for production will alone put certified milk for a long time out of reach of many consumers. The bulk of the city milk-supply may be brought up to a certain qualitative level by competent inspection, but beyond a given point it cannot be forced without an increase in cost not commensurate with the advantage obtained. Inspected milk of average quality may be rendered safe for human consumption by a process of real pasteurization prescribed and regulated by the municipal health authorities. No one cognizant of the facts can doubt that general pasteurization under official sanction will prevent a large amount of milk-borne disease. On the other hand, uncontrolled pasteurization opens the door wide to the abuses already mentioned. Under some conditions the name "pasteurization" may be made to serve simply the ends of careless producers or unscrupulous dealers. It is plain that the commercial exploitation of a scientific process should not be allowed to obscure the merits of the process. In the interests of public health, pasteurization should be technically and legally defined and should be subject to competent regulation.

STANDARD RULES FOR THE PRODUCTION, HANDLING AND DISTRIBUTION OF MILK[56]

MILK FOR PASTEURIZATION

Requirements

1. It shall be cooled to 60 F. or below within two hours after it is drawn from the cow, and it shall be held at or

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50. Brennemann: Am. Jour. Dis. Child., 1911, i, 341.

51. Report to Local Government Board, N. S. No. 63, 1912; abst. Lancet, London, April 27, 1912, p. 1140.

52. Tonney, F. O.: Am. Jour. Pub. Health, 1912, ii, 280.

53. Freeman: Arch. Pediat., 1896.

54. A simple device for the home pasteurization of milk is described, with full directions, in Circular 197, Bureau of Animal Industry, U. S. Dept. Agric., Washington, D. C., April 19, 1912.

55. Koehler and Tonney: The Journal A. M. A., March 11, 1911, p. 713.

56. Report of the Commission on Milk Standards Appointed by the New York Milk Committee, Public Health Reports, Washington, D. C., May 10, 1912.

below that temperature until it is pasteurized. After pasteurization, it shall be held at a temperature not exceeding 50 F. until delivered to the consumer.

2. It shall not be adulterated by the addition to, or the subtraction of, any substance or compound, except for the production of the fluid derivatives allowed by law.

3. It shall not be tested by taste at any bottling-plant, milk-house, or other place in any way that may render it liable to contamination.

4. It shall be bottled only in a milk-room or bottling-plant for which a license or permit has been issued.

5. It shall be delivered in bottles, or single service containers, with the exception that 20 quarts or more may be delivered in bulk to establishments in which milk is to be consumed or used on the premises.

6. It shall not be stored in, or sold from, a living-room or from any other place which might render it liable to contamination.

7. Pasteurized milk shall be distinctly labeled as such, together with the temperature at which it is pasteurized, and the shortest length of exposure to that temperature and the date of pasteurization.

Recommendations

1. No milk shall be repasteurized.

2. The requirements governing the production and handling of milk for pasteurization should be raised wherever practicable.

PASTEURIZING PLANTS

Requirements

1. They shall be clean, well-screened and lighted, and shall be used for no other purpose than the proper handling of milk and the operations incident thereto, and shall be open to inspection by the health authorities at any time.

2. They shall have smooth, impervious floors, properly graded and drained.

3. They shall be equipped with hot and cold water and steam.

4. Ample provision shall be made for steam sterilization of all utensils, and no empty milk-containers shall be sent out until after such sterilization.

5. All utensils, piping and tanks shall be kept clean and shall be sterilized daily.

Recommendations

1. Containers and utensils shall not be washed in the same room in which milk is handled.

STORES

Requirements

1. All stores in which milk is handled shall be provided with a suitable room or compartment in which the milk shall be kept. Said compartment shall be clean and shall be so arranged that the milk will not be liable to contamination of any kind.

2. Milk shall be kept at a temperature not exceeding 50 F.

Recommendations

1. Milk to be consumed off the premises may be sold from stores only in the original unopened package.

GENERAL REGULATIONS

Requirements

1. The United States Bureau of Animal Industry score-card shall be used, and no milk from a dairy that scores below 40 on such card shall be pasteurized for sale, except for industrial purposes.

2. Every place where milk is produced or handled and every conveyance used for the transportation of milk shall be clean.

3. All water-supplies shall be from uncontaminated sources and from sources not liable to become contaminated.

4. The license or permit shall be kept posted in a conspicuous place in every establishment for the operation of which a milk license or permit is required.

5. No milk license or permit shall at any time be used by any person other than the one to whom it was granted.

6. No place for the operation of which a license or permit is granted shall be located within 100 feet of a privy or other possible source of contamination, nor shall it contain or open into a room which contains a water-closet.

7. No skim-milk or buttermilk shall be stored in or sold from cans or other containers unless such containers are of a distinctive color and permanently and conspicuously labeled "skim-milk" or "buttermilk," as the case may be.

8. No container shall be used for any other purpose than that for which it is labeled.

9. Milk from cows that have been rejected by the tuberculin test, but which show no physical signs of tuberculosis, as well as those which have not been tested, may be sold provided that it is produced and handled in accordance with all the other requirements herein set forth for pasteurized milk.

10. Ice used for cooling purposes shall be clean

Recommendations

1. No person whose presence is not required shall be permitted to remain in any cow-stable, milk-house, or bottling-room.

PASTEURIZED CREAM

Requirements

1. It shall be obtained only from milk that could legally be sold as milk under the requirements hereinbefore set forth.

2. Pasteurized cream, or cream separated from pasteurized milk, shall be labeled in the manner herein provided for the labeling of pasteurized milk.

STANDARDS FOR PASTEURIZED MILK

Requirements

1. It shall not contain more than 1,000,000 bacteria per cubic centimeter before pasteurization, nor over 50,000 when delivered to the consumer, and no colon bacilli in 1 c.c. as determined by cultural methods.

2. The standards for the percentage of milk fat and of total solids shall be the same as for raw milk.

Recommendations

1. The limits for the bacterial count before pasteurization and after pasteurization should both be lowered if possible.

STANDARDS FOR PASTEURIZED CREAM

Requirements

1. No cream shall be sold that is obtained from pasteurized milk that could not be legally sold under the provisions herein set forth, nor shall any cream that is pasteurized after separation contain an excessive number of bacteria.

2. The bacterial count of pasteurized cream shall not exceed 100,000 bacteria per cubic centimeter when delivered to the consumer.

3. The percentage of milk fat shall be the same as for raw cream.

Penalty

Every milk ordinance should contain a penalty clause.

I am indebted to Miss Edith Prindeville for assistance in preparing the accompanying tables. None of the outbreaks recorded were included in Trask's tables.

The Respective Rôles of Theory and Observation.—In connection with malaria, Laveran's name will ever be remembered as the discoverer of the parasite, but the practical application of the knowledge Laveran gave us was without significance until Manson's mosquito-malaria theory was enunciated. It has been the same with many similar discoveries. Waller in London, for instance, saw the leukocytes leave the blood by passing through the capillary walls and gain the surrounding tissues; the fact, however, remained a mere physiologic observation, and it was not until Cohnheim showed the pathologic meaning of the extrusion of the leukocyte that the significance of the observation was manifest. Again, Lister gave us the practical application of Pasteur's researches. On the other hand, modern science is attempting to explain Jenner's observation concerning small-pox, and the physiologist's observations of to-day are explaining scientifically the meaning of the dietary laws of Moses.—*Journal Tropical Medicine and Hygiene.*

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SATURDAY, OCTOBER 19, 1912

HOSPITAL MORTALITY IN MEASLES

It has become a common belief that every child must pass through an attack of measles, and the disease is therefore regarded rather lightly. This belief is justified by the fact that in most cases there are uneventful recoveries. Heubner found a mortality of 6.5 per cent. in all his clinic cases during fifteen years. In the better class of homes the mortality was but 3.3 per cent. It has been noted, however, that in hospital cases a somewhat higher mortality exists, and Wladimiroff,[1] who has analyzed the statistics of St. Wladimir's Hospital at Moscow for fifteen years, advances several reasons for this: Only those patients with severe cases are brought into hospitals; the patients with measles are crowded to make more room for scarlet fever and diphtheria patients; mixed infections occur; severer diseases are complicated frequently by measles, and there may be a lack of careful nursing given in the more severe diseases. In a comparison of the mortality of the three diseases in this hospital for the years 1887 to 1905 some interesting results are obtained. Thus the average mortality from measles was 18.7 per cent., or six times as great as among the better class of patients treated at home. In reality, this mortality was even higher, as those cases which complicated scarlet fever or diphtheria were reckoned with the latter.

As is well known, the mortality in measles is generally due to lung complications, although in hospital cases the mortality seems more often to be due directly to the measles. In such instances death is rapid and occurs in the first week of the disease. Delirium or coma, high temperature and difficult respiration are present; the skin is more blue than red, as usual in measles, and the mucous membranes are dry and brown. The excitation of the nervous system goes into depression, and death follows quickly. At the autopsy are found edema and hyperemia of the brain, dilatation of the heart, hyperemia of the bronchial mucous membranes, which are covered with a thick mucus, hyperplasia of the spleen, of the solitary follicles and of Peyer's patches in the intestines, and cloudy swelling and fatty changes in the liver. Death under such conditions is due to measles pure and simple and reminds one of a malignant scarlet fever so that we may speak also of malignant measles.

In one case examined by Wladimiroff, death occurred suddenly in the first week. The autopsy revealed the ordinary conditions in acute measles. The throat cultures had been free from diphtheria bacilli during life, but after death a few non-virulent diphtheria bacilli were found in the heart's blood. As the death resembled that due to vagus paralysis in diphtheria, a study of the vagus and phrenic nerves was made, which showed that distinct changes had taken place in these nerves, although of a different type from that of the changes in diphtheria. There were degenerations and fibrous changes in the sheaths of both nerves. Wladimiroff concludes that death in this instance was due to a paralysis of the vagus as a result of measles intoxication. In view of the finding of the diphtheria bacilli in the heart's blood at autopsy, it will be necessary to await further observations before accepting this case as a death from vagus paralysis due to the measles virus.

The occurrence of severe cases of measles emphasizes the necessity of watching measles patients with more than a mere perfunctory interest. Whether at home or in the hospital they should receive the same watchful care that is given to patients with scarlet fever; and in hospitals overcrowding, mixed and cross-infections, and the propagation of especially virulent forms of measles must be avoided.

THE PROMOTION OF GROWTH

Aside from such severe and familiar manifestations as scurvy and rickets, there are doubtless numerous nutritive disorders which may seriously upset the health and comfort of individuals owing to some hitherto unsuspected and supposedly insignificant deficiency in the dietary. The bearing of this has repeatedly been emphasized in the various discussions on the etiology and treatment of beriberi which have of late appeared in the columns of The Journal.[1] The fact is that man and animals subsist on plant and animal tissues which contain a multitude of other substances beside the proteins, fats and carbohydrates around which cluster those ideas about energy that have so long dominated all discussion of nutrition. The possibility of prolonged successful maintenance and development on mixtures of the isolated foodstuffs proper, that is, on so-called synthetic dietaries, has as yet received scanty experimental demonstration,[2] so that there has arisen a growing belief in the importance of some substance or substances commonly present in mixed food and vaguely included among the food "accessories," for satisfactory nutritive progress.

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[1] Wladimiroff: Arch. f. Kinderh., 1912, lviii, 346.

[1] Polished Rice, Beriberi and the Nervous System, editorial, The Journal A. M. A., July 6, p. 42; Historical Note on the Use of Beans in Beriberi, editorial, The Journal A. M. A., July 20, p. 201; Recent Japanese Investigations on Rice Bran in Relation to Disease, editorial, The Journal A. M. A., September 14, p. 883. The matter has also been discussed at various times by correspondents of The Journal.

[2] For the literature on the subject compare Osborne, T. B., and Mendel, L. B.: Publications of the Carnegie Institution of Washington, 1911, No. 156.

A highly suggestive illustration of the potency of such factors has been furnished by F. Gowland Hopkins of the Physiological Laboratory at Cambridge, England.[3] In a series of striking experiments on rats he has shown that something present in normal foodstuffs, when added to the dietary in astonishingly small amount, can secure the utilization for growth of protein and energy contained in otherwise inadequate artificial food mixtures. For example, the addition of a minute ration of fresh milk sufficed to induce excellent growth for some weeks on a basal diet of purified materials (casein, starch, sugar, fat, salts) on which the rats had failed to grow. The favorable outcome cannot be attributed to any ordinary familiar nutrient contributed by the milk addendum; for the quantity of the latter sufficient to decide between failure and successful growth was far too small to have any quantitative significance. The milk made up less than 4 per cent. of the food eaten. The absolute energy consumption of the animals growing rapidly with the milk addition was greater than those not growing on the basal dietary alone; but the consumption per unit of live weight was nearly the same in comparable groups. It is a surprising fact that the small quantity of milk reduced the food consumption necessary for a given weight-increment to one-half or less. In the light of such facts, one is tempted to speculate as to the economic aspect of feeding methods in animal husbandry which may so markedly modify the cost of production in growing live stock, entirely aside from the inherent suggestion for infant nutrition.

One might incline to attribute such results in enhanced growth to a specific development of the appetite. But there is evidence that the abundance of the food intake is not the essential point. The remarkable efficiency of milk products in promoting growth has been demonstrated in this country by Osborne and Mendel.[4] Milk, however, is not the only mother-substance of such factors. They have been obtained in the protein-free and salt-free extracts of yeast; and as yet such studies have seen only their beginning.[5]

In considering the presumable explanation of the facts brought out, it seems unlikely that the "extracts," etc., furnish any complex which the body itself cannot synthesize. The quantities used seem far too small for this. We are rather inclined to think of some catalytic or stimulative function. Excitants of secretory activity are now well known; why not postulate similar influences on growing tissues? We may even picture the glands with internal secretion in the rôle of an intermediator. At present it is all preeminently hypothesis. As Hopkins trenchantly remarks: "If the attachment of such indispensable functions to specific accessory constituents of diets is foreign to current views on nutrition, so also is the experimental fact that young animals may fail to grow when they are daily absorbing a sufficiency of formative material and energy for the purposes of growth."

THE FILTERABLE VIRUSES

An interesting summary of the present status of knowledge on the filterable viruses has been made by Wolbach,[1] and several suggestions as to future work may be derived from his presentation. As the field of investigation covers a period of only twelve years, it is not surprising that much remains yet to be done. At present there are in all thirty diseases of human, plant and animal life which have been demonstrated as due to this cause. Of those which affect man there are foot-and-mouth disease, rabies, vaccinia and variola, which also affect animals, and yellow fever, molluscum contagiosum, dengue fever, verruca vulgaris, trachoma, sand-fly or three-days fever, poliomyelitis, typhus fever and possibly measles and scarlet fever. The list is an imposing one. The filterable viruses are bodies so small as to be practically invisible and to pass through the pores of a Berkefeld or a Chamberland filter, which will retain even very small cocci. With the highest microscopic power, no bodies smaller than 0.2 micron can be seen; by use of the ultraviolet rays and the ultramicroscope, bodies as small as 0.1 micron may be seen. Below this size, all is invisible. It is manifest then that so far as direct observation of bodies contained in such viruses is concerned the problem is largely one of physics and mechanics.

It is of interest that cell inclusions occur in foot-and-mouth disease, variola, sheep-pox, hog cholera, measles, scarlet fever, rabies, trachoma, molluscum contagiosum, distemper of dogs, fowl pest and epithelioma contagiosum of fowls. As to the significance of such inclusions a variety of opinion exists, justly so in view of the fact that so little has as yet been done in the way of demonstrating their real import. It has been argued that they are merely an expression of abnormal conditions and also that they are the real organisms at the basis of the condition. It may be that in some cases they contain the organisms in greater abundance than any other portions of the body; the balance of opinion, however, seems to be that the inclusions are a result rather than the cause of the disease. Further than this it has been shown that transmission of most of these diseases takes place by an intermediate host such as the mosquito, the body-louse, etc. It has been suggested that in several of the tropical diseases there seem to be intermediate stages when the organism is visible as a protozoan form, and in other instances as a spirochete.

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[3] Hopkins, F. Gowland: Feeding Experiments Illustrating the Importance of Accessory Factors in Normal Dietaries, Jour. Physiol., 1912, xliv, 425.

[4] Osborne, T. B., and Mendel, L. B.: The Rôle of Different Proteins in Nutrition and Growth, Science, N. S., 1911, xxxiv, 722.

[5] Compare Funk, C.: The Preparation from Yeast and Certain Foodstuffs of the Substance the Deficiency of Which in Diet Occasions Polyneuritis in Birds, Jour. Physiol., 1912, xlv, 75.

[1] Wolbach: Boston Med. and Surg. Jour., 1912, clxvii, 419.

Here we have a distinct field for further research, for if such intermediate stages really exist in one case, it is quite likely that they exist in practically all of a similar type.

A final indication of a practical nature concerns quite recent advances into some of the more common diseases, as, for instance, measles and poliomyelitis. Recent work in physical chemistry has shown that minute substances — such, probably, as those with which we are here concerned — obey the laws of diffusion of gases when in the air, and of substances in solution in liquids. The prophylaxis of such diseases may then have to extend much wider than when the cause is a larger body, as in the bacterial or protozoan diseases. Although much has been done in the time since the work started, it is obvious that when the possibilities are considered, hardly the first faltering steps have been taken.

DRUGS, DIABETES AND THE LIVER

No one imbued with an adequate appreciation of the relative values of scientific evidence would venture at present to formulate a theory of the etiology of diabetes in the belief that it might afford a final satisfactory explanation of the manifold facts known in relation to the disease. At best we can to-day investigate carefully the clinical manifestations and the experimental analogies and attempt to supply for them a tentative, tenable hypothesis. Accordingly, as the symptoms thus become unraveled, one by one, and exhibited in their physiologic or pathologic significance, the interpretation of such abnormalities of metabolism is being slowly yet fundamentally evolved and brought closer to our understanding.

Diet has, of course, long occupied the conspicuous place in the therapeutic management of diabetes. It is well known, nevertheless, that there are drugs which appear to influence the intensity of the glycosurias in certain instances, so that the possibilities of drug therapy are now and then reverted to even by serious-minded clinicians, and medical literature is never free from claims made for some pharmacologic agent. One almost hesitates to discuss these with any seriousness under circumstances in which a fragment of truth may be snatched from its legitimate attachment and enlarged to fit some fraudulent assertion of commercial medication. A timely warning may not be amiss in advance of the reference which we wish to make to a proposed explanation of the antiglycosuric action of a few drugs that have been tested experimentally.

Among the classic modes of evoking glycosuria the *piqûre* or puncture of the roof of the fourth ventricle first suggested by Claude Bernard is familiar to every student. This unique attack on the lower nervous centers and its conspicuous result quite naturally led to the assumption of a close connection between the nervous system and diabetes, and the experiment has played a part in all theories advanced to explain the onset of the symptoms. In recent times research has shown that the adrenals presumably act as intermediators in the production of the attendant glycosuria. An excretion of sugar can readily be induced experimentally by injection of epinephrin preparations. Now the secretion of the adrenals has a familiar function in raising general blood-pressure through constriction of the arterioles by a local action on them. Observations of Neubauer[1] at the Vienna University clinic indicate that many agents which similarly raise general arterial pressure by a peripheral action on the blood-vessels may lead to glycosuria. Barium chlorid is instanced in illustration. Vasoconstriction and glycosuria are here concomitant. Those drugs, like chloral hydrate, alcohol, opium alkaloids, etc., belonging essentially to the group of narcotics and agents acting conspicuously on the nervous system (for which reason they were chosen in the earlier therapeutic schemes), may often check or diminish the *piqûre* glycosuria. They accomplish this by an effect directly the opposite of that discussed for epinephrin; for they produce a vasomotor paralysis and tend to lower arterial pressure. Their antiglycosuric effect is in no wise ordinarily due to an interference with the permeability of the kidneys for sugar.

A further analysis of this interrelation between drugs, blood-pressure and attendant glycosuria has disclosed the interesting and highly significant fact that the vasoconstriction is accompanied by marked hyperemia of the liver. Any intervention which will induce a transitory hyperemia of this organ along with a temporary stasis of the blood therein contained is likely to be followed by excretion of sugar. The immediate effects of the sluggish circulation of blood in the liver remain to be ascertained more exactly. In any event stasis of blood appears to be responsible for a conversion of glycogen in the liver and a release of an excess of sugar into the blood: simultaneous hyperglycemia and glycosuria.

The symptom-complex thus outlined is most significant. The hepatic overproduction of sugar appears here in the light of a local asphyxial response. This is not the first time that asphyxia and glycosuria have been found associated with each other. It is easier now to picture numerous hitherto inexplicable phenomena of glycosuria from a more general point of view. The nervous system may activate the adrenals to undue secretory response; the glandular agent liberated into the circulatory system may effect vascular changes expressed in general vasoconstriction and dilatation of the hepatic vessels at the same time. The liver cells appreciate the altered condition of the stagnant blood, and an undue pathologic transformation of glycogen into sugar begins. Much in all of this has been anticipated; but every effort to look at such complicated problems from new angles brings refreshing stimulation to the critical investigator. In the present instance we have endeavored to focus attention somewhat more effectively on the liver as a contributory factor in the pathogenesis of glycosuria than is commonly done. The liver is admittedly the storehouse from which the wasted sugar makes its exit; yet the nature of the perversion which induces the striking upsets in its functions is only beginning to be revealed.

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[1] Neubauer, E.: Ueber die Wirkung antiglucosurischer Mittel und über Leberglucosurie, Biochem. Ztschr., 1912, xliii, 335.

Current Comment

MULTIPLICATION OF ORGANIZATIONS A DANGER IN PUBLIC HEALTH CAMPAIGN

Never before has there been the amount of interest in public health matters that is manifested to-day, nor has the general problem of public health heretofore presented so many different aspects. As a result of the tendency toward system and the collection of data, there have come into existence, especially during the last ten years, a large number of organizations, local, national and special, which have taken up different phases of the health problem as their peculiar work. It is only when one attends some great gathering like the recent International Congress on Hygiene and Demography at Washington, and sees collected under one roof the results of the efforts of most of these bodies that one realizes their number and variety. We have just reason to feel proud of the large number of well-planned and well-managed philanthropic societies which are endeavoring to develop some part of the field of public hygiene. To the thoughtful observer, however, the present tendency suggests the need of caution against the danger of over-organization. In the business world the tendency is toward consolidation and simplification, rather than toward complexity and multiplicity. It would be well for those interested in the advancement of public health to keep this clearly in mind. An unnecessary organization, or two doing the work which might be done by one, can mean only wasted effort and money, or at least a higher cost of operation than is necessary. Existing organizations and the possibility of making some of them do a proposed line of work should be carefully considered before new associations are created, while the general tendency should be toward closer cooperation, consolidation and, when possible, amalgamation.

THE INFECTIOUS ABORTION OF CATTLE

The infectious abortion of cattle, a disease which has assumed a serious economic importance in many parts of this country, is now regarded as presumably caused by the same organism in America as that found in Europe. Certain information which has of late been gained regarding the bovine malady presents new problems in the domain of human pathology and sounds the warning of a possible indirect danger of the situation to the welfare of mankind, calling for serious consideration. It has been demonstrated that the abortion bacillus occurs in the milk of infected cows. Distinct lesions can be produced by the injection of such milk into healthy guinea-pigs, and the organism in turn can be recovered from animals thus inoculated. These facts have been attested by Professor Theobald Smith and his colleagues at Harvard and by the Bureau of Animal Industry in Washington.[1] The hitherto unsuspected pathologic lesions experimentally produced by laboratory inoculations are by no means confined to the reproductive organs, but especially affect the spleen, liver, bones, lymph-nodes and kidneys. The lesions are not unlike those produced by tuberculosis. They are not always followed by death. Paralysis of the hind quarters, blindness and enlargement of the lymph-nodes have been further occasional symptoms. These experiences, together with the finding of the abortion bacilli in milk, and the added fact that in cattle the most common means of infection is through the alimentary canal, make the possibilities of this organism as an etiologic factor in certain human infections loom up. It is accordingly important to appreciate that a reliable method of diagnosis of infectious abortion is now available by the application of agglutination and complement-fixation tests.[2] The perfection of such diagnostic procedures will make it possible to ascertain the incidence of the disease and will greatly facilitate the management of infected herds by isolation and disinfection. To this may now be added the probability of the successful development of a protective inoculation of animals against the infective abortion. Vaccines and immune serums will doubtless win a place for usefulness here as elsewhere in so many related fields. It behooves us meanwhile to watch the work of our veterinary colleagues and to consider most carefully its possible bearing on the health of man as well as on the economic features of man's food-supply.

INVESTIGATING HOT SPRINGS WATERS

A bill is before Congress providing for the investigation of the physiologic and therapeutic effects of the waters of the hot springs of Arkansas and the application of these waters to the alleviation and cure of diseases. As is known, these springs are on the government reservation; the government has assumed charge of the springs, issues licenses to bath-house keepers and has supervised the use of the water in other ways. Although exhaustive chemical analyses of the waters of the different springs have been made and their radio-activity has been inquired into, the physiologic and therapeutic effects of the waters have not yet been investigated scientifically. Physicians practicing at Hot Springs have found by clinical experience that the waters are undoubtedly beneficial in certain diseases, though to what the beneficial effects are due has never been determined. The chemical analyses indicate that the mineral constituents of the waters are probably of small or negligible value and that the good effects must be attributable to the heat and manner of use, or largely to the favorable hygienic regimen and medical treatment under which patients are placed while at Hot Springs. At any rate the government, since it has assumed responsibility and in a way endorses the use of the waters in the alleviation or cure of disease, should determine the source of the value of these waters, if they possess any. The American Medical Association placed itself on record, through a resolution passed in the House of Delegates at the Los Angeles Session in 1911, as favoring the scientific investigation of the mineral and so-called radio-active waters of the United States, and it is the intention of the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry to further a study of this subject. The Association and The Journal therefore favor the passage of the bill before Congress. As the government stands sponsor for the use of these waters, it is under obligations to determine whether or not they are of real value in the treatment of disease. Some slight opposition to the proposed measure has arisen at Hot Springs, the reason assigned being the usual one, that an unfavorable report may hurt the town. A majority of the reputable physicians, bathhouse keepers and business men are in favor of the investigation. They feel that the value of the waters has been so well established clinically that an investigation could result only favorably.

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[1] Smith, Theobald, and Fabyan, Marshall: Ueber die pathogene Wirkung des Bacillus abortus Bang, Centralbl. f. Bakteriol., 1911, lxi, 549; Fabyan, Marshall: A Contribution to the Pathogenesis of B. abortus Bang, Jour. Med. Research, 1912, xxvi, 441; Bureau of Animal Industry Circular No. 198, March, 1912.

[2] See the review by Surface, F. M.: Notes on Infectious Abortion in Cattle, Science, 1912, xxxvi, 409.

ANTITOXIC SERUM AND THE CEREBROSPINAL FLUID

Recent experiments to determine to what extent antitoxin injected into the blood is transfused into the cerebrospinal fluid, are reported by French investigators.[1] Dogs were injected with antitetanic horse-serum, and forty-eight hours later the cerebrospinal fluid of the dogs was extracted blood-free. This fluid contained no trace of horse-serum, as was shown by the absence of precipitins. The fluid was only slightly antitoxic in its action on guinea-pigs inoculated with tetanus bacilli. Blood from the same dogs showed the presence of horse-serum by abundant precipitation, and was highly antitoxic, being capable of protecting 10,000 times its weight of guinea-pigs inoculated with tetanus. The experiment seems to prove that the amount of antitoxin transferred from the blood to the cerebrospinal fluid is practically negligible. These results confirm and at the same time explain the conclusions arrived at by clinical experience, that antiserum must be administered within the cerebrospinal cavity if any appreciable effect is to be obtained on infected meninges.

INDIVIDUAL DRINKING-CUPS AS CAMPAIGN LITERATURE

Public opinion moves rapidly and the innovation of yesterday is the commonplace of to-day. It is only a short time since the suggestion of individual drinking-cups was regarded as an advanced hygienic proposition. To-day they are not only accepted as customary in many parts of the country but in one locality, at least, they have been used as factors in the political game. The newspapers of Carthage, Mo., announce that one of the candidates for sheriff is giving a practical demonstration of his belief in the enforcement of sanitary laws. In his campaign for election he is using paper folding sanitary drinking-cups as campaign literature. Each cup bears a picture of the candidate and a statement of his candidacy. So far as we are aware, this is the first time that the individual drinking-cup has been used to promote politics as well as good health. The possibilities of this plan are almost unlimited and numerous elaborations will no doubt suggest themselves to our readers and to future candidates. It is encouraging to see the position of a candidate on sanitary questions made an issue in a political campaign.

EPIDEMIC DISEASES AND PUBLICITY

Communities in which epidemic diseases prevail sometimes attempt to conceal the facts. This short-sighted policy is adopted under the erroneous idea that concealment will do the community no harm and will prevent damage to business and other interests, but that knowledge of an epidemic will reflect on the community in various injurious ways. Buffalo and Los Angeles, during the past summer, have had epidemics of poliomyelitis; notwithstanding the unsatisfactory experience of San Francisco a few years ago in regard to the concealment of plague, a few misguided business men, politicians, and, unfortunately, a few physicians, opposed the efforts of the health departments in promptly suppressing the epidemic, wishing to resort to the old exploded method of concealment of conditions. Concerning this, *Public Health Reports* of September 20 has the following comment:

> During the course of the outbreaks in both Los Angeles and Buffalo there was an effort on the part of certain residents to belittle the importance of the epidemics and the active measures being taken by the health departments, with especial reference to the publicity being given regarding the presence of the disease and the number of cases occurring. However, in neither case did this prove a material embarrassment to the health authorities, who received the earnest support of both the practicing physicians and the citizens in general.
>
> The impression that publicity regarding such matters injures municipal interests is based on a fallacy. The existence of an epidemic cannot be concealed very long, and the absence of frankness in regard to the situation under these conditions produces a fear and suspicion that it takes some time to overcome.
>
> There is nothing that inspires so much confidence in the ability of a community to cope with a sanitary problem as frankness and honesty at all times in stating existing conditions. It shows that the community has the situation in hand and that it has sufficient confidence not to be afraid to inform others as to what is going on. The ethics of concealment of epidemic conditions is of course indefensible.

FULL-TIME TEACHERS IN MEDICAL SCHOOLS

Varying statements have been noted recently in regard to the number of full-time salaried teachers in the medical schools of this country. Some of these statements have doubtless been inspired by the requirement adopted by the New York Board of Regents about a year ago and now effective, that every medical school to be on the registered or recognized list in that state must have at least six instructors who are devoting all their time to teaching and research in the medical school. A recent statement[1] in regard to this requirement is to the effect that "two years ago but fourteen medical schools could boast of such a number (six) of full-time instructors." This is hardly true. During the second tour of inspection of medical colleges completed by the Council on Medical Education in the spring of 1910, incomplete data secured showed that during the session of 1909-1910 at least thirty-six medical schools in this country actually had six or more full-time instructors and that at least fifteen colleges had more than fifteen such instructors. From more complete data secured by the Council on the third tour of inspection it was found that during the session of 1911-1912 at least forty-six medical colleges had six or more full-time instructors. The figures show that in the 117 medical colleges now existing there are at least eight hundred fifty full-time instructors, or an average of seven for each college. Of these full-time teachers 460 have professorial rank, which is an average of four for each college. There were thirty-two colleges which did not have a single full-time teacher. All this goes to show that the medical schools, as a rule, do not look on full-time teachers as an "ideal" but as an absolute necessity. It is also apparent that the New York Board of Regents was fully justified in its requirement that a medical college, to be recognized as such, should have at least six full-time instructors.

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[1] Lemaire, H., and Debré, R.: Jour. d. physiol. et de path. gén., 1911, xiii, 233

[1] New York Med. Jour., Sept. 28, 1912, p. 646.

THE ATTACK ON MR. ROOSEVELT

The entire country has been shocked by the murderous attack on Mr. Roosevelt, made by a presumably insane Bavarian, who, after following his intended victim all over the country, finally found an opportunity of approaching him during his visit to Milwaukee. As announced in the daily press, Mr. Roosevelt was brought to Chicago by a special train on the night of his injury, and is now a patient in Mercy Hospital. The bullet was fired from a 38-caliber revolver. It passed through a heavy army overcoat, 100 pages of manuscript and a very heavy metal eye-glass case. It entered the body one inch below and one inch to the right of the right nipple, passed upward and inward for from four to five inches, and lodged, probably deeply, in the chest wall. There is no evidence of injury to the lung. THE JOURNAL, in common with the people of the country, without regard to partisan distinctions, extends its sympathy to Mr. Roosevelt, and its hopes for his speedy recovery.

ANOTHER LEAGUE NEEDED

Nebraska newspapers recently contained a news item of interest to stock-raisers and farmers. It was to the effect that many Nebraska farmers have been swindled by impostors selling worthless remedies for the cure of disease in horses and cattle. So serious has this abuse become that the state veterinarian and the governor have discussed ways and means of checking it. A Nebraska physician sends us one of these news items, together with an advertisement of some veterinary "patent medicines" and says:

> I enclose two marked items—their relation is obvious. I hasten to urge on you the necessity of immediate action to establish a League for Medical Freedom for the protection of all horses, mules and jackasses against the domineering and monopolistic tendencies of veterinary surgeons.

Medical News

CALIFORNIA

San Francisco

Medical Building Remodeled.—The Leland Stanford Junior University, Department of Medicine, is said to be remodeling its medical building at a cost of about $35,000. The medical library has been moved into a new building and the space thus vacated is to be converted into laboratories. Additional space has also been provided for the out-patient clinics. The new library and the taking over of the properties of Cooper Medical College are to be commemorated the latter part of this month.

Personal.—Dr. Carl von Noorden of the University of Vienna spoke at a special meeting at the Los Angeles County Medical Association, October 9, on "New Aspects of Diabetes."——Dr. Hugh Lagan, surgeon of the San Francisco fire department, was thrown from his buggy in a runaway accident, October 1, fracturing his left leg.——Dr. William F. Snow, Sacramento, president of the State Board of Health, has returned from Europe.——Dr. and Mrs. A. J. Zobel, San Francisco, have returned from Europe.

Prevention of Blindness.—At the semi-annual luncheon of the California Society for the Prevention of Blindness in San Francisco, September 17, a publicity campaign was discussed and the ways and means were considered which are necessary to further legislative action in the state. Dr. C. S. G. Nagel, president, urged those present to leave no avenue unopened that could lead to the things desired. Dr. Adelaide Brown made a strong appeal for the cooperation of medical and women's clubs throughout the state that proper legislative action might be obtained for the passage of the laws required. Dr. Milligan, superintendent of the Deaf and Blind Institute, Berkeley, advocated the support and influence to be obtained from publicity and the cooperation to be obtained from the lay press. Dr. Newell Perry spoke of the great necessity for the establishment of financial foundations to carry on any work successfully for the amelioration of those thus afflicted. Mr. Adolphus Graupner, who was also a director of the California Social Hygiene Society, narrated what had been done, stated what should be done and promised the cooperation of the Social Hygiene Society to assist and strengthen their efforts. Mrs. Andrew S. Rowan gave a general talk on what advertising has done to aid, and urged on those present the consideration of the pressing things of the future, that the benefits and blessings for which the society stands may be accomplished.

DELAWARE

Personal.—The Delaware Antituberculosis Society has selected Dr. Pendleton, Hartford, Conn., as resident physician of Hope Farm.——Dr. J. B. Merritt has been elected president of the Board of Health of Easton, Md.——Dr. E. E. Wolf has been appointed health officer of Wilmington.

State Society Meeting.—The Delaware State Medical Society held its one hundred and twenty-third annual session in Wilmington, October 7-8 and elected the following officers: president, Dr. L. A. H. Bishop, Dover; vice-presidents, Drs. Albert O. Robin, Wilmington, and Joseph M. Martin, Lewes; secretary, Dr. G. W. K. Forrest, Wilmington; treasurer, Dr. S. C. Rumford, Wilmington; trustee to the *Delaware State Medical Journal*, Dr. E. S. Dwight, Smyrna; delegate to the American Medical Association, Dr. H. J. Stubbs, and alternate, Dr. Albert O. Robin, Wilmington. The society recommended the removal of the state laboratory from Newark to Wilmington. It was decided to hold the next meeting of the society at Dover.

DISTRICT OF COLUMBIA

Naval Dispensary Moved.—The dispensary connected with the Bureau of Medicine and Surgery of the Navy Department has been moved from the Mills building to larger quarters at 703 Seventeenth Street. Arrangements have been made by which specialists connected with the Naval Medical School will be in attendance at the dispensary on certain days of each week.

The Social Hygiene Propaganda.—Washington people interested in the abolition of social ills met September 19 and organized a society to be known as the Society for Social Hygiene in the District of Columbia, to work in conjunction with the American Sex Hygiene Federation. The object of the association is educational. A series of lectures is to be given each year dealing with the subject of sex hygiene and eugenics.

ILLINOIS

Instruments Given to Hospitals.—The surgical appliances and instruments of the late Dr. D. W. Burlingame, Elgin, have been presented by his widow and daughter to the Sherman and St. Joseph's hospitals, Elgin.

Tent Colony Changes Name.—The sanatorium of the Lake County Tuberculosis Institution near Waukegan, heretofore known as the Tent Colony, changed its designation October 4 to the Lake Breeze Sanatorium. At present it has twenty-seven patients.

Personal.—Dr. Frank W. Blatchford, Winnetka, was seriously injured October 2 by being run over on cranking his automobile.——Dr. Charles W. Hunter, Oneida, who was operated on recently in Chicago, has returned home convalescent.

New Officers.—Fulton County Medical Society at Canton, October 1: president, Dr. C. D. Snively, Ipava; secretary-treasurer, Dr. D. S. Ray, Cuba.——The medical and surgical staff of Graham Hospital, Canton, October 1: president, Dr. E. W. Regan; secretary, Dr. Charles N. Allison.

State Board Sustained.—The Appellate Court has sustained the State Board of Health in the case of Frederick Leo Orsinger who asked a writ of mandamus commanding the board to issue him a license. In 1902 he was convicted of practicing without a license. On failure to pay the fine he went to jail, where he agreed to stop practicing medicine until he was licensed. Two years later he secured a diploma from the College of Medicine and Surgery in Chicago, but twice failed in the examination of the state board. He resumed practice, was again prosecuted and fined $200. He then instituted the mandamus proceedings and lost.

Chicago

Speech and Voice Clinic.—A clinic in defects of speech and voice has been added to the nose, throat and ear department of Rush Medical College.

Tag Day for Children.—More than $55,000 was obtained October 15, for the children's charities of the city through the efforts of thirty-seven hundred young women who sold nearly half a million tags.

Society Celebrates Silver Jubilee.—The twenty-fifth anniversary of the Scandinavian-American Medical Society at Chicago was celebrated October 10-11. On the first day, Dr. William Jepson, Sioux City, Iowa, spoke on "Uncertain Phases of Surgery," and Dr. A. J. Carlson of the University of Chicago, spoke on "The Movement of the Empty Stomach and Its Relation to Hunger." The proceedings of this day were presided over by Dr. Ludvig Hektoen. The second evening was given over to a dinner and dance.

Personal.—Dr. Fenton B. Turck has moved from Chicago to New York City where he has purchased a home at 14 East Fifty-Third Street.——Dr. and Mrs. William T. Gilman have returned from Europe.——Dr. Josephine Young has been appointed medical advisor for women for the junior and senior years in the University of Chicago and the School of Education.——Dr. P. B. Magnuson has been appointed chief surgeon of the Chicago & Alton Railroad.——Dr. William G. Todd celebrated his 91st birthday anniversary September 27.

INDIANA

Approves Clean Advertisements.—At a meeting of the Marion County Medical Society, October 1, resolutions were adopted commending the action of the Indianapolis *Sun* in eliminating from its advertising columns the announcements of medical practitioners engaged in objectionable practice.

Personal.—Dr. Charles Loomis, La Porte, who has been seriously ill at the Marion Hospital with arsenic poisoning, has returned home convalescent.——Dr. Charles Bowman, New Albany, who has been ill for several weeks, is reported to be convalescent.——Dr. A. P. Hauss, New Albany, was stricken with paralysis, September 27, but is reported to be improving.

Work Against Tuberculosis.—The Madison County Red Cross Association for the Study and Prevention of Tuberculosis was organized in Anderson, October 7.——The Grant County Association for the Study and Prevention of Tuberculosis was organized in Marion, September 30, and Dr. W. A. Fankboner, Marion, was elected president.——The antituberculosis fund canvas in Evansville has resulted in subscriptions of $12,115.36 or more than $2,000 in excess of the amount expected.

LOUISIANA

Sent to Leper Colony.—Dennis Foot, a negro, was held at New Orleans, on the arrival of an excursion train, October 8, by an inspector of the City Board of Health and, after examination, was committed to the leper colony.

Delgado Fund Divided.—The trustees of the Isaac Delgado Memorial Fund turned over $100,000 of the fund to the Charity Hospital, October 8. This money is to be used for the benefit of the hospital according to the wishes of Mr. Delgado.

Personal.—Dr. J. M. Daniel, Starhill, has succeeded Dr. W. H. Taylor, St. Francisville, as president of the Board of Health of West Feliciana Parish.——Dr. Adolph Henriques, New Orleans, has returned from Germany.——Dr. Harry E. Nelson has succeeded Dr. J. Browne Larose as house physician at the Hôtel Dieu, New Orleans.——Dr. John S. Thibaut, Donaldsonville, has resigned as a member of the Municipal Power Plant Committee.——Dr. John N. Thomas has been reelected superintendent of the Louisiana Hospital for the Insane, Pineville.——Dr. L. E. H. Duffel has been elected president and Dr. W. W. Pugh, secretary of the Napoleonville Board of Health.

MARYLAND

Loan for New Hospital.—The Board of Managers of the Eastern Shore Hospital for the Indigent Insane met in Baltimore, September 25, and decided to borrow $8,000 for the purchase of the Kirwan farm, near Cambridge.

Personal.—Dr. John Turner, Jr., has resigned as physician at the Gunpowder Dam Construction Camp, Loch Raven.——Dr. C. W. Whaland, Chestertown, has been appointed physician of Kent County.——Dr. William D. Campbell, Hagerstown, has succeeded Dr. J. E. Pitznagel as health officer of Washington County and city health officer of Hagerstown.

Baltimore

Death from Beriberi.—Of the seven patients suffering with beriberi who recently arrived on a vessel from the East Indies and were taken to University Hospital, one has died.

New Hospitals.—The trustees of the South Baltimore Eye, Ear, Nose and Throat Hospital plan an active campaign to raise funds for a new hospital building. For this $50,000 will be required, of which $10,000 has already been given by Mr. William Grecht.——The directors of the Union Hospital have opened an annex to the dispensary in the building formerly occupied as a maternity.

Personal.—Dr. David I. Macht has been elected president of the Union of Jewish Academicians of Baltimore.——The summer cottage of Dr. H. Warren Buckler at Jamestown, R. I., was destroyed by fire, October 6.——Dr. Germanus J. France was thrown from his motorcycle, October 10, sustaining a fracture of the clavicle and suffered contusions and lacerations.——Dr. Nathaniel G. Kierle celebrated his seventy-ninth birthday anniversary, October 10.——Drs. Lilian Welsh and Mary Sherwood have returned from abroad.——Dr. John Howland, director of the new Harriett Lane Home for Invalid Children, Johns Hopkins Hospital, has arrived in Baltimore.——Dr. William S. Gardner has been elected secretary of the Ohio Society of Maryland.——Dr. Arnold Klebs, Lausanne, Switzerland, read a paper on "The History of Variolation" before the Johns Hopkins Historical Club, October 14. He was entertained at dinner at the Baltimore Club by Drs. Thomas B. Futcher and Rupert Norton.

MISSOURI

Leper Leaves Hospital.—Emmons O'Dowd, the 22-year-old leper who has been a patient in the General Hospital, Kansas City, for several months, has disappeared and has, it is believed, started for Texas where his father resides.

District Association Organized.—The Sixth Missouri District Organization, representing sixteen counties of western Missouri, was organized in Kansas City, October 3. Dr. J. H. Owens, Sweet Springs, was elected president; Dr. Spence Redman, Platte City, vice-president, and Dr. George McC. Boteler, St. Joseph, secretary-treasurer.

Personal.—Dr. George P. Pipkin, superintendent of the Kansas City General Hospital, was operated on October 9 for appendicitis, and is reported to be doing well.——Dr. D. W. B. Kurtz, Columbus, was stabbed in the face and side, October 4, while trying to collect a bill.——Dr. E. L. Crowson, Pickering, was seriously bruised and fractured several ribs in a runaway accident, October 2.——Dr. William Rienhoff and family, Springfield, have returned from Europe.——Dr. G. W. McClure, Carterville, has been appointed first assistant surgeon in the Springfield Hospital, which is to be opened November 1.

St. Louis

St. Louis Physicians Hear Von Noorden.—Dr. Carl von Noorden of the University of Vienna addressed the St. Louis

Medical Society, September 30, on "Treatment of Acetonuria." At the conclusion of his address an informal reception was tendered Professor von Noorden.

Personal.—Dr. R. B. H. Gradwohl has gone abroad.——Dr. Fred Kolbenheyer was attacked and assaulted by highwaymen, October 4.——Dr. H. Wheeler Bond has resigned as a member of the City Hospital Board.——Dr. Victor A. Bles has been assigned to duty at the Elgin (Ill.) State Hospital.

NEVADA

State Medical Society Meeting.—At the annual meeting of the Nevada State Medical Society held in Reno, October 8-10, the following officers were elected: president, Dr. M. R. Walker, Reno; vice-presidents, Drs. A. P. Lewis, Reno, and P. J. Mangan, Winnemucca; secretary-treasurer, Dr. M. A. Robison, Reno (reelected), and delegate to the American Medical Association, Dr. B. F. Cunningham, Reno.

NEW JERSEY

Sanatorium Dedicated.—Bonnie Burn Sanatorium, recently erected by Union County for the treatment of persons afflicted with tuberculosis, was formally dedicated October 12.

Personal.—Dr. Conrad G. Hoell, Camden, was injured in cranking his automobile and is confined in the Cooper Hospital suffering from three fractured ribs and internal injuries.——Dr. George H. Balleray, Paterson, sustained a ragged cut of the retina during a hunting trip in Canada, September 15.——Drs. James S. Breen, Elizabeth, Frank C. Ard and B. Van D. Hedges, Plainfield, have been appointed consulting physicians to the Bonnie Burn Tuberculosis Sanatorium, Elizabeth.——A banquet was given Dr. Samuel Korngut, Elizabeth, by the Working Mens' Building and Loan Association, October 1. Dr. Korngut is about to leave Elizabeth for Amsterdam, N. Y.——Dr. William H. Schmidt has been appointed physician to the poor in Atlantic City, vice Dr. Charles Bossert, resigned.

NEW YORK

Personal.—Drs. Paul Betewski has been appointed assistant surgeon at the State Soldiers' Home, Bath, vice Dr. Sanford H. Kinne, resigned.——Dr. Arthur Hinman, Syracuse, has been appointed assistant surgeon at the institution, vice Dr. Edward Tierney, resigned.——Dr. James G. Mumford has taken up his duties as superintendent of the Clifton Springs Sanatorium.——Dr. Max Breuer, Buffalo, has returned from Europe.——Dr. R. H. Irish, Troy, has been elected a vice-president of the Lake View Sanatorium.

New Officers.—Fifth District Branch of the Medical Society of the State of New York at Oswego, October 3: president, Dr. Otto Pfaff, Oneida; secretary, Dr. F. H. Flaherty, Syracuse.——Third District Branch of the Medical Society of the State of New York at Troy, October 1: president, Dr. John B. Harvie; secretary, Dr. William Kirk, Jr., both of Troy (reelected).——Orleans County Medical Society at Albion, October 4: president, Dr. Richard Bamber, Carlton; secretary-treasurer, Dr. J. F. Eckerson, Shelby.——Madison County Medical Society at Oneida, October 1: president, Dr. H. H. Wilson, Stockbridge; secretary, Dr. G. W. Miles, Oneida.

Syracuse College of Medicine Opens.—The forty-first session of the College of Medicine of the Syracuse University began October 1 with a registration of thirty-four. The following changes in courses and instructors were announced: The creation of an independent department of bacteriology headed by Dr. Leverett Dale Bristol, New York City, formerly of St. Paul, Minn; the election of Dr. Earl V. Sweet as instructor in histology; the election of Mr. John R. Rice as instructor in the department of hygiene and preventive medicine and assistant in the municipal laboratory; the election of Dr. Albert G. Swift, New York City, as instructor in clinical surgery and the election of Dr. John W. Cox as instructor in pathology. A plan has been adopted by which each student shall have control of a special microscope which he shall own at the end of the course.——The contract for the new college dispensary has been let and work has commenced on the building.

New York City

German Physicians Sail.—The 220 German doctors, who made a sight-seeing trip as far west as Chicago after the International Congress on Hygiene and Demography recently held at Washington, sailed on the morning of October 9 for home. They gave a farewell dinner on board the Hamburg-American liner *Victoria Luise*, the night before, to which a number of American physicians were invited.

Free Medical Lectures.—By consent of the Board of Education, the auditorium of the Morris High School, The Bronx, has been placed at the disposal of the Medical Society of the Borough of the Bronx, every Tuesday evening in January, February and March, for free public lectures on medical topics, to teach the public as to the care of their health and prevention of disease and the lessening of human suffering.

Abuses of Medical Charities.—At a meeting of the Physicians' League of Brooklyn, September 27, an interesting discussion took place on the abuse of medical charities. On account of the varied trend of this discussion, a motion was unanimously adopted that the chairman appoint a committee to tabulate the more conspicuous abuses of charity and the most promising of the remedies suggested therefor. These are to be acted on serially at a meeting to be held October 18 at the County Medical Society's building.

Personal.—It is announced in the daily press that Dr. Alexis Carrel of the Rockefeller Institute for Medical Research has been awarded the Nobel prize, valued at $39,000, in recognition of his achievement in the suture of blood-vessels and the transplantation of organs.——Dr. Udo Wile has been appointed professor of dermatology and syphilology in the University of Michigan, Ann Arbor, vice Dr. William Breakey, resigned.——Dr. David Feiner, ambulance surgeon at the Williamsburg Hospital, was seriously injured in a collision between the ambulance and an ice wagon, September 25.

Pledge Bodies to Advance Science.—At the meeting of the Associated Physicians of Long Island which was held on Hofman Island on October 5, two hundred members endorsed a resolution whereby they agreed to give their bodies at death for autopsy for the advancement of medical and surgical science. The agreement made it clear that an autopsy was to be permitted in order to ascertain the cause of death but that the signers were not donating their bodies to the dissecting room. The object of this procedure is to educate the public in regard to the value of autopsy and to overcome the popular prejudice and morbid impressions of a large part of the public in regard to autopsies.

Sale of Loose Milk Restricted.—At the last meeting of the Board of Health a resolution was passed which will greatly restrict the sale of loose or dipped milk in this city. After June 1, 1913, it will be illegal to sell milk dipped from cans except under permits from the Board of Health, or in stores in which foodstuffs other than milk products are sold in the original packages only. It has been pointed out that many of the 14,000 places where dipped milk is sold are grocery stores where many other commodities are sold in a manner which necessitates much dust. The long period of time granted before the enforcement of this resolution is to enable small storekeepers to adjust their business to the new requirements.

Work of the Babies' Welfare Association.—This organization announces that the month of September closed with a record of approximately 570 fewer deaths of babies than occurred in the city a year ago. Up to September 29 there had been 11,167 deaths of babies under one year of age since January 1. October finds 17,000 babies still enrolled at the milk stations. Over 30,000 different babies have received milk and other treatment at the milk stations in the last four months. Letters have been sent out to the various organizations belonging to the association urging every effort to keep the stations open during the winter, as pneumonia and other cold-weather diseases may be almost as inimical to infants in the winter as are the diarrheal diseases during the summer.

Leper Without a Country.—The Hamburg-American liner *Allemania*, which arrived in this port on October 7, brought a Syrian woman 45 years of age who had been expelled from Port au Prince with her husband and five children because she was suspected to be suffering from leprosy. The woman came from Beirut some years ago to this country and she cannot return to her native country. The captain of the *Allemania* was compelled to take the family as they were threatened with hanging in Haiti unless he did so. Health Officer O'Connell does not know what to do with the case, and the Commissioner of Immigration is not able to help him since the case has not been turned over to the federal authorities. The woman and her family have been detained in the hospital on Hofman Island.

Large Gift to Columbia's Cancer Fund.—Under the will of the late Augustus W. Openhym an endowment has been established for research work into the cause, prevention and cure of cancer. While the amount of the gift has not been made public, it is said to be large. Mr. Openhym's will stipulates that if at any time further research work in this line is not required, the income of the fund may be used for other research work in any branch of medicine or surgery which the trustees may determine. This fund will be added to the Crocker Research Fund which amounts to nearly one and one-half million dollars. In addition to this gift, the trustees announced that $4,300 had been received from other sources to further medical and surgical research. Of this sum Clarence H. Mackay gave $2,500.

PENNSYLVANIA

New Hospital Opened.—The new Nesbitt West Side Hospital, Wilkes-Barre, was opened for public inspection, October 7, and patients were received October 9. Mr. Nesbitt has already donated more than $30,000 for the hospital and this has given an excellent impetus.

Hospital Notes.—The officials of the Buffalo, Rochester and Pittsburgh Railroad have contributed $50,000 toward the construction of a new general hospital for Indiana County.——The Shamokin Hospital trustees have decided to convert the institution into a general hospital in order to secure a larger appropriation.

Small-Pox.—The city officials of Carbondale estimate that the expense to the taxpayers of the small-pox epidemic during the last two months will be $50,000.——The finance committee of the Pittsburgh Council has appropriated $10,000 for suppression of small-pox in that city.——Five physicians of Carbondale were arrested, pleaded guilty and were fined each $20 and costs for failing to make reports to the board of health of cases which they diagnosed as small-pox.

Beriberi Discovered on Ship.—When the British freight steamship *Venetia*, from Santiago, Cuba, which had been thoroughly fumigated by the government authorities at Reedy Island, arrived at the State Quarantine Station at Marcus Hook, October 12, two cases of beriberi were discovered on board. The officer in charge of the station is reported to have refused to allow the ship to come up to port until the seamen had been removed to the station hospital and the vessel fumigated a second time. [Query: When did beriberi become a contagious or infectious disease?]

Personal.—Dr. W. W. Richardson, chief physician of the Norristown Hospital, has purchased the Mercer Sanitarium and will assume charge this month.——Drs. Milton and Luba Robin Goldsmith, Pittsburgh, have returned from Europe.——Dr. Joseph Scattergood has been elected president and Dr. Charles E. Woodward, secretary of the West Chester Board of Health.——Dr. G. T. Matlack has been appointed chief attending surgeon and Dr. M. B. Ahlborn, assistant pathologist of the Wilkes-Barre State Hospital.——Dr. E. R. Walters, director of the Health Department of Pittsburgh, who has been ill with small-pox, is reported to be convalescent.——Dr. A. S. Jones, Girardville, has been elected permanent resident surgeon of the Trevorton, Shamokin and Mount Carmel State Hospital, vice Dr. C. B. Forcey, Shamokin, resigned.——Dr. Ernest Myers, Hollidaysburg, has moved to Saskatoon, Sask.

Philadelphia

Personal.—Dr. and Mrs. James A. Irwin have returned from Europe.——Dr. Frederick Smith is under treatment in the Medico-Chirurgical Hospital on account of a fractured leg.

German Internist in Philadelphia.—Prof. Dr. Herman Strauss of the University of Berlin, specialist on diseases of the stomach and intestines, delivered an address before the Northern Medical Association of Philadelphia, October 12.

Gift to the University.—At a meeting of the Mask and Wig Club of the University of Pennsylvania, October 10, it was voted to subscribe $5,000 to the trust fund of the university, the money to be given without any stipulations regarding its use.

Weir Mitchell Lecture.—The sixth of the Weir Mitchell lectures of the College of Physicians will be delivered October 21 in Mitchell Hall, by Dr. G. H. F. Nuttall of Cambridge, England, on "Some Recent Advances in Our Knowledge of the Mode of the Spread of Protozoal Diseases."

Tuberculosis Dispensary Opens.—The new Falls of Schuylkill branch of the Kensington Dispensary for the Treatment of Tuberculosis was opened, October 7, at 4058 Ridge Avenue. Clinics will be held Tuesday and Thursday afternoons and Thursday nights, under the direction of Dr. J. Willoughby Irwin.

For Clean Streets.—On October 7, the Street Cleaning Bureau started a campaign in South Philadelphia against littering the streets with waste paper, fruit skins and other refuse by providing galvanized cans for the deposit of such debris. Wagons will empty the cans several times daily and the bureau is distributing pamphlets, in English and Yiddish, emphasizing the dangers of dirty streets and urging the public's cooperation in keeping the streets clean. The district selected for the experiment comprises about eight blocks. Should the experiment prove successful, it is believed the scheme will be applied to the entire city.

Changes at the Medico-Chirurgical.—Dr. Seneca Egbert, dean of the Medico-Chirurgical College, announced, October 7, the following changes in the faculty: Dr. Stilwell C. Burns, professor of operative surgery, vice Dr. Mitchell P. Warmuth, resigned; Dr. Robert Boyer succeeds Dr. VanDuyne A. Sutliff as demonstrator in anatomy; Dr. L. N. Boston succeeds Dr. Howard F. Anders as professor of physical diagnosis; Dr. Herbert H. Boyer is appointed demonstrator of histology and embryology; Dr. John J. Gilbride is made demonstrator of surgery and Dr. Philip Fischellis succeeds Dr. A. C. Morgan as secretary and librarian.

WASHINGTON

Leper Quarantine Asked.—The U. S. Public Health Service has been asked by the authorities of Spokane to take steps to isolate the family of Antonio Valcone, in which, it is alleged, there are two cases of leprosy.

Personal.—Dr. A. T. Wanamaker, Seattle, returned from Vienna, September 21.——Dr. Frank Hinman, Spokane, who underwent operation September 9, is convalescent and expects to leave for Europe shortly.

WEST VIRGINIA

New Officers.—Ohio County Medical Society at Wheeling, September 16: president, Dr. James Schwinn; secretary, Dr. J. Edward Burns, both of Wheeling.——Barbour-Randolph-Mitcker County Medical Society at Davis, September 4: president, Dr. H. K. Owens, Elkins; secretary-treasurer, Dr. G. C. Rogers, Piedmont.

WYOMING

Personal.—Dr. C. Dana Carter, Basin, has sold his practice and hospital to Drs. Herbert T. and George A. Harris, Basin, and Dr. Chester E. Harris, Chicago, and the new purchasers have incorporated the hospital with a capital stock of $18,000.——Dr. G. P. Johnston, Cheyenne, has started on a trip abroad.——Dr. Thomas G. Maghee, Lander, has been appointed superintendent of the State School for the Feeble-Minded.

GENERAL AND FOREIGN

Southern Medical Association Meeting.—The Southern Medical Association will hold its annual meeting in Jacksonville, Fla., November 12-14.

International Congress on Physiology.—The Ninth International Physiologic Congress is to be held at Groningen, the Netherlands, September 2-6, 1913.

Ohio Valley Practitioners to Meet.—The fourteenth annual meeting of the Ohio Valley Medical Association will be held in Evansville, November 14-15, under the presidency of Dr. L. D. Brose, Evansville, Ind.

New Railway Officers.—Association of Santa Fe Surgeons, annual meeting in Albuquerque, N. Mex., October 4-6: Dr. James K. H. Wroth, Albuquerque, president; Dr. M. L. Bishoff, Topeka, Kan., secretary (reelected).——Association of Erie Railway Surgeons, annual meeting in Chicago, October 8: president, Dr. J. G. Kelly, Hornell, N. Y.; secretary-treasurer, Dr. B. R. Wakeman, Hornell, N. Y.

Donations in Italy.—Prof. A. Murri of Bologna has presented the authorities with $40,000 (200,000 lire) the income of which is to be applied to the maintenance of the Rimini fresh-air sanatorium for children. Heretofore, for lack of funds, it has been open only during the warm weather.——The clinic at Milan for industrial diseases has received a donation of $10,000 from an Italian manufacturer living in Argentina.

The Alvarenga Prize.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga prize, amounting to about $180, will be made July 14, 1913. Essays may be on any subject in medicine but cannot have been published and must be received by May 1, 1913, by the secretary of the college, Dr. Thomas R. Neilson, 1937 Chestnut Street, who will furnish further particulars, on request.

Southwest Medical Association Meeting.—The annual meeting of the Medical Association of the Southwest was held in Hot Springs, Ark., October 8-10 and elected the following officers: president, Dr. W. T. Wootton, Hot Springs; vice-presidents, Drs. W. B. Dorsett, St. Louis; E. H. Cary, Dallas, Tex.; J. H. Barnes, Enid, Okla., and C. C. Nesselrode, Kansas City, Kan., and secretary-treasurer, Dr. F. H. Clark, El Reno, Okla. The next meeting will be held in Kansas City, Kan.

Maryland Bars Class C Schools.—At a meeting held recently by the Maryland Board of Medical Examiners a resolution was adopted that hereafter graduates from medical schools and colleges rated in Class C by the Council on Medical Education of the American Medical Association will be refused admission to the examinations of that board. It is stated that the Baltimore college which this decision particularly affects is the Maryland Medical College. Class C colleges, in the classification of the Council on Medical Education, are "those which require a complete reorganization to make them acceptable."

Infectious Diseases.—Three cases of bubonic plague were found October 1 on the ship *Bella Isle* which trades between Newcastle, N. S. W., and Hamburg. One of the victims died. ——A well developed case of yellow fever arrived at New Orleans October 8 on the British steamer *Chaucer*. The patient, a Greek, a member of the crew, shipped at Santos, Brazil. The patient was placed in the Marine hospital and the vessel was quarantined for six days.——According to public health reports cholera is epidemic in Japan, and orders have been given for the extra inspection of ships from Japanese ports.

Pellagra Meeting.—The second triennial meeting of the National Association for the Study of Pellagra was held in Columbia, S. C., October 1-4 and the following officers were elected: president, Dr. C. H. Lavinder, Savannah, Ga., U. S. P. H. Service; vice-presidents, Drs. J. F. Siler, Fort Sam Houston, Texas., Captain, M. C., U. S. Army, and Dr. C. C. Bass, New Orleans; secretary, Dr. J. W. Babcock, Columbia, S. C.; treasurer, Dr. J. A. Hayne, Columbia, S. C., and directors, Drs. J. J. Watson, Columbia, S. C.; P. E. Garrison, Washington, D. C., U. S. Navy; K. H. Beall, Fort Worth, Texas, and L. J. Pollock, Hospital, Ill. In the resolutions adopted at the close of the meeting, the association reiterated the belief, formerly expressed, that the ultimate cause of pellagra is unknown, but that, in view of the indictment against "spoiled corn," measures should be taken to provide an enactment to prevent its sale and consumption; that no satisfying evidence has been submitted to show pellagra to be directly transmitted from man to man; that it deems measures of quarantine and isolation unnecessary and unwise; that no specific remedy for pellagra is known at present, and that, recognizing pellagra as a matter of national importance, it hopes that Congress will appropriate sufficient funds for the continued extension of the work.

Bequests and Donations.—The following bequests and donations have recently been announced:

Winifred, Masterson, Burke Relief Foundation, New York City, in addition to real estate valued at four million dollars put in trust in 1902, has received the balance of the estate amounting to $2,435,281.

Charity Organization Society, New York City, $100,000; New York Association for the Relief of the Ruptured and Crippled, $5,000, and the New York Association for the Relief of the Destitute Blind, $10,000, by the late Mrs. Helen Marie Theresa Holly, Stanford, Conn.

Robert Packer Hospital, Sayre, Pa., $25,000 from Mrs. Mary Packer Cummings, Mauch Chunk, for a children's ward to contain eighteen beds and six private rooms.

St. Mary's Hospital, Amsterdam, N. Y., $2,000 from Hon. Stephen Sanford.

Fresh Air Fund of the Pennsylvania Industrial Home for Blind Women, Philadelphia, $1,000, and Presbyterian Hospital, Philadelphia, $10,000 to endow free beds in memory of Frances F. Wolgamuth and Elizabeth H. Wolgamuth, by the will of Sarah J. Wolgamuth.

St. Joseph's Hospital, Philadelphia, $12,500 by the will of Isabella McLinden.

Presbyterian Hospital, Philadelphia, a contingent bequest of $5,000 by Mrs. Emma P. Campbell.

Nathan Littauer Memorial Hospital, Gloversville, N. Y., $1,000 by Lucius N. Littauer.

German Deaconess Hospital, Buffalo, $5,000 from Christine Bernhardt and Mrs. Seibel Groben for the endowment of private rooms.

Other Deaths Abroad.—From Cuba comes the news of the shooting of Dr. G. Rijo by a highwayman. Bandits in Cuba hitherto, it is said, have always respected the life and property of medical men, and the *Prensa Medica* comments on this tragedy as a sign of the times. Dr. Rijo was vice-president of the Colegio Medico de Cuba.——The *Policlinico* relates that Dr. Fridenschtein of Odessa had been treating for some time a workingman with syphilis, and the latter wearying of the tediousness of mercurial treatment, Fridenschtein proposed a change to salvarsan. Two days after the injection of salvarsan the patient had great local pain and felt much worse generally so he accused the doctor of having poisoned him and returned and shot the physician dead.——Sir William Japp Sinclair, J. P., professor of obstetrics and gynecology in Victoria University, Manchester, England, died August 21, aged 66. He qualified as M. B., C. M., at Aberdeen, Scotland, in 1873. In 1874 he settled in Manchester and in 1888 was appointed professor of obstetrics at the university. For many years he was connected with the editorial conduct of the *Journal of Obstetrics and Gynecology of the British Empire.* He took an active interest in the political life of Manchester, for nearly twenty years was chairman of the South Manchester Liberal Unionists Association, and from 1893 to 1897 served as a member of the city council. He was knighted in 1904.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Oct. 5, 1912.

The National Insurance Act

The struggle between the profession and the government with regard to the conditions of medical benefit under the national insurance act is rapidly approaching a crisis. It may be remembered that at the recent annual meeting of the British Medical Association the representatives decided to break off negotiations with the government, because their demands had not been granted. In order to prevent the government from getting out of the difficulty by handing over the administration of medical benefit to the friendly societies the British Medical Association has obtained from the majority of the physicians of the country holding friendly society appointments their conditional resignations, to be sent in at the end of the year if the association so decides. Already the breaking out of hostilities has been signalized by the sending in of the resignations of over 10,000 physicians in various localities. In these places contract practice therefore absolutely ceases at the end of the year, unless physicians can be imported to take it up, which is extremely improbable.

Provisional regulations for the administration of the act have been issued by the insurance commissioners. Those dealing with medical attendance, while leaving unsettled the main question of dispute with the profession, are, on the whole, satisfactory to the profession. They require that a physician shall give such treatment as can in the best interests of the patient be undertaken by a practitioner of ordinary professional competence and skill, excepting confinements and tuberculosis. For the latter special arrangements, including sanatoriums, are made. When the condition of the patient is such as to require services beyond the competence of an ordinary practitioner, the latter shall advise the patient as to the steps to be taken in order to obtain such treatment as his condition may require. The physician shall be required to visit the patient within a distance of three miles by road of his residence. He shall also attend and treat patients at places specified for the purpose on such days and hours as are specified. He shall order in a form provided for the purpose such drugs and appliances as are requisite for the patient other than those which he may be under an arrangement to supply. All treatment shall be given by the physician personally except when he is prevented from doing so by urgency of other professional duties, absence from home or other reasonable cause. He will provide that when he is so precluded some other physician will act as his deputy.

Persons in receipt of medical benefit must obey the instructions of the physician, and not conduct themselves in a manner likely to retard recovery or to make unreasonable demands on the physician. Whenever their condition permits they must attend at the office or place of residence of the physician on such days and hours as he may appoint. They shall not summon the physician between certain hours (to be fixed) except in case of serious emergency. When requiring to be visited at home they shall give notice to the physician before a certain hour (to be fixed) on the day. A fine may be inflicted on any insured person who breaks any of the regulations or is guilty of any imposition in respect of medical benefit and in the case of repeated breaches medical benefit may be suspended for periods not exceeding one year.

Under the insurance act an advisory committee, consisting of physicians including representatives of the British Medical Association and of the friendly societies was appointed to advise the insurance commissioners in the framing of regulations. When the British Medical Association decided to break off negotiations it requested all the medical representatives to withdraw. Those representing the association and the majority of the other physicians withdrew, but seventeen medical men including Sir Clifford Allbutt, declined to do so, as they thought the best interests of the profession, as well as of the insured, would not be served by depriving the commissioners entirely of medical advice. These medical representatives formed a deputation to Mr. Lloyd-George, the Chancellor of the Exchequer, requesting him to provide further funds to increase the medical remuneration. They submitted several points in the public interest, which appeared to them to justify this. The chancellor said that these points would receive the careful attention of the government and expressed his sense of the great public service which had been rendered by the medical members of the advisory committee in continuing their work. Afterward he received a deputation from the members of the committee representing friendly societies. He explained that the government must soon come to a decision whether any increased provision should be made for meeting the cost of medical benefit. Although for securing the hearty cooperation of the medical profession in the provision of an efficient medical service it might be in the general interest to provide more money, there must be a limit to what the country could reasonably be expected to find. It was conceivable that when the government had done their best they might fail to induce the profession to work the act. Two alternatives are open. The first is for the government to hand over to the friendly societies the money provided for medical benefit under the act and leave them to make their own arrangement with the physicians. The second is for the government to organize a national benefit service of whole-time physicians. The meeting was almost unanimously in favor of the latter and was strongly adverse to any more of the money provided by the insurance act being paid to the physicians. Thus at the last, the struggle is between the profession and the societies rather than between the profession and the government.

Plague on the Tyne

A fatal case of plague has occurred on the river Tyne. The patient, an apprentice on board a steamship which arrived from Hamburg, was taken ill and sent to the floating hospital as a case of typhoid fever. On the following day the port health officer suspected that the disease was plague. Examination of the patient's blood showed that it contained the plague bacillus. The boy died and the necropsy confirmed the diagnosis. No further cases of plague have developed, and every precaution has been taken against infection.

New Laboratories at Charing Cross Hospital

At Charing Cross Hospital the Huxley lecture will be delivered by Prof. Simon Flexner of New York, October 31. His subject will be "Recent Advances in Science in Relation to Practical Medicine." On the same day extensive new laboratories of public health and bacteriology will be opened. They include a large class-research laboratory, professors' and lecturers' laboratories for public health and bacteriology, preparation and animal rooms and a large theater and library.

The Treatment of Tuberculosis

A model scheme for the treatment of tuberculosis has been drawn up by the state sickness insurance committee of the British Medical Association. It has been explained in previous letters that under the national insurance act, which makes special provision for the treatment of tuberculosis, a number of tuberculosis officers will be appointed to devote their whole time to the diagnosis and treatment of the disease. The opinion is strongly held in the profession that the more physicians there are who are interested in the treatment of tuberculosis the better. It is felt that at this time of constant multiplication of officials the result will be a bad effect on the profession generally. The object therefore of the model scheme is to enlist to the fullest extent the services of the ordinary family physician. As to the permanent staff, it is suggested that the chief tuberculosis officer shall devote his whole time to administrative duties and receive not less than $2,500. In a large district he may be assisted by one or more whole-time officers at a salary of not less than $15,000. A person applying for treatment is first to present a statement signed by a physician for which a fee of 25 cents is to be paid. If the patient has no physician he must choose one in his neighborhood, obtain a form, take it to the doctor, and ask him to examine him and fill out the form. The fee for this is to be $1.25. The form of treatment—domiciliary, sanatorium, dispensary or hospital—should be decided by the chief tuberculosis officer, in consultation with the patient's private physician, and the treatment should be carried out where possible by the latter in cooperation with a tuberculosis officer, except where the patient is transferred to a sanatorium or similar institution. Patients so transferred should on their discharge be referred to the private physician with a report of their progress. In the case of domiciliary treatment the private physician and the chief tuberculosis officer are to decide in consultation as to the treatment and the number of visits likely to be required. The committee considers that in dispensary treatment the work should be diagnostic, consultative, bacteriologic and statistical in character, and in general should be carried out at the homes of the patients or at the doctors' offices, but certain special forms of treatment may, with the consent of the physician concerned, be given at the dispensaries. No patient should be seen at the dispensary except on the recommendation of a private physician.

Quack Remedies in Australia: Protection Extraordinary

At present, while the American public is discussing the evils of protection and asking the pertinent question, Who pays? the following extraordinary example of protection in the antipodes may be of interest. In the Australian federal house of representatives the attention of the Minister of Customs was drawn to the fact that analysis of an advertised cure for cancer showed that it consisted of 24 per cent. starch, 75 per cent. water and a little borax. At the price of 36 cents it was advertised as: "A remedy for the world. Cure for blood-poisoning, pleurisy, pneumonia, erysipelas, all inflammations, typhoid and other fevers, and cancer in its various forms." Asked if he would take steps to prevent its sale the minister replied that if the article was imported steps would be taken to prevent its introduction, but that if it was manufactured in Australia no action could be taken until the people gave the government the necessary power. The federal government could not prevent the sale of such goods, but the Department of Trade and Customs had prevented thousands of such quack remedies coming into Australia during the last two or three years.

Insanity in Ireland

The report of the Inspector of Lunatics in Ireland for the year 1911 has just been issued. The number of lunatics in asylums was 24,655, an increase of 261 over the number of the previous year, when the increase was 250. But the increase for 1911 was sixty-one less than the average increase for the preceding ten years. The number of insane in asylums has increased from 250 per hundred thousand of the population in 1880 to 563 in 1911. These figures must not be taken to represent an increase of insanity in the country to this extent. For owing to improvement of administration and increased confidence of the public, many lunatics are sent to asylums who in former years would have been kept at home. With regard to the question of alcoholism as a cause of insanity the report makes the remarkable statement that the facts indicate practically no relation between the distribution of insanity and drunkenness in Ireland. Chronic alcoholism is so rare in the country that it can have no great influence on the insanity rate.

PARIS LETTER

(From Our Regular Correspondent)

Paris, Sept. 27, 1912.

Crime in France

The report on the administration of justice in the criminal courts for 1910 gives interesting information concerning the status of crime. On the whole, great crimes are not on the increase. During the last ten years they have decreased as compared with the twenty years preceding; the difference between the average number around 1880 and that around 1900 is 36 per cent. (a yearly average of 3,446 convictions, 1876 to 1880, and of 2,174 between 1901 and 1910). The decrease is especially marked in crimes in connection with property, 1,231 being the mean between 1896 to 1900; 998 between 1901 and 1905, and 967 between 1906 and 1910. Crimes against persons have increased, the annual mean being 1,217, 1,100 and 1,285 in the three periods, respectively.

A large proportion of criminals are young persons; in 1910, 36 per cent. of the accused were minors; of 3,144 accused there were twenty less than 16 years old, 115 from 16 to 18, and 388 between 19 and 20; there were 1,108 between 21 and 29, 800 between 30 and 39, 405 between 40 and 49, 207 between 50 and 60, and 101 older than 60 years.

If the population of France is regarded as being divided into groups according to ages, and the prisoners convicted in the courts for the trial of misdemeanors are compared with these groups, no doubt can remain as to the predominance of crime among young persons. This proportion holds for women as well as men between the ages of 18 and 21, though the proportion among the young women is not so great as that among the young men. There are 301 men in jail between the ages of 18 and 21 for each 10,000 of male population of the same age. The proportion of women of the same age is 42 to 10,000, and of all adults above 21, 17 per 10,000.

As to education, of 3,144 criminals in 1910, 316 were illiterate, 2,666 could read and write, and 162 had received better education.

Encroachments of the Red Cross

Physicians are complaining because the Red Cross is encroaching on their field. The matter was discussed at the recent general meeting of the Syndicat des médecins of the Department of the Var. While admitting that the members of the Red Cross should be given the instruction which would enable them to do their work in time of war, the syndicat felt that the precise method and limits of this instruction should be marked out. As the fundamental idea of the Red Cross is that its members should take care of soldiers in the military hospitals or field hospitals, and under the direction of the army surgeons, the instruction of the Red Cross attendants should be in the hands of the army surgeons. A diploma is not needed; a letter of service given by the military authorities for a stated training is sufficient. Physicians would then have no occasion to fear illegal practitioners armed with diplomas showing that they are qualified hospital attendants.

Pharmacists and the French Pharmacopeia

A misrepresentation of the law concerning fraud has led to the erroneous impression that pharmacists were not permitted to keep in their laboratories any other preparations than those specified in the latest pharmacopeia, that of 1908. As a result it was maintained that pharmacists could not compound and keep Sydenham's laudanum after the formula of the pharmacopeia of 1884, which amounted to its being impossible for physicians to prescribe it, as several days are required for its preparation. The minister of agriculture has put an end to this extraordinary interpretation of an ambiguous law. Hereafter it will not be an infraction of the law if a pharmacist keeps other substances than those named in the latest pharmacopeia, but pharmacists must observe the following regulations:

1. Every substance designated by the name alone which it bears in the official pharmacopeia shall conform absolutely to the conditions therein laid down.
2. Every preparation defined in the pharmacopeia but compounded according to a modified formula must bear on the label the indication of this modification, thus: elixir of paregoric (1884 pharmacopeia); tincture of hyoscyamus (1884 pharmacopeia). Pharmaceutical preparations compounded according to the recipes of foreign pharmacopeias must be labeled with the name of the pharmacopeia or have the composition of the preparation indicated.

The Number of Cadavers Dissected

In nine months, from Nov. 1, 1910, to July 31, 1911, 2,204 cadavers (980 men, 552 women and 672 children) were turned over by twenty-eight Paris hospitals to students for dissection. About two-thirds were used in the Ecole pratique of the Faculté de médecine and the remaining third in the Clamart amphitheater, which was founded especially for interns and externs of the Paris hospitals. For several years the supply of bodies has not been sufficient for the teaching of anatomy. From 1908 to 1911 the number of cadavers used has varied between 2,140 and 2,200; for the preceding years the mean was 2,500, and in 1907 the number reached 2,682.

The Skull of Descartes

At the last meeting of the Académie des Sciences M. Darboux, the permanent secretary, presented some interesting details which were revealed in letters that passed between Berzelius and Berthollet, published recently at Stockholm. The remains of Descartes were received in France in 1667 minus the head, which remained in Sweden until 1821, when the skull was offered to the Académie des Sciences by Berzelius through Berthollet. The academy received the gift with due respect, according to Berthollet, examined the skull, compared it with a portrait and declared it genuine, or appeared to accept it as such. The correspondence recalled happenings long since forgotten, and a search was made for the skull. M. Dehérain, librarian of the Institute of France, found in the first volume of the *Journal de zoologie* an account of the skull of Descartes having been placed in the museum. But search has failed to bring it to light. In the collection of Gall a note has been found concerning the skull a mold of which had been studied by the celebrated phrenologist, and on the margin it was stated that the skull had since come to the museum. It is supposed that the skull was in the collection which was scattered by the flood of 1910, in which case a long search will have to be made to rescue it from the confused assortment to which the collection was reduced.

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, Sept. 28, 1912.

Personal

Priv.-Doz. Dr. Bielschowsky of Leipsic, a pupil of Professor Sattler, has been selected successor of the late Professor Bach, as director of the Marburg eye clinic.

The Institutes of the Kaiser Wilhelm Society for the Advancement of Science

The Kaiser Wilhelm Society, founded a few years ago, plans to begin at once the building of an institute for experimental therapy at Dahlem near Berlin, which will be conducted under the direction of Professor Wassermann. Here are to be undertaken in a systematic way, under the direction of Professor Rubner, physiologic investigations of the influence of bodily and intellectual labor of man. The institute for general, physical and electrochemistry is to be dedicated on October 23.

National Insurance and Physicians

The statements made by the representative of the local Krankenkassen at the general meeting of the state-aided insurance societies of Germany, regarding the work and fees of the insurance physicians (with reference to which I have reported in a previous letter), are partly corrected in the last number of the official journal of the medical union *(Aerztliches Vereinsblatt)*. According to this, the expenses of medical treatment in 1885 were not 4,000,000 but 10,000,000 marks. Moreover, in the meantime the number of members of the insurance societies has increased from 4,500,000 to 13,000,000. In addition, if it is considered that in the same time the number of members of the insured families has remarkably increased, the total of the insured persons must be estimated at 23,000,000. Also the reported increase in medical fees from 2.13 marks ($.50) per capita in 1885 to 5.85 marks ($1.45) in 1910, as reported by the representative of the Krankenkassen, is incorrect, because on the basis of 23,000,000 of insured the annual per capita fee was only 3.32 marks ($.83).

The Number of Insane in Saxony

The number of insane is notably increasing. In 1897 there were in the kingdom of Saxony 7,033 insane cared for. In 1910 there were altogether in the asylums 14,542 patients of this character, which means more than a doubling of the number in thirteen years. During the same period the number of institutions in which the insane were cared for rose from thirteen to twenty-three. In 1910 there were in the institutions 9,444 beds, and the number of days of care was 3,339,073. Among those admitted both sexes were almost equally represented. With the increase of the numbers in the asylums the fact must not be left out of account that certain classes of patients are now admitted who were formerly left at large.

Sanatoriums for the Army

With two exceptions all the corps of the German army have sanatoriums for their use, in which provisions are made by the military authorities for the treatment of the common soldiers. Within the jurisdiction of the Prussian army authorities alone, there are forty-one such sanatoriums, including those at Aachen, Ems, Kreuznach, Nauheim and Wildungen. Within the jurisdiction of the Bavarian, Saxon and Wurtemberg army authorities there are altogether twenty-one such institutions. The largest sanatoriums are at Kissingen and Brückenau. Outside of the health resorts mentioned, the military authorities maintain sanatoriums in foreign countries, at Marienbad and Karlsbad, of which the first is open to members of all German corps; and in Teplitz there is a Prussian military hydropathic institute, as well as a Saxon hydropathic hospital (Badelazarett). Independent of the watering places so far mentioned, there are twenty-one sanatoriums designated for the reception of Prussian and Wurtemberg soldiers in the incipient stage of tuberculous disease of the respiratory organs.

Suicides in Germany

Suicide as a social phenomenon among the masses shows the same regularity as births, marriages and deaths. An especially striking phenomenon is the regularity in the increase of suicides. The number of suicides in Prussia has risen since 1878 from 180 to 207 for a million of population. Within the empire of Germany, the number of suicides in Prussia takes a medium position. In this respect Prussia is exceeded by states outside of Germany: by France with 238; Switzerland with 228 and Denmark with 220 per million of inhabitants; while the number of suicides is 55 in Norway; 90 in England; 29 in Ireland and 20 in Spain.

Miscellany

Injection of Alcohol for Relief of Disturbances in Swallowing with Laryngeal Tuberculosis.—F. Bertran y Castillo describes in the *Siglo Medico*, 1912, lix, 594, his extremely favorable experiences in six cases with injection of alcohol to deaden the superior laryngeal nerve and thus put an end to the dysphagia. He found the P. Boncour technic preferable; first 1 c.c. of a 1 per cent. solution of novocain and epinephrin is injected, followed after five minutes by injection of 90 per cent. alcohol, unheated. The needle used is 4 cm. long and it is introduced in the median part of the neck, at the center of a vertical line connecting the projection of the thyroid cartilage with the convex portion of the hyoid. When the needle has pierced the skin and muscle, there is a sensation as if it were in an open space; this is the small serous bursa described by Boyer. Once past this, the needle encounters the tough thyrohyoid ligament. The needle is then directed horizontally backward and outward, parallel to the upper margin of the thyroid cartilage, half a centimeter above it, following this direction for about 2½ cm. the patient suddenly experiences a sharp pain radiating to the ear, the signal that the nerve has been reached. The advantages of this technic are that there is little danger of injuring blood-vessels as they lie back of the nerve as a rule, while the nerve is more directly accessible and the injection can be made on both sides without withdrawing the needle as the point can be turned to reach the nerve on both sides. He describes six cases in which he applied the Hoffmann technic but found it extremely painful while the anesthesia induced lasted only for a very few hours or days. With the above Boncour technic the anesthesia averaged twenty days up to a month's duration, and the nerve could be blocked thus repeatedly as needed. The experiences of others in this line are reviewed.

Dairy Products in the Tropics.—It has been found difficult to maintain dairy animals in hot countries, consequently these regions are not plentifully supplied with dairy products except in the form of condensed milk, evaporated cream and tinned butter. In Hongkong, according to the *Scientific American*, a dairy was established twenty-five years ago but was operated for fifteen years without profit. The herd was completely wiped out three times before a successful method of feeding could be evolved. This problem has been solved by feeding the cows partly on Guinea grass, a native growth, and the fodder of other sorts from temperate latitudes. The herd now consists of over 450 head of the best milking strains and the dairy is on a dividend basis of about 18 per cent. In the Philippines a large tract of land about twelve miles from the city of Manila has been set apart for dairying purposes and cattle are being imported from Australia. The enterprise is under government supervision. A dairy is also being established at Singapore. One of the great problems in the tropics, aside from the difficulty of feeding the cattle, is the prevention of disease among them. After long experience at Hongkong, disease is largely prevented by a rigid system of quarantine and stall feeding of the cattle. Visitors from other parts of the island on which Hongkong is situated, or from China, are not allowed access to the herd except under the strictest precautions against the carrying of disease. The employees are required to change their clothing before entering or leaving the premises and the cattle-sheds are screened against disease-bearing insects.

Angioneurotic Eruption Due to Acetylsalicylic Acid.—H. B. Anderson (*Canadian Pract. and Rev.*, September) cites two such cases. The first was that of a woman aged about 40, who had suffered from acne rosacea with slight digestive disturbance and constipation, but who was otherwise quite healthy. She had exhibited a peculiar susceptibility to many drugs, such as quinin, atropin and morphin. She contracted a mild attack of influenza with slight fever, malaise and pains. Bearing her drug idiosyncrasy in mind, Anderson prescribed acetylsalicylic acid (aspirin) in 5-grain doses. After taking the first dose she became nervous; pulse was rapid, and she felt very weak. Following the second dose, the patient's face and lips swelled, with irregular swellings of the type of an angioneurotic edema over the extremities at the same time. The drug was discontinued and the symptoms disappeared within the next twenty-four hours. The second case was a similar one. The administration of acetylsalicylic acid in 5-grain doses was promptly followed by a marked generalized urticarial eruption. The itching was intense, the lips swollen and the face so swollen as to close the eyes. The cutaneous manifestations were accompanied by marked general depression, nervousness and discomfort. The patient immediately recognized an effect similar to that experienced when the drug was taken on previous occasions. The drug was promptly discontinued and the eruption gradually cleared up within a couple of days.

Carbon Tetrachlorid as a Solvent.—Carbon tetrachlorid has been adopted as a solvent in industrial extraction processes as a substitute for benzin and has given excellent results in certain cases. One of its chief advantages is its lack of inflammability and danger of explosion which has made it particularly useful in dyeing and cleaning establishments. It is a definite chemical compound having the formula CCl_4 and is completely volatile without imparting any odor to the material on which it is used. It dissolves fats and oils readily and does not leave a ring or halo as does benzin. It has a lower heating point than the petroleum fractions generally employed and a higher specific gravity and, therefore, like carbon disulphid, has the advantage of being heavier than water. It is somewhat more expensive than benzin and the loss in extraction processes is greater. C. Baskerville and H. S. Riederer (*Jour. Indust. and Eng. Chem.*, September, 1912) have made some studies of the solvent properties of carbon tetrachlorid on asphalts, bitumins, etc., cellulose acetates and nitrates, rubber, alcoholic gums, water gums, shellac, rosin, waxes of various kinds and fats. The results of their tests show that it has rather limited use as a solvent for these substances except in the case of the fats and oils, camphor and waxes. Tables are given of the solubility of various inorganic substances in carbon tetrachlorid.

Sterilizing Water in the Pipes.—As is well known, distilled water is undesirable and unpalatable for drinking purposes on account of the absence of soluble gases, which renders it flat and tasteless. J. L. Sammis (*Jour. Indust. and Eng. Chem.*, September, 1912), says that the possibility of pasteurizing water for drinking purposes as it flows from the pipes has attracted little attention. He describes a method applied to the water system by which water flowing through a small pipe can be momentarily heated to 79 to 82 C. by which means disease germs, such as those producing typhoid fever and dysentery, etc., are destroyed while the water is under pressure and it does not lose its dissolved gases or palatability. The water then can be quickly cooled in the pipes by means of a cold water jacket. Only a small proportion of the water used in a building would require heating for drinking purposes but the entire quantity for all purposes could be run through the jacket to aid in cooling the water. This would be desirable anywhere but especially so where the water-supply is known to be contaminated. The method can be used in office buildings, factories, schools, etc., where steam pressure is maintained throughout the summer. The amount of steam required is small. An illustration of the heating coil and the cooling apparatus as connected with the steam and water pipes is given in the article.

Germans Test Dairy Products.—The German Agricultural Society arranges annual ocean voyages in connection with expositions, for the purpose of testing the stability of dairy and other food articles which are intended to keep for prolonged periods in all sorts of conditions. The voyage takes four months, going from Bremen to Australia and back, crossing the equator twice. On their return the goods are tested in Bremen by judges and scientists.—*Creamery and Milk Plant Monthly.*

Marriages

George Wilmer Yourtee, M.D., to Miss Laura Eleanor Hightman, both of Burkettsville, Md., September 25.

Alfred Harris Kelly, M.D., Louisville, Ky., to Miss Aimee Lucille Gunn of Breckenridge, Colo., September 19.

William H. Roberts, M.D., Sheridan, Wyo., to Miss Lillian Harris Wright of Moundsville, W. Va., August 28.

Jacob C. Moyer, M.D., Hazleton, Pa., to Miss Jessie Marguerite Birkbeck of Freeland, Pa., September 1.

Winton Markwood Nihiser, M.D., Hagerstown, Md., to Miss Flora E. Lapp, at Baltimore, October 2.

Maxwell Branner, M.D., New York City, to Anna Jane Scott, M.D., of Kansas City, Mo., recently.

John Henry Evans, M.D., to Miss Camille Margaret Boileau, both of Chicago, September 23.

Norman B. Shepler, M.D., Harrisburg, Pa., to Miss I. Corinne Gaul of Philadelphia, October 2.

Floyd Olin Smith, M.D., Des Moines, Iowa, to Miss Bessie Heath of Hopkinston, Iowa, October 5.

Joseph M. Weaver, M.D., Allentown, Pa., to Miss Frances P. Jones, at Baltimore, September 25.

Orville Nalle, M.D., Elkwood, Va., to Miss Arabella Bowling Hurt of Culpeper, Va., October 2.

Lloyd Parker Shippen, M.D., to Miss Florence Hawley Brush, both of Baltimore, October 2.

Arthur Irwin Murphy, M.D., Pittsburgh, to Miss Gertrude Currie of Glencoe, Ont., October 2.

William Francis Dryden, M.D., to Miss Edith E. Hall, both of Chicago, September 14.

John William Busch, M.D., to Miss Ottolie Woerthle, both of Philadelphia, October 2.

David M. Angus, M.D., Spokane, Wash., to Miss Vesta Smith of Seattle, recently.

William G. Beek, M.D., to Miss Irene Wallace, both of Chicago, October 16.

Frederick C. Hanmore, M.D., to Miss Vera Cleary, both of Chicago, October 2.

Deaths

Jacob Baxter, M.D. Upper Canada Medical Board, 1853; New York University, New York City, 1854; Bellevue Hospital Medical College, 1866; of Cayuga, Ont.; registrar of deeds for the county of Haldimand for more than twenty years; a member of parliament from Haldimand County from 1867 to 1898 and speaker of the house from 1887 to 1891; surgeon and later surgeon-major of the Thirty-Seventh Battalion for several years; and retired with the rank of surgeon-lieutenant colonel in 1895; died at his home in Cayuga, July 23, from diabetes, aged 80.

Frank Judson Parker, M.D. Yale University, New Haven, 1898; of New York City; a member of the American Medical Association; assistant surgeon at the Manhattan Eye, Ear and Throat Hospital; ophthalmic surgeon of the Presbyterian Hospital; consulting ophthalmic surgeon to the Seton Hospital; the New York Orphanage Asylum and the Greenwich Hospital; attending physician to the Blind Babies' Home; died in the Presbyterian Hospital, New York City, October 2, aged 39.

Lewis Rufus Palmer, M.D. Hahnemann Medical College, Philadelphia, 1892; formerly president of the Maryland State Homeopathic Society; president of the Homeopathic Hospital of Maryland, Baltimore; professor of diseases of the heart and lungs in the Southern Homeopathic Medical College, Baltimore; and a practitioner of that city for nineteen years; died in the Hahnemann Hospital, Rochester, N. Y., October 2, aged 44, from hemorrhage following a gastric ulcer.

Joseph Hasbrouck, M.D. New York University, New York City, 1869; a member of the New York Academy of Pathological Science, and one of the best-known practitioners of Westchester County, N. Y.; a member of the Board of Health of Dobbs Ferry; died suddenly, October 2, from heart disease, while making a professional call in Uniontown, a suburb of Hastings, N. Y., aged 73.

William Gover Williams, M.D. George Washington University, Washington, D. C., 1860; died at his home in Conaways, Md., September 29, aged 75.

St. Mark Fortier, M.D. Tulane University, New Orleans, 1891; a member of the Southern Surgical and Gynecological Association; for thirteen years assistant house physician of Charity Hospital, New Orleans; at the time of his death in charge of the Louisiana Retreat; died at his home in New Orleans, September 29, from nephritis, aged 47.

Isaac Van Voorhis Wirebaugh, M.D. Western Reserve University, Cleveland, 1890; a member of the American Medical Association; for twenty years a practitioner of Prairie Depot, O.; who was operated on in a Toledo hospital, September 3, for tuberculosis of the intestines; died at his home, October 1, aged 49.

Adam J. Beall, M.D. University of Pennsylvania, Philadelphia, 1851; for thirty years a practitioner of Mansfield, La., but since 1887 a resident of San Marcos, Tex., and health officer of that city for several years; died at his home, September 20, from senile debility, aged 85.

William Chester Roy, M.D. College of Physicians and Surgeons, Chicago, 1883; New York University, New York City, 1884; a practitioner of Chicago until 1899, when he moved to Jacksonville, Fla.; died at the home of his mother in Jacksonville, September 30, aged 57.

Emile Andrew Crepin, M.D. Washington University, St. Louis, 1867; a member of the Medical Society of the State of California; for several years a practitioner of Glen Ellen; died at his home in Alhambra, near Los Angeles, September 22, aged 70.

C. R. Fisk, M.D. College of Physician and Surgeons, Keokuk, Ia., 1884; a practitioner of Keokuk until 1907, when he located at Drury's Bluff, Va.; died in a hospital in Richmond, Va., September 30, after an operation for intestinal obstruction, aged 60.

Ambrose Frederick Lepper, M.D. McGill University, Montreal, Quebec, 1911; of Saskatoon, Sask.; later assistant physician to the hospital at Bella Bella, Rivers Inlet, B. C.; died at Port Simpson B. C., August 1, from quinsy, aged 28.

William Thomas Thach, M.D. Philadelphia College of Medicine and Surgery, 185..; for twenty-five years a practitioner of Bellbuckle, Tenn.; died at the home of his son in Fordyce, Ark., June 28, from kidney disease, aged 79.

William E Fitzgibbons, M.D. University of Buffalo, N. Y., 1874; of Oglesby, Ill.; formerly of Wataga and for two years health officer of Peru; died in St. Mary's Hospital, La Salle, October 3, from heart disease, aged 63.

Edwin Franklin Evans, M.D. University of Missouri, Columbia, 1876; a practitioner of Youngstown, O., for twenty years; died in the Massillon State Hospital, October 1, from cerebral hemorrhage, aged 56.

Herbert Paris Sheldon, M.D. University of Buffalo, N. Y., 1879; a member of the Nebraska State Medical Association; died at his home in Scottsbluff, October 3, from bronchial pneumonia, aged 57.

Buna R. Moore, M.D. Medical College of Georgia, Augusta, 1899; a member of the American Medical Association; died at his home in Temple, Ga., September 23, from tuberculosis, aged 37.

George Sidney Farley, M.D. Philadelphia Medical College, 1850; of San Francisco; died at the home of his daughter in that city, August 9, from cerebral hemorrhage, aged 87.

Joseph S. Edmundson, M.D. University of Nashville, Tenn., 1872; died at his home in Brighton, near Birmingham, Ala., from disease of the kidney and heart, October 1, aged 62.

John T. Knowles, M.D. Memphis Hospital Medical College, 1909; a member of the Missouri State Medical Association; died at his home in Springfield, September 1, aged 33.

Allan Cameron, M.D. University of Glasgow, Scotland, 1853; a practitioner of Ontario since 1856; died at his home in Owen Sound, September 6, from senile debility, aged 83.

Ward S Hudson, M.D. Cleveland University of Medicine and Surgery, 1877; of Cleveland; died at the home of his sister in that city, September 30, aged 66.

Daniel R. Ambrose, M.D. New York University, New York City, 1868; of New York City; died in the Metropolitan Hospital, October 1, aged 77.

Clifton L. Donnell, M.D. Medical College of Ohio, Cincinnati, 1888; of Greensburg, Ind.; died in Cincinnati, August 19, from tuberculosis, aged 47.

John H. Reynolds, M.D. Eclectic Medical Institute, Cincinnati, 1876; died at his home in Lawrenceville, O., September 27, aged 65.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

SOME BRITISH ANALYSES

A Few International Frauds Are Exposed in England

The second volume of the book issued by the British Medical Association on "Secret Remedies" has recently appeared.[1] As might be expected, several of the nostrums that have been analyzed are international in their exploitation. Some are made in the United States while others originate in Great Britain. Some of these preparations have already been dealt with in THE JOURNAL; the following have not:

CADUM

Cadum is advertised extensively in the British Isles and less generally in the United States. It is sold as a remedy for "skin troubles" of all kinds. The claim is made that this preparation was "discovered" not by "mere chance or accident" but through "patient, painstaking investigations, extending over a long period, by an eminent chemist." The result of these "investigations" was the alleged discovery "that an extract from a particular part of a well-known tree possessed superior antiseptic and curative properties and exerted a powerful beneficial effect on the skin tissues." The implication is made that this "extract" is the essential ingredient of Cadum. The British chemists who analyzed this stuff reported that its formula was essentially as follows:

Zinc oxid	11.3 per cent.
Flowers of sulphur	8.0 per cent.
Boric acid	3.1 per cent.
Salicylic acid	0.8 per cent.
Oil of cade	7.0 per cent.
Hard paraffin	10.0 per cent.
Soft paraffin	60.0 per cent.

The chemists estimated that the cost of the ingredients in a 25-cent box was two-thirds of a cent. As might be expected all of the drugs found in Cadum have been used for years.

CARTER'S LITTLE LIVER PILLS

These tablets are sold under the claim that they "cure constipation, biliousness, sick headache and indigestion." A typical advertisement of this nostrum declares:

> "Do not persecute your bowels. Cut out cathartics and purgatives. They are brutal—harsh—unnecessary."

The British chemists reported that chemical and microscopic examination of these pills indicated the presence of:

Podophyllin
Aloes
Licorice root
Wheat starch

When it is remembered that aloes is classed as a cathartic and podophyllin as a drastic purgative, the dishonesty of selling pills containing these two drugs under the implied claim that they contain neither cathartics nor purgatives is evident.

D. D. D.

This nostrum, which is advertised as a cure for eczema, is sold widely on both sides of the Atlantic. This does not mean, however, that it has the same composition in the United Kingdom that it has in the United States. The British law that requires "patent medicines" containing certain scheduled drugs to be labeled "Poison" does much to discourage the use of the more dangerous drugs as ingredients of "patent medicines." As sold in the United States, each ounce of D. D. D. contains, according to the label, as required by the Food and Drugs Act:

Chloral hydrate	7 gr.
Alcohol	38 per cent.

Chloral hydrate is one of the drugs in the British poison schedule. If this drug were a constituent of D. D. D. as sold in Great Britain, the nostrum would have to be labeled "Poison." But apparently chloral hydrate is omitted from the D. D. D. put up for British consumption. The chemists of the British Medical Association analyzed the preparation and assigned to it the following composition:

Salicylic acid	0.75
Carbolic acid	1.18
Oil of wintergreen	1.00
Glycerine	9.28
Alcohol	65.10
Water	22.69

This indicates that D. D. D. furnishes another example of how the poison label protects. It will be remembered that the vicious "baby killer," Winslow's Soothing Syrup no longer contains morphin when sold in Great Britain, the requirement of labeling it "Poison" having, presumably, greatly injured its sale in that country.

The D. D. D. that contains chloral hydrate naturally produces in some cases what physicians commonly call the "chloral rash." This physiologic effect is turned to account by the manufacturer as follows:

> "Occasionally in bringing the disease to the surface, D. D. D. will spread the eruption temporarily over a much larger area. This is not a sign that the malady is growing more serious, but, on the contrary, it shows that the disease is being uprooted."

No matter how greatly the American and British preparations of D. D. D. vary in composition, the purchasers in both cases are told:

> "D. D. D. is no ordinary 'patent medicine' but the prescription of a skin specialist, Dr. D. D. Dennis, who used the compound now known as D. D. D. successfully for years on all patients suffering from skin diseases."

In August, 1910, a man who had used forty-eight bottles of D. D. D. for eczema wrote to THE JOURNAL and complained that it had not relieved his eczema. He complained that he had lost fourteen pounds in weight, had become weak and emaciated and was "generally miserable." This example of the danger the public runs in using "patent medicines" containing such insidious poisons as chloral hydrate, emphasizes the need of a "poison label" requirement being added to the federal Food and Drugs Act.

CELMO

Celmo was sold for some time in Great Britain before it was exploited in this country. It is sold as a rheumatism cure and the purchaser is told that this method of treating rheumatism is something entirely new.

> "Celmo is the latest and most successful method of treating rheumatism."
> "Celmo is something entirely removed from all the ways hitherto tried."
> "The new way—the right way to treat rheumatism . . . is to eliminate all the excess uric acid with Celmo."

Analyzed by the British chemists, this "wonderful new remedy" was reported to consist of:

Acetyl-salicylic acid	35.5 per cent.
Powdered charcoal, about	8.0 per cent.
Malt extract, dry	18.0 per cent.
Talc	14.5 per cent.
Other mineral constituents	2.8 per cent.
Water	12.3 per cent.
Alkaloid	0.5 per cent.
Extractive, about	8.0 per cent.
Oleo-resin of capsicum	Trace
Oil of juniper	Trace

According to this, Celmo tablets are essentially acetyl-salicylic acid (aspirin) tablets. The malt extract was evidently used to so "bind" the powders that they could be made into tablets. Talc is commonly added to tablets as a lubricant to prevent them sticking to the machine in which they are made. It is merely an example of a well-known, commonly-used drug put out under a fancy name, exploited by fraudulent claims and foisted on the public as something entirely new.

BROWN'S BRONCHIAL TROCHES

This preparation is sold by John I. Brown & Son, Boston, and is advertised largely both in the United States and Great Britain. It belongs to the "cough lozenge" type of nostrum and is harmful only in a negative way in that it may be used to allay symptoms of what may prove to be an incipient lung or throat trouble of a serious nature. The British chemists reported that examination of Brown's Bronchial Troches shows the presence of:

Powdered cubeb
Extract of licorice
Gum
Sugar

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[1] "More Secret Remedies," British Medical Association

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

AUTOVACCINES IN CANCER

To the Editor:—Having a case which I believe is sarcoma of the manubrium and apparently inoperable, I am very much interested in the article on page 962 of THE JOURNAL, Sept. 21, 1912, in regard to autovaccines in treatment of cancer. 1. Please tell me where I can get more information on this subject. 2. Has the treatment been used in this country yet, and if so, by whom?

E. CRAWFORD, M.D., Hudson, Colo.

ANSWER.—1. The article in THE JOURNAL is an abstract of a paper by Blumenthal, in the *Zeitschrift für Krebsforschung*, 1912, xi, 427. Blumenthal makes the autovaccine by cutting up with scissors a freshly excised scrap of the cancer and with mortar and pestle incorporating with it three or five times its bulk of water saturated with chloroform. The emulsion is poured into a glass jar and 10 drops of chloroform are added for each 100 c.c. of the emulsion. The jar, plugged with a glass stopper and well shaken, is kept at a constant temperature of 39 C. for three days; it should be shaken up well once or twice a day. According to Blumenthal, the autolysis going on in the emulsion during this period positively prevents any possibility of transmission. After the third day the autolysate is shaken up thoroughly again and the supernatant fluid is decanted and used for the subcutaneous injection. The fluid is turbid and flaky and Blumenthal always injects it on the side opposite the tumor. In his experimental work, Blumenthal obtained positive results in 80 per cent. and a definite cure in 35 per cent., when the emulsion was made from the individual's own cancer material. With tumor material from another individual, even of the same species, the figures were respectively 35 and 10 per cent. We have been able to find no other article describing the treatment by autolysates.

2. So far as we know, the treatment of cancer by an autolysate has not been used in this country. A somewhat similar method, however, in which there was no autodigestion, was described by A. F. Coca and P. K. Gilman in the *Philippine Journal of Science*, December, 1909; an abstract of this article appeared in THE JOURNAL, June 4, 1910, p. 1904. By this method the authors obtained somewhat favorable results. Considerable clinical work in this line, following the technic of Gilman and Coca, has been done recently by E. H. Risley, but the results are stated to have been decidedly negative. The vaccine emulsion even seemed to induce increased activity on the part of the cancer cells. Much work is going on in this line in this country and abroad, but the results have either proved disappointing or are not yet ripe for publication.

FLY DESTRUCTION AND PREVENTION

To the Editor:—In a small way we are doing our part toward the extermination of the common house-fly. It occurred to me that if one knew what became of the fly in the cold months, that would be the time to attack it. Will you kindly inform me on this point or direct me to some information? H. H. STEVENS, Yonkers, N. Y.

ANSWER.—We find no information that is very definite. One of the best publications on the house-fly is that of Dr. L. O. Howard, "The House-Fly: Disease-Carrier," F. A. Stokes Company, New York. According to Howard, the typhoid fly apparently disappears with the first sharp frost but may appear during warm days later. With a great reduction of temperature many larvæ are killed and eggs as well. Whether the pupæ in their tight puparia are destroyed by certain degrees of cold is not known. That adult flies linger in warm houses during the winter in sufficient numbers to perpetuate the species seems doubtful to Howard. They may remain dormant throughout the winter months in sheltered but cold situations. F. P. Jepson, of Cambridge University, believes that the species may be preserved in the winter and become a source of supply the following season. His researches showed that the flies may remain in an active condition the entire year and under favorable conditions may reproduce in the cold months almost as rapidly as in summer. He found that flies bred in winter might be kept alive for as long as eleven weeks. The generations of flies coming late in the fall seem to be more hardy and to live longer than those bred in summer, and Howard believes that flies of the season before, which propagate the new generations, are flies which have hibernated in the fall before laying their eggs. The killing of all flies in the fall would, of course, be an almost impossible proposition; but something could be done in the spring to trap and otherwise destroy the first generation of flies before they lay their eggs, which is about ten days after they first make their appearance. The best prospect of preventing flies is through the destruction of all breeding-places. Among interesting and valuable pamphlets on the subject of the house-fly may be mentioned the following:

House-Fly: United States Department of Agriculture, Bureau of Entomology, Circular 71.
The House-Fly at the Bar, etc.: Merchants' Association, New York, April, 1909.
The House-Fly: Publication 77, Florida State Board of Health.
House-Fly Number, *Bulletin Texas State Board of Health*, March, 1912.

THERAPEUTIC USE OF ALCOHOL

To the Editor:—Please give references to articles appearing in THE JOURNAL or other medical publications dealing with the legitimate or medicinal uses of malt or spirituous liquor.

W. S. RANKIN, Raleigh, N. C.

ANSWER.—The following books and articles which have appeared within the last few years will be found to discuss the use of alcohol in therapeutics from different points of view:

Billings, J. S.: Physiologic Aspects of the Liquor Problem, 2 vols., Houghton, Mifflin & Co., 1903.
Crosby, J. A.: Prescribing Alcohol, *Jour. Minnesota Med. Assn.*, 1907, xxvii, 163.
Hobhouse, E.: Alcohol on Its Medical Side, *Med. Mag.*, London, 1907, xvi, 190.
Hunt, Reid: Studies in Experimental Alcoholism, Bull. 33, Hygienic Laboratory, 1907, Washington, D. C.
Grimm, A. S.: Medical Profession Losing Faith in Alcohol, *West Virginia Med. Jour.*, September, 1908.
Kellogg, J. H.: Latest Verdict of Science on the Alcohol Question, *Lancet-Clinic*, Oct. 3, 1908.
McDonald, J.: Remedial Uses of Alcohol, *Brit. Med. Jour.*, Jan. 30, 1909.
Wiggs, L. B.: Some Pharmacologic Observations on the Action of Various Potent Remedies, I. Alcohol, *Old Dominion Jour. Med. and Surg.*, 1909, ix, 252.
Osborne, O. T.: Therapeutic Use of Alcohol, *Yale Med. Jour.*, 1909-10, xvi, 258.
Sajous, C. E. de M.: Alcohol in Therapeutics, *Jour. Inebr.*, 1910, xxxii, 149.
Starke, J.: Alcohol, the Sanction of Its Use, Scientifically Established and Popularly Expounded by a Physiologist, 1910, Putnam.
Sajous, C. E. de M.: Alcohol in Therapeutics, *Month. Cycl. and Med. Bull.*, July, 1910.
Bliem, M. J.: The Growing Disuse of Alcohol in Therapeutics, *Texas State Jour. Med.*, 1911-12, vii, 6.
The Metropolitan, a number devoted to the effects of alcohol, 1911, xxv, No. 11, The Metropolitan Life Insurance Company, New York.
Allen, Mrs. M. M.: The Medical Use of Alcoholic Liquors, Testimonies of Physicians, Marcellus, N. Y.

Also many other pamphlets published by the Women's Christian Temperance Union are to be obtained from Mrs. M. M. Allen, Marcellus, N. Y., superintendent medical temperance for the World's and National W. C. T. U.

FIRST USE OF THE THERMOMETER

To the Editor:—Please inform me when the clinical thermometer was first used and by whom, and also give any further data relating to its early use.

W. C. H.

ANSWER.—Drebbel (1572 to 1634) is regarded as the inventor of the air-thermometer; Galileo (1574 to 1642) of the spirit-thermometer, and Roemer (1644 to 1710) of the mercurial thermometer. The first clinical use of the thermometer is attributed to Santoro, or Sanctorius, whose life was in the period from 1561 to 1635, and who for a while was professor at Padua. The latter describes his instruments in his "Commentaria in primam fen primi libris canonis Avicennae," published at Venice in 1646, now very rare. In the eighteenth century, Boerhaave, Haller and De Haen made a few temperature observations, but the subject did not receive any special attention until it was taken up by two Scotch physicians named George Martine and James Currie. The latter was the first (even before Brand of Stettin) to use cold bathing in typhoid fever ("Medical Reports," 1797) and he used the thermometer to keep "tab" on its effects. His work was soon forgotten and thermometry did not take its definite place in clinical medicine until Wunderlich published his classified work on the relations of bodily temperature in disease ("Das Verhalten der Eigenwärme in Krankheiten") in 1868. The reason of this was that until Lord Kelvin had established the "absolute scale of temperature" in 1849, there could be no accurate standardization of temperature observations. Sir Samuel Wilks, in his "Biographical Reminiscences" says that even at Guy's Hospital the thermometer was not in use before 1870, about the time of Wunderlich's book. A full account of the early history of the subject is given in Dr. Weir Mitchell's "History of Instrumental Precision in Medicine" (Tr. Assn. Am. Phys., 1892) and in a capital little book by H. Carrington Bolton, entitled "Evolution of the Thermometer, 1592-1743" (Easton, Pa., 1900). Dr. Mitchell was the first to work up the history of the subject.

ARTICLES ON MUSIC AND ITS RELATION TO THERAPEUTICS

To the Editor:—I have been requested to address a music club and I would like to speak on "The Therapeutic Powers of Music." Please supply me with literature on the subject. P. K. R.

Answer.—The following may be referred to:

Wimmer, D. J.: The Influence of Music and Its Therapeutic Value, *New York Med. Jour.*, 1889, l, 258.
Harford, F. K.: Music and Illness, *Lancet*, London, 1891, ii, 43.
Olker, P. V.: The Influence of Music in Hospitals, *Bull. Iowa Inst.*, Des Moines, 1900, ii, 70.
Merz, C. H.: Music in Medicine, *Lancet-Clinic*, 1892, xxix, 845.
Hermann, A. L.: Hygiene of Music, The Journal, Oct. 15, 1898, p. 939.
Davison, J. T. R.: Music in Medicine, *Lancet*, 1899, ii. 1159.
Boice-Hayes: Therapeutic Value of Music, *Homeop. Eye, Ear and Throat Jour.*, 1900, v, 290.
Shoemaker, J. V.: The Therapeutic Benefit of Music, *Med. Bull. Phila.*, 1901, xxiii, 290.
Brayton, A. W.: Music as a Therapeutic Agent, *New York Med. News*, Oct. 29, 1904.
Edwards, W. M.: Treatment of Diseases by Music, *Am. Med.*, 1905, v, 305.
Brayton, A. W.: Music and Poetry; Their Relation to the Medical Life, *Indianapolis Med. Jour.*, May, 1906.
Knott, J.: Music as a Therapeutic Agent, *New York Med. Jour.*, 1911, v, 678.
Corning, J. L.: Musical Memory and Its Derangements, *Med. Rec.*, New York, Jan. 13, 1912.

HORMONES OF THE BODY

To the Editor:—Kindly give in The Journal a short explanation of the hormones of the body, and greatly oblige several readers.
A Reader.

Answer.—The term "hormone" is derived from the Greek ὁρμάω, meaning to arouse or excite. A hormone is a substance produced by one organ and absorbed into the blood, which serves to arouse the action of another organ. The term was first used by Starling in connection with a substance produced by the intestinal mucous membrane, which, when injected into the blood, powerfully excited the secretion of the pancreas. This substance is known as pancreatic secretin. A similar hormone has been demonstrated in the mucous membrane of the pyloric end of the stomach and is known as gastric secretin. Theoretically it has been assumed that the influence exerted by various organs on others with which they have no nervous connection is due to hormones; thus it is believed that a hormone existing in the uterus or in the fetus arouses the function of the mammary gland during pregnancy. To a large extent the internal secretions of the ductless glands may be regarded as hormones.

GROWTH OF MOLDS IN DILUTE HYDROCHLORIC ACID SOLUTIONS

To the Editor:—In The Journal, Sept. 21, 1912, p. 960, under Queries and Minor Notes, you give directions regarding the preparation of an acid solution. Dilute solutions of hydrochloric acid of this strength do not keep without the addition of chloroform to prevent the growth of molds. A. Dryfoos, M.D., New York City.

Answer.—The objection noted by our correspondent is worth remembering. The directions given in the answer were intended for preparation for immediate use in a given emergency, and did not aim at great accuracy or contemplate a solution to be kept any great length of time. While the solution is a quantitative one, it is used for a qualitative test, so that great accuracy in strength is not required. Hence the directions for preparation were given with a view to convenience.

GRADUATE WORK ABROAD

To the Editor:—Where can I obtain information relative to cost of course, entrance, requirements, etc., in diagnosis and surgery, in the clinics of Vienna? R. J. Drew, Kingston, Wis.

Answer.—This information was given in The Journal, April 8, 1911, where the whole subject of graduate study abroad is fully discussed and various articles of interest are cited. In a subsequent note, Oct. 5, 1912, p. 1310, other articles in current literature are quoted. The "Handbook to Medical Europe," a ready reference book to the universities, hospitals, clinics, laboratories and general medical work of the principal cities of Europe, by Dr. James Henry Honan, reviewed in The Journal, March 23, 1912, p. 886, may also be of interest. It is published by P. Blakiston's Son & Co., Philadelphia. The price is $1.50.

MEASUREMENTS OF A NORMAL CHILD

To the Editor:—I have been asked for information in regard to the measurements of a normal child, between 2 and 3 years of age—height, circumference of the head, neck, shoulders, body and hips. Please advise me where I can secure this information.
R. C. McGann, M.D., Mt. Sterling, Ill.

Answer.—The following figures referring to a child of 2 or 3 years of age are taken from Rotch's "Pediatrics":

		Cm.	Inches		Cm.	Inches
Head	2 years	48	19	Thorax	51	20⅛
	3 years	51	20⅛		55	21¾
					Kilos.	Lbs.
Height	2 years	84.55	33.82	Weight	13.80	30.36
	3 years	92.65	37.06		15.90	34.98
		Mm.	Inches			
Length of spine	2 years	300-331	12-13			
	3 years	341	13½			

Measurements of various groups have given some variations.

COMPOSITION OF LIQUOR AMMONII ANISATUS

To the Editor:—Kindly inform me of the composition and method of preparation of the liquor ammonii anisatus of the German Pharmacopeia. F. E. Way, M.D., Wahoo, Neb.

Answer.—The German Pharmacopeia, edition 5, directs that "liquor ammonii anisatus" be prepared by dissolving anise-oil, 1 part by weight, in alcohol, 24 parts by weight, and adding ammonia-water, 5 parts by weight. Anise-oil is the ethereal oil obtained by distillation from anise-seed.

PROBABLY A CASE OF HERNIA

To the Editor:—Please give the diagnosis and treatment in the following case: The patient, a child aged 1, of normal size and development, has apparently always been healthy. On crying or any straining effort there appears in the right inguinal region an enlargement about the size of a billiard ball, which is present during the greater part of the day but disappears at night. It apparently causes no pain but is slightly tender on pressure. H. T.

Answer.—If this is not a hernia, we are not able to suggest what it may be.

Medical Economics

This Department Embodies the Subjects of Postgraduate Work, Contract Practice, Legislation, Medical Defense, and Other Medicolegal and Economic Questions of Interest to Physicians

PROGRESS IN STERILIZATION LEGISLATION

Many inquiries have been received recently regarding the progress of state legislation on the sterilization of criminals. In order to collect all the data on this subject in a single article, it seems advisable to review the history of this movement. The first law on this subject was adopted by Indiana in 1907. This law is entitled "An Act to Prevent Procreation of Confirmed Criminals, Idiots, Imbeciles and Rapists," and provides that each public institution of the state entrusted with the care of such persons shall have on its staff, in addition to the regular institutional physician, two skilled surgeons of recognized ability, whose duty it shall be, in conjunction with the chief physician of the institution, to examine the mental and physical condition of such inmates as are recommended by the institutional physician and the board of managers. If, in the judgment of this committee, procreation is inadvisable, and there is no probability of improvement of the mental and physical condition of the inmate, the surgeons are authorized to perform "such operation for the prevention of procreation as shall be safest and most effective."

In 1909, Washington, California and Connecticut passed similar laws. The Connecticut law provides for a board consisting of two skilled surgeons and the physician in charge of the institution. If this board decides that procreation by any inmate reported to them by the warden or superintendent would produce children with an inherited tendency to crime, insanity, feeble-mindedness, idiocy or imbecility, and that there is no probability that the condition of any such person so examined will improve to such an extent as to render procreation by any such person advisable, then the board shall appoint one of its members to perform the operation of vasectomy or oophorectomy on such person. It will be noted that the Connecticut law is more specific in that it specifies the conditions which would render procreation inadvisable, and also specifies the operation to be performed.

In 1911, New Jersey, Nevada and Iowa adopted similar laws. The New Jersey law is somewhat more detailed than those previously passed. It provides for a surgeon and a neurologist appointed for five years, who, in conjunction with the Commissioner of Charities and Correction, shall be known as the Board of Examiners of Feeble-Minded, Epileptics, Criminals and other Defectives. Those coming under the operations of the law are limited to persons convicted of the crime of rape or of such successions of offenses against the criminal law as in the opinion of the board shall be deemed sufficient evidence of confirmed criminal tendencies. The opinion of the board under the New Jersey law must be unanimous instead of merely a majority, and before performing the operation the board must apply to some judge of the Court of Common Pleas for an order authorizing the operation. The court is authorized to assign counsel to represent the individual under examination, and all such orders are subject to review by the Supreme Court. Surgeons performing the operation under the law are relieved from responsibility. A record is required of each examination, and a report from the superintendent is called for one year after each operation, showing the result of the operation and its effect on the individual.

In 1912 New York adopted a law providing for a board composed of one surgeon, one neurologist and one practitioner of medicine, each with at least ten years' experience, to be appointed by the governor for five years. The provisions regarding those coming under the operation of the law are similar to those in the New Jersey act. The board of examiners is required to apply to any judge of the Supreme Court (which, in New York, is the court of first and not of last resort), or to the county judge of the county in which the person is confined, asking for the appointment of counsel to represent the person to be examined. The same safeguards are provided as in the New Jersey law, as well as the same provisions regarding reports, etc. An additional clause is added, forbidding the performance of this operation on any person except as authorized by the act, or except as a medical necessity.

A comparison of the laws of Indiana, the first adopted, and New York, the last one, shows that the subject has been considerably amplified since its inception, additional safeguards having been thrown around it. While every possible precaution should be taken to avoid injustice to any individual, it seems doubtful whether the provision of the New Jersey law, permitting the appeal in each case to the highest court of the state, is advisable. The provision requiring an order of the court based on facts presented by the board in open court, in which the individual under consideration is given the right of appearance by counsel, would seem to afford ample safeguard against injustice. Unlimited right of appeal in each case to the highest court of the state hardly seems justifiable, as this provision could easily make it possible to block the operation of the law. The subject is still in a formative condition. Eight states have so far taken action. It is probable that a number of others will consider the subject seriously during the coming winter. The Supreme Court of Washington is the only court of last resort to pass on the question so far. On September 3, the court handed down a decision, sustaining the law and affirming its constitutionality. The court held that the operation was neither painful nor dangerous, and that punishment which included such an operation was not cruel or inhuman. As the principal provisions of the Washington law are found in all those enacted, it is probable that this decision will be accepted as establishing the right of the state to render procreation impossible as a punishment for certain crimes. The right of the state to impose such treatment on a defective ward of the state has not yet been reviewed by the courts.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, November 12. Sec., Dr. F. T. Murphy, Brinkley; Homeopathic, Little Rock, November 12. Sec., Dr. P. C. Williams, Texarkana; Eclectic, Marion Hotel, Little Rock, November 12. Sec., Dr. C. E. Laws, Fort Smith.

CONNECTICUT: Regular, City Hall, New Haven, November 12. Sec., Dr. Charles A. Tuttle, 196 York Street; Homeopathic, Grace Hospital, New Haven, November 12. Sec., Dr. Edwin C. M. Hall, 82 Grand Avenue; Eclectic, New Haven, November 12. Sec., Dr. T. S. Hodge, 19 Main Street, Torrington.

FLORIDA: Regular, Jacksonville, November 11-12. Sec., Dr. J. D. Fernandez.

LOUISIANA: Regular, Tulane University, New Orleans, November 4-6. Sec., Dr. A. B. Brown, 108 Baronne Street; Homeopathic, New Orleans, November 4. Sec., Dr. Edward Harper, 702 Macheca Bldg.

MAINE: City Council Rooms, Portland, November 12-13. Sec., Dr. Frank W. Searle, 776 Congress Street.

MASSACHUSETTS: State House, Boston, November 12-14. Sec., Dr. Edwin B. Harvey, Room 159, State House.

MISSISSIPPI: Capitol, Jackson, October 22-23. Sec., Dr. W. W. Smithson.

NEBRASKA: State House, Lincoln, November 13-14. Sec., Dr. C. P. Fall, Beatrice.

NEVADA: Carson City, November 4. Sec., Dr. S. L. Lee.

TEXAS: Dallas, November 13-14. Sec., Dr. J. D. Mitchell, Wheat Bldg., Fort Worth.

WEST VIRGINIA: Wheeling, November 11-13. Sec., Dr. H. S. Barbee, Point Pleasant.

Preliminary Examiner Appointed in Maryland

Through an agreement among the medical colleges of Baltimore, a preliminary examiner acting under the control and direction of the Maryland Board of Medical Examiners has been appointed to examine entering medical students. Dr. Herbert Harlan, president of the board, writes that Mr. Isaac L. Otis has been selected for this place. Mr. Otis is engaged in teaching history at the Baltimore Polytechnic Institute and has at various times taught also Latin and English. He is said to be very much interested in the work and very careful in observing all details. Dr. Harlan believes that his appointment and the supervision of entrance requirements by the board form the greatest step forward that has been taken in Maryland for a long time. This concerted action on the part of the Baltimore schools and the Maryland Board of Medical Examiners is a positive step in the right direction, since in the past, as has often been stated, one of the weakest places in medical education in this country has been the disregard or feeble enforcement of rules governing preliminary qualifications.

Indiana July Report

Dr. W. T. Gott, secretary of the Indiana Board of Medical Registration and Examination, reports the written examination held at Indianapolis, July 9-11, 1912. The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 79 of whom 77 passed, including 1 osteopath, and 2 failed. Sixteen candidates were licensed through reciprocity The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Coll. of Phys. and Surgs., Chicago	(1911) (1912)	90.9 83.3
Chicago Coll. of Med. and Surg.	(1911) (1912)	89.6 81.2, 87.4
Rush Medical College	(1911)	87.9
Northwestern University Medical School	(1912)	87.2, 87.5, 92.9
Hahnemann Medical College and Hospital, Chicago	(1910) (1912)	80.7 82.2, 88.6
Bennett Medical College, Chicago	(1912)	90.8
Indiana University	(1912)	79.6, 81.7, 85.3, 85.5, 85.9, 86.1, 86.3, 86.5, 87.2, 87.4, 87.5, 87.5, 87.8, 87.9, 87.9, 88, 88.3, 88.4, 88.5, 88.6, 89, 89, 89.1, 89.4, 89.4, 89.5, 89.6, 89.9, 90.3, 90.4, 90.4, 90.6, 90.6, 90.7, 90.7, 91.1, 91.1, 91.3, 91.4, 91.5, 91.8, 92.3, 92.4, 92.4, 92.7
University of Louisville	(1910) (1912)	84.5, 91.6 81.6, 82.8, 83, 83.7, 83.8, 83.9, 86.6
Detroit College of Medicine	(1911)	83.9
University of Michigan, Dept. of Med. and Surg.	(1911)	87.3
St. Louis University	(1912)	90.2
Albany Medical College	(1911)	86.2
Jefferson Medical College	(1912)	88.6
Eclectic Medical College, Cincinnati	(1912)	87.3, 90.2
Woman's Medical College of Pennsylvania	(1894)	84.2
Meharry Medical College	(1912)	86.5
FAILED		
Louisville National Medical College	(1910)	65.6
University of Louisville	(1912)	73

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Howard University, Washington, D. C.	(1894)	Dist. Colum.
Northwestern University Medical School	(1910)	Illinois
Rush Medical College	(1904)	Illinois
College of Physicians and Surgeons, Chicago	(1902)	Illinois
University of Louisville	(1910)	Kentucky
Louisville Medical College	(1903)	Missouri
Baltimore Medical College	(1899)	W. Virginia
Johns Hopkins University	(1907)	Maryland
University of Maryland	(1909)	Maryland
St. Louis College of Physicians and Surgeons	(1908)	Kansas
Barnes Medical College	(1908)	Tennessee
Eclectic Medical Institute, Cincinnati	(1907)	Ohio
Starling Medical College, Columbus	(1906)	Tennessee
Jefferson Medical College	(1895)	N. Carolina
University of Nashville	(1909)	Illinois
Medical College of Virginia	(1895)	Virginia

Oklahoma July Report

Dr. John W. Duke, secretary of the Oklahoma State Board of Medical Examiners, reports the written examination held at Oklahoma City, July 9-11, 1912. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 70. The total number of candidates examined was 59, of whom 47 passed, including 1 osteopath, and 12 failed. Six candidates were licensed through reciprocity, and 7 were licensed under the exemption clause. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Arkansas	(1912)	73.4, 75.3
University of Colorado	(1912)	85.9
Howard University, Washington	(1891)	73
Chicago College of Medicine and Surgery	(1912)	83 87
College of Physicians and Surgeons, Chicago	(1912)	87.7
Atlanta College of Physicians and Surgeons	(1910)	90.4
Medical College of Indiana	(1902)	74.5
Northwestern University Medical School	(1912)	92.1
University of Louisville	(1912)	84.4, 86
Flint Medical College	(1907)	70
Tulane University of Louisiana	(1912)	80.5, 83.2
St. Louis University	(1911) 78.5; (1912)	81.3, 86.1, 87
American Medical College	(1912)	84.4, 85.2
St. Louis College of Physicians and Surgeons	(1912)	79.7, 83.7
Missouri Medical College	(1878)	78.3
Univ. of Oklahoma	(1912)	78.9, 79.9, 81.3, 81.9, 83, 83.2, 86.2, 86.8
Jefferson Medical College	(1886)	72.9
Memphis Hospital Medical College	(1912)	83.4, 83.9, 88.3
University of Tennessee	(1912)	89.8
University of Nashville	(1911)	79.9, 89.8
Vanderbilt University	(1911) 85.4; (1912)	82.3, 85.4
Fort Worth School of Medicine	(1912)	78.3
Southwestern University Medical College	(1912)	80.1
Milwaukee Medical College	(1912)	75.3
Wisconsin College of Physicians and Surgeons	(1912)	82.3

FAILED

College	Year Grad.	Per Cent.
College of Physicians and Surgeons, Little Rock	(1911)	69.6
Howard University, Washington	(1904)	*74.6
Atlanta School of Medicine	(1912)	*75.5
Kansas City Hahnemann Medical College	(1910)	*70.7
St. Louis College of Physicians and Surgeons	(1912)	*70, *72.1
University of Oklahoma	(1912)	*75.6
University of West Tennessee	(1907)	67.8
Meharry Medical College	(1903) 69.6; (1912)	*77.6, *76.8, *78.2

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Mississippi Medical College	(1912)	Tennessee
Eclectic Medical Institute	(1891)	Texas
University of Tennessee	(1890) (1902) (1907)	Tennessee
Memphis Hospital Medical College	(1898)	Texas

LICENSED UNDER EXEMPTION CLAUSE

College	Year Grad.
College of Physicians and Surgeons, Keokuk	(1878)
University of Louisville	(1879) (1893)
Louisville Medical College	(1893)
Meharry Medical College	(1907)
University of Tennessee	(1880)
Baylor University, Dallas	(1901)

* Fell below 50 in one or more branches.

Wisconsin July Report

Dr. John M. Beffel, secretary of the Wisconsin State Board of Medical Examiners, reports the written examination held at Madison, July 9-11, 1912. The number of subjects examined in was 20; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 15, of whom 12 passed, including one osteopath, and 3 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Northwestern University Medical School	(1912)	75, 82, 83
Chicago College of Medicine and Surgery	(1910)	75
Bennett Medical College	(1912)	75, 77
Johns Hopkins University	(1912)	78
Milwaukee Medical College	(1912)	75, 75, 78
Wisconsin College of Physicians and Surgeons	(1912)	75

FAILED

College	Year Grad.	Per Cent.
Indiana University	(1910)	58
Milwaukee Medical College	(1910) 61; (1912)	56

Wisconsin September Reciprocity Report

Dr. John M. Beffel, secretary of the Wisconsin State Boar of Medical Examiners, reports that at the meeting held a Milwaukee, Sept. 19, 1912, ten candidates were license through reciprocity, including one osteopath. The followin colleges were represented:

College	Year Grad.	Reciprocit with
Rush Medical College	(1879) (1908)	Illinoi
College of Phys. and Surg., Chicago	(1905) (1911)	Illinoi
Hahnemann Med. College and Hospital, Chicago	(1901)	Illinoi
Northwestern University Medical School	(1908)	Illinoi
Johns Hopkins University Medical School	(1911)	Marylan
St. Louis University	(1911)	Illinoi
University of Nashville	(1911)	Tennesse

North Dakota July Report

Dr. G. M. Williamson, secretary of the North Dakota Stat Board of Medical Examiners, reports the written and ora examination held at Grand Forks, July 2-6, 1912. The numbe of subjects examined in was 13; total number of question asked, 110; percentage required to pass, 75. The total number of candidates examined was 10, of whom 6 passed and 4 failed. Two candidates were licensed through reciprocity. Eight other candidates applied for licenses through reciprocity but were required to take supplementary examinations in a few subjects, 6 of whom passed and 2 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Northwestern University Medical School	(1912)	91.2
Grand Rapids Medical College	(1907)	77
Univ. of Minn., Coll. of Med. and Surg	(1912)	83.9, 84.8
Hamline University	(1896)	78.2
University of Manitoba	(1912)	*

FAILED

College	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1910)	70.7
Keokuk Med. Coll., College of Phys. and Surg.	(1903)	67.4
Barnes Medical College, St. Louis	(1905)	67
University of Toronto, Ontario	(1910)	72.4

RECIPROCITY WITHOUT EXAMINATION

College	Year Grad.	Reciprocity with
Univ. of Minn., Coll. of Med. and Surg	(1909)	Minnesota
Hamline University	(1911)	Minnesota

RECIPROCITY WITH SUPPLEMENTARY EXAMINATION

College	Year Grad.	Reciprocity with
Northwestern University Medical School	(1910)	Illinois
Chicago College of Medicine and Surgery	(1910)	Illinois
University of Minnesota, College of Med. and Surgery	(1902) (1903) (1905)	Minnesota
Milwaukee Medical College	(1910)	Wisconsin

FAILED TO PASS SUPPLEMENTARY EXAMINATION

College	Year of Graduation
Rush Medical College	(1906)
University of Minn., Coll. of Med. and Surg	(1904)

* No grade given.

The following questions were asked:

ANATOMY

Answer eight questions; include 3 and 6. 1. Describe the superior mediastinum, naming its contents. 2. Describe the course and distribution of the external popliteal nerve. 3. Describe the fissure of Rolando. Name the convolutions by which it is bounded. By what lines on the exterior of the skull would the position of the fissure be indicated? 4. Name the coverings of the testicle and of an oblique inguinal hernia. 5. Name the structures severed in an amputation through the elbow-joint. 6. Describe the operation of ligature of the left common carotid artery at the "seat of election," naming the structures seen and divided. 7. Describe the thoracic duct. 8. Describe the articular surfaces of the lower ends of the radius and ulna. With what do the various surfaces articulate? 9. Give the course and relations of the esophagus in the thorax. 10. Describe the antrum of Highmore.

HISTOLOGY

1. Give the histology of blood. 2. Describe the kidney. 3. Give the histology of the stomach. 4. Describe the different kinds of muscle found in the body. 5. Give the histology of bone.

PHYSIOLOGY

1. Describe the functions of the spinal nerves. 2. What are the principal functions of the posterior, lateral and anterior columns of the spinal cord? 3. Describe the process of digestion. 4. Describe (a) chyme, (b) chyle. 5. Give the varied functions of the sympathetic nerves. 6. State the approximate time of eruption of the temporary teeth. 7. Name two circumstances influencing secre-

tion. 8. Give the reactions of the following fluids and state the cause of reaction in each case: blood, gastric juice and pancreatic juice. 9. How is bone nourished? 10. Name the excretory glands of the body and the functions of each.

PATHOLOGY

1. Describe the characters, naked eye and microscopic, of the blood in myelogenous leukemia and in pernicious anemia. 2. Describe the appearance of the heart in an advanced case of mitral stenosis. What are the results of mitral stenosis on other organs, and explain how these results are brought about. 3. Describe the microscopic appearance of (a) a myoma, (b) a fibroma, (c) a papilloma, (d) a scirrhus cancer. 4. Discuss the causation and pathology of acute lobar pneumonia and give an account of its various stages. 5. What are the varieties of cerebrospinal meningitis? Give an account of the organism which causes the epidemic form.

BACTERIOLOGY

1. Describe the typhoid bacillus. State also where it is found and its behavior in culture mediums. 2. Give the different steps in making Widal's test. 3. Describe the process of preparing blood-serum to be used as a culture medium. 4. How would you diagnose a suspected case of diphtheria? Describe in detail. 5. What is diphtheria antitoxin? How is it obtained?

CHEMISTRY

1. What treatment is indicated in a case of poisoning by mercuric chlorid? 2. How would you determine, chemically, whether a urinary deposit were composed of urates or phosphates? 3. What is the difference between atomic weight and specific gravity? 4. Give in detail a test for albumin in the urine. 5. Give in detail a test for sugar in the urine. 6. Differentiate hydracid and oxacid. 7. Give the chemical composition of (a) Glauber's salt, (b) Epsom salt. 8. What are (a) albuminoids, (b) proteids? Give example of each. 9. Give two tests for morphin. 10. Define allotropism.

OBSTETRICS AND DISEASES OF CHILDREN

1. What changes take place in the uterus during pregnancy and during involution? 2. How would you diagnose a breech presentation? 3. Conduct a labor with a breech presentation. 4. Give etiology and treatment of puerperal infection. 5. What are the causes of sudden death of the mother following labor? 6. Placenta prævia: causes, symptoms and treatment. 7. How would you treat asphyxia in the new-born? 8. Give the causes and treatment of seborrhea capitis in infants. 9. Give causes, prophylaxis and treatment of ophthalmia neonatorum. 10. Give etiology, diagnosis and treatment of scarlet fever.

GYNECOLOGY. DISEASES OF EYE AND EAR AND NERVOUS SYSTEM

1. What procedure do you follow and what special precautions do you take in making pelvic examinations of vaginas? 2. Give two common causes in dysmenorrhea and treatment. 3. Pruritus vulvæ, causes and treatment. 4. Leukorrhea, causes and treatment. 5. Symptoms and diagnosis in ruptured ectopic pregnancy. 6. Enumerate remote sequelæ of acute affections of the nasal passages and how to guard against their occurrence. 7. What symptoms are produced by adenoids? 8. Give general outline of treatment of "foreign bodies" in cornea and conjunctiva. 9. Enumerate three forms of insanity with differential diagnosis of each. 10. Give definition, etiology, treatment and prognosis of locomotor ataxia.

PREVENTIVE MEDICINE

1. What is a germicide? Name four of the most important and how used. 2. Define actinomycosis. How is it contracted and what preventive measures should be taken? 3. Name all the causes you know for the summer diarrhea of infants; also the most important factor in prophylaxis. 4. Describe your method for the disinfection of typhoid excreta. In the use of bichlorid of mercury for this purpose, what precautions should be taken and why? 5. What is intestinal auto-intoxication? What causes it and how would you prevent it? 6. Outline your method of general prophylaxis for diseases of the respiratory apparatus. 7. What are the conditions which render water unfit for drinking purposes? Name the different methods for purification of the same. 8. Give your method for the disposal of garbage and sewage in a small country town. 9. How is malarial fever contracted? What means would you employ to prevent its spread? 10. How long would you quarantine for diphtheria? What method would you use to determine the time?

SURGERY

1. Describe in detail your treatment of a simple fracture of the femur. 2. Give symptoms and treatment of tuberculous disease of hip-joint. 3. Name the principal causes and describe the general symptoms of ileus. 4. Give differential diagnosis of renal calculi, gall-stones and acute appendicitis. 5. Give in their order the symptoms of perforation of bowel occurring in typhoid fever. 6. Define: Charcot's joint, Volkmann's contracture, Pott's fracture, spina bifida, cystocele, talipes equinovarus.

PHYSICAL DIAGNOSIS

1. Describe briefly the following diagnostic signs or tests and name opposite each the disease or diseases in which they may be found: (a) Koplik's spots; (b) Romberg's symptoms; (c) Argyll Robertson pupil; (d) Babinski's reflex; (e) Kernig's sign; (f) caput medusæ; (g) Heberden's nodes. 2. (a) Show, by diagram and brief description, the percussion boundaries of the adult heart; (b) name the viscera contained in the left hypochondriac region. 3. Describe briefly the different types of chests and their significance. 4. Give the etiology, the symptoms and the complications of typhoid fever. 5. The differential diagnosis of variola vera, scarlatina and morbilli. Include the probable complications. 6. Give the etiology, the different types, the characteristic symptoms and the prognosis of rheumatoid arthritis. 7. Differentiate between chronic appendicitis and nephrolithiasis. 8. Definition, etiology, symptoms and prognosis of (a) herpes zoster and (b) erysipelas. 9. Definition, etiology, symptoms and prognosis of myxedema. 10. Differential diagnosis between phlegmonous tonsillitis and diphtheria.

TOXICOLOGY

Answer five questions only. 1. What is the smallest lethal dose of atropin? 2. What do you know of opium as a poison? 3. Give the symptoms of poisoning by phenol (carbolic acid). 4. Can mercuric chlorid act as a poison if used in solution externally? 5. Symptoms of poisoning by lead. 6. Post-mortem appearances after arsenic poisoning. 7. Has the hypodermic use of apomorphin been attended with fatal results? If so, in what amount? 8. What is meant by ptomain poisoning? 9. Give test for arsenic. 10. Is there danger of toxic effect in using bismuth paste in suppurating sinuses?

MEDICAL JURISPRUDENCE

Answer five questions only, including No. 5. 1. Called to view the body of a person found dead, how would you determine the time of death? 2. Define "insane delusion." 3. Can a physician take or call a stranger, not a physician or nurse, into a room where he is treating a patient, without the patient's consent? 4. What is necessary to establish a legal defense of insanity in a criminal case? 5. The dead body of a man, with a fractured skull, was found at the foot of a stair. His cap was found in a hall leading to the top of the stair. On the cap was a dark stain. People in the house said that the deceased met his death by accidentally falling from the top of the stair. If it could be shown that the stain on the cap was a blood-stain and that the blood was that of the deceased it would prove that the deceased was assaulted and killed inside the house and the body thrown out to make it appear an accident. Can this be done? If so, describe the process. 6. What is "criminal abortion"? 7. Give the signs of death. 8. Can an unregistered physician legally practice medicine in this state, as the hired assistant of a qualified and registered practitioner? 9. A suit was brought against a physician for malpractice. Defendant (the physician) claimed that the alleged disability was due to the results of a specific contagious disease, for which he had treated the plaintiff, and not to any neglect or improper treatment on defendant's part. Plaintiff's attorney objected to the defendant testifying as to the nature of the specific disease, on the ground that it would be a violation of professional privilege. What is your opinion of that point? 10. A physician in good faith stated that a patient, an unmarried woman of good reputation, was pregnant. This statement was made to the patient, who had consulted the physician, and in the presence of her mother, who had accompanied her. The physician was sued for slander although it was admitted that the statement, which proved to be incorrect, was made without malice. Was the physician legally guilty of slander?

Book Notices

DISEASES OF THE NOSE AND THROAT. Comprising Affections of the Trachea and Esophagus. A Text-Book for Students and Practitioners. By St. Clair Thomson, M.D., F.R.C.P. (Lond.), F.R.C.S. (Eng.), Professor of Diseases of the Throat and Professor of Laryngology in King's College Hospital. Cloth. Price, $7.50. Pp. 791, with 294 Illustrations. New York: D. Appleton and Company, 1912.

The opening chapters on examination are practical and concise, and the technic described coincides with the routine usually taught and practiced in this country. The importance of proper technic is made clear by illustrations and explanatory notes. In direct laryngoscopy and esophagoscopy Thompson advocates Killian's method under local anesthesia in adults, and complete general anesthesia for children, which has been the common method. We find, however, that children can usually be operated on by Killian's method to better advantage without general or complete anesthesia, and often without any anesthetic.

The chapters on treatment are prolific with good hints which quite agree with accepted experience. The paragraph on galvanocautery is valuable especially in advising antiseptic precautions. The use of heat or cold and rest as therapeutic measures and some timely words on cocain, its action, management of anesthesia and toxic effect, can be read with gain by all students. A practical outline of symptoms of nasal disease along with one giving effects and symptoms of nasal obstruction is followed by some good discussion of the pharynx and tonsils with their affections, by illustrations of various operative procedures, and by some valuable reproductions of x-ray pictures on sinus diagnosis and operations. The various methods are impartially elaborated for the reader to take his choice. The chapter on adenoids is quite a book in itself and can be understood even by the tyro. Hemorrhage from the nose and throat is concisely considered and the methods of treatment and prevention clearly demonstrated. Diseases and deformities of the septum receive adequate attention and most of the operations for treatment and correction of the various conditions are fully described.

The neuroses and the different forms of paralyses of the larynx are ably discussed and illustrated. The trachea and esophagus with their diseases occupy a generous space. Intubation, tracheotomy and laryngectomy are well pictured. Tuberculosis and syphilis of the upper air-passages are deservedly given many pages in which one finds much useful information. The different infectious diseases as related to the upper air-passages are exhaustively presented. Foreign bodies in air-passages and food-passages with operations for their removal are freely illustrated. Altogether this is an excellent work;

but we regret that the illustrations, though answering the purpose, are not artistically executed; they do not do justice to the times and the text. Although the work is comprehensive several important subjects have been omitted and the author appears to be unfamiliar with a number of the recent developments in rhinology and laryngology in this country.

Dusty Air and Ill Health. A Study of Prevalent Ill Health and Causes. By Robert Hessler, A.M., M.D. Cloth. Price, $1.65. Pp. 352. For sale by the author. Logansport, Ind., 1912.

We have before us a work *sui generis*; it is not addressed to physicians, but maintains toward its readers an attitude in which it is almost assumed that the hearer is in a position to give a critical judgment of the matters under discussion. The style is not dogmatic nor is the arrangement systematic. The author passes gracefully from the relation of the symptoms in a case to a speculation as to what sort of physician the patient's son, who has previously treated him, may be. The author makes a distinction between disease and ill health which may not stand a critical examination, but which serves to emphasize a matter worthy of careful consideration, namely, that the physician of the present day by his precision in diagnosis is trained to neglect the minor ills of his clientele which do not fit into his scheme of classification and are therefore not worth his attention. These indefinite affections have impressed Dr. Hessler as arising from very common sources, many being caused by dusty air. He has collected a considerable amount of evidence in favor of his view.

Since the work does not pretend to be a scientific contribution to the literature of dust disorders or coniosis, it is difficult to give advice as to its value to the physician. He can find some valuable hints in it, although the preface states that it is not written for the practitioner of medicine. Whether he will find it desirable to recommend it to his patients is a question for some deliberation. To a certain class of patients who can be trusted to make the kind of observations which the author expects his patients to make, it might be suggestive and useful. For the ordinary chronic patient it would probably foster untenable theories and by its numerous reflections on the ability of physicians lessen the confidence of the patient in his physician. At any rate, we believe that before recommending this work to patients the needs of the individual patient should be taken into consideration.

Physiologisches Praktikum. Chemische und Physikalische Methoden. Von Prof. Dr. Emil Abderhalden, Direktor des Physiologischen Institutes der Universität zu Halle a. S. Paper. Price, 10 marks. Pp. 283, with 271 illustrations. Berlin: Julius Springer, 1912.

This work is devoted to the descriptions of tests and methods to be pursued in the analysis of the different secretions of the body, accompanied by many illustrations of the apparatus to be used in the carrying out of these methods. The author goes into the analysis of the blood and the taking of the blood-pressure. He also includes in this work the practical methods in making a general physical examination of the different organs of the body. As a handy book of reference to be used in the laboratory this work can be recommended.

Nervous and Mental Diseases. By Archibald Church, M.D., Professor of Nervous and Mental Diseases and Medical Jurisprudence in the Northwestern University Medical School, Chicago, and Frederick Peterson, M.D., Professor of Psychiatry, Columbia University. Seventh Edition. Cloth. Price, $6.50. Pp. 932, with 343 illustrations. Philadelphia and London: W. B. Saunders Company, 1911.

This edition is in some respects a new work. The section on nervous diseases has been revised and new chapters added. The articles on poliomyelitis and pellagra are rewritten so as to embody recent researches. The author gives a good review of the theories of hysteria. While describing the views of Freud, he follows in general the outline presented by Charcot and his school. On the other hand, in the section on insanity Peterson describes in some detail the method of psychanalysis as used by Freud. The section on insanity has been rearranged and rewritten to correspond to the more modern method of classification. The work has become a standard text-book on the subject of which it treats, and the revision bids fair to enable it to maintain the high position that it has attained.

Medicolegal

Refusal to Marry a Woman Who Has Become an Invalid

(Travis vs. Schnebly (Wash.), 122 Pac. R. 316)

The Supreme Court of Washington reverses a judgment rendered in favor of the plaintiff for damages for breach of promise where a defense was that subsequently to the time the engagement was made to marry the plaintiff became afflicted, or was discovered to be afflicted, with what is commonly known as "floating kidney," the tendency of which is to render a woman so afflicted therewith nervous, irritable, and weak, and to greatly increase the danger above the danger ordinarily incurred by entering into the marriage relation and becoming a mother, etc. The court holds that it was reversible error to refuse to instruct the jury that if, after the plaintiff and the defendant became engaged the plaintiff became too ill to enter into the marriage relation, the defendant would not be required to wait an unreasonable length of time for her to recover, and if the jury found from the evidence that she was thus ill, and that the defendant waited as long as was reasonable under all the circumstances for her to recover, and she had not recovered, then he had a perfect right to withdraw from the engagement, and the verdict should be for him.

When the parties first entered into their mutual agreement to marry, the plaintiff, as far as known, was a strong and healthy woman free from any physical ailments or diseases. Shortly thereafter, without fault of either of the parties, she became ill, and was compelled to submit to a surgical operation, and for a long period of time continue under medical treatment. The defendant contracted to marry a healthy woman, and not an invalid. When it became manifest that by reason of poor health she could not marry, postponements were made awaiting her recovery. This constituted a modification of the original contract, and imposed on the defendant the duty to wait a reasonable time for her recovery. The agreement still contemplated that the defendant was to marry a healthy woman. He at no time agreed to marry an invalid, although he did agree to wait a reasonable time. Ill health of one party, contracted without his or her fault, after the original promise to marry, is a defense available to the other party in an action for breach of promise. A man who has only agreed to marry a healthy woman should not be compelled to accept her as his wife should she become an invalid before marriage.

This court has made an exhaustive examination of the authorities, but finds no similar case. Here was a plaintiff who, according to the defendant's contention, was well and hearty when he agreed to marry her, but who had the misfortune to incur a serious and perhaps permanent illness which impaired her physical vigor and unfitted her for becoming a helpmeet to her husband. Yet she insisted that he should either marry her or respond in damages. No court should impose any such obligation on him. The plaintiff had been unfortunate, but that was not the defendant's fault. It must be presumed that he would not have entered into the agreement could he have foreseen the unfortunate condition into which she had fallen relative to health. To award damages for his refusal thereafter to marry her would be to make for him a contract which he himself neither made nor intended to make.

Contracts of the Insane—Waiver of Privilege

(San Francisco Credit Clearing House vs. MacDonald (Cal.), 122 Pac. R. 964)

The Court of Appeal of the First District of California says that a person of unsound mind whose incapacity has been judicially determined cannot make a contract nor delegate any power until his restoration to capacity. But the contract of a person of unsound mind, although not entirely deprived of understanding nor judicially determined to be insane, is not void, but merely voidable. Consequently it would seem that a person may be insane in the general acceptation of the term and yet his insanity may be of such a character as not to deprive him entirely of the power of knowing and understanding the nature of ordinary business transactions.

and that such form of insanity, or rather unsoundness of mind, will not render a person legally incapable of entering into a valid contract. In this case a claim of one Gage against the defendant was compromised for $4,000, for which the defendant gave Gage his note, which was assigned to the plaintiff for the purpose of collection. If Gage was not so far insane at the time of the compromise as to be considered without understanding, he in person would have been legally capable of conducting and completing negotiations for the settlement of his claim against the defendant, and as a matter of course that which Gage could do in person might also be done by his agent and attorney in fact. Moreover, if Gage in person had sued on the note, he would undoubtedly have waived the privilege which the law gave him, of sealing the mouth of his physician, by calling the latter to testify to his mental condition, and the assignment of the note to the plaintiff for the purpose of collection made the plaintiff his agent and carried with it the implied consent to use such means and introduce such evidence on the trial of the case as might be necessary to a recovery on the note. Therefore the act of the plaintiff in calling and examining as a witness a physician who had attended Gage as a patient must be held to be Gage's act and Gage's waiver of the confidence reposed by him in his physician. The general rule of law found in subdivision 4 of section 1881 of the California Code of Civil Procedure which, in effect, declares that a physician may not give in evidence any information concerning the ailment of his patient which was acquired during his employment and necessary to the performance of his professional duties was created for the protection of the patient and confers a personal privilege on him which may be expressly or impliedly waived by him in person or by an attorney or agent.

Relative Weight of Testimony of Alienists

(In re Ward (U. S.), 194 Fed. R. 89)

The United States Circuit Court of Appeals, Third Circuit, says that whatever may be the rival contention of alienists, the lay mind is very apt to rely on the testimony of witnesses who prove the conduct, actions and speech of a man, and where of certain alienists called as witnesses two of them had under treatment the man whose sanity was in question their testimony had correspondingly greater weight than that of hypothetical testimony.

Society Proceedings

COMING MEETINGS

Clinical Cong. of Surgeons of North America, New York, Nov. 11-16.
Kentucky State Medical Association, Louisville, Oct. 29-31.
Mississippi Valley Medical Association, Chicago, Oct. 22-24.
Southern Medical Association, Jacksonville, Fla., Nov. 12-14.
Virginia Medical Society, Norfolk, Oct. 22-25.

PENNSYLVANIA STATE MEDICAL SOCIETY

Sixty-Second Annual Meeting, held in Scranton, Sept. 23-26, 1912

The President, Dr. James Tyson, Philadelphia, in the Chair

A list of the newly elected officers appeared in The Journal, October 12, p. 1386.

The Treatment of Epilepsy with Crotalin

Dr. Ralph H. Spangler, Philadelphia: I have studied eighteen cases of epilepsy during a period of six months in each case. I was able to determine (1) that the symptoms of epilepsy are closely related to certain changes in the composition of the blood; (2) that it is possible to influence the composition of the blood through the hypodermic administration of crotalin solution; (3) that we possess in crotalin a therapeutic means that can influence advantageously the altered condition in the blood of epileptics.

DISCUSSION

Dr. Myer Solis-Cohen, Philadelphia: I wish to suggest that epilepsy may be due to disease in the hypophysis, and that the different clotting-times of the blood may vary according to whether the anterior or the posterior lobe is affected. All cases ought to be examined for the clotting-time, and the treatment should be determined by whether the clotting-time is lengthened or shortened. In cases of shortened clotting-time, extract of the anterior lobe of the pituitary body should be given, as well as crotalin.

Dr. L. Napoleon Boston, Philadelphia: We should try to find out what other elements in the blood are affected by the venom. The coagulation-time is but one symptom, as it were, in the cases that give us this knowledge. There are methods, although not very satisfactory ones, by which we can estimate these various factors. It is impossible to obtain every reading the same with regard to viscosity, coagulability or tension, because of the difficulty in conveying the blood from the patient. I have treated eleven cases of epilepsy with rattlesnake venom; nine patients have shown relief. In girls at about the age of puberty, it seems to have a decided effect, not only on the epileptic seizures, but on the general temperament and development.

Dr. Harry Lowenburg, Philadelphia: The use of crotalin is not without danger. I had several abscesses occur. A week or so after the injection a hard node would appear, which would be followed by softening; incision would reveal a subcutaneous slough. In one case I feel sure that the patient died as the result of the use of crotalin.

Dr. R. H. Spangler, Philadelphia: I have under observation a girl who has had no treatment for over a year, and has had no attacks for twenty months. I tested the clotting-time in June, and found it to be six minutes and a quarter. Therefore, it looks as if there were some lasting effect from the injections. The personal equation is largely eliminated by taking the average clotting-time in the case for a month. The only observation that I have made is on the effect on the clotting-time, but I hope to take up the matter of viscosity. Cases of epilepsy developing at the menopause have done remarkably well under the crotalin treatment. I have had but one abscess in some thousands of injections.

Medical Inspection of Schools in the Fourth-Class Districts in Pennsylvania

Dr. Samuel G. Dixon, Harrisburg: It was not until 1911 that the state passed a law to promote the medical examination of school children. In this law, which is in the main good, there are two provisions that seriously cripple its action in districts comprising nearly three-quarters of the whole number of children. These are that in districts of the third class it is at the option of the directors whether in any particular year they shall have medical inspection or not; and that in districts of the fourth class, they may dispense with inspection entirely by vote. Through this defect in the law, over 6,000 children were left to go without the medical care given in other counties, although about the same number did reap the benefit of medical examination. One or more defects were found in 105,000, and the returns of the teachers indicate that thousands of children were distinctly benefited by the inspection made last year.

DISCUSSION

Dr. Walter S. Cornell, Philadelphia: Pennsylvania is away ahead of any other state in the Union at the present time in regard to medical inspection, in spite of the defects in the law. The difficulties that have arisen around medical inspection are due to the system of medical practice under which we live. Medical men have been trained to a profession rather than to a business. In professional work, the physician takes a fee and performs occasional services; but when he draws a salary he must attend to his duties regularly. Another point is that the medical schools have not trained men in the study of the specialties in relation to internal medicine; so that, in order to get the facts needed in such work as medical inspection of schools, they have to buy large books on the different specialties.

The Bacteriology of Catarrh and Common Colds

Dr. A. Parker Hitchens, Glenolden: Acute catarrh of the mucous membranes of the upper respiratory passages is among the most common of diseases. Little attention is paid to severe forms of this condition, and practically none to milder cases. The economic loss from catarrhal conditions is enormous. This loss results from direct disability, and indirectly from a great variety of other affections dependent on diminished local resistance. Many theories have been advanced to account for the etiology of acute catarrh. The determining cause is undoubtedly an infection. A number of bacteria classed as catarrhal organisms may be separately or conjointly responsible. A knowledge of the pathology of the disease and its etiology should suggest more efficient means for prevention, cure and control of sequelæ.

DISCUSSION

Dr. Walter Webb, Swarthmore: During the past winter and early spring months, I have treated all cases of catarrhal conditions of the upper respiratory passages with pulmonary mixed bacterins exclusively, without a single failure. Many patients were relieved entirely within one week, only a few requiring more than two or three injections. As these rendered them practically immune for a long period, I would strongly urge the use of this remedy. I have used the serum in five children under 10 years, employing a smaller quantity and lengthening the interval. I have had no reaction, except an inflamed condition of the area of injection. In most cases the children came through normally and were not inconvenienced.

Hemiplegia with Gradual Onset, Due to a Cerebral Neoplasm

Dr. M. Howard Fussell, Philadelphia: Mrs. C., aged 44 years, underwent a hysterectomy in 1910. In July, 1911, she was seized with a sudden clonic spasm of the left arm, with no loss of power. This was followed by loss of power in the right and left middle fingers, numbness, and gradual loss of power in the hand, arm and shoulder. Four weeks later there was loss of power in the left leg, with vertigo and headache. The eye-grounds were normal. Then there was loss of power in the left face. An operation was performed, but the patient died. Autopsy showed no gross changes. On the surface of the horizontal section there was seen softening of the right occipital lobe, and microscopically there could be distinguished tumor structure. The right occipital, parietal and temporal lobes and the ependyma were involved.

(To be continued)

INTERNATIONAL CONGRESS ON HYGIENE AND DEMOGRAPHY

Fifteenth Meeting, held at Washington, D. C., Sept. 23-28, 1912

(Concluded from page 1396)

Vaccination in Siam

Dr. Paul G. Woolley, Cincinnati: Vaccination was first introduced into Siam in 1840 by American missionaries, and up to 1906, when I was engaged by the Siamese government to equip and direct the work of its serum laboratory, the bulk of the work and the expense of vaccination had been undertaken by the American missionaries. Since 1906, vaccine has been made by modern methods, and no pains have been spared to produce a clean, active virus. But in spite of the character of the vaccine and the possibilities of making very large quantities, only comparatively small amounts have been used, with the result that, in 1908, a severe epidemic of smallpox occurred. This happened, and will happen again, because vaccination is not compulsory in Siam, and because revaccinations are very infrequent.

Etiology of Trachoma

Dr. Anna W. Williams, New York City: Hemoglobinophilic bacilli are found in cases of trachoma coincidently with Prowazek's (trachoma) inclusions. These bacilli have the same cycle of development as that of the "Prowazek inclusions." They cannot be differentiated from the Koch-Weeks bacillus or *B. influenzæ*. Cases beginning as acute contagious conjunctivitis may pass into the condition known as trachoma. These facts lead to the hypothesis that "trachoma" is caused by infection with one or more of the group of hemoglobinophilic bacilli, producing primarily an acute inflammation, and, secondarily, in susceptible cases, a subacute and chronic productive inflammation. Acting on this hypothesis for the past year and a half the acute contagious conjunctivitis cases as well as those of "trachoma and allies" have been closely followed and treated in the New York schools and homes. Now, there are practically no cases of "typical trachoma."

Bacteriologic Examination of Market Milks

Dr. P. G. Heinemann, University of Chicago: Examination of 215 samples of milk bought in the open market in original packages showed that pasteurized milk, as sold in Chicago to-day, is cleaner than raw milk. It contains less than one-fourth the number of bacteria contained in raw milk. This number would be much smaller if pasteurization were universally of high efficiency. Methods of commercial pasteurization of milk are still in a stage of evolution, but development has progressed to a degree which will insure efficient pasteurization within a few years. Pasteurized milk turns sour the same as raw milk, the process being somewhat delayed, however.

Relation of Parasitic Amebas to Disease

Dr. Charles F. Craig, Medical Corps, U. S. Army: The cultural amebas so far described are all free-living species. There is not sufficient evidence to prove that any of the species which have been cultivated are the cause of dysentery in man or animals. The evidence is conclusive that *Entamœba coli* does not produce dysentery in man, but is a harmless commensal normally present in the intestine of a considerable proportion of healthy individuals in all parts of the world in which search has been made for the parasite. The evidence is conclusive that both *Entamœba histolytica* and *Entamœba tetragena* are capable of producing the lesion of amebic dysentery in susceptible animals and that these species are the cause of a distinct and characteristic form of dysentery in man.

Phenomena of Anaphylaxis in Pellagra Patients Inoculated With the Watery Extract of Spoiled Maize

Prof. Guido Volpino, Institute of Hygiene Royal University of Turin, Italy: Pellagra patients, when subjected to an inoculation of a certain quantity of watery spoiled maize, either subcutaneously or into the muscles, which are insufficient to produce appreciable phenomena in the great majority of non-pellagrous people, present, after a few hours, and with rare exceptions, a distinct reaction of hypersensibility. Such a reaction manifests itself by dulness, drowsiness and a state of semicoma, or by a strong physical and nervous excitability. Such phenomena are accompanied in either case by a remarkable acceleration of the pulse, dyspnea, rise of temperature as high as 40 C., and often vomiting and increase in peristalsis, with bloody diarrhea, and, sometimes, aggravation of pre-existing eruptions. This hypersensibility has particular characters, which cannot be produced by the injection of watery extract of sound maize.

The substance which determines such a reaction of the watery extract of spoiled maize is obtained by adding a given volume of the grain (deteriorated by mycotic action but not rotten), after having been finely triturated, to 3 or 4 volumes of physiologic salt solution; by keeping the whole in infusion for six hours in a water-bath at 55 C.; by filtering the liquid and by treating it, at last, with twenty times its volume, of absolute alcohol. In such a way a precipitation of the active substance is obtained in white flakes. The active substance thus obtained, to which we have given the name of "pellagrogenina," is soluble in water and not in alcohol; it does not lose its activity at a temperature of 110 to 115 C.; it has only a slight degree of toxicity, both for the trial animals and, in general, for a sound man; it is, on the contrary, decidedly toxic for a man afflicted with pellagra.

The characteristic reaction of hypersensibility in the pellagra patients, which results when the watery raw extract of spoiled maize is injected into his body, is more notable when the pure pellagrogenina, dissolved in fit quantities of water, is employed. This pure material, when injected into nonpellagrous persons, has never given an appreciable reaction, though tried in numerous cases. The results obtained in about 100 experiments made with this substance cause us to consider it of specific efficiency in the pathogenesis of pellagra, and induces us to propose it as a practical means of anaphylactic reaction for the diagnosis of pellagra. In order to obtain the reaction in an appreciable degree, and without danger to those suspected to be pellagrous, the first injection should be limited to 1 c.c. of a 10 per cent. watery solution (sterilized at 100 C.) of pure pellagrogenina. If no positive result is obtained by a first injection, a double dose may be tried.

Physiologic Significance of Some Substances Used in the Preservation of Foods

DR. JOHN H. LONG, Chicago: A considerable number of substances are added to food largely because of their preservative properties, rather than because of flavors they may impart. Some of the so-called "natural" preservatives come under this head. Modern conditions of living and modern scientific advances have called for the introduction of more efficient bodies, the so-called "chemical" or "artifical" preservatives. Many of these bodies have been condemned, and, perhaps, properly, but frequently the condemnation is solely on the ground of their origin. This basis of condemnation has no justification in fact, as all preservatives are as truly chemical as are those of recent introduction made by industrial processes. The active principles in cloves, cinnamon, allspice, etc., are true chemical compounds and in their action on the body and final disposition are much like benzoic acid, now made largely by laboratory processes.

A number of important investigations on the physiologic action of sodium benzoate have been carried out in the last few years. The effects of large and small amounts of benzoic acid are known, and it has been clearly shown that the use of the small quantities employed in the ordinary protection of the condimental foods is quite unobjectionable. Such small amounts are normally disposed of in the human body without ill effects.

In France and Germany copper salts have long been used in the canning industries. Several commissions have pronounced in favor of permitting the use of copper salts, although others have opposed it. But all authorities have come to agree that the toxicity of these salts is much less than was at one time assumed. This toxicity depends somewhat on the combinations in which the salts are ingested. The effects of copper as used in young peas or string beans are far less marked than are those of inorganic salts. It is, therefore, not quite justifiable to draw conclusions as to the behavior of copper from experiments with copper sulphate alone. If only very young and fresh vegetables, with plenty of chlorophyl, were treated with copper, and if the amount were strictly limited, there might be but little fault found. But with older vegetables the combination is far less stable and the effects approach those of the inorganic salts. The amounts of copper taken up by the liver and other organs from inorganic salts may be considerable, and such absorption cannot be held free from danger. The use of these salts serves no real good purpose and should be condemned.

Public Health Administration

DR. THEODORE THOMSON, chief assistant medical officer of the Local Government Board, London: The central health body is the local government board in England, and this board has absolute supervision over practically every phase of public health administration throughout the country. While the county and municipal divisions select their own officers, in most cases such selections are subject to the approval of the local government board, and this board may supersede any local officer when such action is deemed necessary. The central board may at any time put into force special regulations in the local constituencies for the prevention or subjection of epidemics or epidemic diseases. The board may require the reporting of any particular disease by municipal and county officers, and much of the industrial hygiene work is carried on directly under the supervision and direction of the board.

Some Thoughts on Sanitary Questions Concerning the Immigrant in His Own Country and in the United States of America

DR. JOHN COSTAS, Greece: There should be the enactment of laws by all nations, especially those concerned in the immigration to the United States of America, which will compel each immigrant to undergo a thorough physical examination by one of the physicians of his community before his departure, furnishing him with a certificate which shall be countersigned by the mayor or some other municipal authority. All steamship companies should be furnished with booklets written in all European languages, also in Turkish and Syrian for distribution among the immigrants on board—such circulars to contain the principal sanitary rules and regulations, together with some instructions on the fundamental principles of personal hygiene. It should be the duty of the health officer and his assistants to post in the most conspicuous places in the houses where aliens live placards or notices written both in English and in their own languages; these notices to contain the principal sanitary regulations, together with a notice that any violation would be considered a misdemeanor punishable by fine and imprisonment.

Deleterious Effects of Noises

DR. CLARENCE JOHN BLAKE, Boston: The excess of sound to the internal ear is not merely through the channel of the external ear but through the tissues of the body also and this is especially the case in people working in the midst of noisy machinery or subjected to the clangor and vibration of such occupations as metal manufacturing and circular wood sawing.

Microscopic investigation has shown that subjection to continued, excessive noise and to sudden loud sounds has resulted in changes deleterious to the function of the organ of hearing. Nor is this waste of efficiency incident to changes in the ear alone, mental processes are conducted with less effective sequence when the sensorium is subjected to the inroad of a major sensation, the compensatory effort at control of thought under subjection to a loud and uniformly continuous or to a variable and variously compounded noise, even though, in time, its exercise may become almost subconscious, constitutes another channel of efficiency waste.

What is true of normally resistant human beings with a large supplementary power of compensatory effort is still more true of the ill, the suffering and the feeble, close to the border line of the struggle for the continuation of even a moderately sane existence.

The Prevention of Epilepsy

DR. L. P. CLARK, New York: The necessity of forbidding the marriage of persons exhibiting epileptic conditions or tendencies is formulated in five general rules. These are: More precise study of the family stock from which epileptics are recruited; still further elimination of birth injuries and accidents through better regulated obstetric practice; greater care in rearing neuropathic children; more exhaustive study and regulation of the whole manner of living of potentially epileptic adults, and, of greatest importance, prohibition of intermarriage of neuropathics.

The Production of Antirabic Immunity by Intraspinal Injections of Virus

DR. J. L. HARRIS, St. Louis, Mo.: The problem has arisen in the administration of the Pasteur treatment incident to the length of time which must be allowed to secure immunity to a human being who has been infected through the bite of a rabid dog, horse or other animal. Usually this period must be at least three weeks in length, and only indirect immunization of the brain cells against the infective agent is secured through the injection of the antirabic serum into the abdominal wall. Immediate and direct immunization against rabies may be secured by the injection of fractional parts of a grain of noninfective rabies virus of a special type. The virus is produced from the brain of a rabbit dead of rabies, frozen with carbondioxid snow, dried in a vacuum at a very low temperature and kept in an ice-box. This virus will lose its infectivity only after a period of many months.

Influence of Bacillus Carriers in the Dissemination of Infection

Dr. Charles Norris, New York: All employees of hotels, and especially of summer resorts, should be required to present clean bills of health before being employed. The elimination of bacillus carriers from this class of semi-public servants would go a long way toward removing the danger of infection to which the public is exposed.

The Necessity for the Maintenance of Sanitary Department by Common Carriers

Dr. Arthur M. Hume, Owosso, Mich.: The preservation and safeguarding of the health of the traveling public has been greatly neglected, and railway sanitation has not kept pace with sanitary progress elsewhere. Transportation companies have spent large sums of money and much effort to better these conditions, but often with indifferent results. The reason for this is that sanitarians have not appreciated the obstacles in the way, and the many problems to be solved before railway sanitation can even approach perfection. The sanitary department should devise and apply better methods of car ventilation, car cleaning and sterilization, and better methods for disposing of waste, etc. It should also have supervision of water and food supplies, to the end that purity of both would be assured; and it should further supervise the maintenance of proper sewerage and drainage of railway stations and the cleaning and keeping clean of stations and passenger equipment. Such departments, maintained by the railways, should cooperate with state boards of health. Such cooperation would result in essentially uniform laws governing interstate railways and the production of uniformly bettered sanitary conditions on all transportation lines.

Analysis of Antityphoid Vaccines, with a Consideration of Their Relative Practical Value

Dr. Henry J. Nichols, U. S. Army Medical Corps: Less than 5 per cent. of persons who have typhoid ever have it the second time, and it has been the effort of the scientists to find a way by which natural immunization may be imitated by means of a vaccine which, when introduced into the system, will, in effect, produce a mild case of typhoid and consequent immunity from real attacks. The vaccine most used in the English and American armies is a culture of killed typhoid germs in a solution of salt. This vaccine is absolutely safe and can do no harm to persons in good health. It is administered hypodermically in three doses, one week apart, and immunizes for several years, the exact length of immunity not yet being known. Another form of vaccine contains the living germs of typhoid, weakened in various ways until they are unable to grow and produce the real disease. This vaccine is very efficient, but has not been largely used, as it is not known whether it is as safe as the vaccine of the killed germs. Another vaccine is made by partly dissolving the germs in salt solution and using the clear fluid. This is safe, but it is not known whether it is as effective a protection as the whole germ vaccine.

Influenza Meningitis; Experimental and Clinical

Dr. Martha Wollstein, New York City: Influenza meningitis in human beings, a disease with such a high rate of mortality that there are only six recovered cases on record, soon may be brought within the control of medical science. Influenza meningitis is more common in infants than in older children and adults, and only two babies less than a year old have recovered from the disease among the thirty cases which have been reported at that early age. An immune serum may be prepared by inoculating a goat with increased doses of influenza bacilli. This anti-influenza serum was injected into the spinal canals of monkeys which had been inoculated and were suffering from influenza meningitis, and it brought about a complete cure. The animals fully recovered in one week after receiving the treatment.

Sanitary Measures Against Cerebrospinal Meningitis

Dr. Abraham Sophian, New York City: Eleven medical students who volunteered were vaccinated, their blood was examined and studied regularly for protective substances, and it was found that vaccination produced a high degree of immunity against the infective agent of meningitis.

Recent Progress in Antimalarial Work With Special Reference to Anopheles Fight as Studied on the Isthmus of Panama

Dr. J. A. Le Prince, Ancon, Canal Zone: The splendid record made by the army engineers in digging the Panama Canal is not the only noteworthy achievement in the canal work, but the Sanitary Department of the Canal Commission has been digging into the unknown pertaining to malaria, and the output has been gratifyingly large, even if it is not expressed in cubic yards. The new methods discovered and now in use by the Department of Sanitation in waging war on malaria include special sub-drainage systems which practically eliminate maintenance cost; permanent reinforced concrete ditch linings of wire mesh with a mere shell of concrete; the use of the *Anopheles* mosquito traps which cause the malaria-carrying mosquitoes to kill themselves by thousands; automatic mechanical oiling devices to prevent mosquito propagation. Long and careful investigation has proved that the malaria mosquito flies long distances, against light winds, and that therefore the sphere of activity of a given breeding ground, is not, as has heretofore been thought, confined to a circumscribed area lying near the breeding ground. As a result of the scientific investigations and the adoption of modern, new scientific methods of combating the disease and destroying the insects that carry it, the sick roll in the Zone hospitals for July, 1912, was 75 per cent. less than for the same period six years ago.

Nutrition and Bone Growth

Dr. Francis H. McCrudden, New York City: The question of the nature of bone metabolism in health and disease is one that until recently can hardly be said to have been attacked experimentally. Pathologists have generally considered mature bone as a dead tissue not undergoing metabolism. This opinion has colored their views regarding the nature of the process in various bone diseases. In osteomalacia, for example, it has been supposed that the process is due to the action of an acid which dissolves out the mineral constituents.

Numerous investigations, chemical, histologic and clinical, during the last few years have shown that these views regarding the nature of the process in osteomalacia and the nature of normal bone metabolism cannot be correct. Bone, like the other tissues, undergoes metabolism throughout life. Old bone is continuously being resorbed and new bone laid down. If the new bone laid down is not qualitatively of the right composition, the result may be rickets, osteomalacia, osteoporosis or osteitis deformans, depending on the age of the patient and other factors. The bones act as a storehouse of lime salts to be called on in time of need, just as the subcutaneous tissue acts as a storehouse of fat, and the liver as a storehouse of glycogen; and a flux of calcium from the bones started by a growing fetus, a hardening callus, metastatic bone formation, etc., may, under certain circumstances, lead to decalcification enough to result in osteomalacia and similar conditions. An important factor is the degree to which overproduction takes place, a factor involved also in immunity and, in fact, in all tissue repair.

Other disturbances which may be said to involve quantitative disturbance in bone growth—the rate of growth—rather than disturbances in the qualitative character of the bone produced, are the various types of dwarfism. In some of these the failure to grow seems to depend on an absence of the "growing tendency" on the part of the bones; in others, some disturbance in the supply of lime salts available for bone growth seems to be at fault.

Infant Mortality and Its Relation to the Employment of Mothers in Fall River, Mass.

Mr. Charles H. Verrill, Department of Commerce and Labor, Washington, D. C.: The Fall River infant mortality rate, 177.6 per 1,000 births, is excessively high as compared with other localities. The excess is very largely due to preventable causes. An attempt to visit the homes and secure information bearing on the causes of death of 859 children dying under 1 year in 1908 was successful in 580 cases.

Information was also secured for 165 out of 227 still-born children. The distribution of causes of death among the children traced and among those not traced showed no substantial difference between the two classes. From the information thus secured the following appears: Mothers at work outside the home during pregnancy: 45.9 per cent. The percentage of deaths from premature birth, congenital malformation and congenital debility was found not greater among the children of mothers at work than among the children of mothers at home. Equally favorable to work outside the home was a comparison of the percentage of children not well and strong at birth and of stillbirths.

Mothers at work outside the home after childbirth and while child was living: 14.4 per cent., but only 7.7 per cent. of all mothers were prevented from nursing or continuing nursing by the fact of going to work, the other mothers using artificial food for reasons having no relation to the going to work. Among children whose mothers went to work, 62.7 per cent. died of diarrhea, enteritis and gastritis, as compared with 34.6 per cent. among children of mothers at home. The high infant mortality among both children of mothers at home and of mothers at work was due to improper feeding and care. The percentage of deaths from diarrhea, enteritis and gastritis was 26.0 among children breast-fed exclusively, 27.5 among those given cow's milk exclusively, and 51.7 for all others. Only 28.8 per cent. of all children were breast-fed exclusively. The reason for not nursing was in many instances deficiency of breast milk, but in many cases artificial feeding was not due to deficiency of breast milk or to the mother's going to work.

The causes of the excessive infant mortality in Fall River are in short the mothers' ignorance of proper feeding, of proper care, and of the simplest requirements of hygiene. To this all the other causes are secondary.

Teachers in Public Health

DR. F. F. WESBROOK, Minneapolis: In America we are optimistically inclined to believe that the time has come when a demand will be made for trained specialists who shall devote their whole time and energy to the various phases of public health protection. We must be ready to adjust the pay and authority of our health officials to the responsibilities which the public expects them to assume. We must guarantee them tenure of office dependent alone on efficiency. We must insist that they be trained before they assume office and not expect them to gain their experience at the expense of the public.

It is probable that under ordinary circumstances a medical man trained by years of service in actual sanitary work should be at the head of the department. He should consult frequently with the various medical, scientific and laboratory teachers so as to see that a proper foundation of technical facts and methods is laid. It should be his function to see that all teaching done by himself and others is properly coördinated, assimilated and applied. In public health, basic teaching is already provided in a number of laboratory and clinical departments, but it will be the duty of the department of public health to classify, arrange and coordinate this teaching in its application to the needs of the physician in his work of teaching personal hygiene to his patients and their families and of articulating with municipal, state and federal public health authorities and public health movements in general. In the ultimate analysis no official public health protective mechanism can operate without the intelligent and sympathetic interest and support of the medical profession, since its members are responsible for individual and family welfare, which in the mass represents public health.

Working Man's Insurance

DR. FRIEDRICH ZAHN, Munich, Germany: The people and the people's strength is the greatest asset of the nation. In the course of years the German working man's insurance has attained the dimension of a gigantic social institution, which is of importance in furthering hygienic and general conditions. Out of 16,000,000 laborers in Germany 14,000,000 are carrying sick insurance; 15,700,000 are carrying invalid and old age insurance, and with the artisans in small manufacturing establishments included, 24,200,000 workmen are carrying accident insurance. From 1885 to 1910, 100,000,000 sick, disabled and injured people and their relatives have received the benefits through insurance. In benefits there have been paid out 8,400,000,000 marks. About 2,000,000 marks were spent daily for this tremendous institution of working men's aid. The most important thing is not the material compensation, but the maintenance of energy and activity, which tends to increase the productive power of the working class through the abolition of the causes of sickness, injury and invalidism. The German working man's insurance, therefore, maintains its equilibrium through a quicker restitution of the working ability of the laboring class, the development of a generation with the increased powers of resistance, and the education of the community in the potent value of sanitary self-defense.

Effects of Industrial Strain on the Working Woman

DR. ROSALIE SLAUGHTER MORTON, New York City: With properly regulated hours of work and recreation, outside of excessive physical labor, women may work in practically any field of modern industry, and not only retain but increase their standard of health if they are given hygienic and properly arranged buildings in which to work, if they and their employers are taught the common sense laws of health.

Prevention of Typhoid

DR. FORNET, Berlin, Germany: Three-fourths of the cases of typhoid can be traced to typhoid carriers, and since it is impracticable to cure or eliminate these carriers, the only practical scheme for the eradication of the fever in civil communities and in military service is the use of vaccines.

Municipal Clinic of San Francisco

DR. JULIUS ROSENSTIRN, San Francisco: This clinic is operated by a citizens' committee. The staff of the clinic consists of a superintendent and two female clerks, a chief clinician an assistant clinician, a female physician, a bacteriologist, a trained nurse, a matron and a janitor. Physical examination of infected persons is compulsory and each person registered is supposed to report every five days. The only fee charged is 50 cents for each patient. The clinic is entirely supported by means of this fee. This clinic may be considered a sane, humane and sanitary regulation of the social evil.

The Rôle of Bovine Tuberculosis in the Production of Human Tuberculosis

This subject was discussed by PROF. DR. A. WEBER, Berlin; DR. WM. H. PARK, New York City; DR. M. P. RAVENEL, Wisconsin; DR. RAMSEY SMITH, South Australia, and DR. BERTRAM H. WATERS, of the New York Department of Health. The discussion showed that the danger of bovine infection must not be minimized, although the spread of tuberculosis is far more general from human sources than from animal sources. Bovine infection is responsible for most of the less fatal forms of the disease.

DR. B. H. WATERS: The only means by which the spread of tuberculosis from human agencies may be controlled is through the dispensary and registration systems.

DR. W. H. PARK: Bovine tuberculosis is responsible for the disease in 7 per cent. of the children of New York City under five years of age. It frequently attacks the lymph glands of children ranging from six to sixteen years of age. Bovine tuberculosis is rarely fatal in children of more than five years of age. If all children were fed on cow's milk, 50 instead of 6 per cent. of the tuberculosis cases would be of bovine origin.

Milk Depots

DR. JANET LANE-CLAYPON, University of London: Milk depots have failed in England. Their establishment and operation do not tend to encourage the natural feeding of babies by the mothers, and under the broadest consideration cannot be said to be great aids in reducing the infant mortality of England's congested centers.

Control of Sanitary Condition of Food Factories

MR. H. E. BARNARD, Food and Drug Commissioner of Indiana: At the present time the baker who bakes the bread the driver who delivers it, the grocer and his clerk, the candy-dipper and the girl who packs crackers in cartons, the cook and the waiter, are uninspected and their condition of health unknown. The annual convention of food commissioners, held in July, at Seattle, recognized the necessity of such a certificate of health, and went on record as favoring compulsory examination as a requirement to employment and further examination repeated sufficiently often to make sure that the worker with the food-supply is always sound in body and clean, physically and morally. The time is not far distant when the food manufacturer and distributor, the hotel proprietor and restaurant keeper will recognize their duty to the public, and the good business policy of eliminating the physically unfit from the ranks of the handlers of the food-supply.

AMERICAN ROENTGEN RAY SOCIETY

Thirteenth Annual Meeting, held at Niagara Falls, N. Y., Sept. 11-14, 1912

(Concluded from page 1397)

Roentgenoscopy in Fracture of the Skull

Dr. William H. Stewart, New York: In a considerable number of cases which I have diagnosed, the Roentgen examination quickly and accurately determined the presence of fracture and its nature. Little is said in the literature about the use of the Roentgen ray in these cases, and yet there are any number of cases of fracture of the skull in which the diagnosis cannot be made except by the aid of the Roentgen ray. I refer especially to those cases in which no symptoms are manifested, either objective or subjective, only a history of a fall being obtainable. The technic is not difficult, and the results are eminently satisfactory. Roentgenoscopy undoubtedly is the most valuable diagnostic means in any case of fracture of the skull.

Roentgen Therapy of Non-Malignant Laryngeal Vegetations

Dr. A. L. Gray, Richmond, Va.: I have treated four of these cases with uniformly favorable results. In two cases there was a single growth; one involved the anterior portion of the right ventricle, and the right vocal cord, while the other involved the middle of the right cord. The remaining cases were multiple, involving both cords and extending to the epiglottis and trachea. In one case the treatments were given with a static machine; in the remaining three cases the induction-coil was used. The treatments extended over a considerable period of time, but this was time well spent in that all four patients made a complete recovery. One of the patients died four years after the cure from an acute infection following the removal of the tonsils. Whether the apparent cures were instances of spontaneous recovery or the result of the treatment used I cannot say. I believe, however, that the clinical course of these cases justifies the assumption that the Roentgen ray was the curative agent. Little attention was paid to the thyroid gland during the treatment. As yet there is no reason to believe that any ill effects resulted from such exposure.

DISCUSSION

Dr. P. M. Hickey, Detroit: I have tried fulguration in one case of papilloma of the larynx. The patient was about 2 years old and had been tracheotomized. Every time I turned on the spark the child stopped breathing, and we had to resort to artificial respiration. I examined the patient two weeks later with a Jackson tube, and there was no sign of papilloma. The epiglottis and cords were clean—the whole picture was that of a normal larynx. I examined the patient again three weeks later and found more papillomas in the larynx than were present before. I began my treatment. These tumors have a low grade of vitality and are easily influenced by Roentgen therapy, but they recur nevertheless. That is a point to bear in mind.

Dr. H. K. Pancoast, Philadelphia: I treated one child for papilloma of the larynx three years ago. According to the last report from the family physician, there has been no recurrence up to the present.

Dr. George C. Johnston, Pittsburgh, Pa.: I have had three of these patients, but they are all dead. One man came to me when he had only a chronic hoarseness which was, however, rapidly becoming an aphonia. There was only a low-grade congestion in one of his vocal cords and a laryngologist advised immediate Roentgen irradiation. In spite of my treatment the man developed an epithelioma of the larynx and died. Hereafter I shall split open the larynx and ray the entire interior, which I think will produce good results.

Dr. A. L. Gray, Richmond, Va.: If it is necessary to keep a tube in the larynx during the treatment, an aluminum tube should be used. I have had no experience treating malignant growths in the larynx. I think Dr. Johnston's suggestion of laying the larynx wide open and treating the interior directly is a good one. Six years ago I took advantage of a suprapubic cystotomy to treat a squamous carcinoma of the bladder. The patient made a good recovery and has not had a recurrence since then.

What Is the Roentgen Picture of Bone Tuberculosis?

Dr. Roland Hammond, Providence, R. I.: The typical picture of bone tuberculosis is due to the bony atrophy caused by the disappearance of lime salts. This atrophy first appears as a diminution in the size of the bone, and later as an increase in radiability of the texture of the bone. In addition to this will usually be found loss of contour of the bones forming the articulation, with the fuzzy, shaggy appearance denoting necrosis, and the denser shadow of the soft parts due to the presence of fluid and by infiltration. Later there may be a localized area of necrosis, often filled with pus and débris, which casts a shadow of varying distinctness according to the density of the contained matter, and after this sequestra may form. As the process goes on to healing, there is a return to the smooth, regular bony outline, and as the healing ostitis becomes marked the shadow is denser than in normal bone.

In the differential diagnosis of bone tuberculosis, the main points are as follows: In syphilis the bone is not translucent, but rather porous, and the periosteum and cortex show as dense shadows; at times there is partial obliteration of the medullary cavity. In rachitis the pathologic process is most active near the epiphyseal line, but the bone outlines are clear except for a "flaming out" and cup-shaped defect of the diaphysis. Scurvy shows a hammered-out epiphysis, giving the horizontal, irregular shadow characteristic of this disease; the subperiosteal hemorrhages are also typical when present. Osteomyelitis is more likely to cause confusion in interpreting the skiagram when the condition happens to be the rare one of tuberculosis of the shaft. Often it may be impossible to distinguish between the two by the Roentgen plate alone. The punched-out areas of increased radiability and the bone atrophy are present, but the periosteal involvement is not found in tuberculosis, except in disease of the shaft. Osteosarcoma rarely involves the neighborhood of the epiphyses, and the atrophy is localized. It pushes up or involves the periosteum and is sharply differentiated as a rule from the rest of the bone structure. Bone cysts are always sharply differentiated spaces within the bone, which is healthy everywhere else.

If used in connection with a clinical study of the case, the Roentgen plate gives an accurate means of diagnosing bone and joint tuberculosis.

DISCUSSION

Dr. P. M. Hickey, Detroit: It is only a question of technic, I think, as to whether changes in the bones resulting from tuberculosis can be distinguished. We ought to be able to see them in the skiagram when the surgeon can find them at the operation. The picture is characteristic, but we must be able to see it clearly in order to make the diagnosis. I think that variations in tube vacuum will help.

Dr. Sidney Lange, Cincinnati: In some cases of bone tuberculosis in which there is simply bone atrophy with haziness, but no gross destruction, the question arises as to whether the surgeon shall excise or not. I always ask him to add about 20 per cent. more involvement of the bone than the plate shows. At the operation the bone is usually found about 20 per cent. softer, and the disease extends about 20 per cent. further into the bone than is apparent in the skiagram.

Dr. A. Cotton, Baltimore: Typical cases of bone tuberculosis show certain characteristic changes. There is a destruction of bone from necrosis with bone atrophy and a hazy, fuzzy appearance, the result of pus. That picture is characteristic and cannot be confused with any other condition. Syphilis is easily differentiated from tuberculosis because in that disease new bone forms under the periosteum. Tuberculosis is a destructive process without the destruction of the bone in the periosteum.

DR. F. H. BAETJER, Baltimore: I have always looked on tuberculosis as a joint-trouble involving the bone in the vicinity of the joint. I have never seen a periostitis with it. Of course, I rule out here short bones.

DR. R. H. HAMMOND, Providence, R. I.: I do not know of any way, roentgenographically, to differentiate cases of osteomyelitis and syphilis from tuberculosis. We must not depend on any one method of diagnosis. The Roentgen examination is only a part of the clinical examination. We must consider the whole picture together. Dr. Lange's suggestion to tell the surgeon to add 20 per cent. to the findings in the skiagram is a good one. These cases look just like an osteomyelitis of the ordinary infectious type, and until I saw a pathologic examination I would have made that diagnosis. When we find the tuberculous process and when a careful examination by the pathologist fails to reveal anything else, I think we are justified in making that diagnosis, especially when we consider that men like Murphy and Stiles agree that there is a certain percentage of tuberculosis of the shaft of the bone. There is no reason why the disease should be limited to the epiphyseal region. Take the "tuberculous rheumatism" of Poncet. Some years ago we would have said that such a diagnosis was a mistake, but I have seen cases recently which were undoubtedly cases of multiple tuberculosis. I had one case in which at least four joints were involved. We must revise our ideas on this subject.

Circulatory Opacity

DR. E. H. SKINNER, Kansas City, Mo.: While no attempt has been made to produce skiagrams in the living subject by the use of colloidal salts of silver in the blood-stream, we have injected the blood-vessels of an amputated arm and obtained fair views of the blood-vessels and capillaries. The negatives were made with a 12-inch coil and no doubt could be wonderfully improved with a transformer and intensifying screen.

The Roentgen Ray as an Aid in the Diagnosis of Diseases of the Sphenoid Sinus

DR. GEORGE E. PFAHLER, Philadelphia: The diagnosis of sphenoidal disease at best is not an easy matter, and often requires repeated examinations before a purulent secretion can be traced to its origin. General symptoms may be marked, and the local symptoms mild or entirely absent. A resection of one or both turbinates is often necessary before the sphenoidal wall is accessible to inspection and subsequent instrumentation. The Roentgen rays have proved of the greatest definite diagnostic value in this condition. From a rhinologist's point of view, the important facts elicited are: (1) the difference in the shadow intensity of the two sides; (2) whether the shadow or abnormal opacity also involves the posterior ethmoid cells; (3) the size of the sphenoid sinus; (4) the distance between the anterior wall and the vestibulum nari; (5) the shape of the sphenoid sinus with special reference to the posterior or cerebral and the lateral wall. The first and second are of importance for diagnosis, and the third, fourth and fifth for operative purposes.

Examinations should be complete, and this involves a study of the other accessory sinuses as well. From four to six or more exposures are required; at least two postero-anterior and one lateral are essential. This is then made more complete by making two lateral views stereoscopically and adding two oblique views. In exceptional cases a vertical or anteroposterior view is needed. Not only are the rays useful in diagnosing catarrhal and purulent disease of the sphenoidal sinuses, but valuable information will be obtained also in demonstrating the extent of new growths, so that a complete operation can be done when advisable, or a meddlesome operation may be avoided. Much depends on the making of good negatives, but more on skilful interpretations.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

October, CXLIV, No. 4, pp. 469-624

1 Defective Development from Arthritis in Early Life. G. Dock, St. Louis.
2 *Metabolism and Successful Treatment of Chronic Joint Disease. R. Pemberton, Philadelphia.
3 Healing of Gastric and Duodenal Ulcers with Bismuth. C. D. Aaron, Detroit.
4 *Bacteriology of Peritonitis, with Special Reference to Primary Peritonitis. M. Fishbein, Chicago.
5 *Prognostic Significance of Atropin Reaction in Cardiac Disease. J. E. Talley, Philadelphia.
6 *Therapeutic Use of Tuberculin; a Working Hypothesis and Personal Observations. L. Brown, Saranac Lake, N. Y.
7 Rest vs. Climate in Treatment of Pulmonary Tuberculosis. W. C. Voorsanger, San Francisco.
8 *Diabetes Mellitus and Tuberculosis. C. M. Montgomery, Philadelphia.
9 Prognostic Value of Arneth's Leukocytic Blood-Picture in Pulmonary Tuberculosis, Based on 729 Counts in 475 Patients. P. H. Ringer, Asheville, N. C.
10 Changes in Kidney Resulting from Tying Ureter. J. F. Corbett, Minneapolis.
11 Clinical Manifestations of Illuminating-Gas Poisoning. R. S. McCombs, Philadelphia.

2. **Metabolism and Treatment of Joint Disease.**—Pemberton is convinced that certain joint cases which are rebellious to all other means of treatment, as proved by long trial, can be arrested by means of a proper dietary (containing much buttermilk) coupled with colonic lavage. The dietary can be so greatly modified during the course of improvement as eventually to differ but slightly from that of a normal individual, and the lavage can be quickly dispensed with entirely. Coincident with the improvement there may occur an increased output of ethereal sulphates and an increased output of fecal bacteria. The former of these is not out of consonance with the view suggested by certain clinical evidence that the carbohydrates are of hitherto unsuspected importance in this connection. The adoption of these methods should not be attempted except in cases suitably prepared for it or in those free from demonstrably removable cause. These methods should be applied gradually, with due respect for the caloric needs of the individual, and with constant regard for the weight.

4. **Bacteriology of Peritonitis.**—In eighteen cases of which Fishbein studied the records, pneumonia existed. with large numbers of pneumococci in the lung and circulation. In seven cases there was an associated endocarditis, chronic in type. and often also pleuritis. In four cases hyperplasia of lymphoid tissue was marked. In four cases suppurative foci were present elsewhere in the body, distant from the peritoneum. Besides these, there was one case of marasmus in tuberculosis, one case of premature birth with congenital syphilis, and a case of generalized blastomycosis. In three cases a cirrhosis of the liver was present. Peritonitis would seem, in the light of Fishbein's results, to be most commonly associated bacteriologically with a combination of the *Bacillus coli* and other organisms, usually staphylococci and streptococci. The origin clinically is usually endogenous, affections of the appendix being of major importance, the female organs of generation being next in importance. Exogenous peritonitis is becoming exceedingly rare with improvement of aseptic technic in the handling of wounds and in operative methods.

5. **Atropin Reaction in Cardiac Disease.**—The atropin reaction in the normal heart is probably from 30 to 40. A reaction of 20 or less, in a heart not recently subjected to exhausting disease, Talley says, points to a degenerative process in the cardiac tissue which makes the outlook for improvement under treatment unpromising. Cases of auricular fibrillation with responses normal or above are promising subjects for treatment. Two atropin reactions in cases of auricular fibrillation one before and one on full digitalis, enable one to determine whether the vagal or the cardiac tissue factor is the greater The patients with a large cardiac tissue factor are the ones who usually are sufficiently improved by treatment to return to their occupations.

6. **Therapeutic Use of Tuberculin.**—Brown's observation leads him to believe that incipient cases treated with tuber-

culin do somewhat better than those not so treated, while the moderately advanced cases do much better. The ultimate results do not show such marked differences, but indicate that the treated, both incipient and moderately advanced, do better.

8. **Diabetes Mellitus and Tuberculosis.**—Out of 111 cases of diabetes collected by Montgomery in the hospitals of Philadelphia, nine had active pulmonary tuberculosis, and one other had adrenal tuberculosis. Out of fifty-one non-fatal cases of diabetes, none had active pulmonary tuberculosis. Out of sixty fatal cases of diabetes, nine had active pulmonary tuberculosis and one other had adrenal tuberculosis. Out of thirty-five fatal but non-autopsied cases of diabetes, three had active pulmonary tuberculosis. Out of twenty-five postmortems, six showed active pulmonary tuberculosis and one tuberculosis of the adrenal gland without tuberculosis elsewhere. Out of eighty-six non-autopsied cases (thirty-five fatal) three had active pulmonary tuberculosis and seventeen more had signs recorded that were only slightly suggestive of tuberculosis. That tuberculosis occurs more frequently in diabetics than in the general population at the same age periods has not been definitely proved by the evidence collected by Montgomery. However, he is impressed by two facts: (1) The lower opsonic index to the tubercle bacillus and a number of other bacteria in diabetes; and (2) the large number of patients with diabetes late in the course of the disease developing a very acute, extensive and rapidly fatal form of pulmonary tuberculosis. Tuberculosis occurs more frequently in diabetes than in some other chronic diseases. The frequency of tuberculosis in diabetes varies with a great variety of different circumstances.

In Montgomery's twenty-five collected autopsies on diabetic patients, six showed active pulmonary tuberculosis varying in acuteness and extent of involvement, and one showed adrenal tuberculosis without tuberculosis elsewhere. Out of 355 autopsies collected from the literature since 1882, including also Montgomery's twenty-five cases, 138 (38.9 per cent.) revealed pulmonary tuberculosis, mostly in an acute form. In some structures, for example, the bones, the writer could not find a single case of tuberculosis in a diabetic patient. The frequency of diabetes in cases of tuberculosis is fairly well represented by a table presenting 31,834 cases of pulmonary tuberculosis, of which about one-third of 1 per cent. had glycosuria, and between one-sixth and one-third of 1 per cent. had diabetes. Five cases of diabetes were found in 937 autopsies on tuberculous patients. When diabetes and tuberculosis are associated the diabetes can usually be shown to be the primary disease, in a number of cases it is impossible to show which is the primary disease, and in no case that Montgomery has encountered has the tuberculosis been definitely proved by the evidence furnished to be the primary disease. When diabetes and tuberculosis are associated in the same patient either disease may show certain modifications in course and symptomatology, but often each disease runs a course apparently independent of the other. From the number of cases that have improved both as to their tuberculosis and their diabetes, Montgomery says one cannot consider the combination of diabetes and tuberculosis as necessarily more hopeless than the diabetes or the tuberculosis alone. The prognosis in many cases depends largely on the treatment.

Bulletin of Manila Medical Society

August, IV, No. 8, pp. 147-154

12 Study in Human Nutrition. A. O. Shaklee and D. de la Paz, Manila.

Delaware State Medical Journal, Wilmington

September, III, No. 10, pp. 1-26

13 Anodynes and Oxytocics in Labor. I. Richter.
14 Hemophilia Complicating Typhoid. H. J. Simmons, Wilmington.

Annals of Surgery, Philadelphia

September, LVI, No. 3, pp. 377-520

15 *Bone Transplantation and Use of a Rib as a Graft. C. A. McWilliams, New York.
16 Unusual Sinus Frontalis. J. P. Schaeffer, New Haven, Conn.
17 Bilateral Congenital Fistula of Lower Lip. C. B. G. De Nancrede, Ann Arbor, Mich.
18 Intrathoracic Surgery: Division and Circular Suture of Thoracic Aorta. W. M. Boothby, Boston.
19 Transplantation of Fresh Venous Segments. W. M. Boothby, Boston.
20 Results of Ligation of One Ureter. L. Frand and L. Baldauf, Louisville, Ky.
21 Appendix Tumor. F. E. McKenty, Montreal.
22 Foreign Body Appendicitis. R. H. Fowler, Brooklyn.
23 Relation of Ileocecal Folds to Appendectomy. J. D. Guyot, Dallas, Tex.
24 *Fractures of Greater Tuberosity of Humerus. D. B. Phemister, Chicago.
25 Separation of Epiphysis of First Metacarpal Bone. W. P. Coues, Boston.
26 Operating-Room Mirror. D. C. Balfour, Rochester, Minn.

15. **Bone Transplantation.**—Ribs have been transplanted by McWilliams in two cases. In one case a rib was grafted into a defect in the lower jaw. The seventh rib was subperiosteally resected, without opening the pleura, by passing a Gigli saw anteriorly just external to its cartilage, beneath the rib, between it and the separated periosteum. The necessary length, as measured by a rubber tissue pattern, was separated from its periosteum and divided posteriorly by a rib shears. The anterior edge was shaved off so that it would be fresh. Six holes were then bored through the body of the rib at various distances apart, so that nourishment could get into the interior of the bone. The anterior edge of the rib was then fastened to the lower jaw by a chromic gut suture passed through a hole in the rib and to the fibrous tissue surrounding the lower jaw. Posteriorly the end of the rib rested in a cavity in front of and just above the external auditory meatus. The curve of the rib was just sufficient to fill in the curve of the cheek. Two months after the transplantation, the rib had solidly united to the jaw in front, and there was no sign of any breaking down.

In a second case he strengthened the inguinal canal in a case of hernia by transplanting a rib into it. The canal was opened, the sac isolated, transfixed and amputated. McWilliams then subperiosteally removed 4 inches of a rib from patient's right chest, but found that it was too long, so cut about an inch of it off. The rib was then placed under or behind the transversalis tendon lying on the transversalis fascia, its internal end being held against the cord, which was slightly pushed outward by the rib. Prior to its being implanted, however, five holes were bored through the body of the rib so that nourishment would have better access to the interior of the implant. No sutures were used to hold the rib in position, as it remained in place without them. Over the rib the canal was repaired by the regular Bassini method, the cord lying on the internal oblique muscle, which was sutured to the deep part of Poupart's ligament by interrupted chromic sutures. The wound healed by perfect primary union. There has been no irritation from its presence whatsoever. This was done six months ago. McWilliams has also done considerable experimental bone transplantation work. He has had no success whatsoever in transplanting joints.

24. **Fractures of Tuberosity of Humerus.**—In order to avoid all injury either to the deltoid muscle or to its nerve-supply and to obtain a complete exposure both of the seat of the fracture and of the muscles attached to the broken off tuberosity, an angular incision is made by Phemister from the tip of the acromion backward over the entire length of the spine of the scapula and then downward along the posterior border of the deltoid, after which an osteoplastic resection of the origin of the deltoid is made and the musculocutaneous flap turned forward. This route was first used by Kocher for resection of the shoulder-joint. Perthes employed it in operating for habitual dislocation of the shoulder and Druner for removal of a sarcoma of the posterior superior humeral region. No record could be found by Phemister of its employment for fracture of the tuberculum majus. Two cases are reported.

Therapeutic Gazette, Detroit, Mich.

September 15, XXXVI, No. 9, pp. 609-684

27 Prenatal Care of Infant. E. P. Davis, Philadelphia.
28 What Obstetrician Can Do to Reduce Infant Mortality. B. M. Anspach, Philadelphia.
29 Management of Labor, with Special Consideration of Preservation of Child's Life. R. C. Norris, Philadelphia.
30 Modern Conception of Gout and Its Latest Treatment. H. A. Bosma, New York.

American Journal of Diseases of Children, Chicago

October, IV, No. 4, pp. 197-264

31 *Blood-Cultures During Life in Infants and Young Children, with Description of New Technic. M. Wollstein and E. Morgan, New York.
32 *Pancreatic Ferments in Infants. A. F. Hess, New York.

33 *Infantile Eczema and Indigestion. H. P. Towle and F. B. Talbot, Boston.
34 *Intestinal Toxemia in New-Born Infant. J. L. Morse, Boston.
35 Studies in Metabolism of Amaurotic Family Idiocy. H. Heiman, S. Bookman and B. B. Crohn, New York.

31. **Blood-Cultures in Infants and Children.**—The authors believe that the method followed by them is an improvement on any which has been previously reported. The blood was taken from the external jugular vein in all the cases in the series except three. In the three exceptions the vein chosen was the superficial temporal in two cases and the median basilic in one. The patient having been tightly wrapped in a sheet, was placed on a table. The head was turned to one side, hyperextended over the end of the table and supported in that position. The operator's hands were sterilized in the usual manner. The site of aspiration was washed with alcohol and dried, after which tincture of iodin was applied and allowed to remain for three minutes. The entrance into the vein was most readily effected during a paroxysm of crying when the vessel was distended. Digital pressure above the clavicle they have found to be practically valueless in increasing the prominence of the vein. A 2-c.c. Luer syringe was used with a 22-gauge needle 1.5 c.m. in length. The needle was inserted into the vein in the direction of the blood-current and 1 c.c. of blood was drawn off and transferred directly to 30 c.c. of bouillon. Broth of a reaction of + 0.5 per cent. of phenolphthalein was used in making these cultures.

There were thirteen cases of lobar pneumonia in the series, in four of which the pneumococcus was found in the blood, accompanied in one instance by *Bacillus influenzæ*. All of the thirteen children recovered, so that the blood-cultures were of no prognostic value in this series. All four positive cultures were obtained before the crisis, though in six of the negative cases the blood was also taken while the temperature was still high. Twenty-six cases of bronchopneumonia were studied, with six positive results. The pneumococcus was found four times and the streptococcus twice. Both children with streptococcus and one with pneumococcus infection died, while three pneumococcus patients recovered. The cocci were found in the blood on the second, fourth and twelfth days in the fatal cases and on the third, seventh and eighth days in the patients who recovered. So that no prognostic value could be ascribed to the date of positive blood-cultures in these twenty-six cases. Fourteen children with empyema gave positive blood-cultures nine times; in all but one the pneumococcus was the bacterium found. Six children among the positive cases died, while only one of the negative cases resulted fatally. Three of the infants with positive cultures had pneumococcus meningitis as well as empyema. It would seem, then, that bacteriemia in this series of empyema patients was a bad prognostic sign in about 55 per cent. of the cases, and that it sometimes meant infection of another serous membrane. The single example of streptococcus empyema in this series of cases recovered. Six cases of meningitis included three of the tuberculous form, one of the meningococcus, one of the pneumococcus, and one of the streptococcus varieties. The last two gave positive blood-cultures; the other four did not. The child with meningococcus meningitis recovered after treatment with antimeningococcus serum. All the rest were fatal, as was to be expected, the meningitis being the terminal lesion in a general infection.

There were four cases of rheumatism in children three and four years old. None gave a positive blood-culture though two children had acute endocarditis, one had an acute exacerbation of an old endocarditis, and one had chorea. Two patients died, but only one came to autopsy, and her heart's-blood after death gave no growth. In one case of malignant endocarditis the child had a streptococcus bacteriemia and died on the twenty-fifth day of the disease. A case of erysipelas gave a negative blood-culture on the sixth and seventh days of the disease, but on the eleventh day the streptococcus was found in the blood and the patient died on the seventeenth day. The only case in which the aurococcus was found in the blood was a child ten days old, who had been admitted with omphalitis and suppurative arthritis of the wrist from which the same organism was grown. The baby died.

32. **Pancreatic Ferments in Infants.**—A considerable number of new-born infants were tested by Hess before they had been put to the breast. It is of physiologic rather than of clinical interest to note that without the stimulus of food to incite secretion, the three pancreatic ferments were found in the intestine. During the first week of life the amount of the pancreatic secretion is still very scanty, but it contains the starch splitting enzyme with increased regularity. In older infants, a month or more of age, there is both an increase in the quantity of pancreatic juice, and a decided augmentation of its amylolytic power. Hess was unable to demonstrate a selective activity of the pancreatic juice—such as an increased strength of amylase when barley water was mixed with the milk, or of lipase when the percentage of fat was increased. The secretion of a large amount of amylase by the nursing baby would also argue against absolute specificity in this regard.

Some sick infants were tested. It was soon evident, in a study of marasmus, that the hypothesis is untenable, which suggests that this disease is associated with or is caused by a deficiency of these ferments. Even in advanced cases they were not lacking. It would seem probable, therefore, that absorption is not essentially defective, for the pancreatic enzymes are concerned mainly with the preparation of food for absorption, but that the essence of this disturbance is one of retention and assimilation. Some of these atrophic infants, although secreting little gastric juice to act as a stimulus, secreted a very large amount of thin, watery juice, containing all the pancreatic ferments, although weak in lipase. This pathologic condition Hess has termed "paralytic hypersecretion or succorrhea." Cases of pylorospasm associated with gastric hypersecretion furnished numerous examples of pancreatic overactivity of a quite different nature. In these instances the gland probably was overstimulated by the normal agent, the gastric juice. Such cases may be termed "functional pancreatic hypersecretion," and later may develop into the paralytic type.

33. **Infantile Eczema and Indigestion.**—It is suggested by the authors that the acutely inflammatory form of eruption in infantile eczema presents so many features which are constant in occurrence and in form that its claim for consideration as a definite, fixed type of disease deserves further attention. For directly opposite reasons, the less intense inflammatory form of eruption cannot lay claim to such consideration. The stool findings show that the indigestion of fats and of carbohydrates are the only types which can be demonstrated to occur with any regularity and definiteness in association with infantile eczema. The occurrence of the acute exudate type of eczematous inflammation of the skin in such frequent association with an indigestion of fats and sugar indicates that the process in the skin and the process in the digestive tract probably have some etiologic relationship. Contrariwise, the fact noted at the outset that the majority of infants presenting the same symptoms of indigestion described above do not likewise present a cutaneous reaction points to the inevitable conclusion that some underlying condition, probably systemic, which the eczematous infants possess, is lacking in the noneczematous individuals. Therefore, indigestion must occupy an intermediate position, if any, in the mechanism of the production of eczema.

34. **Intestinal Toxemia in New-Born.**—Morse's interpretation of the etiology of four of these cases is that a bacterial infection of the meconium, through either the mouth or anus, takes place within the first twenty-four or forty-eight hours after birth; that on account of the incomplete evacuation of the intestines the toxic products formed in the meconium as the result of this infection are absorbed into the circulation and that these toxic products cause the symptoms. Corroborative evidence in favor of this conception is that, as the meconium is made up of protein, the products of bacterial action in it must necessarily be putrefactive in character and, therefore toxic. It is a well known fact, moreover, that cyanosis may be enterogenous in origin. This symptom-complex is not merely a manifestation of septic infection, that is, of the entrance of bacteria into the circulation. The early onset of the symptoms, the absence of any nidus of infection and the absence of other signs of sepsis, such as hemorrhages, marked jaundice and boils, make it improb-

able, while the rapid and complete recovery after the evacuation of the bowels seems sufficient to exclude it. It is not simply a manifestation of starvation, analogous to the so-called "inanition fever" which occurs both in babies that have not been fed and in those that have been, and that the withdrawal of food in connection with the evacuation of the bowels relieves it. The treatment consists in the administration of one or two teaspoonfuls of castor oil, the withdrawal of food for from twelve to twenty-four hours and the feeding of water or water sweetened with saccharin. It is also well to irrigate the bowels in the beginning. Bromid or stimulants, such as strychnin or caffein, may be used, if necessary. The best food, after the period of starvation, is human milk, plain or diluted, according to the individual baby's condition. Next to this, a mixture of cow's milk, low in fat, high in milk sugar and with a moderate amount of proteins, part of these preferably in the form of the whey proteins. It is important to give a high percentage of milk sugar in order to change the bacterial activity from the proteolytic to the fermentative type.

Ophthalmic Record, Chicago

September, XXI, No. 9, pp. 461-518

36 Supervised and Systematic Study of Ophthalmology. E. Jackson, Denver.
37 Tonometry, with Description of a Tonometer. H. S. Gradle, Chicago.
38 Hemianopsia of Luetic Origin with Partial Recovery. W. E. Bruner, Cleveland.
39 Phlyctenular (Eczematous) Conjunctivitis and Keratitis; Etiology and Value of Tuberculin as a Diagnostic Agent; Report of Forty Cases. A. E. Davis and H. Vaugan, New York.

Kentucky Medical Journal, Bowling Green

September 15, X, No. 18, pp. 719-750

40 Wearing Glasses. D. S. Reynolds, Louisville.
41 Suprapubic Prostatectomy. G. A. Hendon, Louisville.
42 Nephrolithotomy. H. H. Grant, Louisville.
43 Sarcoma Following Trauma. L. Frank, Louisville.
44 Bilateral Abductor Paralysis; Hysterical Aphonia; Report of Cases. C. T. Wolfe, Louisville.
45 Some Abnormal Obstetric Cases. T. K. VanZandt, Louisville.
46 Malignant Tumor in Abdomen of Child. P. F. Barbour, Louisville.
47 *Vaccine Treatment in Five Cases of Pyosalpinx. H. J. Farbach, Louisville.
48 Rheumatism Phylacogen. J. T. Dunn, Louisville.
49 Appendectomy Followed by Croupous Pneumonia; Recovery. O. H. Kelsall, Louisville.
50 Work of Mr. Robert Jones in Liverpool. J. D. Trawich, Louisville.
51 Iriodialysis. A. O. Pfingst, Louisville.

47. **Vaccine in Pyosalpinx.**—Evidence of pus in the tube, uterus or ovary is not in Farbach's opinion an imperative indication for the removal of these structures any more than it is for the removal of the analogous pathology in the male. Often the symptoms produced by the precipitated menopause are more distressing, and more dangerous, than those of the pyosalpinx. Farbach has seen cases illustrating every stage of these pathologic conditions and due to all sorts of infectious agents and, he says, has yet to see one that was not relieved or, at least, decidedly benefited by vaccine treatment. That contrary to certain opinions it is not only a temporary partial relief, but in his experience the results have been permanent and the relief complete. Autogenous vaccines, of course, promise more than stock vaccines, but in one of Farbach's cases a stock vaccine was used with equally good results.

Vermont Medical Monthly, Burlington

September 15, XVIII, No. 9, pp. 209-234

52 Operative Treatment of Recent Simple Fractures. J. B. Wheeler, Burlington.
53 Heredity, Criminality and Medical Inspection of Schools. C. F. Ball, Rutland.

Journal of Ophthalmology and Oto-Laryngology, Chicago

September, VI, No. 9, pp. 289-324

54 Refraction and Use of Cycloplegics, with Special Mention of Hyoscin. C. M. Harris, Johnstown, Pa.
55 Trifacial Reflexes, with Special Reference to Diseases of Eye, Ear, Nose and Throat. A. H. Andrews, Chicago.

New York State Journal of Medicine, New York

September, XII, No. 9, pp. 479-548

56 Surgery of Battlefield. G. H. Torney, U. S. Army.
57 Wounds of Naval Warfare. C. F. Stokes, U. S. Navy.
58 Surgery of Bile Ducts. J. B. Deaver, Philadelphia.
59 Biliary Colic Without Gall-Stones. I. S. Haynes, New York.
60 Operation for Pott's Disease of Spine. R. A. Hibbs, New York.
61 *Surgical Treatment of Irreducible Dislocations of Shoulder and Elbow Joints. L. W. Hotchkiss, New York.
62 Treatment of Simple Fractures by Closed Method. J. M. Hitzrot, New York.
63 Symptomatology of Hyperthyroidism. G. Dock, St. Louis.
64 Atypical Forms of Hyperthyroidia. A. Lambert, New York.
65 Medical Treatment of Exophthalmic Goiter. S. P. Beebe, New York.
66 Surgical Treatment of Hyperthyroidism. M. B. Tinker, Ithaca, N. Y.
67 *Intratracheal Insufflation Anesthesia; Its Value in Thoracic and General Surgery. C. A. Elsberg, New York.
68 Chance and the Prepared Mind. R. M. Pearce, Philadelphia.
69 Syphilis of Stomach. J. Meyers, Albany, N. Y.
70 Radiographs of Argyrol or Collargol Injected Urinary Tract. H. D. Furniss, New York.

61. **Dislocations of Shoulder- and Elbow-Joints.**—Hotchkiss' records of arthrotomy for old irreducible dislocations of the shoulder and elbow include fifteen cases, of which eight were of the shoulder and seven of the elbow. In these fifteen operated cases there was no mortality. The ages of the patients varied between 7 and 60, and in all save one, in which the record is incomplete, the functional results were good. Hotchkiss says that one must always expect, perhaps, some stiffness following an arthrotomy at the shoulder with division of extensive adhesions and replacement of the bone to its normal position. This is generally more than compensated for, however, by the movable scapula; while the restoration of the rotundity of the shoulder and the absolute relief of pain, in cases in which these were marked features, gave much satisfaction and relief to the patient. As a rule the diagnosis is easy in the old shoulder dislocations and may often be made by inspection alone, so characteristic is the deformity in some cases. A Roentgen-ray plate, however, clears up many unsuspected conditions, and is most useful both as a guide and as a record. In the old backward dislocations of the elbow, on the other hand, the differential diagnosis between it and fracture of the condyle is by no means always clear and here the Roentgen-ray is especially valuable and necessary.

67. **Intratracheal Anesthesia.**—Elsberg calls attention especially to the value of insufflation of pure air or of air and oxygen as a method of artificial respiration. Whenever there is need for prolonged artificial respiration such as in opium poisoning, drowning, etc., the method will be very useful. In several instances he has kept patients alive and in good condition for three, four, six or seven hours, although during that time they never made a single respiratory movement. The color of the patients remained pink and their blood was well aerated. It is a valuable characteristic of this method that the patients need not breathe in order to have oxygenation of their blood occur, the apparatus does the breathing for them. In this respect, the method differs from all other apparatus for this purpose, and it has this advantage over both the positive and negative pressure methods for thoracic surgery. In the latter the respiratory movements of the patients are absolutely necessary; without them aeration of the blood cannot occur, but oxygenation of the blood will occur just as well whether the patient makes respiratory movements or not with intratracheal insufflation. The patient makes the movements, but thereby does not get any air into the lungs; the apparatus attends to that.

Journal of Medical Society of New Jersey, Orange

October, IX, No. 5, pp. 221-274

71 Relation of Municipality to Child Life. A. F. McBride, Paterson.
72 Educational Hygiene and Prophylaxis. G. J. Holmes, Newark.
73 Object and Intent of Medical Inspection of School Children. J. MacDonald, East Orange.
74 Present-Day Feeding Principles. F. H. Glazebrook, Morristown.
75 Blood-Pressure in Pregnancy. F. R. Haussling, Newark.

Cleveland Medical Journal

September, XI, No. 9, pp. 631-692

76 *Histologic Changes in Certain Organs in Patient Dying After Salvarsan. H. O. Ruh, Cleveland.
77 Hypertonic Contraction or Intermittent Closing of Cerebral Arteries. J. Phillips, Cleveland.
78 Care of New-Born Infant; Progress in Pediatrics. H. Hempstead, Cleveland.
79 Anterior Poliomyelitis. E. F. Freedman, Cleveland.
80 Visceral Pathology of Syphilis. O. T. Schultz, Cleveland.

76. **Changes Due to Salvarsan.**—In a case having a positive Wassermann reaction and clinical signs of lues, after the intravenous injection of 0.5 gram of salvarsan in alkaline solution there followed an anuria which resulted in death after five days. At autopsy Ruh found evidences of a severe intoxi-

cation. The main effects are seen in the kidney and liver, which show degenerative changes and proliferation of the parenchymatous elements. The pathologic changes in the liver and kidney are similar to those produced in experimental arsenic poisoning.

Journal of Maine Medical Association, Portland

October, III, No. 3, pp. 975-1010

81 Prevention of Insanity. F. L. Hills, Bangor.
82 Need of Correcting Flat Feet. M. S. Young, Oak Bay, N. B.
83 Reminiscences. E. Small, Belfast.

Wisconsin Medical Journal, Milwaukee

September, XI, No. 4, pp. 103-136

84 *Experimental Study of Some Effects of Certain Anesthetics. J. L. Yates, Milwaukee.
85 Diagnosis and Treatment of Foreign Bodies in Eye and Orbit. G. I. Hogue, Milwaukee.
86 Roentgen Localization of Foreign Bodies in Eye and Orbit. E. S. Blaine, Milwaukee.

84. **Effects of Anesthetics.**—The drugs (chloroform, ether, nitrous oxid oxygen and cobra venom) used by Yates in his experiments were found capable of instituting degeneration changes in the parenchyma of the heart, liver and kidney, or of aggravating such changes when already established. These metamorphoses were found to bear a serial relationship of increasing severity from which recovery is not always possible. Anesthetics are regarded by Yates as toxic in their effects, and should, he says, be administered with due regard to their most dangerous action as affected by individual conditions. Ideal general anesthesia, pleasant and safe, seems to be impossible until a drug is found which will have a purely selective and benign action on the sensorium. The nearest approach thereto may be the development of methods requiring the minimum of the least injurious drugs (probably the most transitory in action), which will least impair, or possibly enhance, the efficiency of cardiovascular, respiratory or defensive mechanisms.

Discouragingly discordant opinions, based on personal experience and clinical observations, and therefore frequently biased, Yates believes, justify the statement that there is no one method of anesthesia, single, combined or sequential, which is so safe as to warrant its invariable application; on the other hand, chloroform may be said to possess no redeeming feature. The observations made by Yates in his series of experiments on unfavorable animals under untoward conditions are in such accord with clinical evidence as to give hope that the experiments now under way, designed to determine the degree of persistence of the lesion caused by drugs and their effects on resistance to infection, may permit of valuable deductions.

Journal of Outdoor Life, New York

October, IX, No. 10, pp. 225-254

87 After-Care and After-Cure of Tuberculosis Patients. C. D. Parfitt, Gravenhurst, Ont.
88 Social Activities of Bellevue Tuberculosis Clinic. S. E. Shaw, New York.
89 Meaning of Rest. W. M. Ross, Stevens Point, Wis.
90 Examination of Employees for Tuberculosis. T. B. Sachs, Chicago.
91 Tuberculosis Carriers. G. B. Webb, Colorado Springs, Colo.
92 Sanatorium for Indian Children. J. N. Alley, Fort Lapwai, Idaho.

Archives of Pediatrics, New York

September, XXIX, No. 9, pp. 641-720

93 *Dextrins and Maltose in Infant-Feeding. T. S. Southworth, New York.
94 *Employment of Salvarsan in Infants and Young Children. L. E. La Fetra, New York.
95 Infantile Scurvy and Modern Conditions. W. P. Northrup, New York.
96 *Influence of Food on Intestinal Flora of Infants. A. Friedlander and J. V. Greenbaum, Cincinnati.
97 Retroperitoneal Lymphosarcoma Treated with Coley's Fluid. H. K. Hill, Philadelphia.
98 Chronic Colitis in Child Three Years of Age with Deformity of Sigmoid. J. F. Bell, Englewood, N. J., and L. T. Le Wald, New York.

93. Abstracted in THE JOURNAL, July 13, p. 139.

94. **Salvarsan in Infants and Children.**—While the indirect method of giving salvarsan to the nursing mother is regarded by La Fétra as being valuable and should be used when the mother is available, the surest method in his opinion consists in giving the salvarsan to the infant. Both indirect and direct administration should be employed whenever possible. The intravenous route of administration is the best. Usually it will be found easiest to expose the vein before attempting to insert the needle. The dosage should be not less than 0.01 gram per kilogram of body weight. Repeated injections and supplemental treatment by mercurials may be necessary. The Wassermann reaction should be followed for a year.

96. **Intestinal Flora of Infants.**—The foods used by Friedlander and Greenebaum, albuminized milk and simple modified milk (fat, 2 per cent.; sugar, 7 per cent.; proteid, 3 per cent.) had very little influence on the biologic reactions of the fecal flora as a whole. There was, however, a slight lessening of the putrefactive reactions on the 2-7-3 modification. The acidophilic flora remained about constant on both foods. Finkelstein's food depends on its lactic acid content. The lactic acid bacillus flora formed during its administration was continued when the food was changed to 2-7-3, because in the latter instance the lactic acid was formed from the sugar. In other words, with both foods lactic acid therapy was given, so that it is not surprising that the bacteriologic reactions were similar in both instances.

In striking contrast to the slight changes in the intestinal flora there was a remarkable change in the clinical aspect of two cases studied. The general condition improved greatly, as did the gross character of the stools. On the Finkelstein food there was moderate but steady gain in weight, while on the 2-7-3 modification there was very marked and rapid gain in weight. The Finkelstein food was undoubtedly of marked value in both these cases. After its administration the gas bacillus disappeared in each case. Again the low sugar content of the food undoubtedly rested the gastro-intestinal tract, so that after four weeks of its use an increase of sugar *ad maximum* (7 per cent. lactose) was not only tolerated, but was utilized with great benefit to the child. Finkelstein's food is undoubtedly of great value for short periods in suitable cases, for its effect on the intestinal flora (substitution of acidophilic for putrefactive organisms) and also because of its power to rest the gastro-intestinal tract by its low sugar content, especially for cases previously overloaded with sugars.

Medical Record, New York

October 5, LXXXII, No. 14, pp. 599-644

99 Syphilis of Heart and Blood-Vessels. G. Richter, St. Louis.
100 Chlorosis and Tuberculosis. C. M. Montgomery, Philadelphia.
101 Psychogenetic Convulsions and Genuine Epilepsy. L. P. Clark, New York.
102 Some Reasons Why General Practitioner Does Not More Frequently Recognize Pulmonary Tuberculosis in Its Incipiency. G. W. Beach, Oakdale, Minn.
103 Criticism of Orthodox Interpretations of Occupational Cramp-Neurosis and Term Neurosis. T. A. Williams, Washington, D. C.
104 *Experimental Studies of Action of Electrical Cauterization on Neoplasms. J. B. Squier, New York.
105 Tics and Their Treatment; Education vs. Hypnosis. J. H. Leiner, New York.
106 Method of Anoci-Association for Abdominal Operations in Selected Cases, with Nerve-Block *à Distance*. L. F. Watson, Oklahoma City, Okla.

104. **Action of Electrical Cauterization on Neoplasms.**—The studies which form the basis of Squier's communication have to deal with the action of the Oudin or monopolar, and the d'Arsonval or bipolar current upon malignant growths of the bladder and otherwise. The work was undertaken in consequence of an unusual experience, where the use of the d'Arsonval current caused the disappearance of an extensive vesical carcinoma in a man, 50 years of age. This method of treatment has been employed in five other instances; a large papilloma was removed by suprapubic incision and the base sparked; two cases of prostatic carcinoma, in which the cavities made by removal of the prostates have been cauterized by sparking; two cases of vesical carcinoma have been sparked through suprapubic incision, without any attempt at excision. In all these cases Squier was impressed by the absence of any amount of bleeding after operation, and by the comparatively small shock shown by the patients, even though they have been subjected to a very considerable period of anesthesia.

Experiments have been carried out on tumor-bearing, large white rats. The sarcomatous tumors were thoroughly fulgurated with bipolar electrodes, the distance between the poles being the diameter of the tumor. In two cases the current burned a hole in the skin and the tumor was loosened from the surrounding tissue and fell out. All of this series of five animals died in from one to seven days. In all, remnants of neoplasm could be found at the original site of the tumor. Death was not due to extension of the tumor; the lesion found was an acute enterocolitis resembling that found after severe and extensive burns. Similar results were obtained with carcinoma experiments. While the use of the current seems to be valuable in checking hemorrhage, as in bladder operations, it can by no means be assumed to replace extensive resection in the cure of carcinoma. Its action is probably simply that of an easily handled cautery.

New York Medical Journal

October 5, XCVI, No. 14, pp. 669-720

107 *Skin Diseases in Relation to Sexual Organs. S. Pollitzer, New York.
108 Sarcoma of Mediastinum. H. B. Allyn, Philadelphia.
109 Phylacogen in Secondary Infections in Pulmonary Tuberculosis. I. H. Alexander, Pittsburgh.
110 Therapeutic Nihilism. M. Schulman, New York.
111 Empirical Treatment of Alcohol and Drug Neuroses. T. D. Crothers, Hartford, Conn.
112 Sanitary Control of Prostitution in Some European Cities. F. Bierhoff, New York.
113 Importance of Early Training of Mothers in Care of Infants. S. A. Agatston, New York.
114 Tetany Following Thyroidectomy. W. Lathrop, Hazleton, Pa.
115 Reimplantation of Patient's Cartilage After Submucous Resection of Septum for Correction of Obstructive Lesions. S. Goldstein, New York.

107. **Skin Diseases and Sexual Organs.**—The connection between certain dermatoses and disorders in the genital sphere in women lacks direct experimental foundation, but, Pollitzer says, the clinical evidence that such a connection exists is so strong and so direct that there can be no reasonable place for doubt. It is, for instance, an established fact that certain dermatoses occur during pregnancy, disappear at its termination, and occur with succeeding pregnancies. One must explain these dermatoses as due to the presence of some chemical products in the blood that act like certain drugs in some individuals in producing eruptions.

In men the dermatoses connected with the genital organs are of less importance and of less frequent occurrence than in women, for the simple reason that the genital glands in the male are of minor physiologic importance compared to those of the female, and are less subject to disease. The internal secretion from the testicles has a certain bearing on the physiology of the skin, but this seems to be limited to the period of puberty, and thereafter the male glands are not subject to the great physiologic fluctuations in functional activity that affect the female through menstruation and pregnancy.

Pollitzer discusses the more important effects on the skin that may with reasonable certainty be regarded as depending on the functional activity of these organs, such as the dermatosis of puberty, of menstruation, of pregnancy and of the climacterium.

Boston Medical and Surgical Journal

October 3, CLXVII, No. 14, pp. 455-494

116 Problem of Race Betterment. J. E. Mears, Philadelphia.
117 Coccyodynia. C. G. Cumston, Boston.
118 Results of Complement-Fixation Test for Gonorrhea at Massachusetts General Hospital. R. F. O'Neil, Boston.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

September 21, II, No. 2699, pp. 669-752

1 *Modern Problems Relating to Antiquity of Man. A. Keith.
2 Chief Use of Peritoneum. J. Howell.
3 Tuberculosis in Infancy and Childhood. C. McNeil.
4 Subjective Method for Estimating Blood-Pressure. H. G. Armstrong.
5 *Whooping-Cough Treated by Intravenous Injections of Iodoform. T. W. Dewar.
6 *Contagiousness of Leprosy. J. W. Lindsay.
7 Strangulated Inguinal Hernia in Infant. G. E. E. Nicholls.
8 Treatment of Non-Valvular Cardiac Disease. G. A. Gibson and A. R. Cushny.
9 *Standardization of Cardiac Tonics. A. J. Clark.
10 *Some Investigations of Action of Digitalis on Blood-Pressure in Man. F. W. Price.
11 Clinical Experiences with Tetrahydropapaverolin Hydrochlorid. C. R. Marshall.
12 West Indian Cane Sugar in Treatment of Certain Forms of Heart Disease. A. Goulston.
13 Rôle of Calcium Salts as Therapeutic Agents. J. Barr.
14 Cod-Liver Oil and Its Action in Phthisis. O. T. Williams.
15 Action of Symphytum Officinale. C. J. Macalister.
16 Varieties and Significance of B. Coli in Water-Supplies. A. C. Houston, W. G. Savage and W. Wright.

1. Also published in *The Lancet*, September 21.

5. **Treatment of Whooping-Cough.**—In ten days Dewar stopped the cough in a case of whooping-cough by intravenous injections of iodoform.

6. **Contagiousness of Leprosy.**—Lindsay is absolutely convinced that in South America, at any rate, leprosy is spread by contagion, either immediate through contact with a leper or his discharges, or mediate through conveyance of the infection by insects. Owing to the conditions being so favorable to the rapid spread of leprosy, the disease is far more infectious than is tuberculous disease of the lungs, for which the conditions are not so favorable. It has nothing at all to do with fish-eating, as the people of South America do not eat fish, and although they are all Roman Catholics, the only Friday when they do not eat meat is Good Friday.

9. **Standardization of Cardiac Tonics.**—According to Clark strophanthin never produced rigor in the isolated frog's sartorius; in strong concentration it produces a gradual loss of the power of contraction. Digitonin produces rigor in the isolated frog's sartorius, but has only a feeble action on the frog's heart; the effect produced is unlike that produced by the digitalis glucosides. The action of preparations of digitalis in producing rigor of the isolated frog's sartorius, Clark says, is probably due entirely to the digitonin or other saponins present, and is not due to the glucosides. There is no necessary relation between the action of preparations of digitalis and allied substances on the striped muscle of the frog and their action on the frog's heart.

10. **Action of Digitalis on Blood-Pressure.**—Taking twenty-one cases in which thoroughly accurate observations were made by Price, in only one case was there a rise in blood-pressure. In several cases there was a fall of pressure, and not infrequently a normal diurnal variation of considerable range occurred. So far as these cases are concerned, judged by the methods in use for observing the blood-pressure clinically, the internal administration of digitalis, Price says, does not raise the blood-pressure in man by constricting the peripheral vessels. If that be so, the very important practical point will have been discovered that there is no risk in administering the drug in cases of degeneration of the walls of the blood-vessels or of supernormal blood-pressure.

Journal of Tropical Medicine and Hygiene, London

September 16, XV, No. 18, pp. 273-288

17 House-Fly as Carrier of Typhoid Infection. F. W. Thomson.
18 Treatment of Twenty-Two Cases of Yaws by Salvarsan Injections. R. P. Cockin.
19 Inoculation, Vaccination and Small-Pox. R. H. Castor.

Lancet, London

September 21, II, No. 4647, pp. 807-864

20 Modern Problems Relating to Antiquity of Man. A. Keith.
21 Vertebral Ankylosis: Various Clinical Forms. J. Dardel.
22 *Nature of Pancreatic Diabetes. F. P. Knowlton and E. H. Starling.
23 *Unusual Contents in Hernial Sacs. A. E. Barker.
24 Case of Retrogressive Tuberculous Meningitis. W. T. Brooks and A. G. Gibson.
25 Relationship Between Movable Kidney and Chronic Colitis. J. Liddell.
26 Perforating Appendicitis of Bilharzial Origin. H. T. Mursell.
27 *Intravenous Injection of Paraldehyd. H. L. C. Noel and H. S. Souttar.
28 Technic of Mere Extensive Abdominal Operations for Cancer of Uterus. F. J. McCann.
29 Jousset's Method of Demonstrating the B. Tuberculosis in Pleural Fluids. S. R. Gloyne.
30 Chronic Intestinal Stasis; Case of Trigeminal Neuralgia Treated by Ileocolostomy. G. T. Mullally.
31 Intraperitoneal Injections of Oxygen During Abdominal Operations. H. J. Godwin.

22. **Nature of Pancreatic Diabetes.**—So far, the authors' experiments seem to indicate that the pancreas normally produces a hormone which circulates in the blood, and the presence of which is necessary in order that the tissue cells may be able to assimilate and utilize the sugar of the blood. Absence of this hormone leads to glycosuria.

23. **Unusual Contents in Hernial Sacs.**—In one of his cases Barker found a long vermiform appendix firmly adherent by recent adhesions to the inner aspect of the femoral ring. The apex was almost destroyed. It was removed in the usual way and the wound healed by first intention. In a second case, a right-sided hernia became large, painful and irreducible. The patient was sick only once at the outset. The bowels had been regular until the last day. On admission the whole right inguinal region was swollen, edematous, painful and very tender to the touch; its upper half was tympanitic, the lower dull. The diagnosis was uncertain, but the treatment to be adopted was obvious. Under a local anesthetic the tumor was incised from end to end, and a very large quantity of pus and sloughy tissue found lying on the external oblique muscle. But a great quantity of pus came also through the external ring, into which the finger could be passed. It was clear that the main abscess was intra-abdominal and lay in the neighborhood of the appendix.

A third patient had a large left hernia which was a recurrence after an operation two and a half years before. It was as large as an adult fist; the contents were very hard and of irregular outline, and absolutely irreducible. There was no impulse on coughing and no gurgling. On opening the sac, which was not tense and contained some fluid, the whole uterus, both broad ligaments, fallopian tubes and ovaries appeared to be the only contents. Nothing abnormal was noticed about them. They were absolutely irreducible and required free incision of a good deal of the cicatricial tissue of the old operation before they could be pushed back into the abdomen. When operated on two and a half years before for the radical cure of hernia on the same side the contents were found to be small intestine without any omentum, and the uterus and adnexa were not seen. The patient was a corpulent woman with a more or less pendulous abdomen.

The fourth patient had a large right inguinal hernia, which had appeared under the scar of a radical operation done fourteen years before. The present swelling had been present for many years, but had been reducible with more or less difficulty until the morning of admission. Then during a strain the hernia had suddenly increased in size, with pain, and since that moment had not yielded to pressure. Another point of which the patient complained was that since the increase of the hernia in the morning he had been unable to pass any urine. He further stated that for a long time back (three or four years) he had been unable to pass urine until he had partly reduced the hernia. But since the morning when it had suddenly enlarged (he had been sick, though the bowels were open) and become irreducible, he could not micturate with every desire to do so. The inguinal swelling was as large as a coconut, extending from the external ring into the scrotum; it was dull on percussion and elastic, and no effect was produced by taxis. Under the perfect relaxation of spinal analgesia taxis was successful as far as a hard mass of omentum was concerned, but the bulk of the tumor was still irreducible. An incision was made in the usual direction through the old scar of the operation of many years before. The cord was found lying in front of the narrow neck of the tumor. The mass was separated from the surrounding tissues and lifted up. It could be then traced with the fingers down to the prostate, at which it could be distinctly felt to terminate. The white fat and veins of the cavum Retzii behind the pubis could be distinctly recognized, and materially helped the diagnosis. The peritoneum was not seen, and, of course, the hernia had no sac. The urinary bladder was herniated.

27. **Intravenous Injection of Paraldehyd.**—The authors consider the intravenous use of paraldehyd to be practically safe, and have ventured to use it as a hypnotic in cases of grave cardiac and pulmonary disease with perfect success. They do not suggest that it can replace the slower but more lasting hypnotics, but draw attention to it as a method by which under the most trying circumstances they have never failed to induce within sixty seconds a condition closely resembling normal sleep. They mix 5 to 15 c.c. of paraldehyd with an equal amount of ether and dissolve the mixture in 150 c.c. of a cold 1 per cent. solution of sodium chlorid in sterile distilled water free from dead bacteria, or in default of this in ordinary boiled tap water. The solution should be perfectly clear after shaking. It is placed in a sterile bottle with a rubber stopper through which pass two glass tubes. To one of these tubes bellows are attached. The other reaches to the bottom of the liquid and leads off by a long rubber tube to a fine hypodermic needle. The solution may be injected cold or at a temperature not exceeding 25 C.

The patient's arm being surrounded with a light tourniquet bandage, a prominent vein is selected, the skin is cleansed with ether, and the needle is inserted. The tourniquet is removed, the bellows are worked, and the fluid is steadily driven into the vein at the rate of from 30 to 60 c.c. per minute. Small operations, such as removing teeth or suturing wounds, may be performed. The drug is, however, excreted by the lungs with great rapidity, and for a lasting effect the whole 15 c.c. of paraldehyd will usually be required.

Bristol Medico-Chirurgical Journal

September, XXX, No. 117, pp. 193-288

32 Tuberculosis. R. Roxburgh.
33 Insanity; Its Classification and Nomenclature. F. S. Bullen.
34 Right and Wrong Side of Roentgenogram; Has a Mistake Been Made? W. Cotton.
35 Relationship Between Toxicity and Chemical Reactivity in Certain Benzene Derivatives. O. C. M. Davis.
36 Raynaud's Disease. D. A. Alexander.

Indian Medical Gazette, Calcutta

September, XLVII, No. 9, pp. 341-380

37 Recent Facts as to Inoculation and Prevalence of Enteric and Paratyphoid Fevers in European Army of India. R. H Firth.
38 Details of Vision of 132 Cases of Intracapsular Extraction of Cataract. H. Smith.
39 Cholera Season; Some Observations, Methods and Results T. H. Bishop.
40 *Treatment of Uterine Prolapse with Special Reference to Inglis Parson's Method of Injection of Quinin Sulphate Into Broad Ligaments. J. Davidson.
41 *Treatment of Small-Pox by Tincture of Iodin. A. G. Newell.
42 Outbreak of Urticaria Epidemica Due to Mucuna Pruriens Cow-Itch Plant. H. Stott.
43 Opium Cures, "Combretum Sundaicum" and "Antipav." W. C Brookes.
44 Design for Out-Patients' Department of Hospital in India M. H. Thornely.

40. **Treatment of Uterine Prolapse.**—In 1910 Inglis Parsons suggested a new method of treatment of prolapse in old women where the pessary was not suitable, and who were patients not likely to stand prolonged operative procedure. It consisted in the injection of quinin sulphate. Twenty-four grains of quinin sulphate are dissolved in 1 dram of distilled water and 1 dram of dilute sulphuric acid. This makes a 1 in 5 solution, which is boiled in a test-tube, and a plug of sterile cotton-wool inserted till the solution is required. One dram of the solution is injected into each broad ligament, i. e., equivalent to 12 grains of quinin sulphate on each side.

The patient is prepared as for any gynecologic operation under an anesthetic, and the vagina carefully douched. An anesthetic is given. The patient is placed in the lithotomy position. Retractors are inserted to keep back the vaginal walls, and a sound passed into the uterus and held horizontally. In this position the broad ligaments form two triangular spaces with the bases toward the operator. Crossing this space from the outer to the inner side are the uterine arteries and veins and the ureters. If the cervix is normal in size, the puncture is made about three-fourths of an inch from its edge. The needle is directed a little downward and outward. In this position the uterine arteries and veins are on the inner side, while the ureter is above and somewhat inside. The needle point should feel quite free when it is in the cellular tissue. The solution is slowly injected and spread out from side to side. After both injections have been made, the uterus is anteverted by bimanual manipulation, and a cup and stem vaginal pessary introduced, and kept in position by tapes. The pessary is removed on the fourth day. The patient is kept lying in bed for at least ten days, preferably for three weeks. A ring pessary may be worn for some months until the full strength of the new fibrous tissue is acquired. Davidson cites fourteen patients so treated. Six have been seen after the operation. One showed a relapse, the other five showed successful results.

41. **Tincture of Iodin in Small-Pox.**—Newell uses iodin in small-pox on the forehead, chin, neck and the back of the hands. Using it early in confluent cases he found that it materially affected the development of the pocks and prevented the "pitting" which is so horrible a result in confluent cases. Newell uses the ordinary B. P. tincture of iodin and so far has limited its use to the above-mentioned parts. The application can be applied two or three times a day for a few days only and then totally discarded. The colored scabs and epithelium all come away and, in patients treated early, leave no trace of a scar even in severe confluent cases.

Dublin Journal of Medical Science

September, III, No. 489, pp. 161-240

45 Phantasms of Lite. W. G. Smith.

Annales de Gynécologie et d'Obstétrique, Paris

September, XXXIX, No. 9, pp. 513-575

46 *Surgical Treatment of Placental Hemorrhage. (Traitement chirurgical des hémorragies par décollement du placenta. normalement et vicieusement inséré.) Couvelaire.
47 Sarcoma of Uterine Cervix. (Sarcome diffus du col de l'utérus.) A. Herreuschmidt and P. Mocquot.

46. **Surgical Treatment of Placental Hemorrhage.**—Couvelaire's article was one of the addresses at the recent international gynecologie congress, and it was summarized in the Berlin Letter in The Journal, Oct. 5, p. 1305.

Archives Générales de Chirurgie, Paris

August, VI, No. 8, pp. 877-1004

48 Spontaneous Coxa Vara Simulating Fracture or Separation of the Epiphysis. M. Savariaud.
49 Fracture of the Base of the Skull. (Mécanisme et classification des fractures de la base du crâne irradiées à plusieurs étages.) J. Poulain.
50 Sterilization of the Hands. (Etude comparative des Méthodes anciennes et nouvelles dans la désinfection des mains.) E. Marquis.
51 Subcutaneous Lipoma of the Mamma; Thirty-Seventh Case on Record. (Les lipomes du sein.) G. Zesas.

Archives Internationales de Chirurgie, Ghent

V, No. 3, pp. 247-338. Last indexed Oct. 7, 1911, p. 1244

52 *Advantages of Early Splenectomy in Banti's Disease; Nine Cases. (Su di alcune case di morbo di Banti.) G. Urbino.
53 Trauma as Factor in Neoplasms. L. La Roy.

Nos. 4-5, pp. 341-514

54 Cystic Disease of the Mamma. (Les tumeurs kystiques du sein.) L. La Roy.
55 *Influence of Exploratory Laparotomy ou Inoperable Cancer. S. Spangaro.

52. **Splenectomy in Banti's Disease.**—Five of Urbino's nine patients were permanently cured by removal of the enlarged spleen which evidently had been flooding the organism with toxic products. The age ranged from 13 to 44 years; there was nothing to suggest syphilis in any case. Three of the patients had had typhoid, and alcoholism was suspected in one in this group, as also in another man. Six of the patients were women. The first symptoms had been loss of appetite, digestive disturbances and diarrhea, sometimes bloody. Depression and debility followed with edema and anemia. The affection continued an insidious progressive course until finally local discomfort led to discovery of the enlarged spleen. Headache, epistaxis and pain in the liver were noticed in some of the cases. From one to four years had elapsed before the spleen was removed, and none of those in an advanced stage was cured, so that Urbino warns that grave lesions on the part of the liver, a tendency to hemorrhage and ascites, should be regarded as contra-indicating splenectomy. Death followed within a week in three cases in this stage; another patient lived eighteen months. The necropsy findings in one case are reviewed. After the splenectomy there is liable to be severe gastro-intestinal hemorrhage which should be vigorously combated with hot irrigation of the intestines, vasoconstrictor drugs and saline infusion. He warns further that the resisting power to infections seem to be materially reduced a few days after splenectomy, the patients displaying a special susceptibility and the infections running an unusually severe course.

55. **Exploratory Laparotomy with Gastro-Intestinal Cancer.**—Spangaro relates that an unmistakably favorable influence was apparent in five out of his sixteen cases of gastric cancer in which the exploratory laparotomy showed that the growth was inoperable. Conditions took a decided turn for the better after the exploratory laparotomy, and he advises it as a routine palliative measure even when certain of the inoperability of the growth. A number of factors cooperate in determining the influence of the laparotomy, whether for better or worse; gastric cancers seem to be especially favored in this respect.

Archives Mensuelles d'Obstétrique et de Gynécologie, Paris

September, I, No. 9, pp. 97-144

56 *Hysterectomy in Treatment of Cancer of Uterine Cervix in the Course of Pregnancy, Delivery or Post Partum. Levant.
57 Gynecologic and Obstetric Customs Among the Natives of French Guinea. Joyeux.

56. **Cancer of the Cervix During Pregnancy and the Puerperium.**—Levant presents arguments to prove the undesirability of the vaginal route for removal of cancer of the cervix in a pregnant or parturient woman. The mortality for the woman is about the same as with abdominal hysterectomy; but for the child it is far higher, while the dangers from an incomplete operation are greater. The Wertheim technic for abdominal panhysterectomy offers much better chances for both mother and child. He has been unable to find any record since 1907 of a vaginal hysterectomy for cancer of the cervix of the pregnant uterus. In six cases a combined vaginal and abdominal technic was applied, but this, he comments, is unnecessary as the vagina can be so readily drawn up from above.

Grèce Médicale, Syra, Greece

August 15, XIV, Nos. 15-16, pp. 29-32

58 Cyclops Monster and Child with Hernia of the Brain. (2 cas de monstruosités foetales—opocéphale-otocéphale avec exencéphale.) M. N. Cairis. Commenced in No. 13.

Journal de Médecine de Bordeaux

August 11, XLII, No. 32, pp. 501-516

59 *Papillary Tumors in the Genital Region. (Traitement des végétations génitales.) W. Dubreuilh.
60 Manganese in the Organism. (A propos du manganèse normal.) P. Carles.

August 18, No. 33, pp. 517-536

61 *Cesarean Section for Puerperal Hemorrhage. (A propos de l'accouchement chirurgical appliqué au traitement des hémorragies de la puerpéralité.) G. Fieux.

August 25, No. 34, pp. 533-548

62 Cholesterin in the Blood and Other Organic Fluids. P. Mauriac.

59. **Genital Vegetations.**—Dubreuilh advises systematic application of antiseptics and astringents to prepare the field for operative treatment. In some cases this alone suffices, the growths shriveling and disappearing. Such vegetations are liable to subside spontaneously after a pregnancy; if they become aggravated during a pregnancy they are liable to return soon, even after excision. Roentgenotherapy is formally contra-indicated during a pregnancy on account of danger to the fetus, as the perineum is not a sufficient protection. Excision is better than curetting, as the latter is seldom complete and the skin is particularly tender in these regions.

61. **Operative Treatment of Puerperal Hemorrhage.**—Fieux relates two cases in which conditions seemed to call for cesarean section, but he was able to avoid it. The patient had a contracted rachitic pelvis and symphyseotomy was done. This not only permitted natural delivery of the viable child, but it made her deliveries later natural childbirths; she had previously had five infants still-born or requiring embryotomy. In the second case the hemorrhage from placenta prævia was so fulminating that there was no time for an operation. It was arrested by the inflatable bag, but this was evidently responsible for the death of the fetus. Fieux has never had occasion to dread post-partum hemorrhage with placenta prævia. With retroplacental hemorrhage conditions are different; the extravasation of blood in the walls renders them incapable of contracting. Women who have retroplacental hemorrhage are generally multiparæ and albuminuric, so that hysterectomy is less serious for them than for women with placenta prævia as a rule. Placenta prævia is a transient condition and cesarean section is rarely required for it. Cesarean section can be done first for placental hemorrhage and if

the uterus is found ecchymotic it can be removed. Under all circumstances, he reiterates, the aim should be to avoid mutilating operations as much as possible.

Journal d'Urologie Médicale et Chirurgicale, Paris

August, II, No. 2, pp. 157-320

63 *The Liver as Factor in Hematuric Nephritis. (Rôle du foie dans la production des hématuries au cours des néphrites dites hématuriques.) G. Roque and J. Chalier.
64 *Action of Urea on the Kidney Secretion in Cases of Oliguria. G. Picot.
65 *Diagnostic Induced Diuresis. (Recherches sur l'épreuve de la diurèse provoquée: polyurie expérimentale.) P. Merklen.
66 Rebellious Diplococcus Bacteriuria Cured by Auto-Vaccine. Aureille and R. Badet.
67 Urethroscopy. G. Luys and G. Le Virghi.

63. **The Liver with Hematuria.**—Roque and Chalier report the case of a man of 58 with a history of malaria and liquor drinking whose urine suddenly became bloody and no cause for the total hematuria could be discovered. By the end of two months, when the patient was first seen, there was considerable edema in the legs, with weakness, and the liver was found much enlarged and tender with signs of incipient chronic disease of the kidneys. Under the usual measures the kidney subsided in size and with this the hematuria disappeared, although blood could still be detected by the finer tests. Roque and Chalier insist that this case is a suggestive example showing the influence of the liver on the development of hematuria in a latent chronic nephritis. The case emphasizes anew that the liver must be regarded as an important factor in hematuria and that nephrectomy alone is consequently illogical as a method of treating hematuria in many cases. Nephrotomy or decapsulation may be indicated, but before this is resorted to, rest in bed, dieting and other measures to act on the liver should be given a thorough trial, striving to reduce the congestion in the liver. For this cauterization with a conical cautery may prove useful (*pointes de feu*) with calomel, sodium salicylates and possibly drugs to act on the coagulation of the blood.

64. **Urea in Treatment of Oliguria.**—Picot reports three cases in which the extremely deficient secretion of urine was restored to normal proportions by administration of urea. The diuretic action of urea seems to depend on the dose. He gave 25 gm. of urea in a glass of milk slowly sipped. This dose induced pronounced diuresis. He gave it to one patient with much uremia as a prophylactic measure before an operation on the kidney. In another case there had been anuria for seven days but it was conquered by the urea. All of the patients presented signs of uremia; it was calculated that one had 4.10 gm. of urea in the blood, another 0.7, and yet none was harmed by the intake of more urea and all showed marked benefit from the diuresis induced. The dose was repeated the second day in the last case. As a preliminary to an operation, this urea treatment seems promising to him.

65. **Test Polyuria.**—Merklen gave 600 gm. of water in the morning, fasting, to a number of sick and well persons, and tabulates the findings in regard to the intervals and amounts of urine voided during the following two hours and a half. The test was applied also in a few cases after theobromin had been taken. Among the points thus learned is that when there is a wide divergence between the findings when the individual stays in bed or is up and about, this suggests some extrarenal, possible cardiac cause for the abnormalities observed. When the amounts of urine and the specific gravity are practically the same reclining or up and about, this may be regarded as a sign of sclerosis of the kidney.

Lyon Chirurgical, Lyons

September, VIII, No. 3, pp. 245-368

68 Fracture of the Ankle. (Fractures du cou-de-pied; Type marginal postérieur.) E. Destot.
69 Grafts of Blood-Vessels. (Greffes vasculaires.) E. Villard and E. Perrin.
70 Tuberculosis of the Appendix. (Cas de tuberculose hypertrophique de l'appendice.) R. Leriche.

Lyon Médical, Lyons

September 1, XLIV, No. 35, pp. 341-376

71 The Pathologic Anatomy of Certain Severe Nervous Diseases Without Apparent Lesions. L. Beriel. Commenced in No. 33.
72 Origin of Lactic Acid. R. Lépine.

September 8, No. 36, pp. 377-420

73 *Elimination of Salvarsan in the Urine. J. Escallon.
74 Not Necessary to Wait for Cataract to Be Entirely Ripe. (Faut-il nécessairement attendre la maturité complète de la cataracte pour l'opérer?) Grand-Clement.

73. **Elimination of Salvarsan in the Urine.**—Escallon states that after ingestion of salvarsan, arsenic is eliminated in the urine and a simple color reaction may be used to demonstrate it: Acidulate 7 or 8 c.c. of urine with a few drops of hydrochloric acid; add 3 or 4 drops of sodium nitrate, 10 per cent.; then a few drops of 10 per cent. alkaline resorcin, and finally a drop or two of sodium hydroxid. A bright-red color indicates arsenic, and a color scale may be worked out showing the relative amount. He gives curves showing the time of maximum elimination.

Presse Médicale, Paris

September 4, XX, No. 72, pp. 729-736

75 Auscultation of Whispering Voice. (Transmission de la voix chuchotée.) E. Rist.
76 *Fractures in Children. (Les traumatismes osseux.) Kirmisson.

September 7, No. 73, pp. 737-748

77 Hereditary Dystrophy of Skull and Face. (Dysostose cranio-faciale héréditaire.) O. Crouzon.
78 Treatment of Talipes. (Le pied bot congénital et son traitement.) M. Savariaud.
79 Psychoses in Measles and Acute Tonsillitis. (Etude des psychoses infectieuses.) L. Lagane.

September 11, No. 74, pp. 749-756

80 Imagined Traumatic Origin for Disease. (Quelques étiologies traumatiques imaginaires.) A. Broca.
81 Acromegaly. Briquet.

76. **Fractures in Children.**—Kirmisson discusses in particular incomplete fractures, the periosteum intact, and fracture of the ulna with dislocation of the head of the radius. Children are peculiarly liable to subperiosteal fracture and the kind known as green-stick fracture. Roentgenoscopy is sometimes the only means for detecting the former. The green-stick fracture is often an unsuspected cause of coxa vara. The fact that the child is able to walk on the injured leg apparently excludes the idea of fracture. In a typical case of the kind a child broke its arm in a fall but was able to walk, and the simultaneous injury of the neck of the femur was not suspected until walking became more and more difficult in a day or so. Fracture of the ulna a little above the middle of the bone was always accompanied by dislocation of the head of the radius in the eighty-six cases of the kind compiled by Perrin in 1909; all but thirty-four were in children, and the left arm was generally the one involved. One of Kirmisson's patients was only 33 months old. The head of the radius should always be examined in such cases; with simple fracture of the forearm there is very rarely any considerable swelling above, and consequently any tendency to protrusion above should suggest dislocation of the head of the radius. In treatment this is the most important point to be borne in mind. The dislocation is everything, the fracture comparatively nothing, as severe deformity results when the dislocation does not get proper treatment. The parents must be impressed with the necessity for reduction under general anesthesia. The radius reduced under extension and counterextension will serve as a support for the fractured ulna. Even if the arm is shorter than its mate, this is far preferable to the disturbances inevitable when the dislocation of the radius is left untreated.

Revue de Chirurgie, Paris

September, XXXII, No. 9, pp. 349-516

82 Tardy and Transient External Oculomotor Paralysis After Fracture of the Skull; Two Cases. A. Broca and B. Desplas
83 Fracture of the Posterior Margin of the Tibia. E. Quénu.
84 *Successful Grafts of Joints. (Les greffes articulaires totales chez l'homme.) J. Ducuing. Commenced in No. 8.

84. **Grafts of Joints.**—Ducuing summarizes the details of nineteen cases in which a whole or part of a joint was grafted into a limb. He gives a number of illustrations and discusses whether the graft is merely tolerated as a harmless foreign body or really heals into place as part of the organism Be this as it may, the functional results attained to date are extremely encouraging and justify wide application of the measure in appropriate cases. Lexer has had the greatest experience in this line; Vaughan is the only American cited One of Lexer's patients had part of the tibia and part of the knee-joint thus engrafted after removal of a sarcoma The graft was taken from another patient's leg just amputated

for gangrene. It healed in place and the functional results were excellent sixteen months afterward, but the man became obsessed with the idea that the bone came from another person, and insisted on amputation of the leg which had to be done to save his reason. Only three of the cases cited refer to transplantation of an entire joint with capsule and synovialis (Lexer, Büchmann and Vaughan) with necropsy in the latter's case.

Revue de Gynécologie, Paris

June, XVIII, No. 6, pp. 561-684

85 *Remote Results of Ventral Fixation of the Uterus. (Les résultats éloignés des hystéropexies abdominales.) L. Bazy.
86 *Gunshot Wounds of the Spleen. II. (Les plaies de la rate par coup de feu.) M. Guibé.

85. **Ileus Consecutive to Ventrofixation.**—Bazy calls attention anew to the danger of obstruction of the intestine by the long bridge which generally forms between the uterus and the abdominal wall when the round ligaments are fastened together or separately to the abdominal wall, or the fundus or isthmus is fastened to the wall. He thought that fixation at the isthmus escaped this danger until he learned the contrary from a recent case. The isthmic hysteropexy had become in time a fundal fixation; a loop of intestine had become locked in the narrow passage thus formed and this intra-abdominal intraperitoneal hernia would have certainly caused serious trouble if it had not been discovered early in the course of an operation for salpingitis. Thus all forms of direct ventrofixation are perilous, while with the Webster indirect technic, Bazy says, the uterus is left in its physiologic place and in practically normal conditions.

86. **Gunshot Wounds of the Spleen.**—Guibé has compiled 108 cases of this kind, including several never before published. They teach that after a gunshot wound of the spleen there is grave danger of fatal hemorrhage, primary or secondary. It is difficult to suture a bullet wound in the spleen but it was done successfully in eight of the fourteen cases in which it was attempted, and study of the fatal cases shows that no other treatment could have forestalled the fatal termination. On account of the tediousness of a suturing operation and the rarity of the indications directly calling for it, tamponing was resorted to more frequently, the records showing that this was the reliance in seventeen cases, but only seven of these patients recovered. In several of the cases the tampon did not succeed in arresting the hemorrhage. In fifty-five cases the spleen was removed at once and twenty-eight of the patients recovered. Splenectomy is simpler and easier than suturing and is safer than tamponing; drainage is not required if the operation was aseptic and there were no lesions of hollow organs. The entire material is classified and the case-histories summarized.

Revue Médicale de la Suisse Romande, Geneva

July, XXXII, No. 7, pp. 501-564

87 *Fat Embolism. (Sur l'embolie graisseuse.) H. Beitzke.
88 Technic for Abdominal Hysterectomy for Cancer. (Rôle du tamponnement, du drainage et de la péritonisation dans la lutte contre l'infection lors de l'extirpation abdominale du cancer du col de l'utérus—operation de Freund-Wertheim.) O. Beuttner.
89 Negri Bodies in Diagnosis of Rabies. (Diagnostic de la rage par la recherche des corps de Negri.) E. Marignac.
90 Partial Isolation in Treatment of Psychoneuroses. (L'isolement cénobitique dans les psychoneuroses.) D. Pachantoni.

87. **Fat Embolism.**—In Beitzke's case a man of 54, whose leg had been amputated a year before, in getting out of a train, fell directly on the stump, bruising it a little and also the muscles of the outer aspect of the thigh on the same side. The injuries seemed trifling, but in three hours serious symptoms developed, extreme dyspnea and weakness, copious sweating and nausea, and in three more hours he sank into apparently tranquil profound sleep, the limbs relaxed and no symptoms suggesting a focus in the brain. He swallowed fluids given him but it was impossible to rouse him. The temperature rose to 39 and 40 C. and the pulse was 120. He died the next day without regaining consciousness. Nothing could be found at necropsy to explain this death until the microscope revealed fat embolism in the lungs and brain. There had been no fracture, and merely the concussion of the bones had started the embolism. Concussion of a fractured bone or after an amputation seems to be particularly dangerous from the standpoint of fat embolism. After an accident in which fat embolism is liable, the patients should be guarded against long transportation and premature massage, to avert danger of fat embolism. Beitzke thinks that Wilms' method of an artificial fistula into the thoracic duct, to divert the course of the fat being carried to the lungs by the lymphatic system, might be applied as a last resort in desperate cases. Although the greater proportion of the fat is passed along in the blood vessels, yet the fat in the thoracic duct may be the last straw to overcome the resistance, and hence Wilms' method should be borne in mind.

Revue Mens. de Gyn., d'Obstét. et de Pédiatrie, Paris

August, VII, No. 8, pp. 465-512

91 *Operative Treatment of Meningeal Hemorrhage in the Newly Born. R. Gilles.
92 Cystic Disease of the Placenta. (Kystes du placenta.) F. Masay and A. Louyot.
93 *Present Status of Momburg Belt Constriction to Arrest Hemorrhage. (L'hémostase par constriction élastique de la taille en obstétrique et en gynécologie.) L. Pierra.

91. **Meningeal Hemorrhage in the Newly Born.**—Gilles reports two cases in which he saved the infants by a decompressive operation. In one he relieved the compression by lumbar puncture; in the other, when this proved ineffectual, he punctured the bulging anterior fontanelle at three points, aspirating blood each time. The result in both cases was excellent, the convulsions ceasing and the children developing apparently normally afterward. He urges that these two decompressive operations are simple and easy, requiring no special practice or skill, and the general practitioner, the accoucheur, should be prompt to resort to them at need. The Cushing and Simmons technics are more radical and thorough but they are scarcely practicable in the home emergencies while lumbar puncture and puncture of the anterior fontanelle will often prove all that is necessary to arrest the convulsions. If trouble develops later from non-absorption of the extravasated blood, it will then be time to do a more radical operation when the child is able to stand it. The needle can be introduced slanting, a little to one side of the median line, to avoid the longitudinal sinus, but when the fontanelle is bulging much there need be no danger of injuring the brain pushed back by the accumulating blood. Broca reported not long ago very encouraging results from an operation to remove the relics of old meningeal hemorrhage, and Krause has also reported two cases of the kind.

93. **Momburg Belt Constriction.**—Pierra reviews the history of and experiences on record to date with hemostasis by means of an elastic band or rubber tube wound around the waist (as illustrated in The Journal, Oct. 30, 1909, p. 1519). The method requires great care and caution; many accidents have occurred from defective technic. It is almost invariably effectual as a prophylactic measure against hemorrhage in gynecologic and obstetric operations, but the progress of operative technic has rendered this aid superfluous. On the other hand, he says, it is destined to render very valuable service in emergencies, in serious uterine hemorrhage, especially uncontrollable post-partum hemorrhage; under these conditions it not only arrests the hemorrhage for the time being but possibly permanently. Although it is generally effectual in checking hemorrhage, yet the constriction from the elastic rubber tube wound around the waist is by no means always entirely harmless, especially for the cardiovascular apparatus. Consequently it should never be applied under any pretext when the heart and vessels are not absolutely sound (arteriosclerosis, myocarditis, etc.), and the procedure should never be applied to elderly or obese women.

Semaine Médicale, Paris

September 11, XXXII, No. 37, pp. 433-444

94 Treatment of Surgical Tuberculosis. (Les principes modernes dans le traitement des tuberculoses dites chirurgicales.) F. de Quervain.

Archiv für klinische Chirurgie, Berlin

XCIX, No. 1, pp. 1-303. Last indexed Oct. 12, p. 1410

95 Transplantation of Joints. (Ueber den histologischen Vorgang bei der Transplantation von Gelenkenden, insbes. über die Transplantationsfähigkeit von Gelenkknorpel und Epiphysenknorpel.) G. Axhausen.

96 Traumatic Brain Ventricle Cyst. (Traumatische Ventrikelcyste; Deckung des eröffneten Ventrikels durch Fascie.) H. v. Haberer.
97 *Diagnosis and Operative Treatment of Traumatic Subdural Hemorrhage. K. Henschen.
98 Disadvantages of Intravenous Ether Anesthesia. N. Beresnegowsky.
99 Diagnosis and Treatment of Chronic Pancreatitis; Eight Cases. Guleke.
100 Local Anesthesia in Small Pelvis. (Zur Localanästhesie im kleinen Becken.) C. Franke and H. L. Posner.
101 Pharmacologic Study of Ethyl Chlorid General Anesthesia. (Die Chloräthylnarkose.) R. König.
102 Technic for Operations on Costal Cartilages. (Ueber die Wundgestaltung bei Operationen an den Rippenknorpeln.) G. Axhausen.
103 Reflexes Originating in the Pleura. (Ueber pleurogene Extremitätenreflexe.) G. v. Saar.
104 Lime Deposits Around Shoulder. (Ueber Kalkablagerungen in der Umgebung des Schultergelenks und ihre Beziehungen zur Periarthritis scapulo-humeralis.) L. Wrede.
105 Foreign Bodies in Lung and Pleura After Stab and Impalement Accidents. (Ueber Fremdkörper der Lunge und Pleurahöhle nach Stich- und Pfählungsverletzungen.) E. Hesse.
106 The Blood-Picture with Myxedema and Cretinoid Conditions. (Das Blutbild bei Cachexia thyreopriva.) T. Kocher.

97. **Subdural Hemorrhage.**—Henschen discusses the diagnosis of traumatic subdural hemorrhage in the newly born, in children and in adults, and comments on the excellent results that have followed lumbar puncture in new born babes. If this fails, he suggests a small decompressive trephining of the space below the tentorium back of the mastoid process. In eighty cases of the 246 he has compiled, subdural extravasation proved fatal while 68.1 per cent. of the 166 patients operated on recovered. The usual site is the frontal-parietal region. Three cases are described in detail to show the advantages of preparing to operate in every case of trauma of the skull, ready to do a decompressive operation if signs of compression develop. He left a drain in the opening in the cases reported. Operative treatment should be the rule even in the moderately severe cases, to ward off post-traumatic epilepsy. Even if the accumulated blood is finally absorbed, yet the brain may be gravely injured in the interim.

Beiträge zur klinischen Chirurgie, Tübingen

August, LXXIX, No. 3, pp. 477-720

107 *Tissue Extract in Treatment of Hemophilia. (Studien zum Wesen und zur Behandlung der Hämophilie.) H. Schloessmann.
108 Blocking the Brachial Plexus. (Die Anästhesierung des Plexus brachialis.) D. Kulenkampff.
109 Ultimate Outcome of Operations for Cleft Palate. (Spätfolgen des operativen Gaumenspaltverschlusses.) R. Hagemann.
110 External Hydrocephalus from Surgical Standpoint. E. Pagenstecher.
111 Origin of Gall-Stones. (Entstehung der Gallensteine in ihrer klinischen Beziehung.) S. Kunika.
112 Chronic Appendicitis. (Zur Frage der rein chronisch verlaufenden Appendicitis.) E. Melchior and A. Löser.
113 Differential Pressure Procedures. (Bewertung des Ueber- und Unterdruckverfahrens.) M. Tiegel.
114 Dangers of Nephrotomy. ("Beitrag zu den Gefahren der Nephrotomie.") M. Zondek.

107. **Hemophilia.**—Schloessmann devotes nearly eighty pages to the detailed account of experimental and clinical experiences which seem to show the futility of attempting to influence the coagulating power of the blood by direct administration of any ingredient normally in the blood. The only way in which it seems possible to influence it is by biologic means. He relates a suggestive experience with a hemophilic patient who was bleeding freely from an excoriation in the corner of the mouth after extraction of a tooth. He squeezed and kneaded the tissues around the tiny wound in the corner of the mouth, hoping thus to flood the spot with tissue juices which he hoped might contain the thrombokinase, the substance from which the coagulation-producing thrombin is formed and which seems to be lacking in hemophilic blood. The result was an instantaneous success. When the hemorrhage recurred later two or three times it was arrested at once each time by squeezing the region with the fingers. This suggested the systematic use of tissue extract for treatment of hemophilia, and his results with it have been very encouraging. As he has so much fresh goiter tissue material at his disposal, he has been utilizing it for the purpose and commends it as the most effectual means yet known to control hemophilic hemorrhage on local application. Its absolute harmlessness is not the least of its advantages, as also the possibility of effectually sterilizing it and the fact that it seems to retain its properties for a long time. Attempts to administer it internally or by subcutaneous or intravenous injection proved disappointing, and untoward by-effects were not infrequently observed. He places the bleeding spot in a hemophiliac in such a position that the tissue extract can stand on or in it for five or ten minutes, and he refrains from tamponing. He has had no occasion yet to apply the tissue extract in a serious hemophilic hemorrhage, but says that he would approach it now with confidence, armed with the tissue extract. He uses only parenchymatous hyperplastic thyroid material, discarding cystic or colloidal goiters.

Berliner klinische Wochenschrift

September 2, XLIX, No. 36, pp. 1689-1732

115 Vital Staining and Chemotherapy. (Vitale Färbung und Chemotherapie.) E. Goldmann.
116 Vital Staining of Experimental Lesions in Central Nervous System. J. T. MacCurdy and H. M. Evans (Baltimore).
117 Present Status of Question as to Connection Between Primary Anomalies of the Thorax and Development of Disease in the Lungs. W. A. Freund.
118 Serotherapy of Pneumonia. (Behandlung der Pneumonie mit dem Neufeld-Händel'schen Pneumokokkenserum.) A. Géronne.
119 *Corsets and Breathing in the Upper Part of the Chest. (Korsett und Lungenspitzenatmung.) F. Hirschfeld and A. Loewy.
120 *Toxicity of Methyl and Ethyl Alcohol. A. Langgaard.
121 Hemorrhage in Pons and Medulla Oblongata in Methyl Alcohol Poisoning. (Blutung in Brücke und verlängertem Mark, speziell im Vagusgebiet bei Methylalkoholvergiftung des Menschen.) L. Bürger.
122 Biologic Test for Pregnancy by Ferments in the Blood. (Die biologische Schwangerschaftsdiagnose nach Abderhalden und ihre klinische Bedeutung.) E. Frank and F. Heimann.
123 Technic for Operative Treatment of Inflamed Uterus Adnexa. (Behandlung der entzündlichen Adnexerkrankungen mit bes. Berücksichtigung einer neuen Operationsmethode.) H. Töpfer.
124 The Soy Bean as an Article of Food. (Nährwert und Verwendung der Sojabohne beim Menschen.) H. Neumann.
125 *Calcium in Treatment of Hemorrhage. (Die theoretischen Grundlagen der Kalktherapie bei Blutungen.) N. Voorhoeve.
126 Diathermia in Internal Disease. (Ueber Diathermiebehandlung bei Herz-, Lungen- und Nierenkranken.) E. Kalker.
127 The Cerebrospinal Fluid and Salvarsan. A. Zaloziecki.

119. **Corsets and Respiration at the Apex.**—Hirschfeld and Loewy found that, contrary to the general opinion, the wearing of a corset had a favorable influence on the development of the thorax in certain growing girls with the so-called paralytic chests. The most striking case was that of a girl of 14 with a flat chest and general asthenia. There was an inherited tuberculous taint and recurring bronchitis but no signs of actual tuberculosis. Contrary to the advice of her physician, she wore a tight corset and in the course of the next few years her chest developed notably and the bronchitis recurred at longer intervals. They tabulate the findings in regard to the frequency, volume and depth of the respiration and the vital capacity in four women and two men as recorded while a corset was worn or not. The curves show that the upper part of the chest expands better with the corset than without. The depth of the respiration was always less, showing that the lower part of the thorax was hindered in its expansion, but the upper part of the chest expanded much more. This increased expansion of the upper part of the chest during expiration is a very desirable factor in treatment in all cases in which the defective respiration in the upper part of the lungs invites the development of tuberculosis. In such cases as these it seems wise to advise the use of a corset, and the favorable results here reported are explained as not a mere coincidence. On the other hand, when the apex is already affected, the corset should be discarded. The principle here is to spare the diseased part all possible functional activity.

120. **Toxicity of Methyl and Ordinary Alcohol.**—Langgaard reports extensive experimental research on rabbits which showed that in small, daily repeated doses, methyl alcohol is more toxic than ethyl alcohol. But in large, single doses, ethyl alcohol is decidedly more toxic than the other.

125. **Calcium in Treatment of Hemorrhage.**—Voorhoebe discusses the theoretical bases for the therapeutic use of calcium in treatment of hemorrhage. He states that it is established that the calcium content of the blood can be increased by administering calcium in large doses. The kind of food and its lime content are factors that should be borne in mind. A low proportion of calcium in the blood is not always the cause for the tendency to hemorrhage, and consequently the coagulation of the blood is not always enhanced by increasing its

calcium content. The calcium is evidently only one of the factors inducing coagulation. Calcium is an ingredient of our daily food; we probably average 2 gm. in the twenty-four hours, but it depends on the nature of the food, and the extremes may range from 0.5 to 5 gm. When given for therapeutic purposes the dosage is generally no more than is included in the normal range. For instance, when 3 gm. of calcium lactate is given, this corresponds only to about 0.5 gm. of extra lime. This amount is less than is contained in a quart of cow's milk which averages 1.6 gm. lime (CaO). The patient would thus receive much more of the calcium salts if he were given a pint of milk extra than a few grams of calcium lactate. In the experiments related, 15 gm. of calcium lactate increased the calcium content of the blood while 3 gm. had little if any influence on it.

Correspondenz-Blatt für Schweizer Aerzte, Basel

September 10, XLII, No. 26, pp. 969-1000

128 *Magnesium Sulphate in Tetanus. (Erfolge einer neueren Behandlungsmethode bei Tetanus.) T. Kocher.
129 . Propaganda for Breast-Nursing. (Stillen und Stillunfähigkeit.) J. B. Karrer.

128. **Magnesium Sulphate in Treatment of Tetanus.**—Kocher has slightly modified Meltzer's technic for intraspinal injection of magnesium sulphate, and has applied it in three cases of tetanus with remarkable success. He reviews the history of the method and its mechanism, and says that the action of the drug can be limited to the region desired by raising or lowering the patient's head and shoulders. He thinks that Meltzer's 25 per cent. solution is unnecessarily strong; he used only a 15 per cent. strength and remarks that a 10 per cent. might have answered the purpose. He injected up to 10 c.c.; this corresponds to Meltzer's estimate of 0.03 per kilogram of body weight. The greater susceptibility of children to toxic action must be borne in mind in treating a child: 2 c.c. would be the maximal dose for a child weighing only 10 kilograms (about 22 pounds). Special care must be taken in repeating the dose; an interval of twenty-four hours seems to be sufficient. If the dose is repeated sooner than this there is danger of cumulative action. After injection of 7 c.c. and five hours later of 10 c.c. of a 15 per cent. solution one patient reacted with deep sleep and stertorous respiration. Kocher warns that if no cerebrospinal fluid flows when the spinal canal is punctured, the idea of injecting any solution should be abandoned as too dangerous; this applies particularly to magnesium sulphate as it is not an indifferent substance. He adds that the prophylactic use of tetanus serum should not be neglected; the magnesium sulphate is only an adjuvant to this. The curative action of the serum is far from certain, and he warns of Peek's experience showing the danger of combining the two methods of treatment or following one with the other too closely, before the action of the first has subsided. Sedatives and narcotics have only symptomatic efficacy; too large doses may do harm and possibly be responsible for some of the fatalities in tetanus after the paroxysms have ceased. The action of magnesium sulphate seems to be about equivalent to that of prolonged administration of hypnotics, and he thinks that the sulphate is the lesser of the two evils. He regards the Meltzer method thus as a very valuable addition to our means of treating tetanus, in the sense that it makes it possible to ward off danger until the toxin which has penetrated into the nerve substance has lost its power to harm.

Deutsches Archiv für klinische Medizin, Leipsic

CVII, Nos. 5-6, pp. 411-602. Last indexed Oct. 12

130 Experimental Research on Arteriosclerosis. C. Hirsch and O. Thorspecken.
131 Hemorrhage in the Pons. (I. Brückenblutung; II. Akute pontine Encephalitis hemorrhagica.) H. Eichhorst.
132 Albumin Destruction During Fever. (Zur Frage des toxogenen Eiweisszerfalls im Fieber des Menschen.) A. Rolland.
133 Gaseous Interchanges with Pneumothorax, Pneumonia, Pleurisy, Stenosis of the Trachea, Etc. (Untersuchungen über den respiratorischen Gaswechsel bei Erkrankungen der Lunge und der luftzuführenden Wege.) O. Bruns.
134 Echinococcus Disease of the Lung. E. Behrenroth.
135 *Disturbances in Gastric Secretion in Hyperthyroidism. (Die sekretorischen Störungen des Magens bei der Basedowschen Krankheit.) J. M. Wolpe.
136 Histology of Anaphylactic Phenomena. S. Ishioka.
137 Radiography of Infant's Chest. (Zur Deutung des Thoraxradiogramms beim Säugling.) E. Benjamin and T. Goett.
138 Influence on Growth and Blood-Picture of Disturbances in the Ductless Glands. (Ueber Eunuchoide.) H. Guggenheimer.
139 Radioscopy of Gastroptosis. (Weitere Aufschlüsse über den Befund und die Genese der Gastroptose durch das Röntgenbild.) E. Schlesinger.
140 Inefficacy of Atophan in Leukemia. (Wirkung von Atophan bei chronischer myeloischer Leukämie.) Rösler and H. Jarczyk.

135. **Stomach Symptoms in Exophthalmic Goiter.**—Wolpe made a study of the stomach secretion in twenty-three cases of Basedow's disease—some of them typical cases and some of them *formes frustes*—with the following results: In the majority of cases there was gastric achylia, most pronounced in the most typical cases. There was a parallelism between the hydrochloric acid secretion and the strength of the gastric juice in pepsin and fat-splitting ferments. The free and combined hydrochloric acid and total acidity were all markedly decreased, and the chymification of the stomach contents was seriously impaired. In old, untreated cases there was a true atrophy of the gastric glands. The digestive disturbances and diarrhea seemed to be of gastric origin but it was impossible to determine how far they were influenced by disturbances of pancreatic secretion, stimulation of the abdominal sympathetic, intoxication by the excessive thyroid secretion, etc. The stomach symptoms are the result of a constitutional asthenia caused by the thyroid poison. The diarrhea improved on a nitrogen-free diet and grew worse on a meat diet.

Deutsche medizinische Wochenschrift, Berlin

September 5, XXXVIII, No. 36, pp. 1673-1720

141 *The Puerperium. (Hygiene des Wochenbettes.) L. Seitz.
142 *Spinal Cord Tumors. (Weiterer Beitrag zur Diagnose und operativen Behandlung von Geschwülsten der Rückenmarkshäute und des Rückenmarks.) F. Schultze.
143 *Tendon Transplantation in Treatment of Infantile Spinal Paralysis. (Sehnenüberpflanzung in der Behandlung der spinalen Kinderlähmung; ihre Indikation, Technik und Resultate.) O. Vulpius.
144 Elective Culture Media for Cholera Germs. (Zur Frage der Choleraelektivnährboden.) P. Esch.
145 Childbirth in Paralytic Dementia; Two Cases. K. Löwenhaupt.
146 *Diabetes and Pregnancy. (Diabetes und Schwangerschaft.) A. Bingel.
147 Febrile Abortion. M. Jacoby.
148 Artificial Fecundation with Bilateral Epididymitis. (Ueber künstliche Befruchtung bei Epididymitis duplex.) H. O. Rohleder.
149 Reinfection with Syphilis. (Beitrag zur Reinfectio syphilitica.) F. Zimmeru.
150 *Cirrhosis of the Liver of Tuberculous Origin. (Zur Frage der Leberzirrhose tuberkulösen Ursprungs.) R. Hertz.
151 Edema in Lower Esophagus Caused by Vomiting. (Ueber Oedem des unteren Oesophagusabschnittes als Folge von Erbrechen.) F. Rost.
152 Treatment of Psoriasis with Carbon-Dioxid Snow. (Behandlung der Psoriasis mittels Kälteanwendung.) H. Axmann.
153 Oxygen Poisoning. (Zur Frage der Sauerstoffvergiftung.) A. Schmidt and O. David.
154 Advertising of Measures to Prevent Conception and the Medical Press. (Die Ankündigung unzüchtiger Gegenstände und die medizinische Presse.) J. Schwalbe.

September 12, No. 37, pp. 1721-1768

155 *Insomnia. (Behandlung der Schlaflosigkeit.) E. Meyer.
156 Elimination of Sodium Chlorid by the Kidney. (Die Rolle der gesunden und der kranken Niere bei der Kochsalzausscheidung.) Borchardt.
157 *Importance of Sugar for Heart Functioning. (Die "Entartungsreaktion" des Herzmuskels.) A. Adamkiewicz.
158 Hypophysis Extracts in Obstetrics. (Die Behandlung der Wehenschwäche mit bes. Berücksichtigung der Hypophysenextraktpräparate als Wehenmittel.) H. Fries.
159 Toxicity of Urine in Acute Infectious Diseases. (Giftigkeit des Harns bei Masern und anderen Infektionskrankheiten.) H. Aronson and P. Sommerfeld.
160 Conserved Breast Milk in Infant-Feeding. (Verwendung konservierter Ammenmilch zur Ernährung von Säuglingen.) J. Peiser.
161 Compensating Growth of Fibula with Tibia Defect. (Ueber Wachstumsvermehrung der Fibula.) W. Böcker.
162 The Paradoxic Serums in the Wassermann Reaction. (Bedeutung der paradoxen Sera bei der Wa. R.) B. P. Sormani.
163 The Basic Principles of Ethics. (Die Grundlagen der Ethik.) B. Kern. Commenced in No. 36.

141. **Hygiene of the Puerperium.**—Among the points emphasized by Seitz are that except for tuberculosis, severe puerperal fever and possibly syphilis, there are no diseases on the part of the mother which contra-indicate breast feeding. Also that accumulation of feces may prevent the normal escape of lochia; this explains the subsidence of fever in some cases after the bowels have moved. When the temperature goes up the fourth or fifth day, a dose of castor oil may bring it down to normal again. A warm saline enema the second day may start proper bowel functioning. He does not approve of letting the patient get up early if there is any possibility of her resuming house-

hold tasks; it is far better to keep her quiet in bed and ensure exercise of the muscles by frequent changes of the position in bed. Restoration of normal elasticity in the stretched abdominal walls is promoted by having the patient lie flat in bed without a pillow, her feet against the footboard, and then raise herself very slowly from the horizontal to a sitting position, her hands crossed on her breast and then lie down flat again. This exercise has a wonderfully powerful action on the muscles in the abdominal wall; it should be repeated ten or twenty times three times a day, and is most effectual the more slowly it is done. The muscles which counteract a tendency to prolapse of the uterus later can be strengthened by exercising the gluteal muscles and the adductors of the thigh, the attendant resisting the bringing together of the wide-spread knees. On repeating this exercise the levator ani and adductors can be seen vigorously contracting. With these exercises the desired result is attained while the stretched abdominal walls are allowed to recuperate in peace without further strain such as is inevitable when the woman is up and about. Any tendency to fever contra-indicates both active and passive exercise as liable to favor the spread of septic processes.

142. **Tumors of the Spinal Cord.**—Schultze states that seven have been permanently cured of the nine patients with nonmalignant tumors compressing the spinal cord which he diagnosed and had removed over five years ago. He states that in five cases the compression of the spinal cord and the presence of the tumor caused no pain; a chondroma in one case cast no shadow on roentgenoscopy. A recent case teaches that operative measures may be successful even with a tumor in the cord.

143. **Tendon Transplantation.**—Vulpius discusses tendon transplantation in treatment of infantile spinal paralysis, dwelling in particular on the lessons he has learned from his mistakes. The Codivilla technic of fixation of the tendon to the periosteum is a great advance. The sound tendon is cut at the periphery enough to permit it to reach its new point of attachment, but instead of suturing it to it directly, it is first drawn up through the incision in the skin and is then worked down again to the place where it is to be sutured, working it through the tendon tissues of the paralyzed muscle.

146. **Diabetes and Pregnancy.**—Bingel reports a case in which the woman developed symptoms of diabetes at the sixth month of her second pregnancy, but under appropriate dieting the symptoms subsided and the diabetes did not seem to affect the pregnancy in any way. If the diabetes shows no signs of aggravation from the pregnancy, treatment should be the same as in the non-pregnant.

150. **Cirrhosis of the Liver of Tuberculous Origin.**—Hertz reports three cases with necropsy of two. The affection develops in two stages. The first may progress without attracting the patient's attention, but when the second stage develops, with ascites and gastro-intestinal disturbances, death is the rule in two or three months. The ascites is not very abundant but the liver is hard and tender, the spleen enlarged, the complexion sallow, but there is not much tendency to jaundice. The temperature runs up high but the most important differentiating point in the cirrhosis with hypertrophy and fatty degeneration in question is the absence of signs pointing to functional insufficiency of the liver. At the same time, cachexia soon follows and the patients die in a comatose condition.

155. **Treatment of Sleeplessness.**—Meyer reiterates that the main thing in treatment of insomnia is to discover and remedy the cause. Sleeplessness as an isolated disturbance without other morbid phenomena is extremely rare; it is most liable to occur as the last trace of some sickness, especially after the patient has otherwise entirely recovered from influenza. It may occur likewise periodically as a kind of equivalent for a psychosis. But under other conditions the insomnia is always the consequence of other disturbance or merely one symptom of something wrong; overfatigue and emotional stress may interfere with sleep even in apparently normal children. The hygiene of sleep with all its apparent trifles and means to take the patient's mind off the train of thought of the day may accomplish wonders.

157. **Importance of Sugar for the Functioning of the Myocardium.**—Adamkiewicz regards the transient irregular heart action liable to follow excessive physical exercise or drinking of tea or coffee or carbonated waters or eating foods on the point of spoiling, as equivalent to the electric reaction of degeneration in a diseased muscle. A sound heart bears the above influences without signs of injury, but a defectively nourished, weakened, oversensitive heart responds with arhythmia as a tired horse breaks its even trot. When this occurs it depends on the treatment whether the heart is brought back to normal condition or driven into an actual breakdown. The latter is inevitable if the arhythmia in these cases is interpreted as a sign of "fat heart" and the diet is restricted. On the other hand, the myocardium promptly recuperates and grows strong again if its weakness is recognized and it is supplied with proper nourishment, and this, he asserts, is mainly sugar. He has long been teaching that sugar supplies the energy for the muscles and especially for the heart muscle, and the latter suffers from lack of the needed proportion of sugar in the food and responds with increased energy when the sugar is supplied. It is thus possible to cure the tendency to these attacks of transient arhythmia merely by eating more sugar; the heart, he insists, is driven by combustion of sugar as an engine is driven by the burning of coal. These views met with a striking confirmation recently. A man in the fifties had an attack of rheumatism in 1908 and various dietetic restrictions were imposed. Among other things, he gave up eating sugar, and the rheumatism disappeared in the course of three months. He continued to do without sugar and felt well for a few months, but then he began to have attacks of weakness on the part of the heart, a tendency to syncope and periods of arhythmia and imperceptible pulse. The attacks recurred so frequently that he had to give up his business and stay in the house. After about a year he happened to see a notice of Adamkiewicz' work on sugar as the main source for the energy and rhythm of the heart, with arguments that deprivation of sugar robbed the heart of its strength and rhythmical activity. He resumed the eating of sugar and began to improve at once. When fully restored he took a trip to Vienna from Scotland to present a personal living testimony to the truth of Adamkiewicz' assertions in regard to the importance of sugar for the proper functioning of the heart.

Münchener medizinische Wochenschrift

September 3, LIX, No. 36, pp. 1937-1984

164 Cultivation of Spirochetes of Relapsing Fever. (Reinzüchtung der Spirochäten des europäischen, des amerikanischen und des afrikanischen Rückfallfiebers.) H. Noguchi.
165 Acute Blindness from Methyl Alcohol and Other Poisonings. E. Harnack.
166 *Dubious Experimental Findings with Supposed Tubercle Bacilli Found in the Blood of the Tuberculous. (Ueber das Vorkommen von Tuberkelbazillen im Blutstrom.) E. Rumpf.
167 *Meningococcus in Pus from the Ear. (Vorkommen von Meningokokken im Ohreiter.) Doering.
168 *Diagnosis of Pulmonary Tuberculosis in Children. (Zur Diagnose der Lungentuberkulose im Kindesalter.) H. Vogt.
169 Familial Right Facial Paralysis; Four Cases in Two Generations. (Gehäufte Fälle von Fazialislähmung in einer Familie.) F. W. A. Weber.
170 Membrane Obstructing Trachea After Tracheotomy. (Diaphragma der Trachea nach Tracheotomie.) K. Justi.
171 *Choked Disc After Salvarsan. (3 Fälle von höchstgradiger Stauungspapille nach Salvarsaninjektion bei Lues.) R. Vollert
172 Hypersusceptibility to Salvarsan. (Zur Kasuistik der Ueberempfindlichkeitsreaktionen nach Salvarsaninjektionen.) C. Cronquist.
173 *Biologic Test of Pregnancy by Ferments in the Blood. (Weiterer Beitrag zur Diagnose der Schwangerschaft mittels der optischen Methode und dem Dialysierverfahren.) E. Abderhalden.

September 10, No. 37, pp. 1985-2032

174 *The Specificity of the Tuberculin Reaction. H. Lüdke and J. Sturm.
175 *The Cerebrospinal Fluid in Infectious Diseases. (Der Liquor cerebrospinalis bei Infektionskrankheiten, insbes. im Zusammenhang mit der Wassermannschen Reaktion bei Poliomyelitis acuta epidemica.) H. Schottmüller.
176 Concentric Contraction of the Pyloric Antrum. T. Hausmann.
177 Endoscopy of Nasopharynx and Larynx. (Zur endoskopischen Untersuchung des Nasenrachenraumes und des Kehlkopfes.) Oertel.
178 Operative Cure in a Case of Anthrax in the Intestine. J. E. Schmidt and H. Stoeber.
179 *Torsion of the Gall-Bladder. (Volvulus der Gallenblase.) G. Kubig.
180 Hip Support for Severe Paralysis. (Ein neuer Hüftstützapparat für schwere Lähmungen.) O. Vulpius.
181 Local Suppuration and Necrosis After Injection of a Salvarsan Preparation. (Unangenehme Begleiterscheinungen nach intramuskulärer Injektion von "Joha.") O. Steiger.

166. **Tubercle Bacilli in the Blood.**—Rumpf declares that his own and others' research has confirmed beyond question that tubercle bacilli occur far more often than hitherto supposed in the circulating blood, not only of the tuberculous but in health. More delicate bacteriologic technic has disclosed their presence with startling frequency. But at the same time inoculation of animals with blood containing the bacilli does not seem to transmit tuberculosis to the animals. Thirty-five guinea-pigs were inoculated with blood containing the bacilli from several patients with advanced tuberculosis, from some with the disease in an incipient form and from three clinically healthy physicians, who all had tubercle bacilli in their blood. Only three of the animals developed tuberculosis and one had dubious lesions. None of the others displayed any symptoms and when the animals were slaughtered after thirty-one weeks nothing suggesting tuberculous lesions was found in them. Rumpf suggests three possibilities to explain these strange findings: Either the supposed tubercle bacilli are not such, or the bacilli are not viable, or the blood vehicle in which they were injected protected the animal against them. Other experiments in which the bacilli were cultivated in pure cultures from the blood and the animals inoculated with the cultures alone, all resulted positively. Kennerknecht found tubercle bacilli in the blood in 91 per cent. of 120 children examined, including 74 per cent. of thirty-one children supposedly entirely free from tuberculosis. She inoculated thirteen guinea-pigs with the bacilli, with positive results in all. Rumpf adds that the longer and the more persevering the search, the larger the proportion of positive findings in regard to the presence of tubercle bacilli in the blood, both in the sick and the well, and he is very much puzzled over these revolutionary findings.

167. **Meningococci in Otitis.**—Doering reports three cases in which middle-ear disease proved to be the work of meningococci. In two cases the cocci were found in the pus of the chronic ear process, in the other in the lumbar puncture fluid.

168. **Diagnosis of Pulmonary Tuberculosis in Children.**—Vogt expatiates on the mistakes in diagnosing pulmonary tuberculosis in children. In the first place, he says, the manifestations of the exudative diathesis are not a sign of tuberculosis. They are frequently observed in infants giving a negative response to the tuberculin tests. When tuberculosis is superposed on the exudative diathesis it is liable to be particularly severe, but the symptoms of the latter, the tendency to phlyctenæ, blepharitis, chronic eczema and catarrhal affections of the mucous membranes—none of these should be regarded as a sign presumptive of tuberculosis. Another source of error is improper interpretation of the radiographic findings in the chest. Correct interpretation of the shadows cast by the hilus requires great experience and skill to avoid erroneous conclusions. Children are apt to run a subfebrile temperature from the slightest causes; even emotions are liable to send the temperature up, and the slightest infection in the upper air passages may keep the rectal temperature permanently at 38 C. The tuberculin tests should be accepted for the diagnosis of active tuberculosis only with decided restrictions. In infants an active tuberculous process leads almost invariably to progressive tuberculosis. In older children only the negative response to the tests is of clinical interest. Children may have a chronic lung affection which yet has nothing to do with tuberculosis; he has found this as common as true pulmonary tuberculosis in children between 2 and 10. The clinical picture is often that of recurring pneumonia but examination in the interim will reveal traces of trouble at the point where the pneumonia started. In other cases there are signs of infiltration at some point in the lungs and a tendency to diffuse bronchitis with occasional exacerbations. The course of the case and the previous history will generally clear up the diagnosis. With true pulmonary tuberculosis it rarely occurs that the process spreads in an acute manner and then promptly retrogresses, while this is the rule with bronchiolectasis. This may heal in time or it may persist into adult life and puzzle the internists then.

171. **Choked Disk After Salvarsan in Syphilis.**—Vollert cites Fejer's two cases and then reports three from his own experience in which choked disk developed in an extreme form after one or two injections of salvarsan. He says that neurorecurrences have certainly become much more frequent since salvarsan has been used, and he has never known nor heard of such extreme forms of choked disk in syphilis as he encountered in these cases.

173. **Ferments in the Blood in Diagnosis of Pregnancy.**—Abderhalden's biologic tests of the existence of a pregnancy were discussed editorially in The Journal September 14, p. 881. He here gives minute directions for the technic and expatiates on the importance of a test which will reveal pregnancy not only in women but in cows and horses.

174. **Specificity of the Tuberculin Reaction.**—In the research reported it proved impossible to elicit a reaction at all comparable to that elicited by tuberculin when tuberculous individuals were tested with extracts of typhoid or dysentery bacilli or colon bacilli, the mode of preparation and the technic being the same as for tuberculin. No reactions that could answer the purposes of diagnosis were obtained with any but the tuberculin.

175. **Changes in the Cerebrospinal Fluid in Infectious Diseases.**—Schottmüller declares that the fluid obtained by lumbar puncture is generally modified by an existing acute infection, the amount, the pressure and the cell content showing changes from normal even when there are no signs of actual meningitis. The lumbar puncture often proved of decided symptomatic benefit. He ascribes the changes in the fluid to invasion of the brain or meninges by germs from the blood but only in such small numbers that merely a circumscribed meningitis results. It is manifested in the increased amount, higher pressure and the larger number of cells; he does not think that the passage of toxins into the fluid is enough to explain these changes in the fluid, and inoculation of animals fails to show increased toxin content. But the changes are amply explained by assumption of a circumscribed infectious meningitis in contrast to the diffuse form. He thinks these terms should be adopted to express what hitherto has been styled "serous" and "purulent" meningitis. He found these changes marked in his three cases of croupous pneumonia, in four of staphylococcus sepsis, in streptococcus slow endocarditis, in typhoid and in acute poliomyelitis. In the latter disease the Wassermann reaction was positive in the blood at the height of the disease but not in the cerebrospinal fluid, and it became negative again as the disease subsided. If this finding in his four cases is confirmed by others, the Wassermann test may prove useful in differentiation of epidemic poliomyelitis in cases in which syphilis seems improbable. The subsidence of the reaction as the disease passes out of the acute phase—even with persisting paralysis—shows that the reaction indicates an active toxin in this disease the same as in syphilis.

179. **Torsion of the Gall-Bladder.**—Kubig compares his case with the three similar ones on record; in none was the diagnosis made during life, the symptoms having been ascribed to gall-stones, appendicitis, hydronephrosis or empyema of the gall-bladder. The twisted gall-bladder forms a kidney-shaped resistant object at the lower margin of the liver, not so movable as a wandering kidney. The ages of the patients ranged from 54 to 73.

St. Petersburger medizinische Zeitschrift

August 28, XXXVII, No. 16, pp. 235-248

182 Parthenogenesis in Man as Cause of Tumor Production. (Ueber Parthenogenese beim Menschen als Ursache von Geschwulstbildung.) A. Bertels.
183 Intermittent Hour-Glass Contraction of the Stomach. (Vom intermittierenden Sanduhrmagen.) O. v. Dehn.

Virchows Archiv, Berlin

July, CCIX, No. 1, pp. 1-160

184 Portrayal of Disease in Art. (Ueber Krankheitsdarstellung im Gemälde.) Bökelmann.
185 Ameboid Movements of Cancer-Cells. (Amöboide Bewegungen von Krebszellen als ein Faktor des invasiven und metastatischen Wachstums maligner Tumoren.) F. M. Hanes and R. R. Lambert (New York).
186 Adenomatous Growths in the Mamma. (Beiträge zum vergleichenden Studium der Tumoren.) S. S. Chalatow.
187 Cancer in Omphalomesenteric Duct. W. A. Michin.
188 The Various Blood Diseases All Different Stages of the Same Process. (Ueber die akute Pseudoleukämie und die Wechselbeziehungen zwischen den Blutkrankheiten.) S. M. Zypkin.
189 Biology of Relapsing Fever Germ. (Zur Biologie der Rekurrensfäden.) L. Fränkel.
190 Experimental Endocarditis. S. Saltykow.

191 Mechanism of the Heart-Beat. (Mechanismus des Herzstosses.) J. Trautwein.
192 Inflammation of the Umbilical Cord and Syphilis. (Nabelschnurentzündung und Syphilis.) M. Simmonds.

Wiener klinische Wochenschrift, Vienna

September 12, XXV, No. 37, pp. 1375-1404

193 *Treatment After Excision of Cancer. (Zur Lehre von der Behandlung der Kranken nach Karzinomoperationen.) A. Theilhaber.
194 *Fat-Splitting Ferment in the Blood in Disease. (Ueber das fettspaltende Ferment des Blutserums bei krankhaften Zuständen.) J. Bauer.
195 *Vaginal Cesarean Section. (Zur Frage der Bewertung der Sectio caesarea vaginalis als Entbindungsverfahren.) H. Thaler.
196 Diphtheria of the Middle Ear. (Zur Diphtherie des Mittelohres.) O. Bencsi.
197 Elimination of Urobilin and Uric Acid During Hydrotherapy. (Veränderungen in der Elimination des Urobilins und der Harnsäure bei kurzdauernden Kaltwassereinwirkungen.) P. D. Siccardi.

193. **Treatment of Patients After Cancer Operations and Prophylaxis of Cancer in General.**—Theilhaber expatiates on the necessity for combating any tendency to sluggish vitality in the tissues, for instance in the scar left after removal of a cancer, as the low vitality and defective circulation invite malignant degeneration. Consequently to ward off recurrence of cancer after an operation—and the same principles apply also to prophylaxis of cancer in general—the tissues should be vitalized, toned up to their highest pitch of blood and lymph supply, both the local tissues and the organism in general. His definite advice after removal of a cancer is a prolonged change of air, a long stay in the mountains or at the seashore, a change in the entire mode of life, avoidance of worry, a vegetarian diet, courses of exercise, periodically repeated courses of purging, injection of sodium cacodylate, and venesection up to 400 or 500 c.c. twice a year. The third month after the operation he exposes the cicatrix to the Roentgen rays, the high frequency current and diathermy, with thiosinamin and other measures to stimulate the vitality in the cicatrix. If the cancer had been in the uterus, he orders ovarian extract, hot sitz baths and hot douches, with a superficial cancer hot compresses and hot baths. If the general practitioner does not happen to have an electric apparatus, Kirchberg's method might be followed; this consists in local application for twenty minutes of superheated air in the hot-air box, followed by vigorous rubbing and stretching of the scar tissue, drawing the scar tissue up from the tissue beneath, followed by twenty minutes' hyperemic treatment with the vacuum bell, alternating pressure and suction on the part, concluding with gymnastic exercises. An important point to bear in mind is to apply these local stimulating measures to the sound mate organ, especially the mamma, as this is always in peril in case of cancer of one breast. After operations for rectal cancer, a "subaqual internal bath" according to Brosch's technic is advisable. Theilhaber has now for three years been proclaiming the necessity for thus stimulating the vitality of the tissues in prophylaxis of recurrence of cancer, and C. Müller has recently reported excellent results, even to the complete cure of some inoperable cancers, under combined electric treatment, the Roentgen rays, high frequency and diathermy. He feared recurrence in seven cases of cancer of the breast removed two or three years ago, and he applied hyperemic treatment on these principles, beginning eight or ten weeks after the operation, striving to promote the blood-supply in the scar and its vicinity by the above combined electric treatment. There has been no recurrence in any instance. The cicatrix treated by these measures to induce local hyperemia keeps a healthy pink and does not blanch out like ordinary scar tissue. Theilhaber adds in conclusion that the favorable results attained by Zeller with silicic acid suggest that this too might be used as an adjuvant to the other prophylactic measures. (Zeller's experiences were mentioned in the Berlin Letter, THE JOURNAL, Sept. 7, 1912, p. 815.)

194. **The Protective Ferments of the Blood.**—The diagnostic importance of the protective ferments in the blood as a basis for biologic tests was recently emphasized in THE JOURNAL as mentioned in Abstract 173 above. Bauer here summarizes the work in this line to date, and then presents evidence that the proportion of fat-splitting ferment in the blood-serum, the lipase, is a sensitive index of certain pathologic conditions, and thus may prove useful in differentiating malignant disease at least. Research in this line has been promoted by the technic recently worked out by Rona and Michaelis for estimating the content in lipase by the drop-forming property of the serum. The details of the technic are given in full and the findings are tabulated from seventy-nine sick or well persons tested. Human blood-serum always contains the fat-splitting ferment, but the proportion varies. It is exceptionally low in cancer and in advanced tuberculosis while it is exceptionally high in incipient tuberculosis. In syphilis and exophthalmic goiter the proportion was also found low. Bauer thinks that the response to the antitrypsin test is due to reduction of the fat-splitting ferment rather than to the presence of any special antiferment.

195. **Vaginal Cesarean Section.**—Thaler concludes from the experiences at Schauta's obstetric clinic that vaginal cesarean section requires skilled assistance and that it is particularly dangerous for the child; this outweighs its unmistakable advantages for the mother if the child is viable. He shows by a diagram that an anterior colpohysterotomy to answer its purpose must be carried up quite a distance, to about twice the distance from the internal to the external os. When this is done, the opening thus made is as large as this distance or more; any incisions in the posterior lip of the cervix below the internal os have no effect in enlarging the opening.

Zentralblatt für Chirurgie, Leipsic

September 7, XXXIX, No. 36, pp. 1217-1248

198 Sterilization of Catgut. P. Wolff.
199 Failure of Experimental Grafts of Hair-Covered Skin. (Zur Frage der Ueberpflanzung behaarter Haut.) C. Lauenstein.
200 Plastic Operation on the Nostril with Tissue from Ear. (Zur Frage des Ersatzes von Nasenflügeldefekten durch freie Transplantation aus der Ohrmuschel.) P. Goecke.

September 14, No. 37, pp. 1249-1288

201 Improved Technic for Suturing Transverse Abdomen Incision. (Zur Erleichterung der Naht beim queren Bauchschnitt.) G. K. Perthes.
202 Incision for Operation on Biliary Apparatus. (Zur Schnittführung bei Operationen an den Gallenwegen.) G. K Perthes.

Zentralblatt für Gynäkologie, Leipsic

September 7, XXXVI, No. 36, pp. 1177-1208

203 Roentgenoscopy in Diagnosis of Extra-Uterine Pregnancy. (Die Röntgendiagnose der Extra-uterin-Gravidität in späteren Monaten mit abgestorbener Frucht.) E. Zurhelle.
204 Statistics in Regard to Puerperal Fever. (Zur Notwendigkeit der Trennung der Puerperalfieber-Erkrankungen und- Todesfälle post abortum und derjenigen post partum maturum, praematur. und immatur. in der offiziellen Statisik.) Stroeder.

September 14, No. 37, pp. 1209-1240

205 Course of Pregnancy and Delivery with Echinococcus Pelvic Disease and Myomas. (Schwangerschafts- und Geburtsverlauf bei Beckenechinokokkus und Uterus myomatosus.) H. Fries.
206 Connection Between Genital and Mental Disease. (Eierstocks-Uteruskrankheiten und Psychopathien.) L. M. Bossi.

Zentralblatt für innere Medizin, Leipsic

September 14, XXXIII, No. 37, pp. 917-940

207 Primary Melanosarcoma of the Brain with Multiple Sclerosis. G. Bösch.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 3, XXXIII, No. 106, pp. 1105-1112

208 Death from Recurrence of Cerebral Syphilis After Two Injections of Salvarsan. F. Soprana.

September 8, No. 108, pp. 1121-1134

209 Acute Poliomyelitis. (Malattia di Heine-Medin con lesione dei fasci piramidali.) A. Gismondi.

September 10, No. 109, pp. 1135-1144

210 Echinococcus Disease of the Lung. (2 casi di cisti da echinococco del polmone sinistro.) A. Balduzzi.

Policlinico, Rome

September 8, XIX, No. 37, pp. 1333-1368

211 *Intratracheal Insufflation Anesthetization. (La narcosi per insufflazione intratracheale alla Meltzer. 2 casi di applicazione all'uomo.) R. Alessandri.
212 Familial Spastic Spinal Paralysis. G. Mann.

September, Medical Section No. 9, pp. 383-430

213 Cystic Disease of the Spleen. (Su l'origine delle cisti multiple—cisti sierose—della milza.) A. Pepere. Commenced in No. 8.
214 Complications in Acute Infectious Diseases. (Studio clinico sulle complicanze nel decorso di varie malattie infettive acute.) G. Romanelli.
215 Fixation of Complement Test in Malta Fever. (La fissazione del complemento nella febbre mediterranea.) A. Missiroli.

216 Production of Antibodies in Staphylococcus Infection. (Ricerche sulla produzione di corpi immunizzanti nella infezione da stafilococco.) F. Piccininni.

September, Surgical Section No. 9, pp. 385-432

217 Identity of Streptococci. (L'identita degli streptococchi, patogeni per l'uomo, di diversa provenienza.) A. Poggiolini.
218 Experimental Research on Peritoneum Flaps, etc. (Rigenerazione e plastiche del peritoneo.) D. Leonardo. Commenced in No. 8.

211. **Intratracheal Insufflation Anesthesia.**—Alessandrini extols the advantages of Meltzer's method of intratracheal insufflation and reports two cases in which it was applied, proving in one a direct life-saving measure. This was an operation for sarcoma of the nasopharynx, orbit and maxillary sinus which had twice recurred after removal. The patient was a young man; the first symptoms had been noted eight months before. With the Meltzer technic the operation was conducted safely and more radically than had previously been possible. In the second case a tumor in the same region in a boy of 14 had reached such proportions when first seen as to be practically inoperable; the patient was in continuous stupor. As a last resort the tumor was partially removed but the condition did not improve and the boy soon died. Even in this extreme case the ease, simplicity and effectualness of the Meltzer technic were confirmed anew; the breathing and pulse were regular throughout. In the first case, 100 and in the second 70 c.c. of ether were used. The first patient seems to be entirely cured to date.

Riforma Medica, Naples

August 31, XXVIII, No. 35, pp. 953-980

219 Technic for Artificial Pneumothorax. (Intorno al pneumotorace artificiale secondo Forlanini.) M. Ascoli.
220 Primary Epithelioma of Male Urethra. G. Romano.

September 7, No. 36, pp. 981-1008

221 Kala-Azar and Mosquitoes. (Leishmanie e zanzare.) G. Franchini.
222 Present Conceptions of Cholera. (Nozioni patogenetiche sul Colera.) P. Tria.

Revista de Medicina y Cirugia, Havana

September 10, XVII, No. 17, pp. 473-504

223 Factors Liable to Influence Agglutination Test for Typhoid Bacilli. (Identificacion del bacilo de Eberth por la aglutinacion.) M. M. Dominguez.
224 *Connection Between Asthma and Conception. (Asmaticas nuliparas y ex-asmaticas multiparas y uniparas.) N. Lugo-Viña.

224. **Connection Between Asthma and Sterility.**—Viña reports three cases which seem to show some connection between asthma and sterility, as the women did not conceive during the years they were subject to asthma. One was 24, twice married, the first time at 18; her husbands were young and healthy. Three months after her first menstruation at 14 she had a severe catarrhal bronchopulmonary affection and asthma developed, the attacks of asthma recurring periodically until the age of 24. The asthma then subsided, and within the next seven years she passed through three normal pregnancies; one of the children, a girl, had congenital asthma. In the second case the woman by the age of 19 had borne two healthy children. A severe fright at this time from a fire in the house brought on asthma, and there was no further conception during the four years the asthma persisted. After it subsided she had five more children in the course of seven years. Viña insists that conditions were the same in all the cases throughout so that the asthma or the causes inducing it seemed to be the only disturbing element.

Semana Medica, Buenos Aires

August 15, XIX, No. 33, pp. 301-348

225 Tobacco Intoxication and Ether Addiction. (Los venenos sociales.) V. Delfino.

Norsk Magazin for Lægevidenskaben, Christiania

September, LXXIII, No. 9, pp. 1269-1404

226 *Intermittent Circumscribed Edema. (Begrænset intermitterende ødem og intermitterende hydrops articulorum.) S. Bull.
227 Polyps in Nasopharynx. (Om de saakaldte fibrøse næsesvelgpolyper.) V. Uchermann.
228 *Polycythemia. (Om polyglobuli.) A. Sunde.
229 *Tetanus from Lung Abscess. (Tetanusinfektion fra lungeabsces.) K. Motzfeldt.
230 Torsion of Enlarged Sigmoid Flexure. (Volvulus av en megasigmoideum.) S. Widerøe.
231 *Cancer in the Prisons and Workhouses of Norway. (Kræftdødeligheten i Norges lukkede anstalter.) M. Søegaard.

226. **Intermittent Circumscribed Edema.**—Bull reports in detail ten cases of angioneurotic edema, the age of the patients ranging from 2 to 69, but the majority were women between 16 and 46. One patient was a working man of 36 who since the age of 15 had suffered from a chronic synovitis in various joints, especially both knees. At 30 the angioneurotic edema developed in first one knee and then the other, subsiding and returning; finally the edema occurred in both knees together. The temperature rose slightly with the attacks. The attack was generally ushered in with transient sciatica which subsided afterward. Other neuroses such as Basedow symptoms, hysteria, etc., were noticed in some cases, and the attacks were generally brought on by some nervous disturbance, the menopause, menstruation, severe chilling or emotions. Excess in liquor drinking seemed occasionally a factor, and abstention from alcohol arrested the tendency; digestive disturbances were evidently responsible in others, and the attacks did not recur when the stomach was functioning normally. The affection may be inherited or acquired; all agree that it is essentially chronic. Involvement of the larynx is the only actual danger from it. Arsenic seems to have benefited in some cases, as also aspirin, ergot, ichthyol, hydrotherapy and the induced current. Scarification has sometimes proved useful for edema of the glottis, and tracheotomy has been successfully done several times. Apert and Delille's patients wore a tracheotomy tube constantly. Intermittent hydrarthrosis seems to be merely the localization of the acute edema in a joint; it has often been treated by surgical measures and with good results in certain cases.

228. **Polycythemia.**—Sunde gives the particulars of a case of polycythemia with enlargement of the spleen in a man of 55; also a case of polycythemia with very high blood-pressure, and two other cases in which the polycythemia was secondary to cancer or heart disease. He also tabulates the details of fifteen cases of heart or kidney disease in which the number of reds was unusually high. In two of these secondary cases the number of reds dropped when the diuresis increased and climbed up when the diuresis declined. In some of the cases the reds dropped permanently to the normal figure when asystolia was corrected. In treatment of the essential form with enlargement of the spleen, the diet should be mainly milk and vegetables, and otherwise regulated to ward off the tendency to apoplexy. No benefit from roentgenotherapy was observed in the cases reported. An insignificant reduction in the number of reds followed four repetitions of venesection, withdrawing 300 gm. of blood and once 750 gm., combined with saline infusion; Nature seems to resort to spontaneous hemorrhages as a safety valve. The patients must be warned against overexertion and abuse of tobacco and alcohol. Iodin preparations seem to reduce the viscosity of the blood. In the case without enlargement of the spleen but with exceptionally high blood-pressure, the highest number of reds coincided with the highest blood-pressure. The bone marrow in the femur showed marked hyperplasia and was deep red.

229. **Tetanus from Lung Abscess.**—Motzfeldt's patient was a previously healthy young man who developed fatal tetanus during convalescence from pneumonia. An abscess was found in the lung, and he assumes that infection must have occurred from the air through the abscess, as nothing else could be found to explain it.

231. **Cancer in the Penal Institutions of Norway.**—Søegaard reports that no cases of cancer were found among the forty-five deaths at one prison in the last fifty years or more; only twelve cases in another prison with 160 deaths—a proportion corresponding to the general cancer mortality outside. In a third prison the proportion of cancer cases was 22.6 per cent. of the thirty-one deaths. The total cancer mortality was thus 9.4 per cent., while in 780 deaths in The Bergen *arbeidsanstalt* only 6.3 per cent. were from cancer and in the 815 in the leper asylums, only 1.8 per cent. The cancers in the workhouse were mostly superficial; the majority of the inmates may be regarded as having reached the cancer age. The low proportion of malignant disease confirms the assumption that cancer is preeminently a disease of the well-to-do, especially gastrointestinal cancer.

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INJURIES OF THE SPINAL COLUMN, WITH AND WITHOUT FRACTURE AND DISLOCATION [*]

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In injuries of the spinal column the sensory disturbances are the most immediate indicative symptoms of either the possibility of operation or the probability of recovery after operation.

It is needless to speak of the minor symptoms that occur in total destruction of the spinal cord; most of the cases to which I refer are those of extensive lesions which present the classical picture of an absolute loss of sensation below the line of lesion, loss of motion, loss of reflexes and paralysis of the bladder and rectum. In cases presenting that class of symptoms with this clearly defined line of demarcation, it is probable that an intraspinal hemorrhage exists. Usually, however, when the sensory disturbance is irregular, when, for instance, there is loss of sensation on one side high up and on the other side lower down — an irregular line of disturbance of sensation — even when there are loss of motion, paralysis of the bladder and possibly a complete loss of the reflexes, clinically speaking I have noted, and it has been noted by others, that there is very likely to be extraspinal hemorrhage.

The danger in these cases is that the hemorrhage may be intraspinal as well as extraspinal; but this irregularity of distribution of sensation frequently indicates that the lesion is extraspinal rather than into the substance of the spinal cord, giving an indication of a possible favorable operative result.

Operation is also indicated when there is not a complete disturbance of sensation; when the sensation is either unequal on one side, as I have said, or when, with a lessening of sensation, there is not a complete loss of sensation. These cases are favorable for operation, as are also cases which, in addition to these symptoms, show an incomplete, although a rather extreme degree of, loss of motion, even if vesical paralysis is present, provided that an irregular distribution of motor paralysis exists.

If the patient is examined at the very onset and only a partial loss of sensation found, or a complete loss of sensation, and then within twenty-four hours or so a slight return of sensation is found, the case is one which may be susceptible of improvement by operation. In other words, I place the greatest importance in the indications for operation on the sensation as it is at the time of injury, and as it may be a few days after the injury.

Again, a clinical point that has impressed me in these various cases that have come to my attention is this: If the sensation has improved for a day or two and then begins to decline, or shows no further improvement, the operation should be done at that time if there is to be one. A point that arises frequently is the expediency of immediate operation in its bearing from a clinical point of view on future results. Should the operation be performed at once or be postponed? The answer depends entirely on the sensory disturbance.

Dr. Bailey has said in substance that in about one-third of these cases of fractures of the spine there is no spinal-cord injury. If that is so it behooves us to follow the waiting policy as to the time of operation. Investigations by Spiller and Allen, and especially the experimental work of Allen on animals, have shown that many of these injuries will cause, without serious involvement, an edema of the cord substance; and in his experimental work Allen found that in incisions made longitudinally the function of the cord was not involved; at the same time the relief of this edema was obtained, the danger of the edema, as he believes, being the compression of the fibers of the spinal cord, and possibly their final destruction. That is a question, of course, that can be answered only by further experimentation. We do know that the cord is capable of considerable compression; and possibly while a compression due to an edema is somewhat different from a compression due to a body outside the cord, such as a tumor, I am inclined to doubt the destructive condition of even edema of the cord, to the degree which is possibly maintained by Dr. Allen. I think that he has applied this principle, however, in operations in a few cases, with results of which I am not as yet informed.

Mueller[1] reports several cases which have some bearing on this question of early or late operation; I shall refer to two without going into the details of the symptoms.

In one case which has a bearing on the question of early or late operation, the patient was injured July 4, 1910, and operated on July 6. There were the usual classical symptoms in this case of loss of motion, loss of sensation, paralysis of the bladder and loss of reflexes.

The lesion was in the region of the tenth dorsal vertebra. The dura was opened, and the result was entirely successful, return of the function of the bladder, etc., being secured. Of course one case of that kind is not decisive, but it may be an indication of the truth.

In another case, the injury occurred in December, 1909. There was an incomplete paralysis at that time, which later became complete with the loss of reflexes. At the time that the patient was examined in August, 1910, over six months after the date of the injury, there was still loss of reflexes and secondary contractions, especially marked in the toes. This patient was operated on by Dr. C. H. Frazier of Philadelphia, August 15. Adhesions were found, as the report shows, but there was apparently no cord softening; but in this case there was absolutely no improvement.

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[*] Chairman's Address, delivered before the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June 4-7, 1912.

[1] Mueller: Ann. Surg., 1911, liii.

The second case corresponds to a case which was under my observation in Bellevue Hospital, in which, as the result of an injury at the ninth dorsal vertebra, there was complete loss of power, loss of reflexes, and contraction of the toes similar to the case reported by Dr. Mueller; and the patient was operated on about fifteen months after the accident. On operation it was found that the cord was completely disorganized, whether due to a hemorrhage in the cord or not of course it was impossible to say. There was no improvement in that case. That was a long-delayed operation.

I think that in these chronic cases in which the patients are often in an excellent physical state, there is little or no danger from the operation. I have had no bad results following such operations in the hands of a careful surgeon; and while we should have a skilled surgeon and one who has considerable knowledge of the technic of that special operation, I think that such technic is to be acquired with comparative ease.

In many cases that have come under my observation it is impossible to tell by the severity of the symptoms at first that we have an absolutely destructive lesion of the spinal cord following the injury. My experience proves that a shock to the spinal column transmitted to the spinal cord can absolutely throw out the function of the spinal cord; though there is no destructive lesion of the spinal cord, the symptoms at the onset are similar in every way to those in absolute lesions of the spinal cord.

This was clearly shown in two cases of bullet wounds which came under my observation.

The first case was that of a woman shot in the back, three bullets entering the body and one passing downward into the spinal column, the *x*-ray showing the bullet lying in the body of the vertebra. When this woman was brought to the hospital she had absolute loss of motion, sensation and control over the bladder and rectum, and evidently, as one would have thought from the character of the wound, the cord had been severed. The only symptom she complained of was pain at the point of lodgment of the bullet; yet in two or three days there was a very slight return of sensation; and the nature of the return of the sensation is in my experience usually of this type, i. e., that the sense of pain is not fully recovered. There is, however, an appreciation of pressure and touch. The hyperesthetic area is located at the line of lesion, but the true appreciation of pain in these cases is not apt to return, although we may have a return of power. The reflexes in this case were lost. For various reasons we did not operate. The course of that case has been the following: Sensation has returned in the last three months that I have observed the patient, and I examined her the day before I left the city. There has been a return of sensation, except that there is no true appreciation of pain up to the line of the lesion. Touch, heat and cold are appreciated. The reflexes had returned with now a condition of exaggeration not only of the patellar but of the Babinski reflex; ankle-clonus was present. The gait, which has improved, is spastic. The bullet which passed into the canal is causing very slight pressure; later I may think it advisable to remove the bullet, but I could hardly have looked for a better result by operation.

The second case was that of a boy who received a bullet wound through the spinal cord, which was easily made out by the *x*-ray, and in about the same region as in the previous case. There was the usual classical picture of loss of reflexes and absolute loss of sensation. At the time of operation a complete severance of the cord by the bullet was found.

Those two cases had similar symptoms at the onset, and yet by waiting in the first case we found marked improvement.

In the case of a man who fell through the hatchway of a ship, 8 or 10 feet, and fractured his spinal column, there was a crushing of the fifth or sixth cervical bodies and a dislocation at the sixth. My last examination of this patient, made May 27, 1912, showed a gradual though not a complete loss of sensation. The paralysis was complete as far as the lower extremities were concerned, but the loss of sensation was not complete. I would consider this case, especially, a proper one for operation, on the grounds that I have already stated, considering that there is probable compression from the bone. As has been well said: A paralysis which gradually goes on after an injury is very apt to be, though no one can say positively, due to bone compression. In this case I should say that the operation ought to be done at an early date.

A case carefully reported by Haven Emerson[2] would be of interest to look into. The lesion was in the sixth cervical vertebra, and at the time there was an incomplete loss of power. This increased gradually in two or three days, so that below the line of lesion there was complete paralysis, the only motion in the arms remaining being the action of the deltoid and the supinator. This patient died without operation in the course of three or four months; and the autopsy showed a complete separation of the arch of the sixth cervical vertebra and a gross lesion to the spinal cord, with softening.

Now, this case is interesting so far as the manner of death in many of these injuries is concerned. In my experience, in most of the cases of cervical injury, very high up or in the lower cervical region, that have proved fatal — especially those due to violent injuries — the patients have died in the course of from three to five days. In most all we find a hemorrhage into the cord substance; and most of them have died of edema. Apparently Dr. Emerson's patient had edema of the lungs, but at autopsy none was found.

Therefore in my conclusions I would lay the greatest stress in reference to the question of the feasibility or advisability and time of an operation, on the following conditions: I would, as I have previously said, depend more largely on the sensory disturbance than on any other symptoms which are present, as to the question of operation. When there is an absolute loss of sensation, with the usual complex of loss of reflexes and paralysis of the bladder and rectum and this well-defined transverse line of demarcation of anesthesia, it seems to me that the condition is unfavorable for operation. Anything that varies from that one condition indicates the possibility of a good result from an operation.

Again, as so many cases are recorded in which there has been a gradual return of sensation without operation, I would wait in almost all cases before proceeding to operate until all sensory improvement had ceased. When that has ceased or there seems to be a recession, I think the time of operation should no longer be delayed.

After a paralysis has existed for several months operation is almost futile. When the symptoms have not changed from the early condition of loss of reflexes, continued loss of sensation and a tendency to contraction of the paralyzed muscles, it seems to me that operation is useless, whether done in a few months or many months following the injury.

I am inclined to operate when there is the slightest chance of recovery, because in the hands of a skilful surgeon there should not be any special danger in the operation itself.

19 West Fifty-Second Street.

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[2] Emerson, Haven: Arch. Int. Med., August, 1911, p. 150.

Good Advice.—The *Willows Magazine* recommends: "Keep the patient's relatives out in the fresh air as much as possible."

AN EPIDEMIC OF TYPHOID FEVER IN PHILADELPHIA *

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PHILADELPHIA

To comprehend fully the epidemic of typhoid fever in a certain restricted area of Philadelphia during December, 1911, and January, 1912, on the introduction of raw river water into the city service pipes, it is well to study the morbidity and mortality for the particular district affected by this epidemic (the Twenty-First, Twenty-Second, parts of the Twenty-Ninth, Thirty-Second, Thirty-Eighth, Forty-Second and Forty-Third wards) and the city at large for a period of years, as given in Table 1.

TABLE 1.—TYPHOID FEVER MORTALITY AND MORBIDITY RATES PER HUNDRED THOUSAND FOR THE ENTIRE CITY OF PHILADELPHIA

	Mortality	Morbidity
1906	72.4	674.7
1907	59.3	460.8
1908	34.8	234.4
1909	21.1	153.5
1910	17.4	112.7
1911	14.1	87.5

The morbidity per hundred thousand population in the district affected, with a population of 291,970, and the rest of the city, with a population of 1,288,280, for the months of December and January, is shown in Table 2.

TABLE 2.—COMPARISON OF TYPHOID MORBIDITY IN AFFECTED DISTRICT WITH REST OF CITY DURING DECEMBER AND JANUARY; RATES PER HUNDRED THOUSAND OF POPULATION

December-January	In Affected Districts	In Rest of City
1907-1908........	61.9	31.3
1908-1909........	50.5	31.1
1909-1910........	25.4	16.4
1910-1911........	11.6	11.6
1911-1912........	130.0	12.1

Under regular operating conditions, water is pumped from the Schuylkill River at Shawmont to the filtration plants at Upper and Lower Roxborough, marked 1 and 2, respectively, on the accompanying map.

The main from the pumping station on the river to the Upper Roxborough plant was broken, Nov. 28, 1911, which put both the sedimentation basin and the filter plant out of service until December 6, and, in order to furnish the district supplied by this plant, raw river-water was pumped directly into the service mains. The lower plant was not affected.

The district marked A on the map (Fig. 1) was supplied by the Lower Roxborough plant marked 2; the district marked C was supplied by the low-pressure system and that marked B, which is on high ground, by the high-pressure system of the Upper Roxborough plant marked 1. The district marked D was supplied by private water companies; that marked E, by the Queen Lane filtration plant, which procured its water from the Schuylkill River, below the intake for the Roxborough plants.

The break in the pipe, November 28, occurred in the main leading to the upper plant. It was of such a character that it washed the earth from under four other mains connected with this station and completely cut off the sedimentation basin from the district marked C and B.

Table 3 shows the bacterial count per cubic centimeter in the river-water daily until the break was repaired and weekly thereafter in the river-water and in the service pipes; also the turbidity in the service pipes.

TABLE 3.—COMPARISON OF RIVER-WATER WITH THAT IN THE SERVICE PIPES

1911	Bacterial Count		Turbidity
	River-Water, Per c.c.	Upper Roxborough Plant, per c.c.	Parts per Million
November 28	28,000	28,000	17
November 29	51,000	51,000	60
November 30	26,000	26,000	15
December 1	30,000	30,000	9
December 2	18,000	18,000	9
December 3	47,000	47,000	9
December 4	51,000	51,000	10
December 5	22,000	22,000	11
December 6	22,000	22,000	6
Av. for week ending—			
December 9	31,000	180	0
December 16	80,000	160	0
December 23	81,000	250	0
December 30	29,000	42	0
1912			
January 6	11,000	29	0
January 13	7,800	120	0
January 20	18,000	180	0.5
January 27	43,000	80	0

The river-water showed colon bacilli present in 1 c.c. during October, November, December and January. The filtered water in the upper plant showed colon bacilli in 10 c.c. after December 6, in 62 per cent. of samples examined and in January 54 per cent. until the 27th, after which date the results were negative.

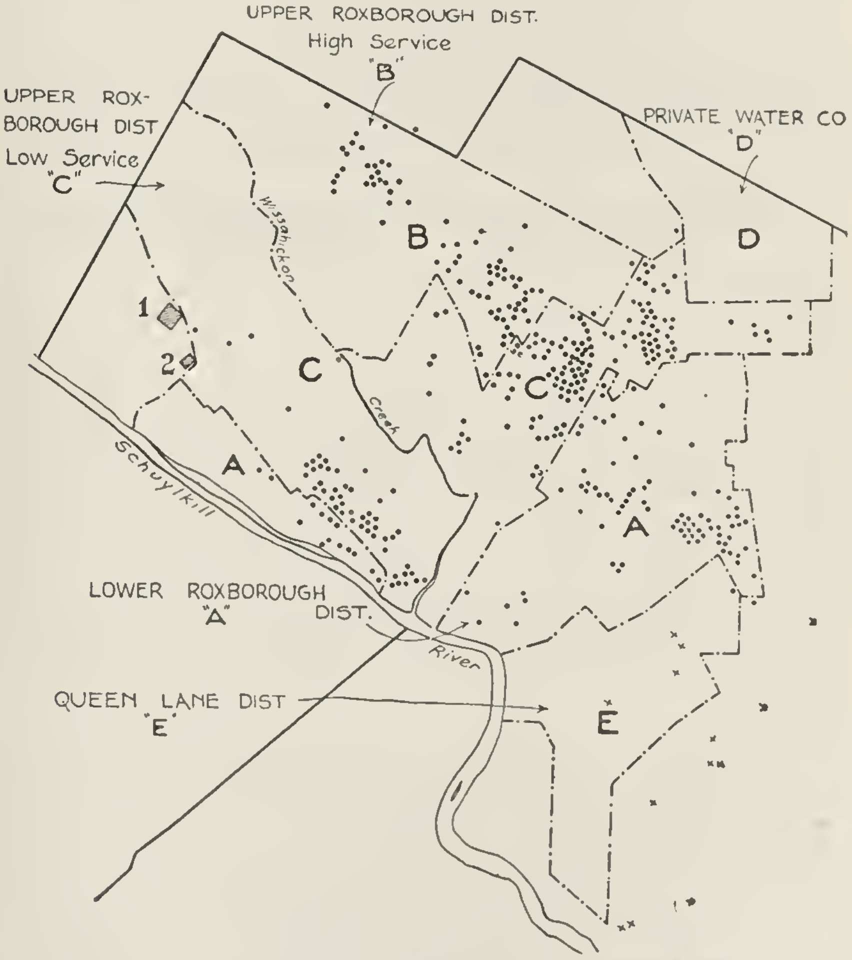

Fig. 1.—Location of typhoid fever cases reported between Dec. 8, 1911, and Feb. 9, 1912, after break in water-main on Nov. 28, 1911. Heavy dots indicate cases in affected districts (367); crosses, cases in adjacent districts.

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* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

The break referred to was repaired December 6 and filtered water again furnished. During the first week of December there was an epidemic of mild diarrhea in the districts marked B and C, as well as a portion of the district marked A, supposed to have been supplied by water from the Lower Roxborough plant, in which typhoid fever later appeared. These cases were not reported to the health authorities, as there was no mortality, and therefore no statistics are available.

Nine cases of typhoid fever were reported from these wards by physicians, December 26, and from that date until the latter part of January, 367 cases were reported; the largest number (sixty-six) in any one day was reported Jan. 2, 1912. This was in part due to the fact that December 31 was a Sunday and January 1 a holiday.

As physicians are undoubtedly lax in performing their full duty to the state and dilatory in promptly reporting cases to the health authorities, often when delay is dangerous, a medical inspection of each case was made to determine the onset and cause of the disease. Figure 2 shows the onset to have preceded the report of the physician from one to two weeks.

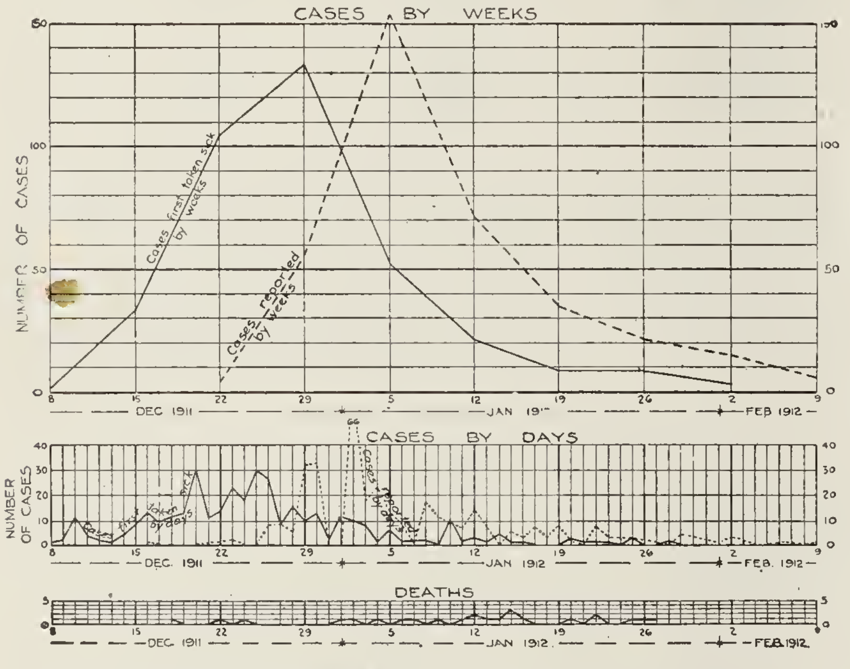

Fig. 2.—Chart showing the interval of time between beginning of cases and reports by physicians.

The greatest number of cases, according to the date of onset, was from twenty-two to twenty-eight days after the break, or from fourteen to twenty days after filtered water replaced the raw water, all of which may possibly have been due to the ingestion of the raw water; but this will not explain the cause of those cases occurring during January, from twenty-two to fifty days after filtered water was introduced, unless by continued infection of the pipes, contact or other sources.

Each case was studied to determine this question, and especially those occurring in that portion of the Twenty-Second Ward (marked A on the map), which was supposed to be receiving unpolluted water from the lower plant and the same water which was received in other portions of the section marked A. It was stated that there was no connection between the pipes of this district and those supplied by mains from the upper plant. Milk was particularly studied from the source of supply to the consumer. No cause could be found outside of water.

A month after the epidemic it was found that an employee of the Water Bureau, to equalize the pressure, opened an emergency valve in the pipe from the upper plant and furnished water to that portion of the Twenty-Second, Thirty-Eighth and Forty-Third wards (marked A), in which numerous cases occurred. In the entire epidemic there were 367 cases among people who had not lived outside of the district during the twenty days preceding their illness, in six of which the mother performed the duty of nurse to the first patient and did the cooking and housework. Seven cases could possibly have been caused by contact. The dozen or more patients in the Twenty-First Ward (marked A) along the river, living in that portion supplied by the lower plant, worked in the mills, frequently visited or attended school in the contagious district supplied by the upper plant.

As there was considerable discussion at the time tending to prove that the epidemic presented some unusual facts concerning age, Tables 4 and 5 have been prepared.

TABLE 4.—MORBIDITY AND MORTALITY BY AGE PERIODS

Age	Number of Cases	Deaths	Fatalities, Per Cent.
0 to 10.........	79	2	2.5
10 to 20.........	142	7	4.9
20 to 30.........	78	10	12
30 to 40.........	44	2	4.5
40 to 50.........	17	2	11
50 to 60.........	6	1	16
60 to 70.........	2	1	50
70 to 80.........	1	0	0
Total..........	367	25	6.8

TABLE 5.—THE MORBIDITY BY AGE PERIOD AND WARDS

	Wards							
Age	21	22	29	32	38	42	43	Total.
0 to 10	14	48	..	..	6	6	6	80
10 to 20	25	94	1	..	7	9	4	140
20 to 30	14	46	2	..	8	5	1	76
30 to 40	10	22	2	1	5	..	4	44
40 to 50	3	9	..	..	1	1	4	18
50 to 60	1	2	1	..	..	1	1	6
60 to 70	1	1	..	..	..	..	..	2
70 to 80	1	..	..	..	..	..	..	1
Total..	69	222	6	1	27	22	20	367

The explanation offered of the large proportion of cases after filtered water was introduced is that the raw water supplied to the district from November 28 to December 6 was turbid, which, with the frequent newspaper notices to boil the water, prevented many using it as a beverage; but when clear water was reintroduced, December 6, the people, in spite of the newspaper notices, assuming the water to be safe, again used it for ordinary domestic purposes and the remaining infection of the pipes caused the typhoid during the latter part of the epidemic.

Value of Statistics in Medical Research.—Statistics form the groundwork of science, the armory for action; they contain many secrets of health and life, and in my view the study of statistics relating to disease might yield as rich a harvest for the benefit of mankind as any other field of research. The reports of registrars are full of significance, and might long ago have been employed for a war against maladies in which victories would have been certain, saving millions of people from suffering and early death, and raising the health of the nation to a high level of strength and efficiency.—Rollo Russell in "Preventable Cancer."

SOME RESULTS OF THE TREATMENT OF THE BALTIMORE DRINKING-WATER BY CALCIUM HYPOCHLORITE*

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AND
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BALTIMORE

The destruction of pathogenic bacteria in drinking-water by means of calcium hypochlorite was first suggested in 1894 by Traube[1], who found that one part of available chlorin in 1,000,000 parts of water would practically sterilize the water in about two hours. This method was applied practically in the Chicago Stock Yards in the fall of 1908; and at about the same time the method was instituted at Boonton in order to purify the drinking-water of Jersey City. This method has since been introduced in many American cities, and the amount of chlorin used has varied from 0.2 part per million to 3.04 parts per million, while the bacterial reduction has varied from 77 per cent. to 99.7 per cent.

METHODS PURSUED IN TREATING THE WATER

The water-supply furnished to Baltimore is obtained by two large impounding reservoirs which collect the water, respectively, of the Gunpowder River and the stream known by the name of Jones Falls. Both of these streams run through a densely populated rural district. The water from each impounding reservoir is then led by a conduit to four storage reservoirs for the Loch Raven system and three for the Lake Roland system, and from these storage reservoirs the water is distributed to the citizens.

The application of calcium hypochlorite to the Baltimore drinking-water was begun in connection with the Lake Roland supply, June 7, 1911, and the treatment of the Loch Raven supply was commenced June 22. The amount of hypochlorite as expressed in parts of available chlorin has been gradually increased and the following amounts have been used. The treatment of Lake Roland was begun with 0.6 part of available chlorin per million parts of water June 7, but was reduced to 0.4 part June 19. This amount was again increased in both supplies to 0.6 part per million, July 23; was again increased to 0.75 part per million, August 29, and was finally increased to 1.0 part per million, October 15. April 15, 1912, an order was issued that when the turbidity of the water was over 50, 1.5 parts of available chlorin per million should be used. The hypochlorite solution is added to the water as it flows through the gate chambers of the large impounding reservoirs known as Lake Roland and Loch Raven. The water from the Loch Raven impounding reservoir then flows through a large tunnel or conduit, which is 36,500 feet in length and its area 113 square feet. The water then flows into the first of a series of storage reservoirs known as Lake Montebello; from this reservoir it flows into a second reservoir known as Lake Clifton; from Lake Clifton into a third and a fourth storage reservoir known, respectively, as Lake Guilford and Lake Ashburton. The water from the system is distributed from these last three reservoirs to the citizens.

The water from the impounding reservoir known as Lake Roland flows through the gate chamber into a tunnel or conduit 19,020 feet in length with an area of 25 square feet. This conduit empties into Lake Hampden and the water then flows to Druid Lake and the Western High Service reservoir, whence it is distributed to the city mains and taps.

It will be seen from the above description that the water after treatment does not reach the citizen for a period of many days, and under normal conditions when the reservoirs are full this may be as long an interval as two weeks. The time must vary greatly, for we have records showing the beginning of increased turbidity in Lake Roland followed by the appearance of turbid water in the city taps five days later. We also have records showing increased turbidity and high bacterial counts in both impounding reservoirs followed by a corresponding increased count from the city taps in from five to six days. It would seem, therefore, that when the reservoirs are all full of water the water does not reach the consumer until about two weeks later; but when the water in the storage reservoirs is low the treated water may reach the citizen in from five to six days.

A considerable interval of time also elapses between the treatment of the drinking-water and its entrance into the first storage reservoir of either system. Under the normal feed of 60,000,000 gallons per day it requires 12.2 hours for the water to flow from Loch Raven, one of the impounding reservoirs, to Lake Montebello, the first storage reservoir; but under extreme conditions when the storage reservoirs are filled up quickly this time may be reduced to 4.9 hours. Under the normal feed of 10,000,000 gallons per day it takes 8.5 hours for the water to flow from Lake Roland, the other impounding reservoir, to Lake Hampden, the first storage reservoir; but under extreme conditions of rapid filling of the storage reservoir the time may be reduced to 5.7 hours. Except under very unusual conditions the maximum destructive effect of the hypochlorite on the drinking-water takes place in the tunnels leading from the impounding reservoir to the storage reservoirs, as experiments to be described later will show that the maximum effect of sterilization is usually achieved in about six hours. This method, therefore, allows the hypochlorite to get in its full effect before the water reaches the storage reservoirs where it undergoes considerable dilution.

DESCRIPTION OF A PERMANENT PLANT FOR THE APPLICATION OF CALCIUM HYPOCHLORITE TO THE WATER

As an example of the method of applying the hypochlorite the following description of the plant used for treating the water from the larger impounding reservoir is given. This is a condensed statement of the description kindly furnished by Mr. Emory Sudler, the engineer of the water department, in charge of the plant.

The plant was located at one end of the opening of a chamber extending down to the mouth of the supply tunnel which carries the water by gravity to the city storage reservoirs 7 miles distant. This plant consists of two solution storage-tanks, a syphon or feed-chamber, and a superimposed mixing tank, all of these being made of concrete. The cylindrical solution storage-tanks have a capacity of 2,200 gallons each and have a concave bottom draining to a slot extending to a 3-inch round hole through the wall of the tank. The supply to the feed chamber is by means of a flange connection located slightly above the edge of the concave bottom, to which is attached a 3-inch rubber hose and valve, the hose being connected to the feed-chamber similarly. The waste or drain is carried by a 3-inch galvanized pipe to a waste chamber in the gate house, whence it flows to a point below the reservoir dam. The siphon, or feed-chamber, is built into one of the angles formed by the joined octagon-shaped solution tanks. In addition to the attachments mentioned above for supplying the solution to this chamber a flange is placed in the center of the bottom of the chamber to which is connected a three-way having a 3-inch valve below it through which the chamber is drained. The other connection to the three-way is a 1-inch rubber hose to which is attached the orifice through which the solution is fed to the water-supply as it enters the supply tunnel directly beneath.

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* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Laboratory of the State and City Boards of Health, Baltimore, Maryland.

[1] Traube: Ztschr. f. Hyg., 1894, xvi, 149.

The mixing-tank is superimposed over the other angle formed by the joined octagon-shaped storage-tanks and consists of a concrete cylinder. A slot was molded in the center of the bottom of the tank for attaching the stirring apparatus, and pipe connections similar to those in the above were made with the tank, the waste, or drain. being located under the base of the tank and outside the storage-tank. and the supply, or overflow, being flanged to the wall of the tank by expansion bolts about midway of its depth on the center line between the storage-tanks. This has a swivel spout which may be revolved so as to discharge into either storage-tank, and both connections are provided with valves. The working platform is built on a level with the top of the mixing tank for the drums of hypochlorite, and a 2-ton traveling chain-hoist is used for hoisting the drums to the platforms. A gasoline engine pumps water at the rate of from 1,500 to 2,000 gallons per hour to the mixing-tank, the valve being placed on the supply line at the mixing-tank with a relief valve at the pump.

The pump engine also furnished power for the stirring apparatus through reducing gears on a shaft which is belt-driven from a pulley on an engine drive-shaft. An inverted U-shaped iron frame is clamped to the vertical shaft in the mixing-tank, to the prongs of which is attached a cross-arm with six vertical paddles 2½ inches in width and about 18 inches in length bolted to it. These paddles revolve between four baffles of the same dimensions which are secured to the bottom of the tank. The cross-arm of the revolving paddles is prevented from lateral motion by a collar around the pipe which protects the shaft.

The shaft turns in a bronze bearing at the bottom of capped galvanized pipe secured in the bottom of the tank. This pipe affords complete protection to the shaft and bearing. The shaft revolves at about twenty-five revolutions per minute.

The regulating apparatus consists of a float made of concrete plastered on a metal (wire mesh) frame, the dimensions of which are slightly less in plan than those of the siphon or feed-chamber. This is used in that chamber; a wire leads upward from this float to a spirally grooved pulley secured to the roof of the gate-house. This pulley has a sufficient number of grooves to permit the winding of the wire incident to the complete vertical movement of the float and also of another wire leading to a single grooved wheel located over and convenient to the vertical movement of the orifice-hose to which it is attached. The wires being wound on the grooved pulley in the same manner, the float in the chamber and the orifice on the hose move up and down simultaneously.

A counterweight is attached to another grooved pulley which is secured to the same shaft as the one carrying the wire from the float, but the wire to which the counterweight is attached is wound the opposite way from the float wire; this balances the weight of the hose and orifice.

For the adjustment of the head on the orifice, a sliding scale having a thumb-screw clamp is connected between the orifice and the grooved wheel on the wire leading from it.

Attachments for hose connections are provided at four points on the waste or drain piping, so that they may be flushed out when clogged with sediment from the tanks.

TABLE 1.—LAKE ROLAND SYSTEM *

Month		Average Bacteria per c.c.	Bacteria Reduction	Positive Colon Tests			
				0.01 c.c.	0.1 c.c.	1 c.c.	10 c.c.
1911— July	Raw water	47,600	....	....	60 per cent.	86 per cent.	100 per cent.
	Storage	725	99.0 per cent.	....	26 per cent.	57 per cent.	84 per cent.
	City taps	4,410	91.0 per cent.	....	....	22 per cent.	64 per cent.
August	Raw water	38,540	....	....	76 per cent.	....	....
	Storage	1,210	97.0 per cent.	....	32 per cent.	66 per cent.	....
	City taps	550	99.0 per cent.	....	3 per cent.	40 per cent.	....
September	Raw water	15,095	....	....	46 per cent.	80 per cent.	....
	Storage	286	98.5 per cent.	....	4 per cent.	31 per cent.	....
	City taps	170	99.0 per cent.	....	6 per cent.	30 per cent.	....
October	Raw water	17,830	....	....	91 per cent.	100 per cent.	....
	Storage	457	99.6 per cent.	....	7 per cent.	37 per cent.	....
	City taps	538	99.5 per cent.	....	13 per cent.	33 per cent.	....
November	Raw water	58,045	....	....	36 per cent.	91 per cent.	....
	Storage	627	98.9 per cent.	....	....	19 per cent.	....
	City taps	1,430	97.6 per cent.	....	4 per cent.	26 per cent.	....
December	Raw water	6,540	....	....	20 per cent.	35 per cent.	....
	Storage	583	91.0 per cent.	....	....	12 per cent.	....
	City taps	642	91.1 per cent.	....	5 per cent.	10 per cent.	....
1912— January	Raw water	22,230	....	4 per cent.	40 per cent.	76 per cent.	....
	Storage	770	96.5 per cent.	....	....	28 per cent.	....
	City taps	1,248	94.4 per cent.	....	2 per cent.	16 per cent.	....
February	Raw water	50,885	....	....	40 per cent.	83 per cent.	....
	Storage	1,537	97.0 per cent.	....	....	27 per cent.	39 per cent.
	City taps	4,238	91.7 per cent.	....	....	9 per cent.	57 per cent.
March	Raw water	40,697	....	24 per cent.	67 per cent.	....	....
	Storage	4,034	90.1 per cent.	....	....	58 per cent.	91 per cent.
	City taps	7,691	81.2 per cent.	....	....	16 per cent.	63 per cent.
April	Raw water	18,727	....	44 per cent.	90 per cent.	....	....
	Storage	11,533	38.5 per cent.	....	....	16 per cent.	72 per cent.
	City taps	43,605	132.2 per cent.†	....	....	36 per cent.	50 per cent.

* Available chlorin: 0.4 part per million during June and July; 0.6 part per million during August; 0.75 during September and to October 15; 1.0 from October 15 to April 15; 1.5 from April 15 to June 1, when turbidity reached a point higher than 50. † Increase.

BACTERIAL REDUCTION EFFECTED BY THE TREATMENT OF THE BALTIMORE DRINKING-WATER

As has been stated above, the amount of hypochlorite as expressed in parts of available chlorin was increased on several different occasions, and the results as shown by monthly computations indicate that the larger amounts of hypochlorite have produced the greater bacterial reduction. The treatment of the water was hardly well under way until about the middle of June, 1911, and the comparative monthly results will therefore be given beginning with the first of July, these being expressed in Tables 1 and 2.

These tables can be consulted in detail for the various monthly averages concerning the reduction in the number of bacteria present in the storage reservoirs and in the city taps. It may be said that from July, 1911, to February, 1912, inclusive, in the water taken from the Lake Roland system the bacterial reduction from the storage reservoirs and from the city taps has varied between 91 and 99 per cent. The presence of the colon bacillus in 0.1 c.c. in the raw water has varied between 90 and 36 per cent., while in the treated water it has varied between 7 and 2 per cent. In 1 c.c. of the raw water the colon bacillus has varied between 100 per cent. of positive tests and 35 per cent., whereas the treated water has varied between 58 and 9 per cent.

In the water from the Loch Raven system during the months of July to December, inclusive, the bacterial reduction has varied between 99 and 90 per cent. The colon bacillus in 0.1 c.c. of the raw water has varied between 89 per cent. of positive tests and 15 per cent. of positive tests, and the treated water has varied between 23 and 0 per cent. In 1 c.c. the percentage of positive tests has varied between 100 and 55 per cent., and in the treated water between 56 and 4 per cent.

The water from the Lake Roland system in March and April has shown a much smaller bacterial reduction and in one case has shown an actual bacterial increase of 132 per cent. During February, March and April the water from the Loch Raven system has shown only a moderate bacterial reduction. The figures in detail can be seen in the table, but the lowest bacterial reduction has been 12 per cent. and the highest 51 per cent. Some of the months show a bacterial increase varying from 9 to 83 per cent. These bacteria which reduce the percentage of reduction or which actually show the bacterial increase or so-called "after-growth" are mainly resistant spore-bearing organisms or a yellow chromogenic bacillus.

Very early in the examination of the treated water we were struck by the large number of positive presumptive tests from which we were unable on plating out to obtain the colon bacillus. We determined, therefore, to examine some of these cultures for the presence of anaerobic, fermenting organisms. In all we have studied forty-four such cultures. These were plated out three times for the colon bacillus, and in no instance was this organism found. On these plates nothing grew save a few spore-bearing organisms of the subtilis type. Anaerobic plates were then made from these fermentation tubes, and from three cultures the *Bacillus sporogenes* was isolated. In six others we found the *B. aerogenes capsulatus*.

On consulting these tables it can be seen that the best results in the elimination of the intestinal organisms from the storage reservoirs and the city taps were obtained after the hypochlorite had been increased so as to represent 1.0 part of available chlorin per million parts of water. The results in the general bacterial reduction are variable, but these have been influenced somewhat by a great increase of the spore-bearing organisms. These so-called "after-growths" may be due to the fact that all of the non-spore-bearing organisms, including the intestinal bacteria, are destroyed, and that the spore-bearing bacteria, deprived of their natural enemies, develop unresisted.

THE INFLUENCE OF THE HYPOCHLORITE TREATMENT IN REDUCING THE TYPHOID MORBIDITY AND MORTALITY IN VARIOUS CITIES

The city of Trenton, according to Hottel,[2] started to purify its water-supply obtained from the raw Delaware

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[2] Hottel: Munic. Jour. and Eng., 1912, xxxii, 589.

TABLE 2.—LOCH RAVEN SYSTEM *

Month		Average Bacteria per c.c.	Bacteria Reduction	Positive Colon Tests			
				0.01 c.c.	0.1 c c.	1 c.c.	10 c.c.
1911— July	Raw water ..	60,800	....	....	62 per cent.	88 per cent.	100 per cent.
	Storage	1,835	97.0 per cent.	....	23 per cent.	56 per cent.	89 per cent.
	City taps	1,580	98.0 per cent.	....	12 per cent.	29 per cent.	62 per cent.
August	Raw water ..	39,560	....	....	89 per cent.	....	....
	Storage	2,497	94.0 per cent.	....	14 per cent.	48 per cent.	....
	City taps	134	99.5 per cent.	....	11 per cent.	37 per cent.	....
September	Raw water ..	12,409	....	....	74 per cent.	....	....
	Storage	754	94.1 per cent.	....	14 per cent.	39 per cent.	....
	City taps	336	95.9 per cent.	....	....	33 per cent.	....
October	Raw water ..	4,260	....	....	82 per cent.	....	....
	Storage	638	98.6 per cent.	....	13 per cent.	39 per cent.	....
	City taps	596	99.0 per cent.	....	2 per cent.	33 per cent.	....
November	Raw water ..	129,996	....	....	55 per cent.	....	....
	Storage	1,227	99.1 per cent.	....	7 per cent.	20 per cent.	....
	City taps	1,085	99.2 per cent.	....	8 per cent.	38 per cent.	....
December	Raw water ..	19,313	....	....	29 per cent.	92 per cent.	....
	Storage	1,916	90.1 per cent.	....	5 per cent.	22 per cent.	....
	City taps	1,227	93.7 per cent.	....	....	12 per cent.	....
1912— January	Raw water ..	5,577	....	4 per cent.	15 per cent.	61 per cent.	....
	Storage	2,720	51.3 per cent.	....	....	4 per cent.	....
	City taps	3,801	31.9 per cent.	....	....	9 per cent.	....
February	Raw water ..	10,238	....	6 per cent.	25 per cent.	55 per cent.	....
	Storage	8,960	12.5 per cent.	....	....	....	....
	City taps	11,207	9.0 per cent.†	....	....	5 per cent.	29 per cent.
March	Raw water ..	17,664	....	....	71 per cent.	81 per cent.	....
	Storage	11,735	33.6 per cent.	....	....	25 per cent.	50 per cent.
	City taps	28,639	62.0 per cent.†	....	....	15 per cent.	50 per cent.
April	Raw water ..	17,310	....	....	75 per cent.	100 per cent.	....
	Storage	23,276	34.4 per cent.†	....	....	41 per cent.	86 per cent.
	City taps	31,825	83.0 per cent.†	....	....	77 per cent.	59 per cent.

* Available chlorin: 0.4 part per million during June and July; 0.6 part per million during August; 0.75 during September and to October 15; 1.0 from October 15 to April 15; 1.5 from April 15 to June 1, when turbidity reached a point higher than 50. † Increase.

River water, Nov. 9, 1911, with calcium hypochlorite. They began with 0.4 part of available chlorin per million parts of water, but this was soon increased to 0.8 part, and has since then varied from 0.8 to 1.0 part per million, with a daily consumption of about 20,000,000 gallons. At this time there was a typhoid epidemic in Trenton, but soon after the hypochlorite treatment was instituted Hottel states that the typhoid dropped abruptly. Quoting his statistics: “During the month of November, 1911, there were eighty-two cases of typhoid reported and during December, forty-nine. For the first three months of 1912 there has been a total of only fifteen cases; in 1911 for the same three months there were fifty-two; in 1910, forty-seven.”

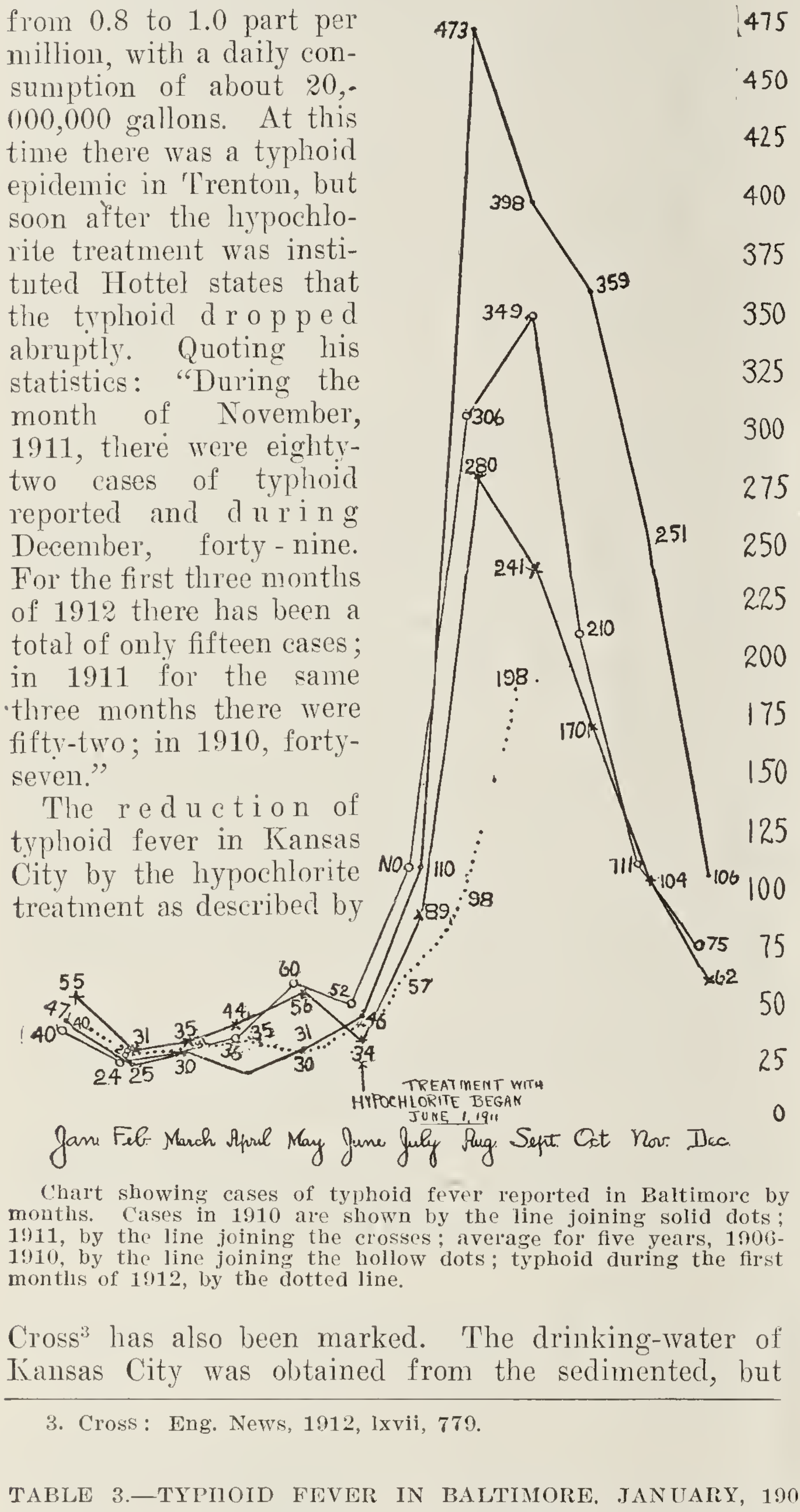

Chart showing cases of typhoid fever reported in Baltimore by months. Cases in 1910 are shown by the line joining solid dots; 1911, by the line joining the crosses; average for five years, 1906-1910, by the line joining the hollow dots; typhoid during the first months of 1912, by the dotted line.

The reduction of typhoid fever in Kansas City by the hypochlorite treatment as described by Cross[3] has also been marked. The drinking-water of Kansas City was obtained from the sedimented, but otherwise untreated, Missouri River water; but during 1911 this water was treated with calcium hypochlorite. During the year 1910 there were 107 deaths from typhoid fever, and during the year 1911 only sixty-one. There is a marked difference between the typhoid during January, February and March of 1910 and that for the same months of 1911, twenty-one and ten, and for the latter three months six, six and four.

On analyzing the records of typhoid morbidity and mortality for Baltimore, we have thought it best to compare the monthly figures beginning with the year 1906 and ending with the year 1910 with the figures for the corresponding months of 1911 and with those of 1912 up to June 1. Table 3 shows the figures in detail.

> “On examining Table 3 it will be seen that the number of cases of typhoid during 1911 is less by 202 than the average number of cases for the past five years, and the deaths are less by thirty-eight than the average number of deaths for the last five years. On examining the comparative figures for 1910 and 1911 a much greater difference is observed, for although the reported cases for the first five months in 1911 were nearly double the figures in 1910, yet there is a marked diminution of both cases and deaths beginning with June, when the hypochlorite treatment was begun. The total number of cases for 1910 was 1,891, whereas the total number for 1911 was only 1,201. The total number of deaths for 1910 was 235, whereas the total number of deaths for 1911 was 154. The tables for the last five years certainly show a tendency toward a gradual increase in the cases of typhoid yearly, and this makes the reduction in the cases and deaths for 1911 slightly more favorable, especially when we bear in mind that there has been an estimated increase in the population since 1906 of 25,000.”[4]

The number of cases and the deaths for January, February and March, 1912, have not shown the same appreciable reduction, as compared to 1910, 1911, or the average for the past five years. The month of May, however, seems to show a slight reduction as compared to other years, but we can only add that we hope for a similar reduction in typhoid during the summer months of 1912 as we observed during 1911.

The chart shows in a graphic manner the decrease in typhoid cases after the hypochlorite treatment of the water was begun. The lines connecting the solid dots show the number of reported cases by months in Baltimore in 1910. These reach a maximum of 473 cases in August. The lines connecting the hollow dots show the

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[3] Cross: Eng. News, 1912, lxvii, 779.

[4] Am. Jour. Pub. Health., ii, 288.

TABLE 3.—TYPHOID FEVER IN BALTIMORE, JANUARY, 1907, TO DECEMBER, 1911, SHOWING DECREASE IN MORBIDITY AND MORTALITY SINCE THE USE OF HYPOCHLORITE *

Month	1906		1907		1908		1909		1910		1911		Average 5 Yrs. 1906-1910		1912	
	Case Incidence	Deaths	Case Incidence	Deaths	Case Incidence	Deaths	Case Incidence	Deaths	Case Incidence	Deaths	Case Incidence	Deaths	Case Incidence	Deaths	Case Incidence	Deaths
January	31	12	43	12	47	7	39	16	40	7	55	11	40	10.8	47	9
February	31	6	16	5	26	9	23	3	25	11	31	3	24	6.8	28	7
March	25	6	37	6	36	3	20	5	30	12	35	5	29	6.4	33	11
April	67	11	35	17	24	2	22	4	22	4	44	8	36	11.2	37	10
May	143	12	65	3	40	3	23	5	31	2	56	7	60	5.0	30	?
June	87	5	41	6	47	3	41	6	46	8	34	8	52	4.2	57	3
July	105	14	78	22	149	24	107	11	110	7	89	4	110	15.6	98	15
August	284	34	217	23	339	35	217	20	473	30	280	22	306	28.4	198	22
September	206	32	469	41	364	29	312	24	398	49	241	31	349	35.0	..	..
October	125	26	241	47	187	30	138	23	359	42	170	28	210	33.6	..	..
November	59	15	87	31	99	25	61	10	251	37	104	19	111	23.6	..	..
December	46	10	91	17	68	10	66	9	106	26	62	8	75	14.4	..	..
Total	1,209	183	1,420	230	1,426	180	1,069	136	1,891	235	1,201	154	1,403	192.8	..	..

* Since this article was read we have obtained the records of the typhoid morbidity and mortality for June, July and August, 1912. The figures for these data have been inserted in Table 3 and the record is also indicated in the chart.

average number of cases by months for the five years from 1906 to 1910. The lines joining crosses show the number of reported cases by months for 1911, and it will be seen that the curve for 1911 remains practically above both of the other lines until June. It then crosses the curves for 1910 and for the monthly average of the past five years and remains well below both throughout the rest of the year. The contrast in the chart is quite striking, and the arrow indicates that the hypochlorite treatment was begun about the first of June. It is just at this point that the morbidity begins to drop and the curve indicates that it remains below the other lines during the rest of the year.

The dotted line indicates the typhoid cases during the months of 1912, and it will be seen that, while it falls below the record for 1911, it remains above the record for 1910 and the average for the five years from 1906 to 1910 inclusive until April and May; then it falls below the average record of cases from 1906 to 1910, inclusive.

CONCLUSIONS

The results which we have obtained show that the hypochlorite treatment produced a marked diminution of the bacterial content of the treated water until the last two or three months, when we have obtained variable results owing to the after-growth of resistant, spore-bearing organisms. The treatment has also produced an invariable reduction in the percentage of positive tests for the colon bacillus. We have also noted a diminution in the number of cases of typhoid fever during the months of the past summer and fall, but we cannot draw any final conclusions until we have used the treatment for a period of several years.

ABSTRACT OF DISCUSSION

Dr. M. L. Holm, Lansing, Mich.: I represent a state that has more fresh-water frontage than any other state in the Union. Many cities obtain their water-supplies from surface sources, and, in many instances, their sewage is emptied unpurified into the same body of water. Among the cities obtaining their water-supplies from surface sources contamination is the rule; among those obtaining their public supplies from wells, contamination is the exception, barring occasional accidents. Our state board of health statistician recently compiled a table showing the average annual death-rate per 100,000 population from all causes and from typhoid fever in cities of Michigan of 5,000 inhabitants and over for the years 1904-1910, inclusive. The average annual death-rates per 100,000 population occurring in these thirty-seven cities, for the years mentioned, are as follows:

	All Causes	Typhoid
Cities supplied by water from surface sources (22)	1,518.7	51.7
Cities supplied by water from wells (15)	1,411.3	25.1
Difference	107.4	26.6

Mechanical filters, when properly constructed and managed, will give at least 98 per cent. bacterial purification, and a reduction in typhoid and general mortality is sure to follow. In a few instances, marked reduction in typhoid and general mortality has not followed the installation of mechanical filters, but this is usually because prior to the installation of the filter-plant the public water was dirty and generally regarded as unsafe. Consequently few people would drink it. After filtration, the general appearance of the water being improved, a greater proportion of the population would use it. If a highly contaminated water receives 98 per cent. purification by mechanical filtration and as a result of such purification proportionately more people drink it there will probably be no marked reduction in general and typhoid mortality.

When mechanical filtration is not sufficient to render the supply safe, it is necessary to employ in addition some method of chemical sterilization. In these instances hypochlorite treatment is especially applicable. The use of ozone in our state has been a failure. Many Michigan cities are using calcium hypochlorite direct without the aid of artificial sedimentation or filtration. This is especially adaptable to the water of the Great Lakes, which is generally quite clear and has a low oxygen consumption. The quantity of hypochlorite required varies with the amount of easily oxidizable material present in the water and must be determined for each individual case. Enough must be added to eliminate all organisms of the colon group and excesses producing marked odor of chlorin should be avoided.

Mr. Sheppard T. Powell, Baltimore: A series of experiments to determine the efficiency of hypochlorite of lime as a bacterial agency has been made in the laboratory. It was found that as the turbidity of the untreated water increased, the efficacy of the bleach decreased. From the results of these experiments it was found that it was not advisable to apply more than a 0.1 grain of the chemical per gallon of water filtered (approximately 14 pounds of bleach per million gallons of water); increasing the dose above this amount does not give a relatively increased bacterial efficiency. The reason for this is that many of the bacteria present are mechanically protected by the turbidity or matter in suspension, so that the nascent oxygen given off by the hypochlorite does not have access to the organisms and therefore does not act as a bactericide, but is used up in the oxidation of the readily oxidizible organic matter present. This, I believe, is the explanation of the secondary or bacterial growths which are found in the reservoir at Baltimore, after the water has been treated by hypochlorite of lime. The water, as it is treated, often contains high turbidities, much of which is of an organic nature. By treatment with the bleaching-powder many of the organisms present are killed and many are not, and in water with so much organic matter present there is naturally an increased growth in the bacteria that have not been removed during treatment. This, I believe, is the reason for the comparatively low efficiency that has been reported at some places after this treatment, and will account for the failures that will be found in attempting to treat surface water-supplies without filtration.

Dr. C. Hampson Jones, Baltimore: In order to overcome this difficulty we are now making preparations, through Mr. Whitman, the water engineer, to separate the surface water with alum, and then to have the suspended matter precipitated before it is treated by hypochlorite. A difference of about four days between the two treatments, that is, from the time the water reaches the one point of treatment to the other point of treatment, will demonstrate, I think, the truthfulness of the stand taken by Dr. Stokes.

THE FALLACY OF TESTING FOOD MATERIALS BY ANIMAL INOCULATION

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Some years ago it was seriously proposed to test the purity and salubrity of drinking-waters by means of animal inoculation. Portions of the water to be examined were cultivated in sterilized bouillon at the body temperature, and the resulting cultures after a stated time were inoculated into guinea-pigs, rats or other test animals. If these sickened or died the water was condemned. Fortunately, since some sense of humor still remained among sanitarians, a proposition so absurd was soon laughed out of court. From time to time, however, this discredited "test" is again gravely brought forward even for water, but more often nowadays for some other form of food or drink, such as eggs, oysters, ice-cream, gelatin, catchup, etc. One of the latest examples — but probably not the last — of such proposed employment of it is for frozen eggs, attacked originally because of alleged "decomposition" as indicated chiefly by richness in bacteria and the presence of numerous *Bacilli coli,* but afterward by inference as dangerous to health because sometimes fatal to animals on inoculation.

The frozen eggs involved in a recent case with which I happened to be connected were entirely sweet and agreeable in taste and odor when thawed. Similar eggs had been used for many years and in large quantities by bakers in pies, cakes, custards, etc., not only without perceptible injury or complaint of any kind but with the greatest convenience, economy and satisfaction. Disregarding these results of long-continued experience, it remained for certain government bacteriologists and physicians to discover that such eggs were really "decomposed" and dangerous to health, first, because of the large numbers of bacteria which they contained; second, because of the presence among these of some streptococci and many *B. coli*; third, because when the raw melted egg was inoculated into test animals some of these died; and, fourth, because after the death of such animals certain supposedly objectionable bacteria, *B. enteritidis, B. pyocyaneus, B. alcaligenes,* etc., were in some instances found in the blood. In other words, over against the long experience of the trade and of consumers of the eggs yielding wholly favorable results of innumerable feeding experiments on human beings, it is now proposed to set up a scanty experimentation on animals; and that not by feeding them as man is fed, and not after cooking of the food materials in question, such as mankind employs, by which process most of the microbes present are destroyed, but by direct injection of large amounts of the raw and uncooked egg substance subcutaneously or into the delicate peritoneal cavity of certain lower animals. To the best of my knowledge and belief, the eggs which it is thus sought to condemn were good and wholesome food, eaten raw or cooked.

It is time to protest against "tests" of this sort which are obviously both irrelevant and misleading, for conclusions based on facts of one order cannot properly be applied to problems of a different order. To realize how unscientific and absurd is the proposal under consideration it is only necessary to recall some simple elementary facts and details.

The body of the higher animals, as every one knows, is not a solid mass completely enclosed by the skin, but a semisolid bundle of tissues tunnelled by a long and folded tube, the alimentary canal or food-tube. This tube possesses its own special walls, expressly adapted for preventing raw food and other foreign substances from entering the real body—which lies between the food-tube and the skin—until such substances have been digested and made ready for absorption. Within this tube, food, whether raw or cooked, is chemically treated until some of its components — but only some — are admitted into the body proper, the remainder being held in the tube, moved onward and eventually cast out.

This fundamental process of preparation or digestion, normally absolutely inevitable, and carefully and even elaborately conducted, is in subcutaneous or intraperitoneal inoculation entirely omitted, so that the latter procedure is in no wise comparable with the former. Hence the results, also, of the one process bear no natural or necessary relation to those of the other. As for the preparatory process of cooking, everyone knows that this not only ordinarily causes profound chemical and physical changes but also destroys most microbes and many toxic organic substances; so that here again the thrusting of raw foodstuffs into the real body becomes a crude and severe procedure, a kind of rough surgical interference, totally different from the normal taking of the same materials into the body by way of the food-tube — perhaps already cooked.

In order to see just where we stand in this matter, we have only to compare the effects of substances of various kinds when taken by the mouth with those of the same substances injected into the real body hypodermically or intraperitoneally. We shall naturally think first of drugs, since it is in the use and abuse of these that resort is oftenest had to direct inoculation. We shall begin, perhaps, with morphin, remembering the familiar fact that a quantity of this drug, which taken hypodermically would quickly kill, can be taken with impunity by the mouth. The same thing is true in a general way of most drugs and poisons, the arrow-head poison (curare) of the South American Indians, for example, being often without marked effect when eaten, but highly poisonous when inoculated into the real body. Most alkaloids, and the toxins of diphtheria, tetanus, typhoid and other infections act either comparatively feebly or not at all when taken by the mouth, but with comparative severity by direct inoculation.

Passing from drugs, alkaloids and metals to beverages, we recall how different is the effect of brandy and other alcoholic drinks when taken through the mouth and when the same quantity is injected subcutaneously. Again, the germs of two of the worst diseases that afflict the human race, namely, lockjaw and anthrax, while extremely dangerous on inoculation, are comparatively innocuous if taken through the mouth.

As for any bad effects on health of the ordinary foodstuffs used from time immemorial by mankind, very little was heard until about 1890, and a careful investigation will show that the evidence of such bad effects accumulated since that time is mostly inconclusive and unsatisfactory. It seems likely that the evolution in the human race of the habit of discriminating among raw foods, and of using chiefly particular materials, such as certain meats, fish, eggs, fruits, nuts, etc., while avoiding others, has arisen as the result of long and hard experience—experience being only another name for long-continued individual or racial experimenting.

Panum (1856), Selmi (1878) and afterward Brieger (1890) appear to be chiefly responsible for the popular belief that "ptomains" are common in spoiled foods, but both investigation and experience since their day have weakened rather than strengthened the idea of dangers of such poisoning. In point of fact, the whole subject of ptomain poisoning and of food poisoning in general stands to-day in great need of reexamination, and until the results of this are forthcoming we are justified in speaking and writing of either with the utmost reserve. When, remembering the enormous quantities of partially decomposed meats, eggs, fish, shell-fish, milk, fruits and vegetables eaten every day either raw, cooked, or half cooked, not only without apparent injury but with positive relish and advantage, we think at the same time of the infrequency of cases of ptomain poisoning proved or even alleged — when, for example, we think of the immense amounts of fermented or partially decomposed milk, buttermilk, ice-cream, meat, fish, game, cheese, sauerkraut, and the like, constantly consumed without inconvenience of any kind and with positive benefit, it is easy to see how extremely rare must be the occurrence of harmful substances in harmful quantities, at least during the earlier stages of decomposition or decay of ordinary food materials.

Returning now to the proper testing of the purity or salubrity of food materials, it is an old and true saying that the proof of the pudding "is in the eating" — not in its inoculation into animals. This latter test is irrelevant because unnatural, and hence for determining the purity or healthfulness of food materials absolutely worthless. If it may be used for one food substance it may be used for all, and the absurdity is obvious of seeking to determine the suitability of meats, eggs, milk, fish, etc., for human food by trying them on animals, and that not by feeding but by inoculation. Even that popular test in which we are advised to "try it on a dog" does not contemplate surgical inoculation, but only the ordinary process of feeding by the mouth.

Thus far I have entered no protest against the testing of food materials on the lower animals rather than on human beings, but as a matter of fact such experiments are only allowable when for some good reason they cannot be made — as in the case of eggs and other common foodstuffs they easily can be made—on human beings. Moreover, because of the wide differences between man and the lower animals any results of such experiments on the latter can be accepted for human beings, if at all, only tentatively and with much reserve. It is a significant fact that the lower animals do not appear to be susceptible to typhoid fever, either by inoculation or by feeding. Conversely, none of the diseases to which hens are susceptible appear to be transmissible to man.

What then, if any, we may ask, is the true significance of results obtained by the testing of food materials by the inoculation of animals? The answer is that if the animal survives and suffers no apparent inconvenience, it must be because no microbes or other substances were injected capable of doing that particular animal harm when taken in that dangerous fashion. This does not prove, however, that if the substance were taken through the mouth, no harm would have come, though it makes such a result unlikely, for the reason that the inoculation test is as a rule far more severe than the feeding test. If, on the other hand, test animals are regularly sickened or killed by such inoculation, then the meaning must be that microbes or other substances were injected which were harmful to those animals when administered in this way. But such a result does not prove the unfitness of the material tested for use as food, since the processes of cooking (a kind of external or artificial digestion) and of ordinary (internal or natural) digestion, absorption, circulation and cellular metabolism, may suffice to change it so extensively and to deliver it to the protoplasms of the body so transformed as to make of it, when taken by them in the ordinary way and at their own convenience, a totally different thing from the same material thrust on them in its raw state and whether they want it or not. In short, the mere sickening or death of animals inoculated with raw food materials throws no light whatever on the purity or healthfulness for food of the material injected. Moreover, the finding of this or that microbe in the body of animals after such inoculation neither proves that the microbe came from the food material injected, nor that, if it did so come, it would have survived the processes of cooking, digestion, absorption, etc., to some or all of which it would have been subjected if the material had been administered by feeding instead of inoculation. Finally, there is no proof that, if it had so survived, it would when administered b, the mouth have done any harm.

A PRELIMINARY REPORT ON A HITHERTO UNRECOGNIZED SIX-DAY FEVER IN ANCON, CANAL ZONE

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In Ancon post-office, five male clerks and one female are employed. On April 27 the two clerks who handle exclusively the incoming domestic and foreign mails were attacked by chills and fever. Though weak and with no desire for food, they continued at work, and, after six days of continued fever, felt better, and were not sent to the hospital.

Across the street from the post-office, to the south, is a two-storied bachelor apartment, numbered 111, with forty-seven occupants. In the opposite direction are other bachelor apartments, one of which is numbered 69.

Of these, there have been afflicted the five male post-office clerks (the female escaped), one man from house No. 69 and fourteen from house No. 111. The latter were almost all roomers on the upper floor. This makes in all twenty cases from this vicinity, whence it has spread to Panama.

On May 7, ten days after the two post-office clerks first sickened, a man who slept in house No. 111 was admitted to Ancon Hospital about 7:15 p. m. practically comatose (see first chart). He was perfectly well all the morning. At 1 p. m. he had a chill with headache, backache and fever. He was thought to be suffering from cerebral malaria, though his blood on repeated examinations was negative for malarial parasites, and quinin was administered by mouth and hypodermically. Apart from the antipyretic action it had only slight influence on the temperature, which reached normal at midnight of May 12, five days and eleven hours after the onset.

The other three post-office clerks sickened on May 9, May 11, and May 18, respectively. Those from house No. 111 sickened on May 21, two; May 23, two; May 25, one; May 27, one; June 1, one; June 3, one, and June 5, one. From house No. 69, one was taken ill on May 28.

At first the cases were all supposed to be malaria, though on patient and repeated examinations no parasites were found. This, however, frequently happens when quinin has been previously administered and the peripheral blood in consequence is free from the organisms.

In these cases, in many of which the patients were admitted the same day they sickened and before quinin was administered, even thick film preparations failed to show parasites, which absolutely negatived the possibility of malaria.

The epidemic was reported as such to the sanitary authorities, but repeated inspection failed to find any breeding-places for anopheles in the immediate vicinity and our suspicions were aroused that we were dealing with some hitherto unrecognized fever.

Careful clinical study then revealed that we were dealing with an affection absolutely new and sufficiently characteristic to be considered a new disease as far as we here were concerned.

Its chief features are:

1. The disease is highly infectious and the infectious period probably precedes the onset of the fever, inasmuch as no cases have occurred in the hospital by contact from the patients admitted, and no precautions have been taken to avoid contact, although some of the patients were admitted on the day after the onset of the disease.

2. There are no constant or characteristic prodromata.

3. There is always an abrupt onset, with chills or chilly sensations, and an initial temperature after the chill of from 101 to 104 F.

4. The cases have all run a course of about six days of fever, more or less continued, with but slight morning remissions and a more or less abrupt fall. Some of the temperatures in individual cases ran highest the day, or second day, before the sudden defervescence. The temperatures on the second, third and fourth days were frequently lower than on the first and fifth days.

After the temperature falls it generally remains normal, but in two severe cases a slight secondary fever of from one to two degrees occurred lasting three days.

5. The pulse- and respiratory-rates remained practically normal. The only pulse-rates recorded over 100 were on admission or after some special disturbance. The range generally was between 68 and 90.

6. The spleen was always enlarged, and its free margin in many cases could be palpated from 2 to 3 inches below the free costal margin. The enlargement was as striking as in tertian or quartan malaria. On the other hand, very little enlargement could be made out in the liver.

7. The blood-picture remains practically unchanged. The leukocyte counts and differentials were recorded as in the accompanying table.

The patient with the eosinophils was suffering also from a slight colitis with ciliated monads.

8. There is always some nephritic irritation as manifested in a slight trace of albumin and a few granular and hyaline casts.

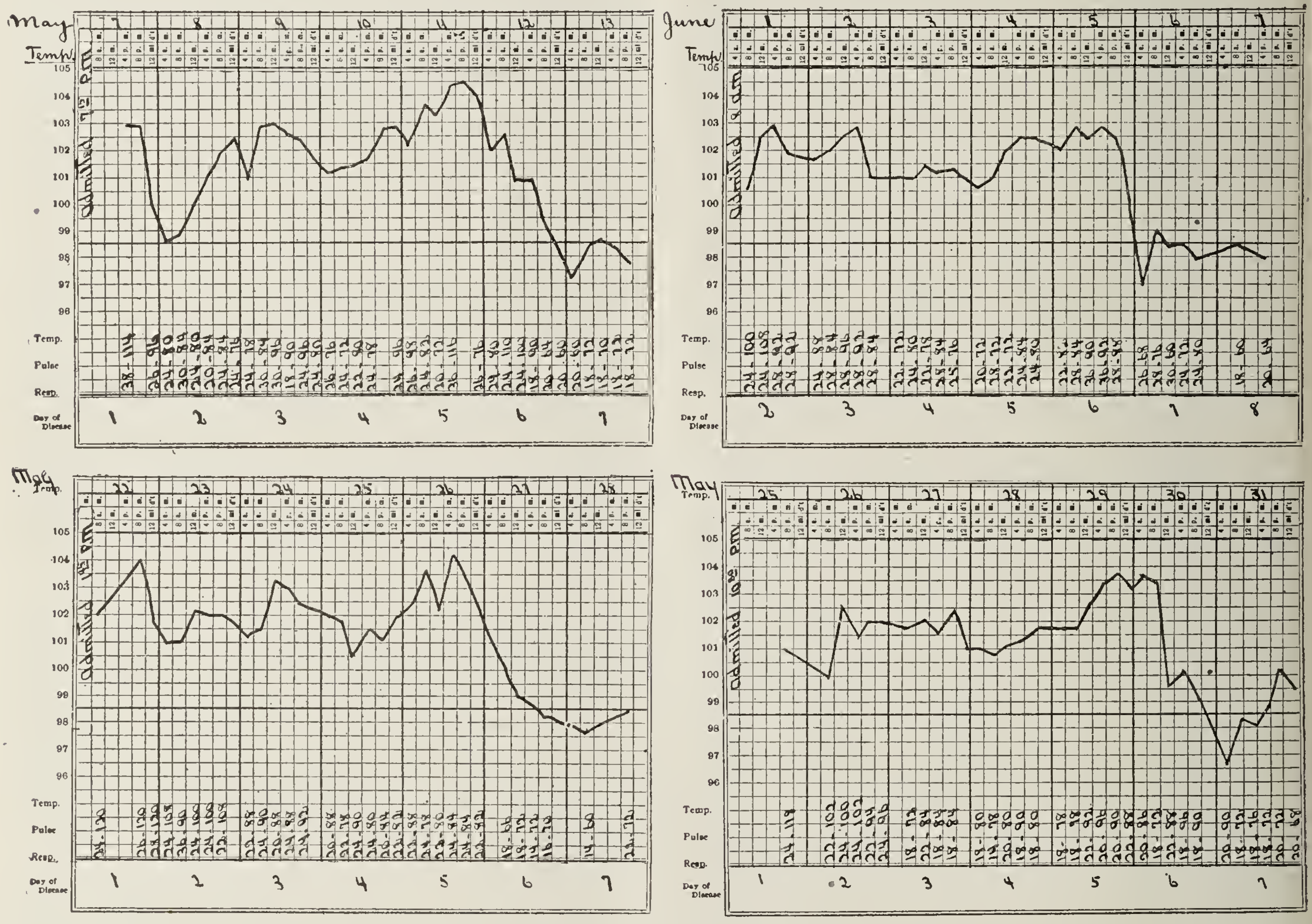
Two of the patients, however, developed a very severe albuminuria with numerous brown granular and hyaline casts. The albumin disappeared within a week after the fever subsided, and after two weeks only a few hyaline casts remained in the urine of the severest case.

9. There is always anorexia during the febrile course and a considerable after-depression. The patients do not react or recover their appetites so quickly as during convalescence from malaria.

10. The period of incubation is apparently about ten days.

The other constitutional symptoms are those of any febrile disease. The patients have some headache, particularly about the eyeballs, which are only slightly injected, and there is no coryza, sore throat or cough.

Vomiting sometimes occurs at the onset, but this feature is not constant; the tongue is only slightly furred and there is no bowel disturbance — neither constipation nor diarrhea.



Temperature charts of four patients with six-day fever.

There are no muscular pains but vague aches in the back and legs.

It is impossible to state whether there is any characteristic skin eruption or not. Most of the patients at present admitted have more or less miliaria eruptions and nothing could be distinguished from this. I am inclined to believe that there is in most cases a general erythematous rash soon after the onset.

Two of the earlier patients admitted, when the disease was supposed to be malaria and large doses of quinin were given, developed a scarlatiniform eruption over the lower extremities, most marked at the feet, which in one later on was petechial in character. This, however, was supposed to be due to the quinin, which frequently produces a similar eruption. One patient also developed a similar eruption on the forearms which disappeared within two days. This eruption in the three cases came on after the temperatures were normal. It is possible that it had been overlooked in the other cases. Later observations show that this petechial rash on the extremities after the defervescence of the fever occurs only in the severe toxic cases and is not uniformly present.

The disease can be differentiated from malaria by the absence of parasites, the febrile course and the blood-picture. The large mononuclears are diminished instead of increased as in malaria. It can be distinguished from dengue in being a single-phase fever, with a very large spleen, which is never present in dengue, with no severe bone aches.

It is differentiated from influenza by the absence of coryza symptoms and lung complications, by the blood-picture and the definite course. It is distinguishable from typhus by the length of the course, the milder manifestations and the absence of the rash. From typhoid and allied affections of the paratyphoid series it is differentiated by the onset, febrile course, abrupt termination and cultural blood-findings.

Drs. S. T. Darling and H. C. Clark have taken blood-cultures on different mediums of many of the cases at all stages of the disease and have failed to obtain a growth. The stools and urines have also been cultured with negative results.

LEUKOCYTE AND DIFFERENTIAL COUNTS

Leukocytes.	Polynuclears	Small.	Large.	Transitional.	Eosinophils.
9,800	48	37	15	..	..
4,000	54	41	4	1	..
9,800	69	28	8	3	..
4,800	64	29	4	3	..
7,600	87	10	2	1	..
.....	83	12	2	3	..
.....	69	23	2	1	5
5,800	69	11	3	..	..
5,400	88	12	4	1	..
8,400	69	25	4	..	..
3,200	65	25	10	..	..
5,000	88	4	6	2	..
4,800	89	5	4	2	..
6,200	70	18	9	3	..

The Widal reactions have all been returned negative.

The affection seems to resemble more the exanthemas minus the constant rash, because of its definite onset and definite course. The temperature always reaches normal on the sixth day and can thus be faithfully predicted.

No medication so far tried has appeared to alter its course in the slightest. We have tried quinin and the salicylates in heroic doses, the only effect being a temporary antipyretic action.

It is probably identical with the seven-day fever referred to by Castellani in his manual of tropical medicine.

It has been described by Rogers and Crombi as occurring in the seaport towns of India and Ceylon during the summer months, May to September. Its origin here and the ten-day incubation period following the development of the third case indicate that it was probably imported by the mails from some infected port.

Leonard Rogers describes cases with a duration of seven and more days of fever and says that blood-cultures in six of his cases were positive for a bacillus related to the *B. coli* group.

As Dr. T. R. Brown and I have shown, it is not unusual to have paratyphoid with seven and eight days of fever. And I am inclined to believe that Rogers has included some of these in his descriptions.

The epidemic is gradually spreading through the city of Panama, where I have seen several cases.

There is no doubt that this is the first time that this fever has been encountered here since the American occupation of the Canal Zone, and it will be interesting to note if it remains with us in epidemic form.

So far there has been no mortality from it, though some of the cases were very severe.

APHASIA AND AGRAPHIA IN SOME PRACTICAL SURGICAL RELATIONS *

CHARLES K. MILLS, M.D.
Professor of Neurology in the University of Pennsylvania
AND EDWARD MARTIN, M.D.
Professor of Surgery in the University of Pennsylvania
PHILADELPHIA

Most Important Diagnostic Phenomena.—Motor aphasia and motor agraphia, usually partial, anomia or paranomia, inability to copy or write from dictation when both convolutions are involved; ability to write from copy or dictation preserved when the third frontal convolution alone is involved.

Symptom Sometimes Present.—Partial word-deafness.

Symptoms from Invasion of Neighboring Parts.—Jacksonian epilepsy, usually facial or faciobrachial, inability perfectly to maintain attention, hemiparesis.

The stimulus to present this subject of aphasia in some of its relations to surgical procedure was given by a recent case in which operation was successfully performed and in which the clinical phenomena distinctly indicated implication of the cortex of the hinder portion of the third and second frontal convolutions. Similar cases have been reported by McConnell,[1] Mills,[2] Frazier,[3] and others, but additional reports are desirable especially in the light of the differences of opinion which have arisen since the pronouncement of Marie against the third frontal convolution playing any part in speech disturbances. This we do not believe and our conviction is based on personal experience.

The disturbances of speech and writing are very partial at first, but gradually become more pronounced. The aphasia and agraphia are rarely complete, and the same is true of the concomitant phenomena such as paralexia.

A patient suffering from a more or less destructive lesion of the region we are considering presents few phenomena of sensory or conceptual aphasia; he understands what is said to him and is able to read silently either ordinary print or script. He is not word-deaf, or only to a very moderate degree. He is not word-blind, letter-blind, number-blind or mind-blind, and has no cortical color disturbances.

Tumors involving the third and second frontal convolutions and progressively advancing sometimes give rise to a slowly deepening hemiparesis. Such growths are easily diagnosticated from tumor, hemorrhage or thrombotic softening deeply implicating the lenticular zone (the lenticula, internal capsule, external capsule, claustrum, etc.). In these deep lesions of the lenticular zone both the motor aphasia and the hemiplegia are practically complete and are of a well-known and often described type, the aphasics usually having but a single recurring utterance or one or two such utterances. Agraphia and forms of sensorial aphasia are also important features of the symptom-complex.

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* This article is here abbreviated. The complete article appears in the Transactions of the Section and in the authors' reprints.

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] McConnell, J. W.: Univ. of Penn. Med. Bull., July., Aug., 1905.

[2] Mills, C. K.: Philadelphia Med. Jour., April 20, 1901.

[3] Frazier, Charles H.: Monograph on Tumors of the Cerebrum by Mills, Spiller, Frazier and others (1906).

The following two cases, in one of which the patient was cured by operation and in the other by the intravenous administration of salvarsan, are illustrative of the types of motor aphasic and agraphic cases most amenable to surgical or salvarsan treatment.

Case 1.—*History.*—W. B., aged 37, referred to Dr. Mills by Dr. U. G. Gifford of Avondale, Pa., was admitted to the University Hospital, Dec. 9, 1911. He denied venereal disease. The patient had suffered at intervals since childhood with severe headaches. During the six years preceding his admission to the hospital these headaches had become almost continuous. During the last two years he had had epileptiform attacks every two or three months, having had seven of these seizures during the month preceding his admission. The attacks, as described by those who had witnessed them, began with the drawing up of the right arm and both legs. In them he had both tonic and clonic spasms. Consciousness was lost and biting of the tongue occurred. He lost control of his anal and vesical sphincters during an attack. His speech had been failing for about one year and had gradually grown worse.

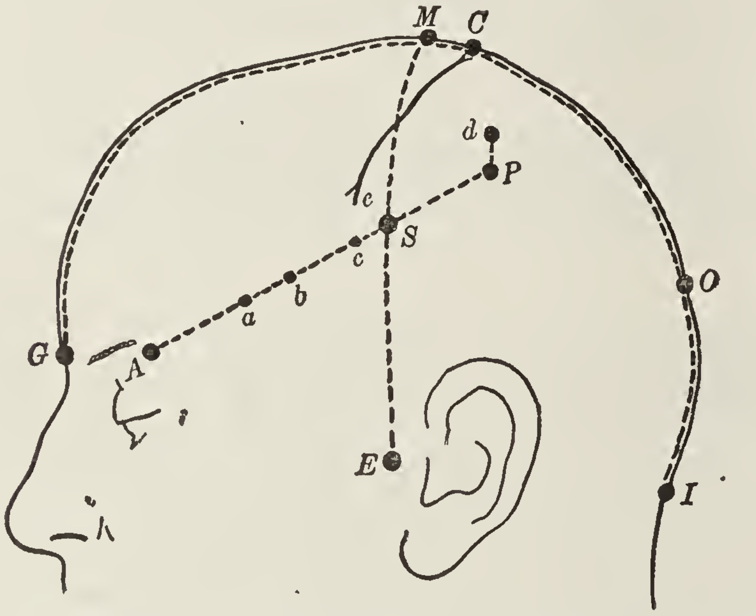

Fig. 2.—Craniocerebral guiding lines traced on a photograph of one of the casts prepared by Professor Cunningham.—(Anderson-Makins). G, glabella; I, inion; M, midsagittal point; A, external angular point; S, squamosal point; P, parietal point; E, pre-auricular point; a, commencement of fissure of Sylvius; b, bifurcation of fissure of Sylvius; d, termination of fissure of Sylvius; Ce, central fissure; O, parieto-occipital fissure; G to I is the sagittal line, A to P the squamosal and E to M the frontal.

Papillo-edema was present on both sides. The patient showed decided aphasia, chiefly motor. He was inattentive, although at first he seemed to take notice of what was said to him, later appearing to become easily fatigued. When told to put his knife in the hand of the examiner he placed it in his own pocket. When given a series of letters he pronounced the first few correctly, but then seemed to lose himself or become confused and apparently did not recognize letters or numbers. This may have been due to cerebral or visual fatigue.

The patient was not object-blind, nor was he markedly word-deaf. He appeared sometimes to have difficulty in comprehending what was said to him. He was not word-blind.

When asked to spell "medicine," he spelled it correctly, but pronounced it "merchandise." He wrote his name fairly well, but when asked to write "I want to go home," he wrote, "I go go," and at another time "I want to ho." He seemed confused and threw down his pencil. He could add well, but when asked to subtract and multiply he did not do so correctly.

Dec. 16, 1911, it was noted that the patient had right partial facial paralysis. Voluntary movement, as shown by drawing the corner of the mouth up and to the right, was impossible. Emotional expression as shown in laughing was not entirely lost on the affected side. The tongue protruded toward the right, with fine tremor.

The patient greeted the doctors on making their rounds by saying "good morning," but would not say anything else. He had some apparent difficulty in comprehending what was said to him. It was almost impossible to test for sensation, sense of position, etc., because of his lack of language. Much saliva collected in his mouth, and he did not close his right eye well, but he wrinkled his forehead almost as well on the right as on the left. Ocular movements were normal. He had some weakness in the right arm and hand.

MEASUREMENTS AND OSTEOPLASTIC OPENINGS

As it is always now regarded as preferable to have openings which in some of their dimensions will be at least 3 or 4 inches, only a few lines need to be determined, but these are of much importance. They are the ectal correlatives of the central fissure, the sylvian fissure and the occipitoparietal notch. With regard to the best openings in aphaso-agraphic cases these markings are all that need to be defined on the skull, with the additional determination of the distance from the midsagittal line for the superior boundary and in some instances the determination of the line which corresponds as closely as possible to the floor of the skull.

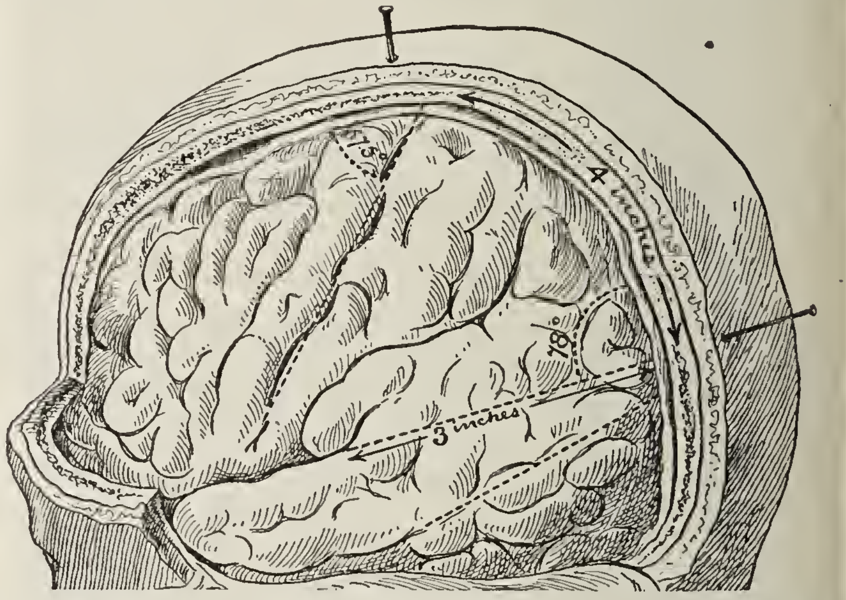

Fig. 3.—Angulation of the central, sylvian and parallel fissures.

In our experience the Anderson-Makins measurements have always been equal to the occasion (Fig. 2).

We determined on the cadaver and have shown in Figure 3 the angulation of the central, sylvian and parallel fissures.† The angulation of the central fissure to the mid-sagittal line is of course well known and it is only necessary for us to say that in our dissection, as in those of others, we found that this angulation is not always exactly 67 degrees. The angulation of the sylvian fissure is about 78 degrees and the parallel, in its greatest length at least, nearly the same.

Case 1.—*Operation.*—In Figure 4 is shown the opening which was used to uncover the tumor in Case 1. We regard this as the best exposure when a tumor or other operable lesion gives a symptom-complex in which motor aphasia and motor agraphia are the dominating features from partial destruction of the third and second frontal convolutions (Fig. 5).

After the opening had been made the intracranial pressure was marked; no pulsation was present over the middle portion of the field. When the dura had been removed a small, hard tumor was seen almost exactly in the middle of the opening. After the ligation of two large veins it was found that the growth could be separated from the surrounding brain tissue by the finger and scalpel handle. Great care was taken in enucleating the growth, but this enucleation was complete.

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† A series of osteoplastic cadaveric investigations to identify the relations of cranial areas to the convolutions and fissures beneath them was made by us with the assistance of Dr. Edward M. Williams. Pen sketches were made from photographs of these openings.

Microscopic Examination.—The growth was referred to Dr. William G. Spiller of the laboratory of neuropathology for microscopic examination, who reported that it was probably a tuberculoma, although possibly a gumma.

Postoperative History.—After the operation the patient had an uneventful surgical history. The wound promptly healed and the patient had no further attacks except one or two within forty-eight hours of the operation. At first his aphasia and agraphia were quite as marked as before the operation, but his powers of language gradually but steadily improved.

TREATMENT BY SALVARSAN AND MERCURY

One matter of much importance for both the neurologist and the surgeon to consider, in a case of focal disease of the brain, is whether the lesion which causes the focal symptoms is syphilitic, and if so whether it is amenable to constitutional rather than to surgical treatment, or whether it demands both forms of treatment. This question arises not infrequently when aphasia in some form and degree is prominent. During the time after operation when the patient in Case 1 was still under observation, another case was studied by us which illustrated the point just presented. The patient came to us from a physician in the interior of Pennsylvania distinctly with the idea of having us determine whether medicinal treatment or operation was indicated; if the former, what the method of its administration should be, and if the latter, when the surgical procedure should be undertaken; also, of course, what the locality was of the lesion to be operated on. The patient was carefully examined, and although in some of its features the case was distinctly like the one just put on record in which operation was so successfully performed, we decided that a treatment by salvarsan and hypodermic mercurial medication was more appropriate than operative surgery. Happily the result showed that we were correct.

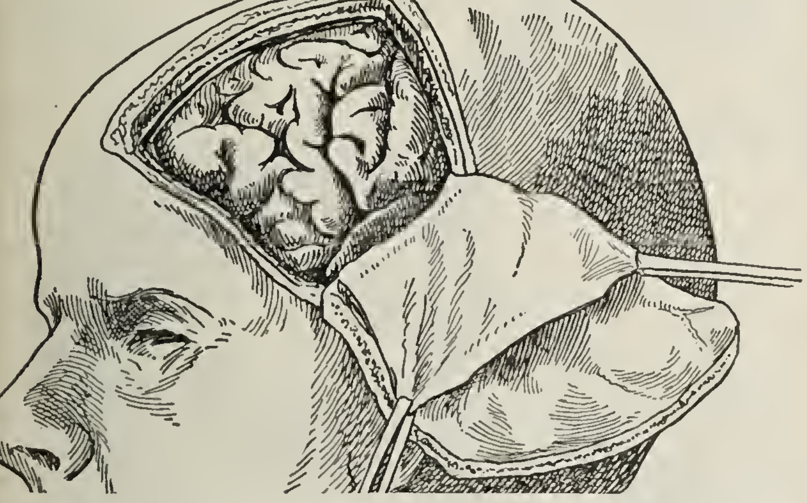

Fig. 4.—Osteoplastic opening for a tumor of the posterior extremities of the third and second frontal convolutions.

The reasons which determined us to favor operation in the first case were in the main the absence of a Wassermann or Noguchi reaction and the persistence of both the aphasic and paretic phenomena. Those which determined us against operation in the second case were the presence of positive Wassermann and Noguchi reactions, the paroxysmal character of the aphasic and agraphic symptoms (recurrence rather than continuance) and the absence of any increasing paresis.*

Besides the motor aphasic and motor agraphic syndrome which has been discussed and illustrated by the two cases just given, it will be found useful to recognize three other symptom-complexes which may serve the neurologist in guiding the surgeon in the selection of sites for osteoplastic operations. These syndromes are among those which in our experience have been presented in cases of operable tumor, abscess and hemorrhage, especially the former two. They are symptom-complexes representing cases which can be diagnosticated and palliated or cured by surgical procedure.

AUDITORY APHASIAS AND WERNICKE'S ZONE

Most Important Diagnostic Symptoms.—Word-deafness, complete or partial, paraphasia, partial motor aphasia.

Symptoms Sometimes Present.—Word-dumbness, paralexia, auditory apraxia, amusia, auditory hallucinations.

Symptoms from Invasion of Neighboring Parts.—Hemianopsia, loss of sense of position and passive movements, astereognosis, impairment of cutaneous sensation, hemiparesis or hemiplegia.

A lesion giving the above symptoms may be described as one chiefly located in the central portion of the anterior half or two-thirds of Wernicke's zone, which is regarded as including the supramarginal or subparietal convolution, the angular convolution, the first and second temporal convolutions, and the anterior boundary of the middle portion of the occipital lobe as represented in Figure 8. A tumor or other lesion thus localized and centralized will, after its effects are well defined, have for its most important symptoms word-deafness and paraphasia. Partial motor aphasia is often present but may be very partial. Word-dumbness, also usually partial, is often exhibited, and more or less alexia or paralexia because of interruption of the connections between the higher auditory and higher visual centers. The auditory phenomena will, however, be more dominant. Hemianopsia comes on in some cases as the growth advances, and if it spread so as to involve the parietal lobe and motor regions, other symptoms may be impairment of skin sensation and of sense of position and passive movement with or without hemiparesis.

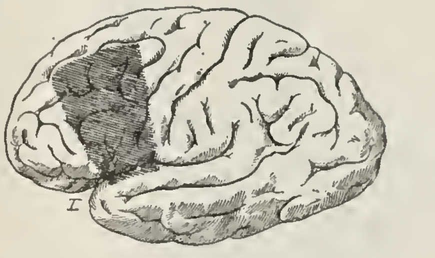

Fig. 5.—The motor aphasic and agraphic zone.

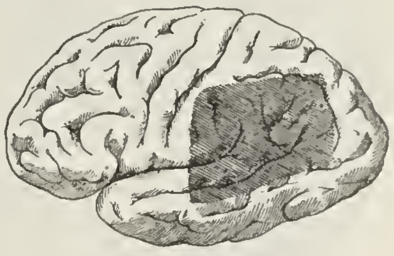

Fig. 8.—Wernicke's zone.

It is true that cases of destructive lesion of the first left temporal convolution have been recorded which have not given word-deafness, but these are the rare exceptions and need to be accounted for in some special way. The anomia or word-deafness in lesions of this area, while often present, is not so common a phenomenon as in lesions in the middle or more inferior portion of the temporal lobe or in the region of the parietotemporo-occipital junction. Auditory apraxia or mind-deafness, the inability to recognize objects through sound, and auditory hallucinations are present in rare instances. Mind-deafness, however, in most cases seems to require bilateral destruction of the temporal zones, and hallucinations of hearing are inconstant and in absence of other diagnostic symptoms not reliable for diagnosis.

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* For details of this interesting case the reader is referred to the full account in the Transactions of the Section on Surgery.

In probably one-fourth or even one-third of the cases of destructive lesions involving the auditory portion of Wernicke's zone, word-blindness and alexia are absent, although there may be partial word-blindness and alexia, and frequently paralexia. The power to write spontaneously or from copy may be retained. Writing from dictation will of course be lost if word-deafness is complete or nearly complete.

The opening to be preferred to uncover the anterior two-thirds of Wernicke's zone in the first temporal convolution is that indicated in Figure 9. The lower border of this opening extends from a point slightly posterior to the line from the midsagittal point to the preauricular point at a level of one-half inch above the top line of the zygoma, backward for about 3¾ inches. The anterior border of the opening reaches from the anterior end of the lower limiting line upward for about 4 inches. The superior line is drawn from the upper extremity of the anterior boundary backward for about 3½ inches. The line of breakage is thus formed at the anterior margin of the occipital region, being about 1½ to 2 inches in length. This opening will thoroughly expose the subparietal and posterior halves of the first and second temporal convolutions, as shown in Figure 10. The opening might be made with the line of breakage below or even above, but we believe it will be found most desirable to place it posteriorly as indicated in the figure and description, this from the standpoint both of convenience and of blood-supply to the flap.

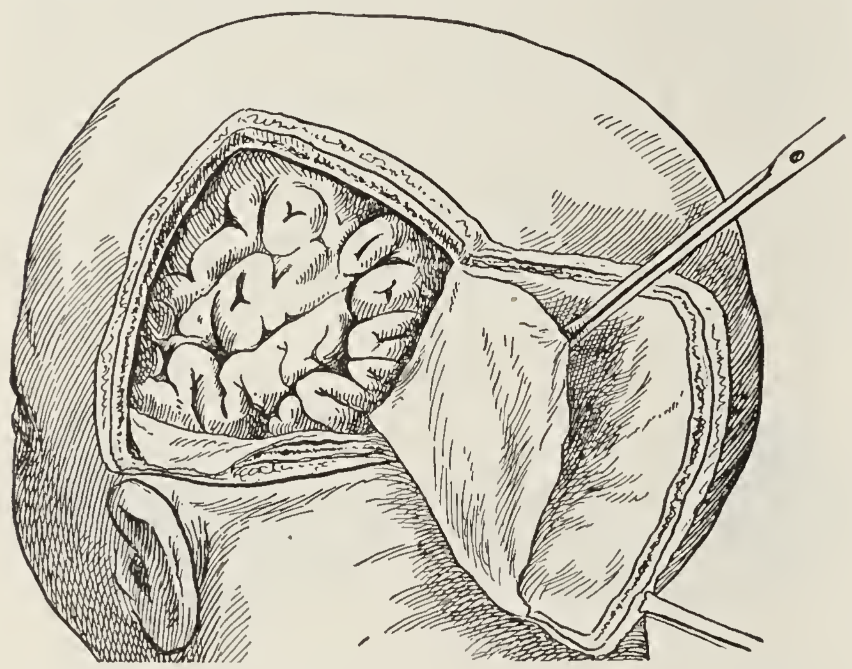

Fig. 9.—To uncover the anterior two-thirds of Wernicke's zone.

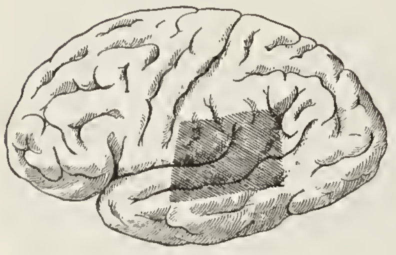

Fig. 10.—Auditory aphasic zone.

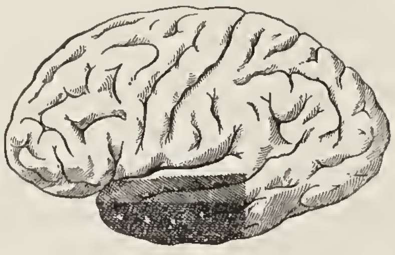

Fig. 11.—Midtemporal aphasic zone.

ANOMIA AND THE MIDTEMPORAL REGION

Most Important Diagnostic Phenomena.—Anomia (visual or for all senses), paraphasia, paralexia, paragraphia, partial motor aphasia.

Symptoms Sometimes Present.—Hemianopsia, color aphasia (color dissociation), mind-blindness (visual apraxia), partial word-deafness (auditory apraxia), visual or auditory hallucinations.

Symptoms from Invasion of Neighboring Parts.—Word-deafness, partial word-blindness, letter-blindness, or number-blindness, hemiparesis.

The dominant feature in such a symptom-complex is anomia, or if the lesion is incompletely destructive, paranomia. This syndrome is based on the theory, which is held by us, that in the general zone of speech is situated a concept area intercalated between the sensory percept regions, auditory and visual, and the cortical motor centers for speech and writing, namely, Broca's convolution and the posterior half of the second frontal convolution. Within this area for concrete concepts is a centralized portion which has for its function the registering of the names of objects recognized. Cases are reported, for instance by Potts,[4] in which immediately after an acute apoplectic lesion, probably hemorrhage, the patient lost entirely the ability to name objects which he fully recognized either through sight, hearing, touch, taste or smell.

The mistake must not be made of supposing that anomia does not occur from lesions differently situated. It may be present as the result of bilateral lesions of the occipital lobe, the lesions of Wernicke's zone, cortical or subcortical, in motor aphasia, and in various aphasic complexes. The word-dumbness is indicative of a somewhat isolated midtemporal lesion only when it presents the peculiar diagnostic symptomatology which has been described in the summary at the beginning of the remarks on this region.

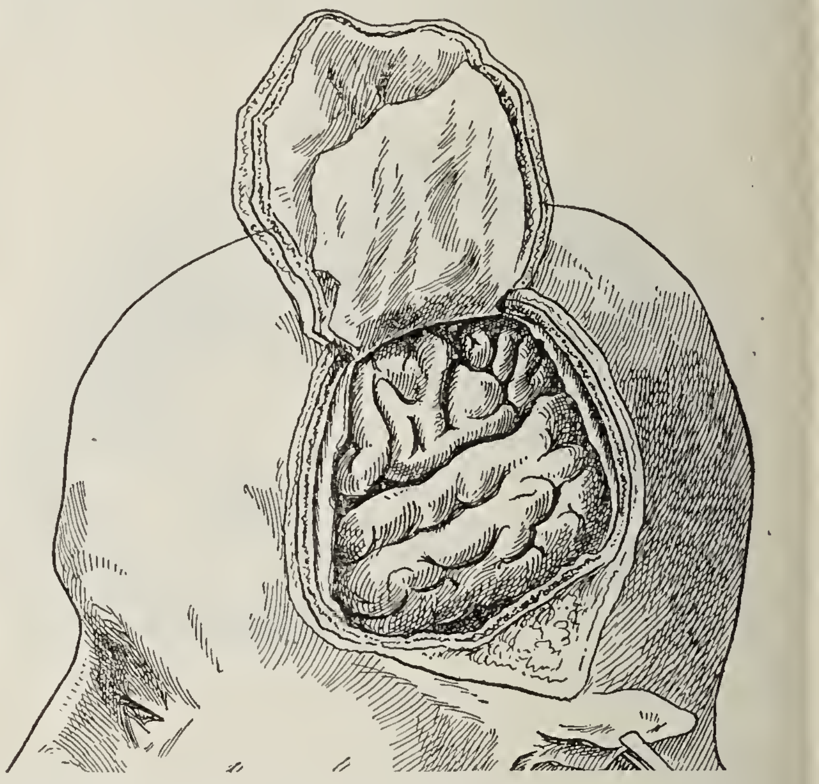

Fig. 12.—Osteoplastic opening to reach the midtemporal conceptaphasic zone.

Abscesses of the temporal lobe associated with disease of the middle ear not infrequently give the symptom-complex of the midtemporal region, although symptoms of Wernicke's zone or of the angulo-occipital region may be present when the abscess has notably extended.

Oppenheim,[6] in discussing anomia or word-dumbness under Freund's title of "visual aphasia," says that this visual or optic aphasia is usually associated with alexia, hemianopsia and often with sensory aphasia, but in one case he could discover no trace of word-deafness.

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[4] Potts, C. S.: The Journal A. M. A., May 4, 1901, p. 1239.

[6] Oppenheim: Text-Book of Nervous Diseases, transl. by Bruce, 1911.

OSTEOPLASTIC OPENING TO MIDTEMPORAL REGION

This third opening is made with the inferior line running parallel to the zygoma and about one-half inch above it, extending from 2 fingerbreadths behind the external angular process, backward to a line through the mastoid process. The superior line, parallel to the sylvian fissure, runs forward and backward sufficiently far to intersect perpendiculars from the posterior and anterior ends of the inferior line. The breakage here is made on the superior line and the flap turned upward, as shown in Figure 12.

VISUAL APHASIAS AND THE ANGULO-OCCIPITAL REGION

Most Important Diagnostic Symptoms.—Word-blindness, letter- and number-blindness, alexia, visual agraphia, lateral homonymous anopsia or hemianopsia.

Symptoms Sometimes Present.—Word-dumbness, visual apraxia, color aphasia (color dissociation), visual hallucinations, paraphasia, inability to copy from sight.

Symptoms from Invasion of Neighboring Parts.—Loss of sense of position and passive movements, astereognosis, impairment of skin sensibility, word-deafness, partial or complete, inability to copy from dictation.

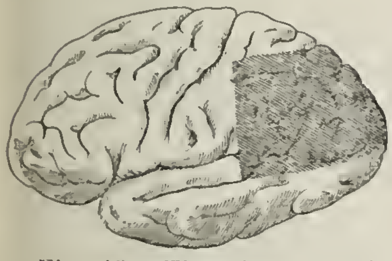
Fig. 13.—The visuo-aphasic angulo-occipital zone.

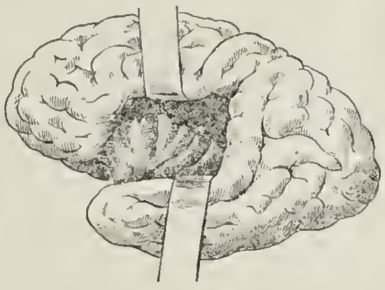
Fig. 15.—External relation of the lenticular zone, the operculum being retracted to show the insula.

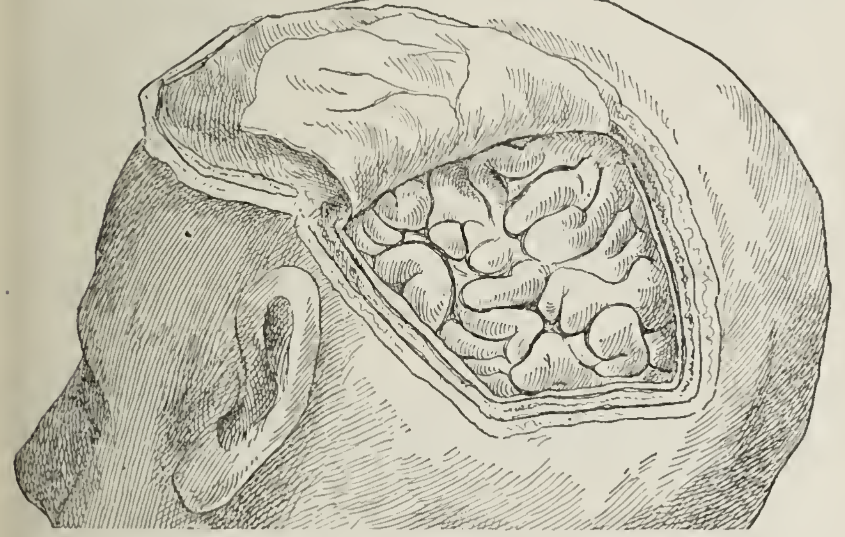
Fig. 14.—Osteoplastic flap to uncover the angulo-occipital region.

The aphasic symptoms of a lesion in this region (Figure 13) will be dominatingly visuo-aphasic. These will be in the first place word-blindness, usually both cortical and subcortical, letter-blindness and number-blindness, alexia, visual agraphia, lateral homonymous quadrant anopsia or hemianopsia. In making this statement we accept the view that the anterior portion of this angulo-occipital area is preeminently the site of the cortical functions of word-seeing, letter-seeing and number-seeing. The hemianopsia of course results when the lesion invades deeply enough to involve the optic radiation of Gratiolet. Word-dumbness is frequently present, though usually partial. Mind-blindness like mind-deafness most frequently results from bilateral lesions, and scarcely ever shows itself in complete form except when both sides of the brain are implicated. Inability to copy of course goes with the alexia except in the rare instances of subcortical tumors in which the cortex of the angular region is not destroyed. In such cases the patient occasionally can write, but his eyes once removed from the page cannot, when returned, recognize what he has written.

Among the interesting symptoms of lesion extending into the occipital lobe from the angular region are those of color disturbance, especially color amnesia or color dissociation. Wildbrand, Lewandowsky[7] and Spiller[8] have described interesting examples of these unusual occipital symptoms.

ANGULO-OCCIPITAL OSTEOPLASTIC OPENING

The surgeon in operating on the angulo-occipital region must keep in mind the peculiar shape of the skull as it approaches the occipital pole, the position of the great sinuses and the best places for breakage of the flap. The most approved opening to uncover the angular gyre and lateral occipital lobe as low as possible is, we believe, that shown in Figure 14. As here shown, the breakage is made to take place at the anterior limit of the opening. Objection may be made that the opening is larger here than at the posterior boundary and about the same size or nearly the same size as at the superior or inferior line. This method of breakage, however, gives the best opening if the surgeon finds that it may be necessary to extend it somewhat inferiorly or posteriorly. One of the doubts sometimes present when an angulo-occipital tumor is diagnosticated is as to how far it is lateral and how far inferior in location, and some opportunity of demonstrating this by exploration is left when the inferior and posterior borders of the opening can be slightly enlarged. Blood-supply is not insufficient wherever the line of breakage may be chosen. It is probably somewhat better when it is placed below. A shorter line of breakage is obtained when this is chosen posteriorly, but it is not difficult for a surgeon experienced with work of this kind to break the skull for any length, especially if he assists in doing this by weakening the flap by means of the Gigli saw. If the short line of breakage is made posteriorly behind the lambdoidal suture the flap may tend to break at this suture and this

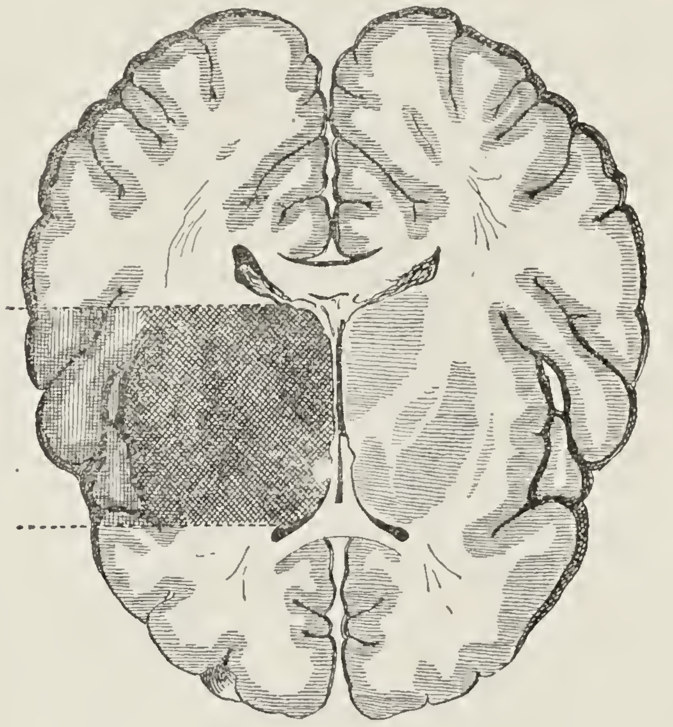
Fig. 16.—Horizontal section of the brain showing deep-seated structures of the lenticular zone on the left corresponding to the shaded area on the right.

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[7] Lewandowsky: Monatschr. f. Psychiat. u. Neurol., 1908, xxiii; cited by Spiller.

[8] Spiller, W. G.: The Journal A. M. A., Dec. 18, 1909, p 2078.

may cause slight delay and necessitate a second breaking farther back. The opening here described and shown has the angular convolution nearly in its center.

INOPERABLE TUMORS IN APHASIC CASES

Certain aphaso-agraphic cases, especially of tumor, are clearly inoperable. In these the lesion is deep-seated, either in the angulo-occipital region, Wernicke's zone, or the lenticular zone (Figs. 15 and 16). The question of diagnosis is simply one of separating a deep and destructive subcortical from a compressing and penetrating membranocortical lesion. As many cases of aphasia are due to deep-seated lesions of the lenticular zone, it is well to bear in mind the pathognomonic phenomena of such lesions. These are the completeness of the accompanying hemiplegia with such phenomena as indicate clear involvement of the capsules, internal and external, the claustrum and basal ganglia.

THE NEED FOR GENETIC STUDIES OF PULMONARY TUBERCULOSIS

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Close acquaintance with a particular family characterized by extensive pulmonary tuberculosis has long impressed me with the significance of the hereditary aspect of this disease. The possible importance of a hereditary factor in its propagation, it would seem, should receive more earnest attention than has yet been accorded to it by antituberculosis workers in this country. In an attempt to approach the problem from the genetic point of view I have secured the cooperation of a former student, Dr. Lewis Booker of the North Carolina Tuberculosis Sanatorium at Montrose, who has kindly undertaken the collection of pedigrees in that institution. To date, twelve such histories have been secured as fully as was possible or seemed practicable, but only three of these [Charts 1, 2 and 3] are sufficiently complete to warrant tentative deductions. In the remainder, great difficulty and uncertainty were experienced in attempting to get grandparental and collateral histories; in a number of instances it was quite impossible to get any data respecting these relationships.

Pedigree Chart 1 shows a four-generation history of pulmonary tuberculosis. Both great-grandparents had phthisis. The criticism has been made, in general, that at that early time, when this pair lived, diagnosis was crude and uncertain. I would oppose that because, while probably many mild or obscure cases escaped detection, cases that were recognized as phthisical were undoubtedly such. Consequently tuberculous pedigrees probably never err on the side of showing too great incidence. With our present highly refined and very accurate methods of detecting tuberculous infection the assumed obstacle to conclusive findings is obviated for all future time; and this improved condition emphasizes the importance of beginning extensive genetic studies by trained medical men, especially in sanatoriums, at once.

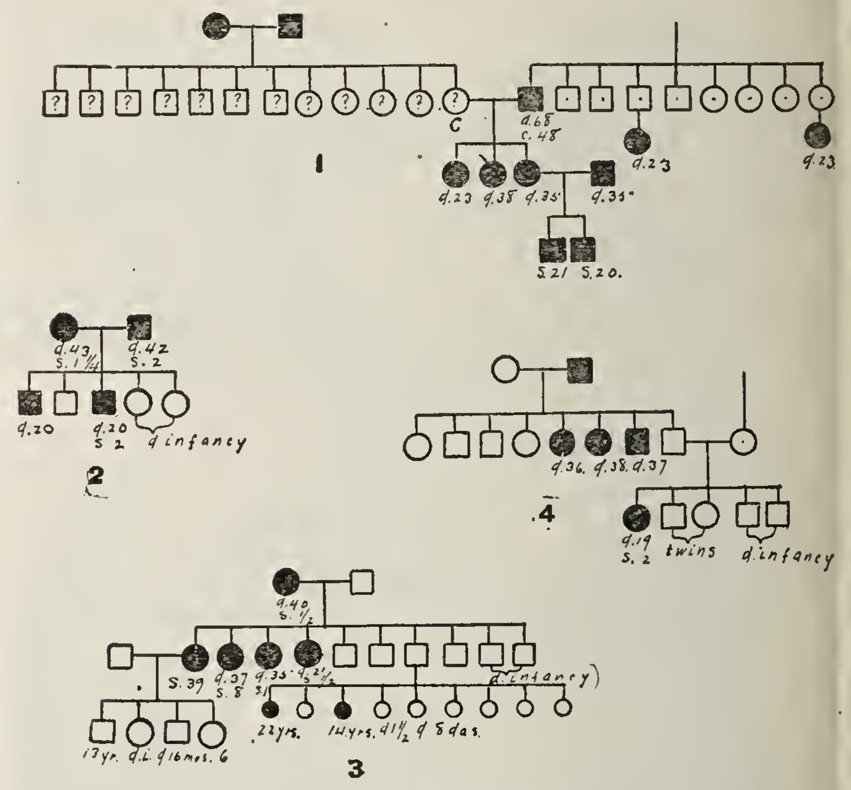
No information could be obtained regarding the mother (C) of the second generation, or of any member of her fraternity. Regarding her as probably tuberculous, a fair inference in view of her ancestry and her progeny, the chart shows a double tuberculous mating, resulting in a tuberculous fraternity of three. The last fraternity, all tuberculous, is again the result of a double affected mating. Barring the single inferential tuberculous individual (C) mentioned, this pedigree strongly suggests the circumstance of grave eugenic significance, namely, that double tuberculous matings produce only tuberculous offspring.

This pedigree indicates also the recessive nature of the assumed tuberculosis factor. It further suggests that hereditary tuberculosis is the result of the absence of something (factor; determiner) in the constitution or germ-plasm, entailing most likely a lack of resistance or a susceptibility to infection.

Chart 2 gives a second fraternity of a double tuberculous mating. It also shows a relatively heavy tuberculous incidence, varying in degree according to the interpretation placed on the infant deaths recorded.

Chart 3 gives a three-generation history of tuberculosis in which only one of the individuals in the several matings was said to have been tuberculous. The incidence of tuberculosis and infant mortality is again relatively heavy.

Chart 4 is very similar and again strongly suggests the risk entailed in tuberculous matings, even where one of the parents is apparently normal. The F generation approximates closely an R R by D R cross (assuming the tuberculous tendency to be recessive to the normal) as does also the corresponding fraternity in Chart 3. Normals can be certainly designated as such only on the basis of a knowledge of their ancestry. Many so-called "normals" may still carry the latent tuberculosis factor which may come to reassert itself in future generations.



Charts 1, 2, 3 and 4.—Pedigrees showing influence of heredity in tuberculosis; circle indicates female, and square, male; solid black squares or circles indicate tuberculous persons; *d*, died at age indicated; *s*, sick for period indicated; *c*, cured for period indicated.

The objection can be justly urged that it was impossible here to estimate accurately the relative weight of infection, including virility, size and frequency of dose. It is true that in no case are the conditions of home life fully known to us. This simply serves to emphasize the importance of accurately controlling and evaluating the environmental factors in the future work urged along this line. Professor Karl Pearson's biometrical studies of phthisis, however, cogently indicate that infection is a secondary factor in tuberculosis morbidity.

The position I desire to maintain is this: An almost unanimous doubt seems to exist regarding the importance of heredity in tuberculosis. Such pedigrees as are available suggest the operation and significance of a genetic factor. The evidence is as yet too meager and of too uncertain indication to warrant very extensive or drastic action along the lines suggested. The effort for the collection of as many and as complete pedigrees as is now possible should be made country-wide; and a plan should be formulated at once by medical bodies for the complete collection and proper recording and preservation of all tuberculosis histories, at least of sanatorium patients, and provision made for following up the posterity of these particular strains. The initiation of such a plan would be of inestimable service to future generations, whatever the final result. If study of these numerous and reasonably complete pedigrees several centuries hence showed that heredity is negligible in our war against tuberculosis, then efforts can be wholeheartedly redoubled for its eradication along euthenic lines. If heredity appeared significant, then future efforts must be shaped, at least in part, along eugenic lines, and procreative restrictions placed on defectives in accordance with the hereditary principles adduced.

Because of the universal deference paid the physician and the consequent great influence he wields, the best interests of the nation require that he take the initiative in genetic studies of human pathologic conditions and in a eugenic propaganda with respect to their eradication. Little can be accomplished, and that little but very slowly, without the help of the physicians. Moreover, non-medical eugenic investigations need the guiding counsel of the scientific portion of the medical profession. Eugenic research of disease to be most effective requires a medical outlook, or at least, intelligent and sympathetic medical criticism.

In 1911 approximately $15,000,000 was expended in antituberculosis efforts. It is estimated that there are from 200,000 to 300,000 consumptives who cannot afford and who cannot get proper hospital attention. To rectify this alarming condition it is estimated that an annual expenditure of from $50,000,000 to $100,000,000 is needed.[1] This sum will undoubtedly be forthcoming. But $15,000,000 is an enormous annual expenditure; an expense sustained by the population at large. It would seem that the people who pay have a right to demand that in the expenditure of these vast sums something permanent be accomplished. Are the efforts now being made against tuberculosis effective in eradicating the disease? There is as yet no sign of a striking diminution. Perhaps it is not just to render judgment so early. Moreover, when one considers that about one in seven still dies of tuberculosis, and that the annual loss from sickness and death due to tuberculosis is estimated to be from $200,000,000 to $300,000,000,[2] the expenditure of vast sums of money even for temporary alleviation is amply justified. But it seems only fair to insist that while this money is being spent for tuberculosis work, a portion be devoted to a study of the problem of the ultimate eradication of the disease.

In the case of venereal disease, for example, the course to be pursued in an eradicating process would seem to be simply isolation of infected patients. It is a matter here of simply controlling the source of infection. But is the problem of the eradication of tuberculosis similarly simple? Present efforts at prevention seem to take for granted that it is. We hear only of sanatorium and hospital treatment. Will tuberculosis be quantitatively reduced thereby? This seems doubtful; a fairly uniform amount will probably always remain for similar treatment under present conditions. We are probably dealing here with something more fundamental than mere infection, and the size and virility of the dose.

The work of Karl Pearson[3] indicates most forcibly that hereditary constitutional predisposition is fundamentally concerned. Hamburger[4] found that in Vienna 95 per cent. of the children of the poor between twelve and thirteen years were infected with tubercle bacilli; and he estimates that among the poor possibly all are infected by the time of puberty. This can only mean that the tuberculous of later years are those who were unsuccessful in resisting the infantile attack. The constitution was at fault. Sanatorium treatment takes small account of this fact. The principle here is that infection is the all-important matter, heredity negligible. But sanatorium treatment under present conditions certainly cures in only a modicum of cases. Relapses frequently occur. All that seems to be accomplished in many instances is a prolongation of life, frequently resulting in the propagation of more of the non-resistant type. The cause for this condition may perhaps lie very largely in the fact that for lack of money on the part of the patient and lack of accommodations on the part of the sanatoriums, patients cannot remain under treatment a sufficiently long period of time. These conditions when present should be speedily remedied by the several states assuming control and financial responsibility. Certainly the present generation of tuberculous stock should be cared for as generously and as comfortably as is possible. But society should have a care lest by its possibly short-sighted charity it lay up unbearable burdens for posterity. The eradication of tuberculosis seems at base a problem of establishing a resistant race.

Studies in genetics to date indicate very strongly that heredity is fundamentally the important factor, since infection is inevitable. The warning should receive more intelligent heed from antituberculosis workers. At any rate the nation should insist that a part of its contribution be devoted to a searching investigation of the question of tuberculosis from every aspect so as to make certain that we are not simply deceiving ourselves into thinking that we are curing a great ill when we are augmenting it, and spending large sums in doing so.

I submit that if the present workers against tuberculosis are not yet impressed with the significance of tuberculous family histories, they owe it to the public to state scientific reason for their skepticism, and establish proof that the present method of dealing with the "white plague" will bring the final eradication, not simply temporary alleviation. State control would naturally be followed by legal restrictions against the intermarriage of the tuberculous. This point of view does not minimize the importance of the environment. It presupposes an ideal environment — but with the ubiquitous tubercle bacillus. As long as the environment remains in many quarters unfavorable and dangerous to the public health, efforts should primarily be directed toward improvement. But while this is in process of accomplishment, it would seem well-advised, in view of tuberculous family histories, at least to give warning of the racial danger of the intermarriage of the tuberculous. This would unquestionably aid both in the numerical decrease of non-resistant constitutions and the lessening of sources of infection.

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1. Survey, 1912, xxvii, 16.
2. Lee, F. S.: Scientific Features of Modern Medicine, p. 122, Columbia University Press, 1912.
3. The Fight Against Tuberculosis and the Death-Rate from Phthisis, London, Dulau & Co., 1911.
4. Koplik, H.: Bull. Johns Hopkins Hosp., 1912, xxiii, 254.

PSORIASIS

THE VALUE OF BATHS AND OF MACERATION IN ITS TREATMENT

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The skin may be regarded as an enormous gland enveloping the body and presenting its excreting surface to the atmosphere. This large glandular surface is covered by a horny protecting plate that is the excreting surface in action, as it is being continually renewed from below, and cast off as the scurf layer of the free surface. The hair and nails are also excrements, and in the old physiologics used to be so called. The chief constituent excreted by this gland is fat; horn fat when it falls off as the scurf layer, and semisolid or liquid fat when excreted by the sebaceous glands. The sudoriferous glands also excrete much fat, as well as water and salts.

Water has a powerful influence on this immense cutaneous surface. For instance, moist heat and warm water are the best means of securing drainage of this huge gland. Moist heat may be applied, as through steam baths, warm baths, wet packs and poultices. In fact, the skin may be made to furnish its own poultice by enveloping it in an impermeable covering that imprisons the warm water furnished as sweat. The sweat is thus turned back on the outer layers of the skin, softening and loosening them. When moist warmth is applied for a long time, the skin becomes white, wrinkled and sodden, and the upper epidermal layers may be scraped off as a milky mush. When the maceration is carried still further, the whole horny layer may be lifted off in sheets exposing the pink, tender quick. This is "the washerwoman's hand skin" that used, in old medical literature, to receive so much attention as illustrative of the action of poultices in inflammation. In many diseases of the skin this maceration, exsanguination and peeling may be employed with advantage, and in this paper the advantages incident to the treatment of psoriasis will be discussed.

BATHS IN THE TREATMENT OF PSORIASIS

Leo von Zumbusch in an excellent summary of the treatment of psoriasis says that water is the oldest and most effective mechanical means we possess, and that without baths psoriasis is a most difficult disease to manage.[1] L. Brocq also remarks that there can be no serious treatment of psoriasis without baths.

All cases of psoriasis except those complicated with eczema may be advantageously treated with baths. When eczema is present, the impossibility of employing baths constitutes a decided impediment. On the contrary, those cases of psoriasis characterized by an acute and wide-spread outburst of small lesions on a skin full of blood and prone to factitious urticaria, in which there sometimes is a rise of temperature, do particularly well with warm baths.

Cold baths I have long thought harmful; sea baths, when they are cold, are probably not nearly so beneficial as ordinary warm baths. There are other elements, however, that enter into sea bathing, such as change of climate, the toning up of the general system in the fresh sea air, and the action of light on the skin. Light itself is a powerful aid in the treatment of psoriasis, and it is supposed that it is through its protective action that psoriasis so infrequently affects the exposed skin of the face and hands. Leo von Zumbusch mentions Britschew,[2] Guhr,[3] and J. Nevins Hyde[4] as holding that light acts favorably on psoriasis. He himself, however, draws attention to the fact that the irritation caused by light may influence psoriasis most unfavorably and cause the eruption to increase most rapidly. Both its favorable and its unfavorable action, therefore, show the influence of light on the disease.

THE DURATION OF THE BATH

As maceration and the drainage of the skin is of the first importance in the treatment of psoriasis, the longer the bath, the better the effect. Observing this, some have employed prolonged baths of an hour or more, or continuous baths. These have many disadvantages. In the first place, a strong, able-bodied patient, busy with his work, will not devote the necessary time, while others cannot stand the prolonged or continuous bath without detriment to their general health.

THE USE OF DETERGENTS

As an efficient aid to the cleansing effect of the bath in removing the scales, detergents such as soap, stiff nail-brushes or pumice-stone are used. The best soap is ordinary green soap, as it is an excellent detergent, and can easily be rubbed into the patches while the patient is in the bath. It is most effective when used with an ordinary nail-brush. As in a psoriasis patch the papillæ with their capillary loops are very near the surface, the brushing easily causes bleeding. The patient may be told that this does no harm, and is even advantageous, as reducing congestion, and as the salves usually employed after a bath act as antiseptics, there is no fear of infection.

Pumice-stone acts admirably as a detergent through its well-known effect of grinding off the epithelium.

Judgment must be used in the employment of detergents, as in acute or irritable cases they may do harm. It is well known that even a scratch on the skin, at some stages of the disease, will be followed by an eruption, and under such conditions while drainage of the skin is of the greatest benefit, as calming the inflammatory process, strong irritants only aggravate the condition.

MEDICINAL BATHS

Mineral waters or baths that have minerals or other medicaments added to them are often recommended. As above mentioned, sea bathing is esteemed by some; others add salt to the bath, and natural sulphur and arsenic springs are held to be valuable, although it is doubtful if either are more efficacious than a simple bath. An artificial sulphur bath is made by adding 80 to 100 gm. or less of potassium sulphid to a bath. Audry of Toulouse advises using even less rather than more, as the sulphur is apt to irritate, and for the same reason the patient should not remain in such a bath more than fifteen minutes, and it should not be too hot; it should be below 30 C.[5] Because of their liability to cause sulphur dermatitis, sulphur baths should not be taken every day, and it is very often advantageous to give a soothing bran bath on intervening days. Besides being irritating, the sulphur baths have other disadvantages; they have an unpleasant smell and blacken metal bath-tubs.

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[1] Von Zumbusch, Leo: Psoriasis, Prakt. Ergebn. a. d. Geb. der Haut- u. Geschlechtskr., ii, 596.

[2] Britschew: Ein Fall von Psoriasis vulgaris mit Lichtbädern behandelt, Jour. russe de mal. cut., 1904, viii.

[3] Guhr: Heliotherapie der Psoriasis, Berl. klin. Wchnschr., 1906, No. 17.

[4] Hyde, J. Nevins: The Influence of Light Hunger in the Production of Psoriasis, Brit. Med. Jour., Oct. 6, 1901, p. 833.

[5] Audry, C., Durand, M. and Nicholas, J.: Traitement des maladies cutanées et vénériennes, p. 11.

It is supposed by some that the arsenic of natural arsenical waters may be absorbed, and so act medicinally.

I wish here to draw especial attention to potassium permanganate baths, which seem to me to act admirably, especially in acute universal psoriasis. Two tablespoonfuls of a saturated solution of potassium permanganate are added to a warm bath. After soaking in this for about ten or fifteen minutes the patient thoroughly dries himself, and applies Boeck's paste, to which is added 10 per cent. of liquor picis carbonis.[6] Tar baths are also excellent, and may be conveniently prepared by adding one or two glasses (8 or 16 ounces) of an emulsion of coal-tar to a warm bath. When tar is used, however, it is often better to incorporate it in a salve and rub it in after a bath.

Bicarbonate or biborate of soda or boric acid, or common salt, or sea salt are often recommended to be added to baths given for psoriasis, but in doing so one must not forget that water itself acts most profoundly on the skin, and that much of its action is due to osmosis. The more hypotonic the bath is the more osmotic it will be, and the more actively it will affect animal cells with which it comes in contact. By the addition, for example, of 0.9 per cent. of common salt to water a solution is produced which is perfectly isotonic with the blood-plasma and therefore isosmotic and likewise less active. Other salts and animal substances by increasing the specific gravity necessarily decrease the osmosis, and therefore the soaking power of water. It is now ascertained that pure water when brought into contact with animal cells powerfully induces them to give up their products of retrograde metabolism, and this may also have its effect in a disease like psoriasis, which, there are many reasons to believe is due to some metabolic error.

MACERATION BY IMPERMEABLE COVERINGS

Maceration by enveloping the part in an impermeable dressing, retaining the sweat and heat of the skin, and so making this function of the skin react on itself, is an old and powerful remedy.

The most amusing instance of maceration in my experience occurred in a burly, self-indulgent coachman, with a splendidly developed muscular system. It is astonishing how frequently patients with psoriasis have these fine muscles; it is an old observation that psoriasis occurs among the well nourished, and that among the well nourished the lesions are most obstinate. This man had a psoriasis of the soles that defied every means employed against it. One day he turned up showing as fine a pair of soles as I have ever seen, and gave the following account of himself:

While hosing down carriages he wore a pair of rubber boots. After finishing his work he went out to get a drink, and one led to another till he ended in a glorious spree, and remained in that blissful state for one entire week. During the whole of this time he did not once remove his rubber boots. When he finally sobered up, and pulled off his boots, the whole macerated outer epithelial covering came off too, leaving his feet as soft and tender as a baby's. He did not tell me what he did with those boots.

F. von Hebra was the first to employ this form of maceration, which is often brilliantly effective. He had special bags, mits, or socks made of rubber for different parts of the body or limbs, and even whole garments to envelop the entire body. The principle may be employed to intensify the action of other topical agents. Lately an excellent result was obtained in a pair of obstinate old patches by applying Dreuw's paste, and covering it with oiled silk fixed in place with adhesive plaster.[7] Often the part may be enveloped in cloths wet with Hutchinson's lotion, diluted a dram to a pint and then covered with oil silk, and bandaged in place. This dressing may be allowed to remain all night.[8]

There are a number of other substances that when painted on the skin dry down into an impermeable coating, such as gutta percha dissolved in chloroform, flexible collodion, and the zinc oxid glycerin jellies. Adhesive and other plasters may also be used for the same purpose.

CONCLUSIONS

Baths of pure warm water act powerfully and beneficently on psoriasis. Sulphur baths made by the addition of potassium sulphid may act badly, especially when the skin is in an erethic, irritable condition. Tar, and I think, permanganate of potash, are often valuable additions to baths given for psoriasis. The addition of the blander salts, such as bicarbonate of soda, boracic acid and common salt probably decrease the effect of the bath by rendering the water less osmotic. Maceration under impermeable coverings acts in much the same way as baths.

323 Geary Street.

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[6] Boeck's paste consists of:

℞ Amyli		
Talci	āā	40 parts
Glycerini		20 parts
Gummi arab.		1 part
Liq. plumbi subacet.		4 parts
Aq.		200 parts

M. Sig. Use as a lotion.

Although this is called a paste, it makes a lotion, and one to which a solution of coal-tar can advantageously be added. Druggists are used to boiling starch and glycerin, when they are dispensed together, to make a glycerole of starch. They should be especially warned not to do so in this case. The solution of coal-tar is official in the British Pharmacopeia as liquor picis carbonis. Its formula and method of preparation are as follows:

Prepared coal-tar	2 parts
Quillaia bark, in No. 20 powder	1 part
Alcohol (90 per cent.)	a sufficient quantity

Moisten the powdered quillaia bark with one fluidounce (or 50 c.c.) of the alcohol, and complete the percolation process with the remainder of the alcohol as for tinctures, one pint (or 1,000 c.c.) being produced. To the resulting percolate add the prepared coal-tar, and digest the mixture at 120 F. (48.9 C.) for two days, occasionally stirring. Cool and decant, or filter.

[7] Dreuw's paste consists of:

℞

Acid. salicyl.		10 parts
Chrysarobini		
Ol. rusci	āā	20 parts
Sapo. virid.		
Lanolin	āā	25 parts

We have found this combination very effective.

[8] Hutchinson's lotion consists of:

℞

Liq. plumbi subacetat	20 parts
Liq. pic. carbonis	100 parts

Insanity in England.—In England and Wales, according to the sixty-sixth annual report of the Commission of Lunacy, there were 135,661 certified insane persons under treatment Jan. 1, 1912, which was 2,504 more than on January 1 of the previous year. The average annual increase for the ten years ended Dec. 31, 1911, was 2,495. The pauper insane decreased 2 per cent., but there were increases in all other groups of insane persons. Of the total number 91 per cent. were paupers. Of the total number of insane persons on the date named 46.5 per cent. were males and 53.5 per cent. females. An insane heredity accounted for 59 per cent. of females and 41 per cent. of males. In families with an alcoholic family history the proportion of females was 53; when alcoholism was the cause of the insanity the proportion of males to females was 68 to 32. In England and Wales the average net weekly cost of maintenance in county and borough asylums was $2.43 and $2.69, respectively. Of the criminal insane there was an increase of 3 per cent. among the men and 1.9 per cent. among the women during the year.

PROTEIN METABOLISM IN LATE PREGNANCY AND THE PUERPERIUM [*]

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This work was undertaken with a view of studying the metabolism in the last month of pregnancy and determining the value of changes shown by the partition of the nitrogen of the urine, as an index to the preeclamptic or the eclamptic state.

There has been tendency during the past few years to associate more closely the conditions known as pernicious vomiting of pregnancy occurring in the early months, toxemia of the middle period and eclampsia at or near term.[1] A similar condition of liver necrosis has been found to exist in some cases of each of these conditions, and this has given rise to the theory that the symptoms are due to faulty metabolism. It is thought that the liver is unable properly to transform the nitrogenous bodies delivered to it by the portal circulation.

This theory has obtained so firm a foothold that to-day many obstetricians consider it an additional reason why chloroform should not be used as an anesthetic and its use limited in normal labor, for it has been shown that this drug produces a degeneration of the liver-cells and therefore might prove to be synergistic to a condition of toxemia which is already present, but the symptoms of which are latent.[2]

If eclampsia is due to changes of protein metabolism, the fact should be demonstrated by examination of the divided nitrogen of the urine and such partitions should offer the most certain forewarnings of impending convulsions. Many believe that the nitrogen partition does offer just such an index, and accept a high percentage of ammonia or of rest nitrogen as evidence of serious disorder. When present with vomiting in the early months an increase of the ammonia nitrogen to 10 per cent. of the total nitrogen has been accepted by some as an indication to empty the uterus.[3]

We wish to call attention to the fact that high ammonia and high amino-acid does not prove an alteration in the metabolism even if the urine which furnishes the high amounts is acid at the time of the examination. It is possible, too, that partitions of the nitrogen after a series of convulsions may give entirely different results than before the attack began.[4] We shall present facts concerning the normal limits of the divided nitrogens in the last month of pregnancy and show what little reliance may be placed on single determinations as an indication of the pathologic conditions.

METHODS

In the course of this study we have examined the urines of normal women, of preeclamptics and of eclamptics.

The urines were collected for twenty-four-hour periods. They were placed in large bottles containing 10 c.c. of 10 per cent. thymol in chloroform and left in a cool place either in the ice-box or out of doors (in the winter months). The collection was made with the greatest care possible and a number of the cases were under the immediate care of one nurse.

As soon as the urine was received at the laboratory the acidity and the gravity were taken and albumin tests were made. It was then diluted to 2,000 c.c. with distilled water. The ammonia was estimated by the Folin method, running the air stream from seven to sixteen hours. The creatinin was determined by the colorimeter and the creatin was ascertained by a slight modification of the Folin method. The urine was then stored in the ice-box, and usually not later than the second or third day the total nitrogen was determined by the Kjeldahl and the urea by the Benedict methods. The amino-acid or, more properly, the "formol-titrating" bodies, were determined directly in all but two cases by the new method of Henriques and Sörensen;[5] in these two (Cases 5 and 8) by a new method devised by Benedict and Murlin.[6] The purin nitrogen was determined by a modification of the Walker Hall method[7] which consists of the absolute determination of the nitrogen in the silver purin precipitated. The details of the method will be published shortly.

PHYSIOLOGIC SIGNIFICANCE OF THE DIFFERENT NITROGEN FRACTIONS

Urea.—Two conditions[8] are known to reduce the amount of urea below the normal: (1) acidosis, which calls for ammonia to neutralize acid bodies formed in metabolism or otherwise introduced into the body, and (2) retention of nitrogenous materials for growth of the body as a whole, or for growth of some part normally or pathologically. In the dog it has been shown that the growth of the fetus, uterus, mammaries, etc., is sufficient in the last weeks of pregnancy to show an appreciable effect on the absolute and relative amounts of nitrogen appearing as urea in the urine,[9] and there is every reason to believe that a careful balance of the total intake and total output of nitrogen together with determinations of the urea would show the same thing in pregnant women. Many satisfactory balance studies have been made,[10] but nobody has yet combined the two. What we wish to insist on, however, is that low urea at such a time is not an untoward sign. In fact, it is just what is to be expected; for the studies on the dog referred to above have shown that it is that portion of the nitrogen which would have been excreted in the urine as urea that is especially retained for formation of the fetal tissues. When the urea is low, both absolutely and relatively, as in late pregnancy, convalescence, etc., the other nitrogen fractions, which tend to remain constant in the absolute sense under all conditions, are necessarily higher in the relative sense.[11]

Ammonia.—This fraction is always present in the urine for the purpose of neutralizing the acids which are formed in the oxidative processes of the body. For example, sulphur is oxidized to sulphuric acid and phosphorus to phosphoric acid. If there is sufficient alkali furnished by the ash of the food, very little ammonia is required to render these acids harmless; but in so simple a change in the diet as substitution of potato-starch by rice, Sherman and Gettler[12] have shown recently that the ammonia increases in the urine from 0.1 gm. to 0.15 gm., because rice furnishes a more acid ash. Janney,[13] on the other hand, has been able to drive the ammonia out of the urine almost completely by administration of sodium bicarbonate with the food. In diabetes in which the imperfect combustion of fat leads to the production of acid bodies, the ammonia rises very high, and in starvation the same sort of change, though not to so great a degree, takes place. Finally, we may mention catharsis as another cause of *high ammonia percentages*. For example, with Case 2, catharsis and irrigation of the colon on the twelfth day of our observations caused so great a reduction in the amount of food absorbed and metabolized that the urea fell from 9 gm. to 4.5 gm. The ammonia was 0.57 gm. and 0.58 gm., respectively, but rose in percentage of the total nitrogen from 9.8 per cent. to 17.3 per cent. How many of the so-called high ammonias which have been thought sufficiently grave to indicate emptying of the uterus have been obtained after catharsis?

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[*] Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[*] From the Departments of Physiology and Obstetrics of Cornell University Medical College, New York.

[1] See Ewing (Am. Jour. Med. Sc., 1910, cxxxix, 828) for review of the literature.

[2] Cragin and Hull: The Journal A. M. A., Jan. 7, 1911, p. 5. Howland and Richards: Jour. Exper. Med., 1909, xi, 344.

[3] Williams, J. W.: Bull. Johns Hopkins Hosp., 1906, xvii, 71.

[4] Zweifel: Arch. f. Gynäk., 1904, lxxii, 1; lxxvi, 536.

[5] Henriques and Sörensen: Ztschr. f. physiol. Chem., 1910, lxiv, 120.

[6] Benedict and Murlin: Proc. Soc. Exper. Biol. and Med., 1912.

[7] Hall, I. Walker: The Purin Bodies of Foodstuffs, 1903, p. 149.

[8] We are excluding conditions of extreme degeneration of the liver. See Ostwald (Lehrbuch. d. Chem. Path., 1907, p. 147).

[9] Murlin: Am. Jour. Physiol., 1911, xxviii, 422.

[10] Zacharjewsky: Ztschr. f. Biol., 1894, xxx, 368. Slemens: Bull. Johns Hopkins Hosp., 1904, xii, 121. Hahl: Arch. f. Gynäk., 1905, lxxv, 31. Bar: Leçons de path. obstet., 1907, ii, 243. Hoffström: Skandin. Arch. f. Physiol., 1910, xxiii, 326.

[11] In the dog a similar relationship exists as regards the sulphur fractions, and in the work of Hoffström cited above is found confirmation of it for women.

Creatinin.—Folin was the first to show that this nitrogen-containing body is the most constant in amount for any given individual of any of the nitrogenous constituents of the urine. On a meat-free diet the absolute daily output is found to be proportional to the muscular development of the individual.[14]

Creatin.—It is generally conceded to-day that creatin in the urine of an adult on a meat-free diet, means undernutrition, i. e., undernutrition as regards energy-producing constituents of the diet, especially carbohydrates, or destruction of muscle.[15]

Purin Nitrogen.—The purin bodies are end-products of the metabolism of nucleoprotein. It is usual to separate the purin bases, xanthin, hypoxanthin, adenin and guanin from uric acid, but the general significance of all of these bodies is the same, and we have determined them together as total purin nitrogen. The presence of much purin nitrogen in the urine signifies the ingestion of meat or some richly cellular animal food. On a meat-free diet the purins are generally low unless actual destruction of tissue cells is going on.

Amino-Acids.—This fraction has figured considerably in the literature of pregnancy-urines in the last ten years, because the presence of amino-acids in large amounts has been thought to indicate a deficiency in the power of the liver to split off the nitrogen from the amino-acids which enter the portal circulation as the final products of digestion. Without entering into a lengthy discussion of this point we may say at once (1) that the amino-acid nitrogen is not synonymous with rest-nitrogen or undetermined nitrogen; it must be determined separately. (2) If the amino-acids were present in the urine of pregnancy in increased absolute amount the fact would not prove deficiency in the deaminating power of the liver, for they might originate from enzyme action in the placenta, in which case they would not necessarily pass through the liver before reaching the kidney. (3) A higher *percentage* of amino-acid nitrogen in late pregnancy is to be expected in view of the lower percentage of urea nitrogen caused by the retention on behalf of the fetus.

Undetermined Nitrogen.—Adding together all these fractions—urea, ammonia, creatinin, creatin, total purin and monamino-acid nitrogens—there yet remains a small fraction undetermined. Of course, we must recognize the fact frankly that what remains may be error. If an error of only 0.5 per cent. should occur in each of the several determinations made and all of the errors were by chance in the same direction, there might be an apparent undetermined nitrogen fraction of over 3 per cent. Assuming, however, that in most instances such errors would counterbalance each other, we find left in almost all of the urines we have examined an undetermined fraction of from 3 to 9 per cent. A very small part in some cases is due to albumin; in a few urines we have determined what Henriques and Sörensen call the polypeptid nitrogen, i. e., extra amino-acid nitrogen after digestion of the urine with strong hydrochloric acid. The indications are that this would account for a considerable part of what we have called in our tables the "undetermined nitrogen." Henriques and Sörensen have found such a fraction in normal urines.

NORMAL WOMEN IN THE LAST MONTHS OF PREGNANCY

At Bellevue Hospital (from the service of J. Clifton Edgar), the ante-partum women were carefully examined, and three were selected who were in the last month of pregnancy and free from abnormalities. They were placed in a separate ward under the care of a nurse whose main occupation was the supervision of their diets and the collection of their urines. The women did no work and were practically in a condition of rest during the course of the observations.

On the first two days and the fourteenth or last day of the observation period, they were kept on the regular ward diet which contained meat. From the second to the eighth day they received a diet of whole milk, bread and butter and milk sugar. An effort was made to keep the calories supplied proportional to the requirements of the individuals. On the eighth and ninth days, in addition to the above diet, they received daily fifteen grains of thyroid extract. From the tenth to the fourteenth day they were fed a larger quantity of carbohydrate, and on the thirteenth day they received a gram of pure creatin with their food.

The pulse, respiration, weight and blood-pressure were taken daily. The weights remained practically the same during the entire period except for fluctuations of about a pound. That they were well nourished and that the children's weights did not suffer was shown by the fact that within three weeks they all had children weighing, respectively, 9 pounds, 4 ounces; 9 pounds, 8 ounces, and 7 pounds, 2 ounces. (Table 1.)

Each of the three women remained very constant in the total amount and the proportional amounts of the nitrogen excreted throughout the observation period. A glance at the table of averages[16] of the eleven days shows that one patient (Case 2) excreted about one-half as much nitrogen as either of the others. She weighed less and was fed more exactly in proportion to her physiologic requirements than were Patients 1 and 3. The urea was low, and the ammonia was normal in amount. The percentage figures for the ammonia were high throughout. Six of the eleven days it was over 10 per cent. and one day following catharsis it rose to 17 per cent. The average ammonia figure was 10.5 per cent. The monamino-acid and the undetermined nitrogen were low in amount although the percentage figures were high. The percentages are to be explained by the higher retention of nitrogen in this case than in the others.

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[12] Sherman and Gettler: Am. Jour. Biol. Chem., 1912, xi, 323.

[13] Janney: Ztschr. f. physiol. Chem., 1911, lxxvii, 99.

[14] Shaffer: Am. Jour. Physiol., 1908, xxiii, 1.

[15] Mendel and Rose: Jour. Biol. Chem., 1911, xi, 213.

[16] Space does not permit the presentation of the analyses day by day. These will be given in a subsequent paper which will deal more at length with the question of high ammonias, influence of thyroid, etc.

The average of the thirty-three normal urines shows a urea figure somewhat lower than in the non-pregnant, while the other fractions are slightly higher. On the whole, there is very little difference.

PREECLAMPTIC WOMEN

Examinations were made of the urine of three preeclamptic women, one of whom developed convulsions two hours after the birth of her child.

Case 4.—Patient, B. P., a multipara, aged 34, admitted Oct. 9, 1911, complained of headache, dizziness, sleeplessness, nausea, bad vision and swelling of her legs. She had a trace of albumin in her urine and her blood-pressure was 160 mm. She was placed in bed and kept on a milk diet for seven days. She had a number of hot packs and many of her symptoms improved, although the headache persisted for a number of days and the blood-pressure went as high as 195 mm. on October 16. On October 14, 15 and 16 she received in addition to the milk diet 15 grains of thyroid extract. She was delivered on October 26 and had a normal puerperium.

TABLE 1.—NORMAL WOMEN

Case Number	Amount Grams								Per Cent. Total N						
	Total N	Urea	NH_3N	Cr_1N	Cr_2N	Purin	Formol Titr.	Undet. N	Urea	NH_3N	Cr_1N	Cr_2N	Purin	Formol Titr.	Undet. N
1. Average 11 days....	11.50	9.0	0.74	0.35	0.11	0.29	0.505	0.53	78.2	6.4	3.0	0.98	2.5	4.3	4.6
2. Average 11 days....	5.08	3.60	0.536	0.218	0.037	0.239	0.262	0.19	70.86	10.55	4.29	0.7	4.7	5.1	3.8
3. Average 11 days....	9.57	7.79	0.496	0.346	0.097	0.34	0.335	0.27	81.4	5.1	3.5	0.1	3.4	3.3	3.2
Average 33 urines.....	8.71	6.77	0.59	0.30	0.08	0.28	0.36	0.33	77.7	6.7	3.4	0.9	3.2	4.1	4.0

TABLE 2.—PREECLAMPTICS

Case Number	Amount Grams								Per Cent. Total N						
	Total N	Urea	NH_3N	Cr_1N	Cr_2N	Purin	Amino-Acid *	Undet. N	Urea	NH_3N	Cr_1N	Cr_2N	Purin	Amino-Acid	Undet. N
4. Average 8 days....	11.67	9.78	0.52	0.42	0.17	0.15	....	0.63	83.8	4.4	3.6	1.5	1.3	...	5.4
5. Average 11 days....	10.75	8.73	0.47	0.29	0.20	....	0.05	1.01	81.2	4.4	2.7	1.8	...	0.5	9.4

* By new method of Benedict and Murlin.

Case 5.—Patient, M. A., a primipara, aged 25, admitted to the Bellevue Hospital School for Midwives, Oct. 7, 1911, had headache, nausea and slight edema of the extremities. There was a trace of albumin in her urine and the blood-pressure was 130 mm. Hg. She was placed on a milk diet and on October 18, 19 and 20, she received in addition 15 grains of thyroid extract. She was delivered October 24 and had a normal puerperium.

Discussion of Cases 4 and 5.—While both these women presented signs of impending eclampsia, there were no abnormal changes in the partition of the nitrogen. The largest amount of ammonia excreted by B. P. (Case 4) was 0.97 gm. on October 19. The highest percentage excretion was on October 12, 0.43 gm. (5.9 per cent.). The highest ammonia excreted by M. A. (Case 5) was 0.86 gm. (5.5 per cent.) on October 12. The preceding day the ammonia was 0.39 gm. or less than one-half and yet the percentage was about the same (5.1 per cent.). The amino-acid nitrogen was low in total amount and in percentage. Table 2 shows that the average composition of eight urines in the one case and of eleven in the other was perfectly normal.

PREECLAMPSIA AND ECLAMPSIA

Case 6.—*Patient.*—A. K., aged 21, a primipara, was admitted Oct. 20, 1911, to the School for Midwives. On October 23, she complained of headache and dizziness and she had some edema about her ankles. There was a trace of albumin in her urine and her blood-pressure was 130 mm. Hg. Her urine was collected for three days. On the fourth day, October 28, the patient went into active labor and delivered herself at 8:30 p. m. During labor a specimen of urine was collected. Two and one-half hours after delivery she had a convulsion and during the next forty-eight hours she had in all eighteen convulsions. Between the convulsive attacks she was stuporous or semi-conscious. On the third day she became maniacal, but returned to normal mental condition on the fifth day. From then on her recovery was uneventful.

The patient was catheterized twelve hours after labor, not having voided in the meantime. A specimen from this urine was sent to the laboratory and the urine passed for the next few days was collected. Specimens of urine were obtained for three days before the convulsions, a few hours before, the first urine passed afterward and a number of subsequent specimens. They present a very interesting and instructive group of nitrogen partitions of the urine of preeclampsia and eclampsia (Table 3).

Discussion of Case 6.—The first three urines show normal urea and ammonia amounts and percentages. Urine 4 taken a few hours before the first convulsion, and Urine 5 taken twelve hours after are remarkably alike and contained the same amount of ammonia. Urine 6 was the first twenty-four-hour specimen after the convulsions began and shows a normal urea and ammonia output. Urine 7, the second twenty-four-hour specimen after the convulsions, contained 1.38 gm. of ammonia, or 31 per cent. of the total nitrogen. The following days the ammonia excretion was more than doubled (3.20 gm.), although the percentage of the total nitrogen was only 21 per cent. This ammonia cannot be considered as representing an ordinary acidosis, for the urine gave no reaction for acetone or diacetic acid. We have also made an estimate of the amount of ammonia which might be required to neutralize any lactic acid formed. The largest amount found in the urine of an eclamptic patient by Zweifel[4] was 0.621 gm. reckoned as zinc paralactate. This would correspond to about 0.080 gm. ammonia. During the next two days (Urines 9 and 10) the ammonia figure remained high. We have reasons, which will be fully presented in a subsequent paper, for thinking that all these high ammonias and high ammonias very commonly in the puerperium are due to decomposition in the bladder caused by use of the catheter.

In this case therefore the urine gave no indication of an impending attack and the ammonia was low at all periods up to the second twenty-four hours following the first convulsion.

INTRAPARTUM AND POSTPARTUM ECLAMPSIA

CASE 7.—*Patient.*—E. M., a primipara, aged 23, admitted to Bellevue Oct. 19, 1911, at 11 a. m., was in labor and the membranes had ruptured. At 4 p. m. she had a convulsion which was repeated three times before her delivery at 8:10 p. m. The patient was seven and one-half months pregnant and had a tuberculous hip with the right thigh fixed in adduction. The child being small, an easy delivery was effected with forceps. The child weighed 3 pounds, 14 ounces and left the hospital with the mother November 13.

Before the forceps operation the blood-pressure was 185 mm. Hg. One hour post partum it had dropped to 167 mm. A convulsion occurred three hours after delivery and another at eight hours. The following day the patient was comatose, cyanotic and had many moist râles of edema in the chest. Her blood-pressure was 110 mm. She received stimulation and saline irrigation by the drop method. At 5 p. m. she regained consciousness and rapidly improved. Ten days post partum her blood-pressure was 125 mm. Hg, and she had only a trace of albumin in the urine. No urine was obtained in this case before delivery.

CASE 8.—*Patient.*—M. C., aged 18, a primipara, admitted May 1, 1912, had been delivered in the morning and had had a convulsion shortly afterward. She arrived at the hospital about eight hours after the first convulsion. During the night or for the first twelve hours after admission, she had between forty and fifty convulsions. Between the attacks and for thirty-six hours after she was deeply comatose. She received croton oil, 2 minims, by mouth and two injections of ¼ grain of morphin. A hot pack was given every six hours and high colonic irrigations every three hours. On admission her blood-pressure was 204 mm. On the second day she was maniacal and remained so for forty-eight hours. She had a rapid convalescence. There was considerable albumin in her urine and also hyaline and granular casts. The urine was obtained by catheter for a number of days.

Discussion of Cases 7 and 8.—E. M. (Case 7) had six convulsions in all. She was profoundly ill and her recovery was hardly looked for. The first twenty-four-hour urine showed high ammonia 2.22 gm., or 18.5 per cent. Only one-half this amount was present on the second day, 1.10 gm. (16.9 per cent.), and on the fifth day it had returned to normal, 0.32 gm. (3.9 per cent.).

M. C. (Case 8) had over forty convulsions. Her urine was collected by catheter and many bacteria were found by microscopic examination. On May 7 the bladder was washed twice during the twenty-four hours and as a result the ammonia dropped from 1 gm. to 0.4 gm.

While Case 7 would tend to show that an acidosis resulted from the convulsions, Case 8 with seven times as many convulsions showed normal amounts of ammonia and amino-acid nitrogen (Table 4).

SUMMARY AND CONCLUSIONS

From the study of the partition of the nitrogen of 100 urines, it would seem that the ammonia and the amino-acid plus undetermined nitrogen fractions may be as high or higher in normal women in the last month of pregnancy than in women who have preeclamptic signs or even eclampsia itself. Convulsions themselves do not necessarily produce a condition of acidosis. High ammonia following an eclamptic attack, we believe, is often due to decomposition of the urine within the bladder from contamination by the catheter. The following conclusions may be drawn:

1. The average of many determinations shows that the nitrogen fractions of the urine in the last month of pregnancy are but slightly different from those in the non-pregnant.

2. Normal women in the last month of pregnancy may have an ammonia-nitrogen as high as 17 per cent. (after catharsis) and a combined amino-acid and undetermined nitrogen of 10 per cent.

3. Percentage figures alone are deceiving and of little value, for the total nitrogen is dependent on the amount of food absorbed and this is affected by intake, nitrogen retention, catharsis, etc.

TABLE 3.—POSTPARTUM ECLAMPSIA (CASE 6)

Urine No.	Date	Total N	Urea N Gm.	NH_3N, Gm.	Cr_1N, Gm.	Cr_2N, Gm.	Total Purin N, Gm.	Formol Titr. N, Gm.	Undet. N, Gm.	Urea N, Per Cent.	NH_3N, Per Cent.	Cr_1N, Per Cent.	Cr_2N, Per Cent.	Total Purin N, Per Cent.	Formol Titr. N, Per Cent.	Undet. N, Per Cent.
1	Oct. 23-24	8.06	6.02	0.45	0.31	0.0	0.31	0.41	0.66	74.7	5.6	3.9	0.0	3.9	5.1	6.8
2	Oct. 26-27	11.09	8.37	0.62	0.43	0.0	0(?)	0.78	0.94	75.5	5.6	3.9	0.0	...	6.6	8.4
3	Oct. 27-28	7.90	6.31	0.46	0.31	0.0	0.28	0.40	0.14	79.8	5.2	3.9	0.0	3.5	5.0	2.6
4	Oct. 28 (labor)...	0.45	0.34	0.03	....	...	....	....	....	75.6	7.5	...	...	...	...	...‡
5	Oct. 29 (14 hours after delivery).	0.41	0.30	0.03	....	...	....	....	....	73.2	7.0	...	...	...	...	...†
6	Oct. 29-30	4.87	3.61	0.11	0.25	0.0	....	....	....	74.1	2.3	5.2	...	...	...	...*
7	Oct. 31-Nov. 1....	4.42	2.29	1.38	0.40	0.0	0.08	0.16	0.11	51.8	31.2	9.1	0.0	1.8	3.5	2.6
8	Nov. 2-3	15.11	9.80	3.20	0.51	0.12	0.03	0.37	1.08	64.8	21.2	3.4	0.8	2.0	2.4	5.4
9	Nov. 4-5	15.73	11.07	2.42	0.46	0.08	0.06	0.45	1.19	70.4	15.4	2.9	0.5	0.4	2.9	7.5
10	Nov. 5-6	12.41	9.02	2.03	0.36	0.06	0.06	0.31	1.60	72.7	16.4	2.9	0.5	0.5	2.5	4.5

* First twenty-four hours' urine after convulsions. † Urine fourteen hours after convulsions began. ‡ Urine just before convulsions.

TABLE 4.—ECLAMPSIA

Case No.	Date	Amount Grams			Per Cent	
		Total N	NH_3N	NH_2N†	NH_3N	NH_2N
7	Oct. 20-21, 1911........	12.01	2.22	0.38	18.5	3.2
	Oct. 21-22, 1911........	6.51	1.10	0.18	16.9	2.8
	Oct. 24-25, 1911........	8.26	0.32	....	3.9	...
	Oct. 28-29, 1911........	11.96	0.53	0.34	4.4	2.8
	Nov. 4-5, 1911.........	5.88	0.20	0.15	3.4	2.5

Case No.	Date	Amount Grams			Per Cent.	
		Total N	NH_3N	NH_2N*	NH_3N	NH_2N
8	May 2-3, 1912.........	8.74	0.60	0.06	6.8	0.7
	May 3-4, 1912.........	16.27	0.63	0.17	3.8	1.0
	May 4-5, 1912.........	12.80	0.60	0.27	4.7	2.1
	May 5-6, 1912.........	12.03	1.06	0.43	8.8	3.6
	May 6-7, 1912.........	8.52	0.46	0.12	5.4	1.4

† Method of Henriques and Sörensen.

* By new method of Benedict and Murlin.

4. With all the clinical signs of preeclampsia, the nitrogen partition may be normal even up to and for twenty-four hours following the development of convulsions.

5. The nitrogen partition as an evidence of metabolic processes cannot be said to offer an index to the preeclamptic or the eclamptic condition. Alterations in the structure of the liver, and finally in the metabolic functions of this organ may be, for all that the urinary analysis shows, the result of the toxemia which ultimately leads to eclampsia, rather than the cause of the toxemia.

ABSTRACT OF DISCUSSION

Dr. Edward P. Davis, Philadelphia: One cannot appreciate the significance of any research based on chemical examination without recognizing the fact that no one actually understands the metabolism of the living body, and that we must be cautious in attempting to take one function only in making an estimate in a matter of clinical importance. The problem of the care of the parturient woman as concerns her own self-poisoning is one of the most complex known to medical science; and such researches as have been noted in our presence emphasize the fact of the many-sided aspect of the problem, and that too much importance has long been based on the examination of the urine only in diagnosis. To be accurate and thorough in the matter, one would have to investigate the condition of the blood, for it has been proved that the toxins which often produce the death of mother and child are found more frequently in the blood than in the excretions. If they were in the excretions they would do no harm; in the blood, they are dangerous and often deadly. In approaching this problem, one must recognize not only the chemical factors of digestion, but also the influence of the nervous system and of the many other factors which make up the life of the individual. One cannot neglect the uterus and the placenta and the syncytium in this problem, and no estimate is accurate and efficient that does not study each case minutely by personal investigation. No laboratory report is decisive, no one finding, but all must be submitted to the approval of the obstetrician. Diagnosis must depend on personal study of each individual case. Hygiene and control are important. Thyroid extract does do specific work in a limited number of cases. Interference because of threatened failure of metabolism should be based on a study of the blood and not on a study of the urine. The mortality among mothers from disturbed metabolism is greatest in early pregnancy. In mid-pregnancy we may save the mothers at the expense of the fetus by conservative elimination. In the last months of pregnancy many of us believe prompt delivery offers the best result for mother and child. This research is very different from any we have seen, and is almost prophetic of a revision of our ideas on the subject, which I think is needed.

Dr. H. C. Bailey, New York: We gave thyroid extract in five cases—three normal and two abnormal cases. Our results were not very conclusive. Whether the extract was active we were not certain. Although there were changes in the metabolism they were not always in the same direction. If the thyroid increases the amount of urea, where does it come from? From the proteins of the body and thereby places an extra amount of work on the already damaged liver and excretory organs.

Immunization Against Plague Abandoned in Java.—A Holland correspondent in a recent issue of the *Wien. klin. Rundschau* states that the results of vaccination against the plague have been disappointing in Java. In 1911, 54,017 persons were vaccinated by the German and 11,703 by the Haffkine technic, but the proportional mortality averaged the same among the vaccinated and not vaccinated. Over 0.86 per cent. of the total unvaccinated population in the infected provinces contracted the disease; 0.26 per cent. of those vaccinated with the German technic and 0.16 per cent. with the Haffkine. Further attempts have been abandoned.

BOOKS AS CARRIERS OF SCARLET FEVER*

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Scarlet fever made its appearance in Valparaiso, Ind., September, 1908, and continued until June, 1911. It is estimated that during this time there were 400 cases, of which only 255 were reported to the city board of health, 145 were not reported and most of them were not subjected to quarantine regulations. Beginning in February, 1911, a special study of the epidemic was begun to determine, if possible, what steps were necessary to terminate this epidemic.

The question whether the infection was being spread through the medium of books was considered. If books were carriers of scarlet fever infection, the opportunity for the spread of the disease in this city by them was very great, as Valparaiso is a residence and school city with about 10,000 population. It supports two libraries, one a public city library, the other a public library in connection with the Valparaiso University. The libraries were both extensively used, the public library by the public school children, the citizens and the university students. The university library was used largely by the university students. Two bookstores situated near the university made a practice of renting text-books used at the university; two department stores in the city were maintaining circulating libraries, and in the lower grades of the public schools a large number of supplemental books were furnished the pupils by the school authorities and these books were passed from class to class. This showed the importance of determining whether books were mediums of the spread of the disease or not, and if so what was the practical method for rendering them harmless. To determine the part books played in the spread of scarlet fever in this epidemic an investigation was begun of the books in the city library, as this was the only place where sufficient records were kept to enable us to make a fair investigation, the scope of which included the following points:

1. The connection existing between the public library, the reading-rooms, the condition of books and the management of the library with reference to the spread of scarlet fever.
2. To ascertain what precautions were taken by the librarians to prevent the books from becoming the carriers of disease.
3. To determine if library books were responsible for any of the cases of scarlet fever in the city at this time.
4. To ascertain if books which had been in homes during or immediately after scarlet fever, when neither the houses nor books had been fumigated, have acted as carriers of the disease.
5. To determine whether books which had been burned were probably responsible for the cases of scarlet fever which occurred while the books were in the homes.

THE INVESTIGATION

1. *The Library.*—The building is an old brick dwelling-house which has been converted into a library building. The juvenile reading-room is well lighted and well ventilated; the other rooms are crowded and have poor lighting, but good ventilation facilities; the floors

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* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* Because of lack of space this article is abbreviated in The Journal by omission of the tabulated details of the book records The complete article appears in the Transactions of the Section and in the author's reprints.

and furniture are kept free from dust, the books are kept in open cases or on unprotected shelves and are as free from dust as they could be kept under the present condition of the building and furnishing. At frequent intervals the rooms have been fumigated with formaldehyd gas; the heating is by steam; sweeping is by brush, and "dust-down" is used. The books are in good repair and not badly soiled; the juvenile department is very popular, having had 1,000 borrowers who used over 10,000 books in 1910; this department had an attendance of 4,351 that year. Nearly 9,000 books were used by adults; the adult attendance was 7,000. The library contains about 9,000 volumes. Nearly 20,000 books were made use of last year. A splendid system was installed May, 1910, for keeping a record of all borrowers, and by it the librarian, if given the title of any suspected book, was able to give the name and address of the borrower and date due for return of book.

The popularity of the juvenile department and the attendance of children suffering from a mild attack of scarlet fever, or those who had been too early released from quarantine, undoubtedly was a source of direct contact, and doubtless some cases resulted; yet no specific case was traced to the library. The management is alert and desirous of making the library a perfectly safe and sanitary place.

2. *Precautions Taken to Prevent Books From Becoming Carriers.*—The principal precaution taken to prevent books from becoming carriers of disease consists in the enforcement of a rule that all books in a home, when a contagious disease develops, shall be burned. Whenever the librarian was notified that a borrower who had a book had scarlet fever, or that scarlet fever was in the house occupied by a borrower, she would notify the borrower to burn the book, and on release from quarantine to call and give particulars concerning its destruction; or, if it was returned the librarian would attend to the cremation. Notification of scarlet fever did not always reach the librarian for two principal reasons:

1. The board of health is not obliged to notify and in many instances did not notify the librarian of cases reported.

2. Many cases of scarlet fever had existed without being reported to the board of health and have escaped being subjected to quarantine regulations and the public library regulations also.

No special fumigation of books is practiced. Soiled books are washed with gasoline. The books are in good repair. Those on the shelves and in the cases are somewhat fumigated by formaldehyd when the rooms are fumigated. At frequent intervals the worn and soiled books are cleaned and rebound. In the future, the secretary of the city board of health should notify the librarian of all cases of contagious diseases when any danger of book contamination is possible.

3. *Responsibility of Public Books for the Spread of Disease.*—To determine if public library books were responsible for any case of scarlet fever in the city, during the time of this investigation, whenever a case of scarlet fever developed an inquiry was made whether any member of the family or any occupant of the house, at any time or just preceding, had had a public library book, and if so, the name of the book. The librarian was then asked to furnish a history of the book; for example, John F. developed scarlet fever March 4, 1911. His sister, Jeanette F., had just returned a certain book to the library. The librarian's record of this book showed it to have been in seventeen homes between April 3, 1910, and the date that Jeanette F. returned it to the library, March 9, 1911. The librarian's record with a statement whether the borrower had had scarlet fever or not, with the date of the disease, when this could be obtained, was as follows:

LIBRARIAN'S RECORD OF THE BOOK TAKEN BY JEANETTE F.

Name of Borrower.	Book Taken.	Had Scarlet Fever.*	Date of Disease.
Margaret B.	4/19/10	+	11/—/09
Pearl O.	6/ 1/10	—	....
Ella G.	6/17/10	+	5/—/10
(This was known to be a short quarantine, making this a suspicious book.)			
William H.	8/ 1/10	—	....
Helen H.	9/ 6/10	—	....
Ivan C.	10/ 3/10	+	6/15/09
Martha B.	10/16/10	—	....
Gladys V.	10/23/10	—	....
Margaret D.	11/ 3/10	—	....
Geneva H.	11/ 4/10	+	7/—/10
Helen N.	11/11/10	+	—/—/98
Martin A.	11/22/10	+	4/—/09
Richard M.	12/12/10	—	....
Bruce B.	1/ 3/11	—	....
Harry G.	1/12/11	+	10/—/09
Eda L.	2/ 4/11	+	10/—/09
Jeanette F.	2/23/11	—	....

* The plus sign (+) indicates that the borrower had scarlet fever and the minus sign (—) that the borrower did not have scarlet fever.

Jeanette F.'s brother developed the disease March 4, 1911, and as he was an attendant in the first grade of the Central School from which room two other cases developed the same day, it was believed that the three cases were from personal contact with a mild case in a child who was in attendance in the same room up to March 1. This book was given a clean bill of health. Eight other books of this class were traced.

Another suspected book was taken from the library by Marvin B., November 9, and was returned November 14. He developed a condition which was diagnosed as a tonsillitis, about November 7, but which proved to be a mild scarlet fever. Quarantine was established November 20, 1910. This book was being read by B. during the early part of his sickness, and was returned by him to the library before he was quarantined. The book was next taken home by Warren D. where there are four children in the family who never had the disease, without carrying the infection. It was then returned to the library where it remained from Dec. 7, 1910, until Feb. 2, 1911, when it was taken out by Ruth M. who had had the disease ten years previously. February 23 it went into the C. home where there were seven children, and from there to the Floyd B. home with four children; neither the C. nor the B. children had previously had the disease nor did they develop it from this book.

In none of the recent or present cases were the library books held responsible for the spread of the disease.

4. *Unfumigated Books.*—When it was attempted to ascertain if books which had been in homes during or immediately following scarlet fever, when neither houses nor books had been fumigated, had acted as carriers of the disease, the evidence pointed conclusively to the books being at least not important factors in the spread of the disease. About forty books were carefully traced and records studied with no specific evidence against them. These books have been freely used during the past year and have produced no cases. Scarlet

fever developed this spring, the exact source being unknown; but it is believed to have come from outside the city, and the isolation of the cases has put the disease in check with only three reported cases and possibly another case, which was not reported, but which was the probable source of the contagion in the city. The books were held blameless.

5. *Burned Books.*—Books that had been burned while they were in homes where scarlet fever developed were proved to be probably as innocent of acting as carriers, as either of the other classes. One book belonging to this class was taken out of the library by David L. November 1. His brother developed the disease Nov. 3, 1910, not having read the book. This book is not a very popular one, had few borrowers with no history of having been exposed to the disease, and therefore could not be charged with producing the disease.

At the beginning of this investigation of the public library, as fast as any suspicious book was discovered it was taken from the shelves and put in the store-room and kept there until the study had been completed. The weight of evidence indicated clearly that the books were not an important factor in the spread of the disease, and they were placed back on the shelves without being fumigated and again put in circulation, without producing the disease and no scarlet fever developed in the city proper between July, 1910, and April, 1911. The last case among the university students occurred March 16, 1911, and during this interval from March, 1911, to May 25, 1912, the students have been using the university library and also using rented books from the university bookstores, showing that these books cannot be regarded as carriers of the disease. This to my mind warrants the following conclusions:

CONCLUSIONS

1. If books act as carriers, it is only immediately after being contaminated with the discharges of the patient; yet this investigation has failed to reveal a single instance of this kind.

2. Books that have been used by scarlet fever patients do not long contain the infection in such a way as to transmit the disease to man.

3. Any book which has been handled by a scarlet fever patient should be burned or fumigated. The most practical method for general book disinfection at this time is the Beebee carbogasoline method. This consists in using gas-machine gasoline and 2 per cent. phenol crystals; the books are immersed in this mixture for twenty minutes, removed and placed before an electric fan for two minutes, and then set on end for from twenty-four to forty-eight hours.

The supplemental study books used in the Valparaiso public schools were all disinfected by this method last September. Prof. A. A. Hughart and I devised an apparatus for this consisting of a zinc tank 21 inches long, 15 inches deep and 8 inches wide, with a tight-fitting cover. A faucet in one end near the bottom drains off the gasoline. Zinc strips bent in suitable form to serve as racks facilitate the handling of the books.

ABSTRACT OF DISCUSSION

Dr. C. E. Ford, Cleveland: We are sending the books from given cases of communicable disease to the appropriate ward in the hospital for contagious diseases. We find that a fairly satisfactory way of avoiding the burning of books. If we get a book in a scarlet fever case, it is sent to the scarlet fever ward, sprayed with formaldehyd and wrapped with paper for safety during transportation.

Dr. Joseph Goldberger, Washington, D. C.: We very frequently have observations of a positive nature; that is, observations showing the apparent transmission of communicable diseases by fomites, such as books. The trouble with all such observations is that it is almost impossible to exclude other modes of transmission than those alleged in the particular instance. In cases such as reported by Dr. Nesbit we have negative results; and although the observations may by some be regarded as relatively few, it is nevertheless perfectly safe to conclude, even if they were much fewer in number, that in those instances no transmission actually took place. And this is a very much better thing than to be told that in one or two instances, perhaps a dozen, or even two hundred, or a thousand, or six thousand, transmission apparently took place, but where, as a matter of fact, absolute exclusion of other sources of infection could not be made. I think the observations reported are of such high significance that one cannot emphasize their value too much.

RECENT ADVANCES IN OUR KNOWLEDGE OF SCARLET FEVER*

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In 1907, Ludvig Hektoen[1] gave a complete summary of our knowledge of scarlet fever. He took the view that the specific cause of scarlet fever was not known and that the streptococcus was a secondary invader which found an especially favorable soil in the condition of this disease. To-day, five years later, the true nature of the pathogenetic agent of scarlet fever still remains to be discovered and little progress has been made in our understanding of this disease. Yet some contributions have been added of sufficient interest to justify a connected report of them and a new review of the present status of our knowledge.

The fact that no other organism has been found with any constancy in scarlet fever left the controversy as to the primary or secondary rôle of the streptococcus unsettled. Of the intimate biologic and clinical relation of the streptococcus to the disease there can be no doubt, because of (1) the constant presence of the streptococcus in large numbers in the throat and on the tonsils; (2) the frequency with which it is found in the blood during life and in most of the organs after death; (3) the fact that by far the greater majority of complications in the disease and of the deaths in scarlet fever are to be attributed to the invasion of this microbe, and (4) the evidence of systemic reaction to the streptococcus by the presence of antibodies in the blood.

STREPTOCOCCUS INFECTION AND IMMUNITY

The latter subject, the presence of specific antibodies for streptococci in scarlet fever, has been studied with great care in the last few years.[2] This applies chiefly to the opsonin and the complement-deviating antibodies, whereas in the study of agglutinins nothing new has been added.

The presence of opsonins[3] in scarlet fever was to be anticipated from the important rôle which has been conceded to phagocytosis in the mechanism of streptococcus infection and immunity, ever since Metchnikoff's[4] early researches on erysipelas.

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*From the Memorial Institute for Infectious Diseases, Chicago.

*Read in the Symposium on Recent Advances in Our Knowledge of the Acute Infections in the Section on Pathology and Physiology of The American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] Hektoen, L.: Is Scarlet Fever a Streptococcus Disease? The Journal A. M. A., April 6, 1907, p. 1158.

[2] For complete literature see Koessler, Karl K., and Jessie M.: Specific Antibodies in Scarlet Fever, Jour. Infect. Dis., 1911, ix, 366.

[3] Tunnicliff, R.: Jour. Infect. Dis., 1907, iv, 304. Banks, A. G.: Jour. Path. and Bacteriol, 1907, xii, 113. McCririck, T.: Jour. Path. and Bacteriol., 1911, xvi, 16. Anderson, J. M.: Jour. Path. and Bacteriol., 1911, xvi, 106.

The opsonic curve for the streptococcus shows a characteristic course during the various periods in scarlet fever. In the beginning the streptococco-opsonic index is below normal in the majority of cases.

As the acute symptoms subside the index rises above normal and usually remains so during convalescence in uncomplicated cases. In fatal cases the opsonic power may be markedly subnormal. Definite localized streptococcus complications, as secondary lymphadenitis and otitis media and arthritis, as well as nephritis, are inaugurated by a depression in the streptococcal opsonic index which rises again when improvement sets in. These regular variations of the opsonin are absent for the pneumococcus, staphylococcus and pseudodiphtheria bacillus and limited to the streptococcus, and are, in so far, specific for the streptococcus. But the opsonin is not specific for any certain streptococcus scarlatinæ for the same variations in the opsonic index can be observed with other streptococci as those cultivated from erysipelas. The parallelism of the fall and rise of the index with the acme of the acute symptoms and their abatement gives a very impressive picture of the systemic reaction of the organism to the general invasion of the streptococcus and substantiates the assumption that a good part of the clinical manifestation is directly to be ascribed to the streptococcus.

The presence of complement-deviating antibodies for streptococci in the serum of scarlet fever was first successfully demonstrated by Foix and Mallein,[5] who used a polyvalent antigen of streptococci which had been cultivated from numerous cases of scarlatinal angina. With serums of twelve scarlet fever patients they obtained deviation of the complement ten times. Controls made with serum of other streptococcus infections, as erysipelas and puerperal sepsis, showed complete hemolysis. Liverato[6] examined eighteen scarlatinal serums using as antigen extracts of streptococci, staphylococci, pneumococci, and typhus, colon and influenza bacilli. Complete inhibition of hemolysis was obtained by the streptococcus extract only and this in every case although the streptococci used were not cultivated from cases of scarlet fever. Liverato considers his findings an important contribution toward the proof of the streptococcal nature of scarlet fever.

Schleissner[7] used suspensions of streptococci from scarlatina, erysipelas, puerperal sepsis and panophthalmia as antigen. The serum of scarlatina, especially, reacted positively with scarlatinal streptococci, whereas control serums from other infections never gave a positive reaction. Some serums, however, reacted positively with other streptococci, as those of puerperal sepsis and panophthalmia. In a later communication[8] the same author tries to bring additional proof for the specificity of the scarlet streptococcus by means of bactericidal experiments. A mixture of leukocytes, rabbit serum and scarlet fever streptococci, plated out in blood-agar, showed in most cases complete destruction of this streptococcus, while other streptococci pathogenic for man (erysipelas, puerperal fever) multiplied without restraint. Kolmer[9] obtained complement deviation of serums from scarlet fever with streptococci in only 12.2 per cent.

From all this it is plain that the serum of scarlatinal patients contains antibodies for the streptococcus. This speaks undeniably for the intimate biologic relation of this microorganism to scarlet fever. The existence of a specific scarlatinal streptococcus, however, is not demonstrated by this work, and no light has been shed on the primary etiology of the disease. The very presence of antibodies for streptococci cannot solve the problem as to whether the streptococcus is the primary agent of the disease or a secondary invader and even if it had been shown that this reaction were obtainable only with scarlatinal serum, and streptococci cultivated from scarlatina, the question of the etiology of the disease would still be unsolved. In this connection the work of DeWael and Sugg[10] may be recalled.

They found that the streptococci constantly present in small-pox are specifically and exclusively agglutinated by the serum and other serous liquids of variola patients and convalescents in a dilution up to 1:800, but not by any other immune streptococcus serums. This does not permit the conclusion that perhaps small-pox, too, is a streptococcus disease, a supposition which has been disposed of by unquestionable experimental evidence,[11] but it points to a very close relation between the primary virus and the secondary infection. That this is really a form of symbiosis has been shown[12] in the following way: If the cornea of a rabbit is treated with a mixture of variolous virus, active serum and streptococci, there results a violent reaction which, however, fails to appear if the variolous virus alone, or the streptococci alone, or the serum alone is inoculated.

SPECIFIC TREATMENT

This relation of the streptococcus to scarlet fever, together with the fact that only too often the ultimate fate of the patient depends on this secondary invader, suggests the reason for using efficacious antistreptococcus remedies and explains their eventual specific effect.

Time does not permit me to speak here of the therapeutic results obtained with the various streptococcus serums advocated as specific in the treatment of scarlet fever. But it may be emphasized that only those antistreptococcus serums should be used which have a potency in content of antibodies, or faculty to stimulate the phagocytic activity of the leukocytes, ascertained by reliable laboratory tests.[13]

One form of specific treatment I wish to mention here not so much for the practical value attributed to it but on account of a phenomenon which has direct bearing on our account of the pathogenesis of scarlet fever. This is the prophylactic treatment of Gabritschewsky,[14] by means of a streptococcus vaccine used quite extensively by Russian physicians. Langovoi, Nikitin, Vladimiroff and Tesjakoff have published detailed reports of the prophylactic use of this vaccine. Thus, in the years 1907-1909, Tesjakoff vaccinated prophylactically, 15,376 children, in eighty-six different foci of the scarlet fever epidemics at that time.[15]

Of these 15,376 children, 7,234, or 47.6 per cent., were vaccinated once; 4,060, or 27.4 per cent., were vaccinated twice, and 4,078, or 26.5 per cent., were vaccinated three times.

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[4] Metchnikoff: Virchows Arch. f. path. Anat., 1887, cvii, 209.

[5] Foix and Mallein: Presse méd., 1907, xv, 777.

[6] Liverato: Centralbl. f. Bacteriol., liv, 422.

[7] Schleissner: Folia serol., 1909, iii, 271.

[8] Schleissner: Jahrb. f. Kinderheilk., 1911, xxxviii, 317.

[9] Kolmer: Arch. Int. Med., February, 1912, p. 220.

[10] DeWael and Sugg: Arch. intern. de pharm. et de thérap., 1903, xii, 205.

[11] Perkins and Pay: Jour. Med. Research, 1903, x, 195.

[12] Prowazek and de Beanpaire: München. med. Wchnschr., 1908, lv, 44.

[13] See in this connection the work of G. H. Weaver and Ruth Tunnicliff: Jour. Infect. Dis., 1912, ix, 130.

[14] Gabritschewsky: Ztschr. f. Bacteriol., 1906, xli, 7.

[15] For complete literature on vaccine prophylaxis see Smith: Boston Med. and Surg. Jour., 1910, clxii.

Of all the children vaccinated 746, or 4.8 per cent., were taken sick with scarlet fever.

Of those vaccinated once, 478, or 6.6 per cent., were taken sick; of those vaccinated twice, 182, or 4.5 per cent.; of those vaccinated three times, eighty-six, or 1.9 per cent.

From these figures Tesjakoff concludes that whereas one vaccination alone offers a very inefficient protection, three vaccinations produce an undoubted but not an absolute protective immunity.[16]

So far the figures of the Russian author certainly justify his conclusion, but the whole question assumes a widely different aspect if we compare these results with our conditions. Tesjakoff obtained in the children which he vaccinated three times such a percentage of morbidity as to reach 1.9 per cent. The morbidity in Chicago in the four years 1907-1910 shows an average of only 0.3 per cent. of the whole population, without prophylactic treatment. This does not infringe on the value of the prophylactic vaccination as such but emphasizes how important it would be to know intimately the character of the severity of scarlet fever at every period of the year in the various countries of the world before we could apply such statistics directly to our own conditions.

Gabritschewsky as well as Langowoi and Vladimiroff, later observed in about 10 per cent. of the children vaccinated a very startling manifestation. The place of the injection of the vaccine showed not only the usual signs of local reaction but the lymph-vessels and lymph-nodes of this region became involved, swollen and painful. A small macular exanthem appeared round the point of injection and developed soon into a general scarlatiniform eruption. The general condition of the patient grew worse, an angina and strawberry tongue developed and as early as the second and third day a desquamation appeared, in some cases even going to hematuria. This whole picture resembles so closely that of scarlet fever that Vladimiroff concludes that this phenomenon demonstrates the primary etiologic rôle of the streptococcus. In regard to this idea, it must first be said that in a study of the prophylactic use of the streptococcus vaccine in Boston, not one such phenomenon has been observed.[17] Further, in this age of extensive vaccine therapy streptococcus vaccine has been used in the last year in many thousand cases without one report of a single case in which similar symptoms developed.

LATEST RESEARCHES INTO ETIOLOGY

It is obvious that it would be of value in our understanding of the pathogenesis of scarlet fever if it could be demonstrated that other antibodies than those for streptococci are present in the blood with some constancy. The attempt has been made unsuccessfully by several investigators with the complement-deviation method. The failure seems to have been due to the choice of an unsuitable antigen from too close an adherence to the Wassermann method. In the search for antibodies in a disease the germ of which is unknown or not capable of cultivation such organs should necessarily be used as antigen which clinically as well as anatomically appear to be involved principally. In scarlet fever this was found to be not the liver but the lymph-nodes. The condition which an appropriate antigen must fulfil for use in the search for a specific scarlatinal virus seemed to my associates and myself to b the following: (1) The organs must come from a acute toxic case of scarlet fever in which the patien succumbed rapidly and without secondary reaction an complications; (2) the blood of the patient examined i the last stage before death should contain no streptococci; (3) the blood-serum ought, further, on bein tested with an active scarlatinal streptococcal emulsion to show no deviation of the complement and the activit of the streptococcus antigen used should be tested wit the corresponding immune serum; (4) the extract must show by culture experiments that they contain n streptococci; (5) the watery organ extract tested wit antistreptococcus immune serum should show no deviation of complement. From the especially mild characte of scarlet fever in Chicago, it was not easy to find suc foudroyant and toxic cases as answered to these fiv conditions. My associates and I succeeded after lon preliminary tests in finding three cases the conditions i which corresponded to all the demands which we ha placed on a suitable antigen. We employed only inactivated serums which were obtained on the day of th experiment. As amboceptor the serum of rabbits immunized against sheep's blood was used. In order to know whether normal amboceptor for sheep's blood was contained in the human serum we tested this each tim without the addition of antigen and amboceptor. If b this control test we obtained hemolysis we removed th natural chief amboceptor by absorption and the repeated the experiment. Besides the normal serums serums of measles, diphtheria, erysipelas, malignan tumor, tuberculosis and nephritis were used as controls None of these control serums prevented hemolysis wit the extracts. In 118 cases of scarlet fever the serum were tested in this way for antibodies against the extrac described, eighty-one, or 68.6 per cent. showing a complete binding of complement. It is interesting that o the serums from cases of scarlatinal nephritis examined every one gave a positive reaction. In respect to th time of the first appearance of these antibodies it ma be said that they do not seem to be present in the bloo in demonstrable quantities before the onset of the secon week, the eighth day being the earliest in which positiv reaction was obtained. So far as the duration of th action is concerned the serum was found to be active i the twelfth week and in one case of scarlatinal nephriti even in the sixteenth week. The following conclusion were suggested by the results obtained:

1. The serum of scarlet fever patients contains specific antibodies for an unknown virus.
2. This unknown virus seems to be present especiall in the cervical lymph-nodes.

These conclusions lead necessarily to the inferenc that the streptococcus is to be discarded as the etiologi factor of scarlet fever.

EXPERIMENTAL SCARLET FEVER

The great difficulty in determining the specific properties of material containing the supposed virus lies i the fact that scarlet fever is not communicable t animals. Recently, however, several investigators hav reported encouraging results in experimental scarle fever. The successful work of Metchnikoff and Roux i experimental syphilis in apes suggested the use of thes animals for the transmission of scarlet fever also.

Cantacuzene[18] reports that he has produced typica scarlet fever in monkeys (*Macacus cercopithecus*). Fron nine animals injected, four showed after thirty-seven, nineteen, twelve and five days, respectively, fever of 40 C. and a purple-red eruption of the face, followed by a marked desquamation. Two of the positive results were obtained through the subcutaneous injection of the blood of one patient sick with scarlet fever, who had shown the eruption for only a few hours. Of the remaining two monkeys that developed symptoms, the first was injected subcutaneously with pericardial exudate, the other with an emulsion of the tracheobronchial glands. The blood and exudate were free from any demonstrable microorganisms.

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[16] Tesjakoff: Westnik. Obschestvensi Gigieni, September and October, 1910; from Folia Serologica, 1910, vii, 76.

[17] Watters, W. H.: The Journal A. M. A., Feb. 24, 1912, p. 546.

[18] Cantacuzene: Compt. rend. Soc. de biol., 1911, lxx, 403.

About two months later Bernhardt[19] gave an account of experiments in the same direction. He injected an emulsion of the coatings from the tongue in the early stages of scarlet fever into the groin of his monkeys. Some of this material he rubbed over their tonsils and tongue. This inoculation was followed by a rise in temperature and swelling of the lymph-nodes in the inguinal region and on the fifth day the animals were quite sick. The inguinal glands were now extirpated and an emulsion of them injected into the groins of another series of monkeys. After three such passages this material was free from streptococci, yet it was still virulent for the animals. The symptoms developed were similar to those of scarlatinal fever, a punctiform exanthem on face, neck, shoulders and chest, and the characteristic strawberry tongue. This was followed by a lamellate desquamation. These symptoms appeared whether the material injected was freed from streptococci by filtration through a Berkefeld filter or not. But streptococci alone did not produce the characteristic symptom-complex.

While Bernhardt used for his experiments the lower monkeys (*Macacus cercopithecus*), Landsteiner and Levaditi[20] used chimpanzees, the same species as Metchnikoff and Roux had first used successfully in the experimental transmission of syphilis. They took the coating of the tonsil and the blood of children sick with scarlet fever as material. By introducing this into the throat and by inoculation under the skin, they produced a disease in one chimpanzee, characterized by fever, an angina, with redness and swelling of the mucous membranes of pharynx and tonsils, and the formation of a grayish-yellow deposit on the latter, and swelling of the papillæ of the tongue. A general eruption followed resembling closely the scarlet fever rash in children. This ape died and the post-mortem findings showed lesions in the kidneys and the skin and a tumefaction of the lymph-nodes which Landsteiner and Levaditi consider as identical with the changes found in human beings. With streptococci isolated from scarlet fever patients they were unable to produce the disease picture.

Hektoen and Weaver[21] reported some experiments made during the time from December, 1909, to September, 1910, in which they fed monkeys with milk which was infected with material from the throat and mouths of children sick with scarlet fever. From thirteen monkeys (*Macacus*) fed in this way, ten remained well and three died. No streptococci or other microorganisms could be demonstrated by microscopic or cultural methods. The sterile blood taken from the heart of the third monkey immediately after death was mixed with sterile milk and fed to a healthy monkey for three days. This one became sick four days after the milk was first fed, and refused food, the temperature rising to 104.1 F.; the leukocyte count was 52,000. The leukocytosis persisted for five days and disappeared as the temperature subsided and the appetite returned. This sickness was suggestive, as it came on four days after feeding and ran a short course with fever and leukocytosis; but there was no cutaneous eruption.

These are, in brief, the advances made in the last five years in our knowledge of scarlet fever. Though the etiologic agent has not been found and is yet to be discovered, the place to be attributed to the streptococcus has been more clearly recognized. The streptococcus almost constantly present leads to a systemic reaction of the organism which finds its expression in the presence of antibodies against it. The streptococcus, however, can no longer be identified with the virus of scarlet fever, whose existence and presence in the lymph-nodes in a high concentration must be assumed from the presence of specific antibodies in the blood. The experimental transmission of scarlet fever to apes and monkeys substantiates this statement and points to new possibilities for the closer study of the nature of this virus.

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THE ARTIFICIAL CULTURE OF FILARIAL EMBRYOS

A PRELIMINARY NOTE *

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The earliest success of Bass[1] in the cultivation of certain parasitic protozoa (plasmodia) *in vitro* led one of us (Wellman) to attempt the nurture in artificial mediums of the embryos of *Filaria immitis* Leidy. At that time a considerable number of positive cultures was obtained, using defibrinated dog's blood inactivated for long periods of time at comparatively low temperatures. Since the return of the malarial expedition of the Tulane University Department of Tropical Medicine from Central America additional work has been completed, employing their technic[2] and comparing results with ordinary blood-cultures. A fuller statement of the work thus far accomplished and the details of future progress will be presented later.

Experiments were devised to determine the influence of various whole bloods, serums and diverse mediums, and also the effects of temperature, air, etc., on the cultures.

The embryos live for ten or twelve days in some specimens of sterile defibrinated dog's blood at room temperature (28 C.), and considerable increase in size occurs, the parasites growing to 1⅔ their former dimensions. At 37 C. the cultures die out in from three or four to eight days and little or no increase in the size of the embryos can be seen. It may be noted here that the adult worms, both male and female, will live from three to five days in sterile defibrinated dog's blood at 37 C., but, even if fecund females, or both males and females, are included in the same tube no increase in the number of embryos in the medium can be noted. Dog's blood containing embryos, if added to dog-serum, to human serum or to guinea-pig serum, shows little increase in the size of the contained parasites either at room temperature or at 37 C.

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[19] Bernhardt: Deutsch. med. Wchnschr. 1911, xxxvii, 792.

[20] Landsteiner and Levaditi: Compt. rend. Soc. de Biol., 1911, lxx, 641; Gaz. d. hôp., 1911, p. 784. Landsteiner, Levaditi and Pracek: Ann. de l'Inst. Pasteur, 1911.

[21] Hektoen, L., and Weaver, G. H: THE JOURNAL A. M. A., June 17, 1911, p. 1795.

* Study 24, from the Laboratories of Hygiene and Tropical Medicine under the direction of Creighton Wellman, Medical Department, Tulane University of Louisiana.

[1] Bass, C. C.: THE JOURNAL A. M. A., Nov. 4, 1911, p. 1534.

[2] Bass, C. C., and Johns, Foster M.: The Cultivation of Malarial Plasmodia (Plasmodium Vivax and Plasmodium Falciparum) in Vitro, Jour. Exper. Med., October, 1912, p. 567.

Other mediums, such as hemoglobin agar, bouillon, citrated dog and human blood, were less successful than defibrinated blood.

Our best results were obtained with dextrose dog-serum at low temperatures. The cultures were prepared by adding 0.1 c.c. of filariated dog's blood to 1 c.c. of dog-serum which contained 0.01 per cent. of dextrose. These were placed in the ice-chest at 12 C. Such cultures live from twelve days to two weeks and the parasites become from 2 to 2⅓ times as long as when planted. The addition of fresh serum after removal of the old (on the eighth day) seemed to aid the growth and vitality somewhat, as such cultures have remained alive over two weeks and the embryos have increased to 2½ times their original length.

It is rather curious that, after the low temperature, the next best temperature for producing growth of the parasites is as high as 40 C. At this temperature, in the medium last mentioned, an increase of growth to 1¾ times the original length of the embryos is seen after eight or nine days.

Cultures which are contaminated with bacteria in many instances give quite as good results as those which are sterile, especially at low temperatures. When incubated at high temperatures such cultures become rapidly overgrown with bacteria and the embryos die, while at low temperatures (12 C.) and even at room temperature (28 C.) they seem to thrive in the presence of certain bacteria. Possibly the low temperature, by allowing the presence of certain bacteria and their products while preventing the excessive development of such organisms, approximates in a degree the conditions found in the mosquito's stomach.

It is probable that we have by the above methods nurtured the microfilariæ to a point which corresponds with the limit of their development in the digestive tract of the mosquito, and that a modification or change of the medium in order to approximate their surroundings in the malpighian tubules of the same insect (wherein their subsequent development occurs) will be necessary to carry the parasites to sufficient maturity to make possible the infection of animals from cultures. Further research along these lines is in progress and will be published later.

We wish to acknowledge the help of Mr. Percy L. Querens, student assistant in the Laboratories of Tropical Medicine, in the routine work of planting and examining the series of cultures studied in the course of the work.

Tongue Sign of Cancer of the Esophagus.—Guarnaccia calls attention in the *Archives Int. de Laryngologie*, 1912, xxxix, 88, to the information to be derived from progressive retrofixation of the tongue with cancer of the esophagus. He has never encountered this sign in other affections in the region but has found it constant even with incipient cancer of the upper third of the esophagus. The patient cannot put out his tongue except with difficulty and pain, and it is almost impossible to draw out the tongue.

SURGERY OF INTRAMEDULLARY AFFECTIONS OF THE SPINAL CORD: ANATOMIC BASIS AND TECHNIC

WITH REPORTS OF CASES *

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In the course of more than sixty spinal operations I have had occasion to observe a number of lesions within the substance of the cord which seemed amenable to surgical treatment. This led me to investigate the subject in order to determine the frequency of localized intramedullary disease, and the part of the cord into which an incision can be made with a minimum amount of injury to the delicate cord tissue. In addition, I have attempted to develop a special technic for intramedullary spinal surgery, and have made use of this technic in a number of spinal operations in which the cord itself was invaded during the operative manipulations.

The results of my investigations have convinced me that under the proper conditions and with the proper technic it is perfectly feasible and safe to incise the cord substance in order to allow of the extrusion of localized intramedullary growths, to drain cysts in the substance of the cord, etc. I am at present investigating experimentally on animals the subject of intramedullary operations, and hope in the near future to report my experiences and the results of the histologic studies of spinal cords in which incisions at various levels had been made.

Intramedullary tumors are not by any means so rare as ordinarily they are believed to be. Thus Allen Starr,[1] quoting from Schlesinger, states that among 302 tumors of the cord, 125 were within the cord substance. These included sarcoma, tuberculous tumors, gumma, glioma, lipoma, cysticercus, neuroma, cholesteatoma, myxoma, teratoma, adenoma (Benda), endothelioma, etc. Many of these intramedullary growths infiltrate the cord substance and increase in size by extending upward and downward, but some enlarge in their transverse diameter, are encapsulated and of small size. Gowers[2] says that "these tumors in some cases blend with the substance of the cord, but in other instances they are bounded by an area of softening which often isolates even invading growths. Some tumors are sharply limited." According to Flatau,[3] the comparative frequency of extramedullary and intramedullary tumors is as 2.6 to 1 (fifty-seven intramedullary tumors in 213 cases). Although one cannot estimate from the reports the frequency of localized and encapsulated intramedullary tumors, the fact that one frequently finds illustrations and descriptions of such growths in the literature shows that they are not so very rare. Localized tumors have been found at operation by Krause,[4] Ropke,[5] von Eiselsberg,[6] Elsberg and Beer,[7] and many others. Localized cysts have been found by Krause[4] and by myself. That localized collections of fluid do occur in syringomyelia and hematomyelia is well known. Foreign bodies (bullets) have been found lodged in the cord substance.

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session held at Atlantic City, June, 1912.

1. Starr, Allen: Text-Book of Nervous Diseases, 1909, p. 442.
2. Gowers: Diseases of the Nervous System, 1899, p. 609.
3. Flatau: Handbuch der Neurologie, ii, 640.
4. Krause: Chirurgie des Gehirns und Rückenmarks, ii.
5. Ropke: Arch. f. klin. Chir. (Langenbeck's), 1911, xcvi, No. 4, p. 963.
6. Von Eiselsberg: Mentioned by Ropke (Footnote 5).
7. Elsberg and Beer: Am. Jour. Med. Sc., November, 1911.

These localized intramedullary conditions have rarely been attacked by the surgeon, because the necessary operative manipulations are almost certain to result in extensive and irreparable injury to the cord tissue. For this reason it has been the common practice to consider disease within the substance of the cord entirely hopeless. In the literature, however, are to be found isolated cases in which intramedullary tumors were removed with a satisfactory improvement in the patients' symptoms (Ropke, von Eiselsberg, Elsberg and Beer); intramedullary cysts and foci of softening have been drained (Krause, Elsberg); a small well-encapsulated tuberculous focus has been removed (Veraguth and Brun), and the attempt has been made (Abbe, Krause, Elsberg) to drain a syringomyelitic collection of fluid into the subdural space. The cord has been incised in order to remove a bullet from its substance (W. Braun), and for the purpose of decompression in extensive irremovable intramedullary tumors (Krause, Cushing, Elsberg). These efforts to attempt the surgical relief of affections within the substance of the cord are isolated efforts, and were not based on regular well-worked-out methods of procedure.

For the proper development of intramedullary surgery, the neurologic surgeon must understand the structure of the cord in its finest detail. He must master the delicate technic of the making of an incision and must have at his command a method or methods by means of which the intramedullary manipulations shall be accomplished with a minimum amount of injury to the delicate and important structures of the spinal cord. In this connection I shall consider the fine anatomy of some of the conducting tracts of the spinal cord, the course of fibers in the posterior columns and the regions where an incision into the cord will cause a minimum amount of injury to fibers of the posterior roots.

ANATOMY OF THE CORD

Not only from their anatomic position and their physiologic character, but also from the ease with which they may be exposed, the posterior columns are the most favorable for an incision. The fibers in the posterior columns convey principally deep muscle and tactile sensations to higher levels, although the fibers for all varieties of sensation enter the cord in the posterior spinal roots. Our knowledge of the conducting paths for the various sensations is still incomplete; the following is a summary of all that is known:

The fibers for the sensation of pain enter the cord in he posterior roots, and soon pass through the posterior horn and gray matter to the anterior part of the lateral column on the opposite side. The fibers for thermesthesia take a similar course, but they do not cross to he other side so quickly as the pain fibers, but require from two to five segments for the complete crossing. The fibers for touch pass partly along the same course as the pain fibers and partly up the posterior columns on he same side to the posterior column nuclei at the extreme upper end of the cord. In these columns also ie the paths for deep muscle sense (postural recognition, pacial discrimination, etc.). When one part of the ensory pathway in the cord is interrupted, other tracts may take up the transmission of sensations. Although his is probably true for all kinds of sensation, the actile sensations especially seem to run in a bilateral path and are not apt to be markedly affected by a purely unilateral lesion.[8]

The posterior columns, in short, contain mainly fibers (endogenous and exogenous; primary and secondary paths) which contribute to the transmission of tactile and deep muscle (kinesthetic) sensations, and we must next determine the course of these tracts in the posterior columns.

As is well known, the fibers of the posterior roots from below upward enter the cord and lie at first just mesial to the posterior gray horn. A part of these fibers remain in the posterior column, where they divide into ascending and descending branches. The ascending branches give off numerous collaterals to the gray horns until the level of the next root above is reached. Fibers from this second root then take their position on the mesial side of the posterior horn, crowding the fibers from the preceding (lower) root more toward the median line. It will be seen, therefore, that the fibers finally form a succession of lamellar tracts which in each case lie at first next to the posterior horn and gradually become shifted medianward by those which enter the cord with the higher nerve-roots (Schaefer). This arrangement of tracts in the dorsal columns has been studied in the lower animals by Kahler and many others, while degenerations in the tracts of the cord in man have been described in detail by Schaffer, Ziehen, Collier and Buzzard, Wichmann, Schultze, Petren and others.

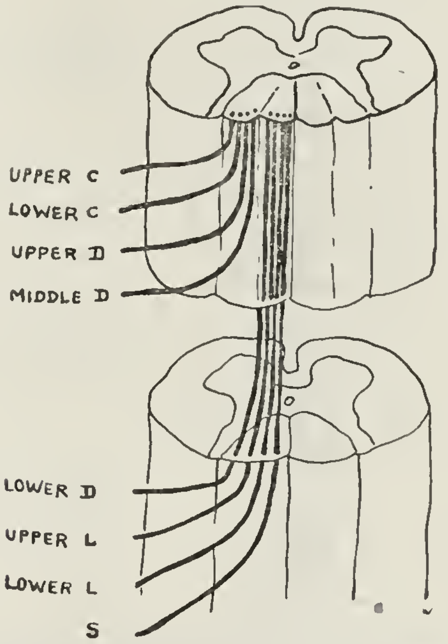

Fig. 1.—The course of fibers for tactile and deep muscle sense in the posterior columns of the cord (diagrammatic). The fibers form a series of lamellar tracts, the fibers from the lowest posterior roots lying nearest the posterior median septum of the spinal cord.

As a result of this arrangement of conducting-paths in the posterior columns, the fibers from the sacral posterior roots soon come to lie nearest the posterior median fissure; outside of these run the lumbar roots, outside of these the dorsal, and so on (Fig. 1).

In the lumbosacral region the columns of Goll and Burdach are not distinct, and the fibers from the posterior roots occupy a great part of the dorsal column; while in the cervical and dorsal regions the arrangement is such that the posterior median column (Goll) contains only fibers from the sacral, lumbar and lowest dorsal posterior nerve-roots, while the postero-external column of Burdach contains the fibers from the upper dorsal and cervical posterior roots (Fig. 1). Therefore in the lumbosacral region an incision may be made anywhere in the posterior column. It is best made a few millimeters from the median line so that injury may not be done to the descending tracts (triangle of Gombault and Philippe, from the third sacral nerve to the conus) in the sacral region; the oval bundle of

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[8] Rothmann believes that sensory fibers for touch exist also in he anterior columns of the cord.

Flechsig (from the third and fourth lumbar nerves to the third sacral nerve), and the septomarginal bundle of Bruce and Muir (from the first to the third lumbar nerves) in the lumbar region. The incision should not be too near the posterior root zone, lest it damage the marginal fibers. The deeper the incision, the greater the probability of injury to fibers from the higher lumbar roots.

In the dorsal and cervical regions the incision should always be made in the posteromedian column, and the higher the level, the nearer should the incision be to the median line. In the upper and middorsal regions the incision is best made from 2 to 4 mm. from the median line, while from the level of the midcervical region upward it should be made very near the median line, preferably in the posterior median septum. The accompanying diagram (Fig. 2) will show the relations perfectly, and shows (in black) the region at different levels, where an incision can be made in the posterior column so as to injure only a few fibers from the sacral or lumbar posterior roots. It is important also to remember that in the sacral region there is very little white matter, the bulk of the spinal cord being formed of gray matter. In the thoracic region there is a relatively small amount of gray matter, while in the lumbar and cervical enlargements the gray matter, as well as the white columns, are of large size.

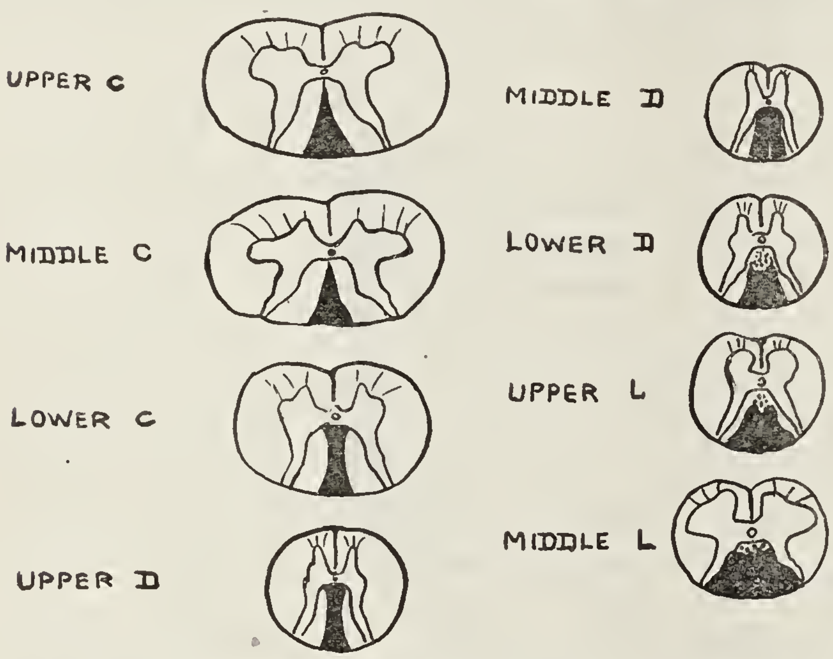

Fig. 2 (after Schultze).—The areas in the posterior column of the human spinal cord in which ascending degeneration occurs after injury to the sacral and lowermost lumbar posterior roots of both sides. Within these areas (shaded in black) an incision, made in the posterior columns, will cause a minimum of injury to nerve fibers and only very few if any symptoms.

In rare instances it might be necessary to incise the cord on its anterior aspect. It is well known that the spinal centers for the various muscles of the body are not situated in single segments of the cord. The cells in the anterior gray horns which supply each single muscle lie in two or more segments of the cord, so that a small incision through the anterior median fissure and into the anterior gray horn should not cause a great amount of motor or sensory disturbance.

TECHNIC OF ASPIRATION AND INCISION OF THE CORD

Aspiration of the cord can be done with entire safety, provided that only the finest aspirating needle is used and care is taken not to injure any of the fine blood-vessels which enter the cord through the posterior median septum from the pia-arachnoid. A very fine scalpel, such as the von Graefe knife used by the ophthalmologist, is the best instrument to use for the incision. The pia-arachnoid should always be incised first and carefully grasped and raised with fine forceps. Then the proper part of the posterior column is selected and an incision less than 0.5 cm. long is made. The incision must be carefully deepened and enlarged, care being taken that it shall be in the axis of the cord. The enlarging and deepening of the incision is best done by means of a blunt instead of a cutting instrument. For this purpose an instrument like a small blunt strabismus hook is useful and by its means fewer fibers are divided and more are separated from each other.

In the case of an intramedullary tumor, the incision can usually be made into the most bulging part of the cord. When the tumor is exposed, no effort should be made to enucleate it, unless it is superficial and of small size. The growth should be left to extrude, to be removed at a later operation, according to the principles laid down by Dr. Beer and myself[7] in a previous publication. As described in that paper, the method of extrusion is a procedure by means of which the amount of injury done to the cord in the removal of a tumor is reduced to a minimum. Almost the entire process is left to Nature rather than to the manipulation of the surgeon. If at the second operation the tumor is found to be well extruded but still intimately connected with the interior of the cord, it is best not to attempt its removal, for fear of grave injury to the cord itself. In the case of an infiltrating growth, the incision into the cord may be made of considerable length so as to obtain a maximum decompressive effect. In these infiltrating growths, which often increase in size very slowly, the tumor mass itself may sometimes be incised with advantage.

The incision should always be made slowly and should be stopped as soon as distinct bleeding occurs. Sponging should be done with extreme care so as to make the smallest amount of pressure on the cord itself. When a cystic collection of fluid or a small area of softening is opened, no effort should be made to remove the fluid in the cavity by sponging or by pressure. It will be sufficient to lay the cavity open and to remove by means of small cotton sponges the fluid which escapes by itself from the cavity.

Needless to say, the cord should never be grasped with forceps; it can be raised from its bed by means of traction on the dural sac or the pia-arachnoid.

After the removal by the extrusion method of an intramedullary tumor, the attempt may be made to unite the delicate edges of the cut pia-arachnoid by a few extremely fine (single strands of split silk) sutures. No suture should ever pass through the cord tissue itself.

If the anterior surface of the cord has to be exposed, this can usually be satisfactorily accomplished if one posterior root of one side is divided. By means of the cut root the cord can be well lifted up and partly rotated on its own axis so that the anterior column is brought plainly into view. In several spinal operations in which the anterior surface of the cord had to be exposed, I accomplished this satisfactorily by means of division of one posterior root.

EXPOSURE AND RECOGNITION OF INTRAMEDULLARY LESIONS

A complete laminectomy is always necessary when a thorough exploration and examination of the cord is to be made. This means usually that at least three spinous processes and laminæ have to be removed, and that the laminæ shall be taken away well out to their articulating surfaces. While the operation of hemilaminectomy has an undoubted field of usefulness, a wider exposure of the cord is necessary whenever a tumor has to be removed or the cord tissue is to be invaded.

After the dura has been incised, the cord is exposed, and covered by the pia-arachnoid, which may be raised from the cord by cerebrospinal fluid. The pia-arachnoid should not be injured when the dural sac is opened, and should be incised separately.

Sometimes it is difficult to differentiate between a subpial growth closely adherent to the cord and a true intramedullary tumor. While some intramedullary growths break through the posterior surface of the cord and bulge out the pia, the majority cause a fusiform enlargement of the cord, and it is necessary to divide the pia-arachnoid and a thin layer of cord tissue before the tumor is exposed. After the pia has been incised and retracted, the surgeon may think that he is incising cord tissue when in reality he is incising the capsule of the tumor. With increasing experience, one learns to recognize the soft creamy-white character of the cord tissue. If, in addition, one can demonstrate that posterior nerve-roots emerge directly from the tissue through which the incision has been made, mistakes should not occur. In several instances of intramedullary tumor, I was at first in doubt as to whether I was really incising cord tissue, but in most of the cases of intramedullary disease in which I have operated, there was never any doubt that the cord substance was being invaded.

Careful palpation of the cord will often inform the operator that a solid tumor exists in the cord or that the enlargement is due to a collection of fluid. I have gained the impression, also, that retention of fluid both above and below the enlargement of the cord is much more frequent in the cases in which an intramedullary lesion exists.

SYNOPSIS OF CASES

Case 1.—*Intramedullary gliosarcoma of cervical cord; laminectomy; incision of cord, extrusion of tumor; removal, recovery.* Result: very marked improvement with return of power in all extremities; patient returned to her work.[9]

Case 2.—*Intramedullary glioma of cervical cord; laminectomy; incision; extrusion; removal.* Result: death in four hours from respiratory paralysis.[9]

Case 3.—*Intramedullary sarcoma of cervical cord; laminectomy* (Dr. Beer); *extrusion, removal, recovery.* Result: marked improvement; later: recurrence, operation, removal of tumor mass, no improvement.[9]

Case 4.—*Infiltrating tumor of upper cervical cord and medulla oblongata; laminectomy, incision of cord, partial extrusion of tumor; death after two days from respiratory paralysis.* Post-mortem examination showed that the tumor extended into the medulla and had grown through the posterior surface into the posterior cranial fossa.[10]

Case 5.—*Hydromyelia; laminectomy, incision of cord draining cord cavity into subdural space.* Result: Improvement. J. H., aged 29, service of Dr. Collins at the New York Neurological Institute. Pain in back and across shoulders since May, 1910, followed by numbness in right arm and hand and increasing weakness in right upper extremity. Increasing weakness and stiffness in right lower extremity.

January, 1912: Power in upper extremities fair—left better than right. Biceps, triceps and wrist-jerks exaggerated on both sides; diminution in all three sensations on right side over distribution of cervical fourth to cervical seventh. Slight sensory disturbances on left side. Abdominal reflexes absent; knee- and ankle-jerks exaggerated, double ankle clonus, right Babinski. Right lower extremity is weaker than left, no sensory loss. *X*-ray and Wassermann negative. Lumbar puncture: clear yellow fluid with excess of globulin. After lumbar puncture, complete palsy of left lower and marked weakness of right lower extremity with absent knee- and ankle-jerks.

January 26: Laminectomy (Dr. Elsberg); removal of spinous processes and laminæ of third, fourth, fifth and sixth cervical vertebræ; dura does not pulsate; dural sac much enlarged; dura pia and cord bound together by fine adhesions. Cord covered by network of congested vessels. Cord much enlarged and soft; aspiration in median line withdraws clear, yellow fluid. Suture of muscles and skin, dry dressing.

February 12: Wound reopened; 4 cm. incision in posterior median septum; much yellow fluid evacuated; probe passed carefully downward in cord cavity for 6 inches. Edges of incision in cord gape widely. Suture of dura, muscles and skin in usual manner. Wound healed by primary union; at first exaggeration of all symptoms, then gradual return of power in lower extremities and in upper extremities, diminution in sensory disturbances.

May 7: The patient had been slowly improving; power in the lower extremities was good; knee- and ankle-jerks were lively and there was no ankle-clonus; power in the upper limbs was distinctly better; the patient could walk with a little assistance, and had some control of the bladder.

Result: Slow but marked improvement.

Case 6.—*Intramedullary tumor of cervical cord, laminectomy; incision of cord to allow of extrusion of tumor; improvement.* W. P. Y., aged 30, service of Dr. Collins at the Neurological Institute. Two years' history of pain in back of neck followed by weakness of right and then of left upper extremity; increasing weakness of lower extremities.

April 28: Upper extremities very weak, right more than left; power in hands almost *nil;* tactile sensation much diminished over area of right cervical third to cervical seventh, slightly over cervical eighth to dorsal second; marked hypalgesia over same areas; complete thermanesthesia over same areas. Indefinite sensory disturbance over left upper extremity. Abdominal reflexes absent; both lower extremities very weak—right more than left. Knee-jerks and ankle-jerks exaggerated, right more than left; double ankle-clonus, double Babinski. No sensory disturbances, but patient says that right lower limb feels numb. No loss of deep muscle sense. *X*-ray and Wassermann negative. Rapid advance of symptoms under observation.

April 29: Laminectomy (Dr. Elsberg); removal of spinous processes and laminæ of fourth, fifth, sixth and seventh cervical vertebræ; dura does not pulsate. Incision of dura; no escape of fluid; cord much enlarged between cervical fourth and cervical seventh; at level of cervical sixth a transverse groove or depression extending all around cord; cord feels very soft; aspiration of cord negative. Exposed surface of cord of a reddish color; origin of left posterior roots surrounded by network of vessels; probe passed upward and downward within dural sac without meeting an obstruction. One centimeter incision of cord just to right of origin of posterior roots; incision deepened with blunt hook; at depth of several millimeters, yellow tumor; through intramedullary pressure incision in cord slowly spreads and lengthens with beginning extrusion of intramedullary tumor; marked bulging of tumor. Sutures of muscles and skin; removal of growth delayed to a second stage.

May 7: Wound healed by primary union; general condition excellent. Up to present, condition in lower extremities about the same as before operation; upper extremities somewhat weaker, but there is a decided improvement in touch and pain sense in right upper extremity.

Case 7.—*Syringomyelia; gliosis cervicalis; laminectomy, incision of cord for decompressive purposes; recovery; marked improvement in power of upper extremities.* Louis P., aged 28, service of Dr. Bailey at Neurological Institute. Preoperative diagnosis: intramedullary tumor or syringomyelia. Marked weakness in upper extremities, almost complete loss of power in lower limbs. No loss of bladder control. Very marked loss of sensations of pain and temperature up to level of dorsal first area of distribution on both sides, most marked on right side. Very slight hypesthesia over same area.

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[9] Reported in Am. Jour. Med. Sc., November, 1911.
[10] Reported in Ann. Surg., February, 1912.

Jan. 5, 1912: Laminectomy (Dr. Elsberg); removal of spines and laminæ of seventh cervical, first and second dorsal vertebræ, and incision of dura. Escape of moderate amount of cerebrospinal fluid; exposed part of cord considerably enlarged and of abnormally firm consistency. Incision 1 cm. long just to left of posterior median septum; cord substance bulged markedly through incision and was of a yellowish color, but no distinct tumor tissue to be seen. Condition evidently one of gliosis. Suture of dura, muscles, fascia, skin.

Uneventful recovery from operation. Flexion at knees somewhat improved; sensation in lower limbs much better.

May, 1912: Power in upper extremities greatly improved.

Result: Some improvement.

CASE 8.—*Diffuse meningomyelitis with intramedullary cyst; laminectomy; incision of cord, drainage of intramedullary cyst; no improvement. Death three months later from exhaustion; autopsy showed extensive lesions throughout dorsal and lumbar cord.* A. R., aged 37, service of Dr. Abrahamson at the Montefiore Home for Chronic Invalids. Five years' history of numbness of both hands, weakness in both legs, severe pains in upper extremities; symptoms steadily progressive. Old syphilitic infection. Wassermann positive; some improvement after injection of salvarsan and mixed treatment. Before operation, paralysis of both lower extremities, knee- and ankle-clonus, Babinski, Oppenheim. Tactile sensation diminished from level of sixth cervical, pain and temperature diminished from level of first dorsal.

Jan. 8, 1912: Laminectomy (Dr. Elsberg); removal of sixth and seventh cervical, first and second dorsal spines and laminæ; incision of dura, escape of small amount of fluid encapsulated between adhesions. Cord much enlarged over cervical seventh to dorsal first; cord feels fluctuating; incision of cord 2 cm. long opening into cyst cavity containing about 10 c.c. of clear fluid; walls of cavity are smooth and of a canary-yellow color. Numerous adhesions between dura and pia-arachnoid and cord. Diagnosis: meningomyelitis (specific), with cyst formation. Closure of wound in usual manner. Uneventful recovery except for slight wound infection.

Result: No improvement; tubercle bacilli in sputum; gradual emaciation with formation of bedsores; death April 10, three months after operation. Autopsy showed that the entire cord was the seat of extensive disease, numerous cavities in cord, diffuse thickenings of pia-arachnoid.

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ABSTRACT OF DISCUSSION

DR. PEARCE BAILEY, New York: Intramedullary surgery has been done previously as long ago as 1906, when Horsley in an article in a British journal advocated laminectomy and incision in the cord, such as was experimentally advocated by Allen of Philadelphia. But Dr. Elsberg, as far as I know, is the first to take the matter up systematically and consider its rather discouraging relations with the intramedullary growths and with the question of syringomyelia and hydromyelia. I think one thing that all neurologists ought to do more and more is to insist on special surgeons for these special and delicate operations. The majority of general surgeons are perfectly willing at any time to undertake laminectomy; but the more one sees of the laminectomies done by surgeons not skilled in this particular field and the lack of knowledge which they have of the parts, the more earnest and emphatic neurologists should be in insisting that experienced neurologic surgeons should do all the operations.

DR. CHARLES A. ELSBERG, New York: I think the amount of work the surgeon does within the cord should be reduced to the minimum; if it be a cyst to be opened or a tumor to be exposed, make the superficial incision with a sharp instrument, such as a small von Graefe knife, and deepen the incision by a blunt instrument. The surgeon cannot be as careful as is necessary, therefore he ought to do as little as possible under the circumstances and allow Nature to do her share.

The posterior route incision is very interesting to me, and very valuable, because it was the first region in which I attempted, in my anatomic studies, to make the incision. I found that that region very often is way around at the side, where one has to manipulate the cord too much. It means a great deal more manipulation of the cord than would otherwise be necessary, and I think what one would gain in anatomic correctness one would lose in the manipulations and necessary injury to the cord. Every time you touch the cord it means that you may be doing some harm; and if you work on the theory that every time you touch the cord, no matter how gently, you are doing harm, you will be traveling the only safe road in this special surgery.

THE IMMUNIZATION AGAINST TYPHOID OF EIGHT HUNDRED AND NINETY-EIGHT PATIENTS IN AN INSTITUTION

WITH DESCRIPTION OF THE TECHNIC EMPLOYED *

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That typhoid fever is endemic in institutions is generally accepted as a fact. That it is occasionally epidemic is a fact. It is also a fact that the source of infection is usually hard to find and frequently is not found.

The presence of a case of typhoid in this institution caused a general search for the origin of the infection, but it was not found. The case occurred in a building occupied for the most part by aged and demented patients. The routine biweekly examination of water and milk gave negative results, as before.

Inasmuch as the best way of dealing with typhoid epidemics is to prevent their occurrence, it was suggested by the superintendent (Dr. H. W. Mitchell) that all patients not over 50 years of age should be immunized.

The bacterin was made from a culture sent me through the kindness of Major F. F. Russell, U. S. Army. Large surface growths were made on agar, washed off with sterile normal saline solution, killed and standardized so that 1 c.c. contained either one billion or two billion bacilli. One-half c.c. was found to be the most convenient quantity to inject. The suspension was preserved with 0.2 per cent. trikresol.

Before the first inoculation and again ten days after the last one, a drop of blood, approximately 20 cm., was obtained from each patient, on a piece of Lautenslager filter-paper.

In order to inoculate so large a number of insane and more or less resistive patients, it was necessary to devise some rapid and efficient method.

TECHNIC OF INOCULATION

All inoculations were made at night after the patients had retired. Two assistants were required, one of whom went ahead rolling up the sleeves of the patients; the other remained with the physician and carried two wide-mouthed bottles of 30 c.c. capacity, one of which contained the bacterin and the other a piece of cotton saturated with tincture of iodin. The syringes used were Sub Q and Luer of 2 c.c. capacity. The same platino-iridium needle was used for all inoculations. The needle was drawn through the iodin cotton, and the iodin wiped off with cotton saturated with alcohol. The arm was cleansed with alcohol at the insertion of the deltoid muscle.

Thus patients sleeping in dormitories were inoculated at the rate of twenty-seven seconds per man. In the wards, in which the patients were in separate rooms, it required thirty-nine seconds per man. Many of the patients were asleep and did not know until the next morning that they had been inoculated.

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* From the Pathologic Laboratory of the State Hospital for the Insane, Warren, Pa.

In all, 2,694 inoculations were made. The first dose was one-half billion bacilli, and the second and third each one billion. The interval between doses was ten days. Only one of the 2,694 injections was followed by an abscess; this, however, is one too many.

The reactions were classed as follows:

None: An area of hyperemia, 5 to 7 cm. in diameter, with no edema.

Mild: An area of hyperemia with slight edema, and temperature not over 100.

Moderate: Marked hyperemia and edema extending to elbow, with a temperature not over 103.

Severe: Marked hyperemia and edema, chills, pain in the back and legs, and a temperature over 103.

It is obvious that little reliance can be placed on subjective symptoms reported by insane patients. Except in one case the objective symptoms alone were recorded. This patient showed a severe reaction after each dose, and was unable to work the following day. Many of the patients worked in the house or about the farm; others were digging a ditch.

TABLE OF REACTIONS

Dose.	None.	Mild.	Moderate.	Severe.
1	883	3	11	1
2	880	6	11	1
3	895	1	1	1

TECHNIC OF AGGLUTINATION TESTS

It was assumed that each piece of filter-paper contained 20 cm. of blood, which is a fairly approximate estimate, and that the blood was one-half serum.

The blood-stained part was cut from each piece of paper and placed in a test-tube, 10 by 100 mm., and enough distilled water was added to make a serum dilution of 1 to 125. Capillary glass tubes 10 mm. long were used in making the agglutination tests. These tubes were marked with a blue wax pencil in such a manner that mixtures of the blood solution and the typhoid suspension in equal parts, 1 to 4, or 1 to 8, could be made by aspirating the blood solution to a given mark on the tube and the typhoid suspension to another. The contents of the tube were blown out on a watch-glass, mixed and aspirated into the tube, the end of which was then sealed in the flame. Three dilutions were made from each serum, 1 to 250, 1 to 500, and 1 to 1,000; an additional dilution of 1 to 10,000 was made from every tenth specimen examined.

Small wooden boxes 30 cm. in length and 4 cm. in width and depth were filled with dry sand. The capillary tubes were arranged in the sand in rows of three, each row containing the three different dilutions of the same serum. It required thirty seconds to put up each tube. Agglutination tests were made, therefore, at the rate of two per minute. The boxes were set aside at room temperature until the next morning, when the results were read. Only those tubes showing heavy flocculi of clumped bacilli were called positive.

Blood taken before inoculation was treated in the same way, but only one dilution was made, 1 to 250.

RESULTS OF AGGLUTINATION TESTS

Blood taken before inoculation failed in every case to cause agglutination at a dilution of 1 to 250.

Blood taken ten days after inoculation gave the following results: Positive at 1 to 250, 100 per cent.; positive at 1 to 500, 97.7 per cent.; positive at 1 to 1,000, 92.25 per cent. At the dilution of 1 to 10,000 only seventy-four tests were made; these were all positive.

BACTERIOLYTIC PROPERTIES OF SERUM

Unfortunately, no bacteriolytic tests were made prior to inoculation. Specimens of blood obtained ten days after the last inoculation from twenty patients taken at random were used to determine the presence of bacteriolytic amboceptors. The method used was that of Stern and Karte.[1] All twenty were bactericidal at a dilution of 1 to 20,000. Higher dilutions were not made.

I wish to thank the resident physicians for their cooperation. I am especially indebted to Mr. Ellis Winters, undergraduate medical student, Philadelphia, for assistance in making both the inoculations and the agglutination tests.

THE QUANTITATIVE EXAMINATION OF ALBUMIN IN THE SPUTUM IN PULMONARY TUBERCULOSIS

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A review of the subject of the albumin reaction in the sputum in pulmonary tuberculosis shows that a qualitative examination has been made by Sahli, Rogers, Raw, Fishberg, Brown and Ross and others in something over 1,000 cases. They are practically all agreed (1) that albumin is usually present in the sputum in pulmonary tuberculosis; (2) that in doubtful cases of pulmonary tuberculosis the presence of albumin in the sputum with a positive von Pirquet reaction would justify one in making a positive diagnosis; (3) that the intensity of the albumin reaction is, as a rule, proportional to the stage of the disease; (4) that albumin occurs in the sputum in certain other pulmonary affections, namely, pneumonia, edema, pleurisy with effusion, and emphysema with dilatation of the heart.

That all are agreed that the albumin reaction usually occurs in the sputum in pulmonary tuberculosis should prove its importance in the diagnosis of this disease; and apparently there is some relation between the intensity of the albumin reaction and the existing lung condition which should be studied to find the importance, if any, from a prognostic point of view. For this reason a quantitative examination of the albumin in the sputum in pulmonary tuberculosis has been undertaken, and is reported in this article.

TECHNIC

Wide-mouthed bottles are sent to patients, who are instructed to furnish about 20 c.c. of sputum as free from saliva as possible. On return to the laboratory the sputum is measured, and a 3 per cent. acetic acid solution is slowly added while the sputum is agitated until the mucin is coagulated. Then enough distilled water is added to make a 33⅓ per cent. dilution of the sputum. After thorough shaking this is filtered through several layers of gauze, a few drops of the acetic acid solution are added to the filtrate to insure complete precipitation of the mucin, and this mixture filtered through filter paper. A part of the filtrate may be tested by any of the tests for albumin. If more than a trace occurs a quantitative test for albumin is made with Esbach's tube in the same manner that a quantitative test for albumin in the urine is made, and the reading on the tube multiplied by three, as this is the dilution of the sputum. Esbach's test in urinalysis is not accurate and in the examination of the sputum it is obvious that it would be less so; but with this chance of some variation with Esbach's tube in getting the amount of albumin in the sputum, it is decidedly more practicable than using any of the other quantitative tests for albumin and far more accurate than judging of the amount of albumin precipitated in a test-tube.

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[1] Stern and Karte: Berl. klin. Wchnschr., 1904, xli, 213.

This test can be made in any laboratory and requires no special skill and little time, so that it is practicable under nearly all conditions. The sources of error one should remember are: (1) that if much saliva is present with the sputum for examination this saliva may give a slight albumin reaction; (2) that all the mucin should be carefully precipitated and filtered out before testing for albumin.

The sputa of 168 patients at the U. S. P. H. S. Tuberculosis Sanatorium have been examined by the above method. Six cases were incipient; one of these patients had active lesions and showed 0.35 per cent. albumin; three months later, when marked improvement had taken place in both physical signs and constitutional symptoms, only a trace of albumin was present; four cases were improved and showed a trace; and one, an arrested case, gave a negative albumin reaction (sputum examined twice). The sputum of moderately advanced and far-advanced cases gave reactions varying from 1 per cent. albumin to a negative reaction, the amount depending on activity of the process.

Thirty-three cases with active lesions gave reactions of 0.2 per cent. albumin or more. Eighty-eight cases which had been improved under treatment and were considered only slightly active gave less than 0.2 per cent. There were, however, seven active cases showing only a trace of albumin and six with reactions from 0.1 to 0.2 per cent., and eleven slightly active cases showing more than 0.2 per cent.

Of twenty-one arrested cases showing no tubercle bacilli in the sputum, fourteen had a trace of albumin in the sputum and seven gave a negative reaction.

All sputa examined of patients whose condition had not become arrested gave a positive albumin reaction. The amount of sputum in twenty-four hours of patients giving a positive reaction was in no way parallel to the percentage of albumin. Neither the duration of the tuberculous condition nor the involvement of one or both lungs was any factor in the intensity of the reaction. A study of the cases showed that those having active lesions with constitutional symptoms usually had 0.2 per cent. or more albumin in the sputum, while improved cases had a less intense albumin reaction.

CONCLUSIONS

1. The quantitative examination of albumin in the sputum in pulmonary tuberculosis does not require much time and is easy to apply, making it practicable even outside of sanatoriums.

2. All patients with active pulmonary tuberculosis give a positive albumin reaction.

3. Arrested cases never have more than a trace of albumin in the sputum, or they may give a negative reaction.

4. Most active cases, whether incipient, moderately advanced, or far advanced, show 0.2 per cent. or more albumin.

5. Improved (slightly active) cases usually have less than 0.2 per cent. albumin.

UNILATERAL KIDNEY HEMORRHAGE CONTROLLED BY INJECTION OF HUMAN BLOOD-SERUM *

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Because of the brilliant results that Welch obtained when using normal human blood-serum in hemophilia neonatorum, in December, 1911, I suggested the trial of human blood-serum in a case of unilateral renal hemorrhage. The results in this case were as immediate and extraordinary as in Welch's cases.

History.—The patient, a man aged 36, said that he had been suffering from Bright's disease for a period of three or four years. During this time he has had hemorrhages from various places: from a pimple on the chest, which he scratched when asleep; from the trachea; profusely and often from the nose. Three months before I saw him the patient had had an attack of severe pain in the left side of the abdomen. He presented evidence of shock, and was taken to the hospital by his physician. He rapidly became worse. There was distention of the abdomen, which his physician thought was due to an intestinal obstruction. On laparotomy, a large amount of free blood was found in the region of the descending colon, and a blood tumor as large as an orange was seen in the wall of the colon. This was evacuated and a bleeding artery found. The wound was drained and slow recovery followed. During the operation it was discovered that his left kidney was about three times the normal size. When the patient left the hospital there were albumin and casts in his urine. Shortly after this he began to have severe hematuria.

Examination.—When I saw the patient his urine was red with blood. I cystoscoped him and saw the bloody urine jetting from the right ureter. As his history was that of a "bleeder," and as the bladder was entirely normal, I did not attempt either to catheterize the ureters or to exclude tuberculosis or stone of the kidney. The total output of phenolsulphonephthalein was 9.5 per cent. the first hour and 46.5 per cent. the second hour. I sent the patient back to his physician, Dr. C. S. Lamb, New Haven, Conn., suggesting that normal human blood-serum be injected.

Treatment.—The patient had three brothers. Dr. Lamb used all three of them in obtaining blood for serum, in the last injection combining the serum of two brothers. It was thought that the blood of one brother, whose blood was used for the first serum injection, coagulated much faster than the blood of the other two brothers. After the first injection of 20 c.c. the bleeding immediately stopped. This was followed in about four days with 50 c.c. of serum and three days later with 130 c.c. The patient had absolutely no reaction following any of the injections. An examination of the urine after the injection showed no albumin.

Result.—At the present date, six months after the use of the serum, his physician reports that the patient has never lost one drop of blood since the first injection.

I wish briefly to touch on some of the problems of the injection of serum and of the technic of injection.

1. *The Class of Cases in Which Serum Injections Should Be Tried.*—First, in the bleeder. Second, in that class of cases variously termed the bleeding of unilateral nephritis, renal papillitis or varicose veins of a kidney papilla. In seventy-three of this latter class, reports of which I have collected from the literature, there was an operative mortality of 15 per cent. In the attempt to cure the disease, twenty-seven kidneys were sacrificed in this series of seventy-three cases. The non-operative measures, internal administration of turpentin, injection of epinephrin into the kidney pelvis,

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* Read at the Twenty-Sixth Annual Meeting of the American Association of Genito-Urinary Surgeons, Philadelphia, June 7, 1912.

seem occasionally to be of benefit but more often they are not. While it is difficult to say if the serum would have any effect in these cases it should certainly be tried, both by subcutaneous injection and by direct application of the serum to the bleeding-point in the kidney pelvis.

2. *Hemolytic Test.*—Human blood-serum is injected in small quantities at first, 10 c.c. to 20 c.c., and, because it is injected subcutaneously, takes some time to become diffused throughout the body. If there be any reaction, any "serum-sickness," another blood-serum may be used and hemolytic tests be made. If the blood be obtained from any relative there is no fear of serum-sickness and one may give as large a dose as wished.

Welch makes the general statement: "Human serum never gives serum-sickness or causes anaphylaxis in the human subject." Certainly serum other than human is given every day without hemolytic tests as, for example, diphtheria antitoxin. While serum-sickness occurs in 20 per cent. of patients receiving antitoxin, fatal results are rare.

3. *Method of Collecting Blood for Serum.*—Welch gives a picture of an apparatus for collecting blood, which consists of a glass jar having a cork stopper with two holes to admit two glass tubes. One of these tubes goes to the needle which punctures the vein, and the other is for suction when drawing the blood. In emergency, the blood could be collected in a sterile test-tube and the serum taken from that.

4. *Method of Giving Serum.*—If the renal hematuria be part of a diathesis, if the patient be a bleeder, then unquestionably the serum should be injected subcutaneously. If the bleeding should be due to a nephritis, unilateral or bilateral, to a papillitis, to varicose veins of the kidney pelvis, small amounts of serum might be injected through a ureteral catheter.

The efficiency of direct application of blood or blood-serum to a bleeding-point was first discovered by Bienwald,[1] who applied the grandmother's blood to a bleeding cut on a child's head. The child was rapidly becoming exsanguinated and the bleeding stopped immediately after the application. If the serum be injected through a ureteral catheter, 5 or 10 c.c. would be sufficient and diphtheria antitoxin or any other handy serum might be used.

5. *Quantity of Serum.*—The initial dose depends on the urgency of the case. In an emergency, I should not hesitate to inject 40 or 50 c.c. of any relative's serum as the first dose, and, if no reaction ensues, to follow this up in five or six hours with three or four times this amount. The amount of serum that can be injected without injurious reaction is given by Welch. In one case he gave to a dying new-born child 10 c.c. of serum three times in the first day. In another case he injected 209 c.c. in five days.

6. *Duration of Cure.*—As yet no one seems to know how long the one-time bleeder will remain a non-bleeder after the injection of serum. It is possible that the quantity of serum administered has an effect on this. My patient was given 20 c.c. of rabbit's serum six days after the operation for intestinal bleeding with the object of controlling any subsequent hemorrhage. Six weeks after this injection bleeding from the kidney began.

7. *Other Effects and Uses of Serum.*—In addition to its effect on the coagulability of the blood, it is an accepted fact that human blood-serum has a distinct bactericidal action.

If the kidney bleeding is caused or accompanied by infection the serum will help overcome this infection. A third virtue is its nutritive value; the patient has had just so much good food. This, of course, is of much more importance in cases of hemophilia neonatorum.

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SPONTANEOUS HEMORRHAGE OF THE NEW-BORN WITH RECOVERY

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Spontaneous hemorrhage of the new-born is so obscure and so fatal a disease that any experience pointing the way out is worth recording. All treatment detailed in the literature of the subject is so difficult a technic as to require either special skill or special apparatus or both. In view of these facts the following case is worthy of report:

Mrs. R., aged 42, white, was delivered rapidly and easily of her ninth child at 4 p. m., Aug. 26, 1912. She was not in labor more than thirty minutes and the baby was born fully half an hour before the attendant's arrival. The child, a girl, weighed 9½ pounds and appeared perfectly well and normal. Of the eight children previously born, two had died, one, the first born, of some bowel complication at four months; and one, the fourth, of hemorrhage on the fourth day. The ninth child was well for thirty-six hours when the nurse found her listless and flaccid. On examination it was discovered that a large quantity of blood had been passed by the bowel. Some of the blood was red but much the larger part was dark and tarry-looking. I saw her at 9 a. m., August 28. The child was then of a deep lemon color and in profound shock. She had vomited some blood. During the day she had half a dozen bloody stools and at 9 p. m. the pulse was rapid and weak. She had been very languid and relaxed all the day, though she had taken the breast at three-hour intervals. At 9 p. m. she was given about 15 c.c. of normal horse-serum subcutaneously.[1]

August 29 and 30 small amounts of blood were passed, but each time the amount was less, running possibly from half an ounce down to a teaspoonful. At 7 p. m. on the 30th the child was given 20 c.c. normal horse-serum and from that time on there has been no blood. Both injections were made into the buttocks, one on each side. September 1 the stools were the usual yellow color of a nursing infant and have continued so ever since. September 16, when last seen, she was a splendid specimen of baby, skin clear and healthy and nursing well, bowels regular, stools natural and every evidence of perfect health.

Twenty c.c. is a fairly large subcutaneous dose for an infant and in this case put the skin on the stretch decidedly. This tension subsided rapidly and in an hour's time the tumor had disappeared.

DIPHTHERITIC SERUM USED TO CONTROL BLEEDING IN A HEMOPHILIAC

M. J. Perkins, M.D., Spearville, Kan.

I report this case because diphtheritic serum was used, no other horse-serum being obtainable, and because I believe that great benefit was received, both from the serum and from the calcium lactate used.

The patient, L. R., aged 16, was admitted to my service at the Spearville Hospital, Thursday, July 18, 1912, at noon. He had been bleeding for ninety hours from a cut just above the right upper central incisor, received by being struck with a bracelet on a young woman's arm when falling out of a hammock. Two of the mother's brothers suffered from hemophilia. The patient was bleeding profusely and much weakened from loss of blood when admitted. He was given, immediately, 3,000 units of diphtheritic serum, hypodermatically, no other horse-serum being at hand; a piece of absorbent cotton was placed over the cut and the lip drawn down over this. There was a little bleeding after this until 7 p. m., when pressure was applied and 30 grains of calcium lactate were given by mouth. There was slight bleeding between the teeth until the following morning. Friday and Saturday he was given 180 grains of calcium lactate. The bleeding was easily controlled by placing a piece of absorbent cotton between the gum and lip; hemorrhage was less each time the cotton was changed, and by 6 o'clock Saturday evening it had ceased entirely. All treatment was discontinued after Sunday morning, except the administration of iron and arsenic for the anemia. There has been no other hemorrhage to date.

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[1] Bienwald: Deutsch. med. Wchnschr., 1897, xxiii, 28.

[1] Editor's Note: The use of horse-serum has been noted in New and Nonofficial Remedies for a number of years. In the 1912 edition it will be found on page 222. While human serum or blood is to be preferred, horse-serum will do in an emergency.

A CASE OF HEMOPHILIA

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Paul C., a healthy infant, was born of healthy parents, on April 25, 1911. There is no family history of a tendency to hemorrhage. The infant was circumcised at 10 days old, and this simple operation was followed by a most persistent oozing, which continued for a week, in spite of various external applications and internal remedies. The blood clotted freely on the dressings, but the wound edges continued to weep until the child was almost exsanguinated. The bleeding gradually stopped after a week, and the baby regained his strength and color.

On July 27, 1912, at the age of 15 months, he fell and cut his tongue on his teeth. The cut was only as wide as two teeth, and was not deeper than a third the thickness of the tongue. I was called on the 28th and found that the tongue had oozed all night, and that the baby had swallowed a half pint of blood which he promptly vomited, frightening the mother very much. I placed two linen stitches, so closing the cut as to make it almost invisible, and left feeling that all would be well. In two hours I was called and told that the child was bleeding as badly as ever. I then called the doctor who had circumcised him, and after consulting with him, the child was moved to the hospital, and under anesthesia, the wound was seared with the actual cautery, and a catgut suture passed through the tongue from below with a round needle, and then introduced at the opposite side of the cut, and brought out underneath the tongue. Under the loop was placed a tab of gauze and the suture tied down tight, from below. It was thought that this would be sufficient, but to be on the safe side the child was given 20 c.c. of normal serum under the skin, and was put to bed and given calcium chlorid every two hours, and the tongue touched at the same intervals with adrenalin chlorid (epinephrin). This seemed to do the work, and on July 30 the patient was taken home with no apparent bleeding for forty hours, and in good condition.

Early the next morning, I was called, to be told that the child had vomited a pint of blood, and was still bleeding. He was brought back to the hospital at once and the mouth cleaned of a large amount of clotted blood, which was as firmly clotted as any I ever saw. The child was as white as wax, and in poor condition. The suture in the tongue was cut, and another put in with tabs of gauze both on top and under the tongue, and another 20 c.c. of normal serum given, and the child put to bed with constant proctoclysis. He did fairly well and the wound did not ooze much more, but he was desperately weak and did not rally in spite of saline and stimulants. His temperature went to 102.5, and he gradually slipped away, and died early in the morning of August 2. It might seem that, under the circumstances, transfusion was indicated, but when we considered that the wound was very shallow, and only three-eighths of an inch long and that it was almost impossible to stop the bleeding, we did not have sufficient faith and courage to make the necessary incision to do transfusion.

It seems to me, from observation of this case, and one other, that our conception of this condition is wrong. I do not believe that the trouble is with the blood itself, for the clots are as solid as any in any other patient, and in this case filled the mouth, and were quite hard to break up.

It seems to me that possibly the correct theory is that, in the normal individual, when a vessel is wounded, the injured intima secretes or throws out a material that agglutinates and seals up the broken ends of the vessels, and thus prevents the constant welling up of blood as seen in the hemophiliac and that this vital function is lacking in the vessels of these patients.

CARBON MONOXID POISONING WITH ACUTE SYMPTOMS, RELAPSE WITH PSYCHOTIC SYMPTOMS, AND COMPLETE RECOVERY *

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The patient was a single woman, aged 45 years, domestic, born in Ireland. Family and personal histories were negative as to nervous and mental disorders. She was found on the morning of Nov. 3, 1909, in a state of coma caused by the escape of illuminating gas from a broken fixture in a room. She did not regain consciousness for four days, during which time constitutional symptoms were noted. The patient recovered from the acute effects of the poison and was discharged from the hospital ten days later as recovered. Several days afterward she returned to work. Three weeks later the patient developed a psychosis and was admitted to the Government Hospital for the Insane, Dec. 10, 1909.

She was semistuporous; she gave her name but other questions were incorrectly answered. She showed falsifications of memory, related confabulatory experiences, was lacking in power of attention and concentration, could not carry on an intelligent conversation, gave her replies incorrectly as a product of her own imagination, had a mistaken identity of persons, had a retrograde amnesia, and there was a tendency to causeless laughter. The confusion, with the above-mentioned mental manifestations, continued for one month when improvement was noted. At this time there was an anterograde amnesia which extended over a period of three months and included the time following the acute toxic manifestations from which she was supposed to have been well, when she went about her usual duties.

Physical examination showed a slight systolic murmur over the apex of the heart; gums inflamed; tongue coated and eroded on sides and tip; pyorrhea alveolaris marked; incontinence of urine and feces; coarse tremors of tongue and extended hands; gait unsteady, Romberg present; all movements incoordinate and ataxic; deep reflexes exaggerated; wrist- and ankle-clonus present; marked Babinski; superficial reflexes diminished; anesthesias over whole surface of the body; no reaction to light or deep-pin-pricks; inability to distinguish heat and cold; astereognosis present; impairment of the senses of taste and smell. Wassermann reaction with the blood-serum and spinal fluid was negative. There was one cell to each cubic millimeter of spinal fluid. Urinalysis was negative. With gradual changes from the above-described condition, all neuropathologic symptoms had practically disappeared in about six weeks' time.

Four months after the intoxication, the patient was discharged as completely recovered. As far as I have been able to learn, her condition since that time has not changed. Shortly after her discharge she left this country, and the contents of her letters would indicate that she has as yet undergone no mental change since that time.

For the past twenty-five years the deaths by gas poisoning have been steadily increasing, and this increase has been due in the large cities to the manufacture of illuminating gas by a method known as "water-gas." As illuminating gas has come to be a serious cause of death, a point has been reached when it behooves the health authorities and others interested in the subject to consider what steps can be taken

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* Abstract of a paper presented at the International Congress on Hygiene and Demography.

to curtail this mortality. The International Association for Labor Legislation has prepared a plan for the protection of workmen exposed to the dangers of industrial poisons in order that they might be able to secure adequate legislation. In this connection a committee of this society has compiled a list of the industrial poisons. The United States Department of Commerce and Labor published this tabulated list in which each poison is considered separately, as follows: designation of the substance, branches of industry in which poisoning occurs, mode of entrance into the body, and the symptoms of poisoning, acute and chronic. Carbon monoxid poisoning is fully dealt with in this respect.

In the complete paper the work done along these lines is reviewed. In connection with this case, however, the most interesting reports in the literature are those commenting on the amnesia, the peculiar character of the delirum which sometimes simulates the Korsakoff syndrome, the emotional disturbance and the correlation between it and the possible organic lesions of the basal ganglia. Particular attention is called to the quite frequent peculiarity of this toxemia, that is, the occurrence of a psychosis developing some weeks after apparent recovery from the acute poisoning. This is an important matter which has never been given due consideration in the discussion of this intoxication, and in connection with the industrial accidents and workmen's compensation acts. It is a subject which should be duly emphasized and recognized so that the significance of a mental disease developing some weeks after gas-poisoning may receive its proper valuation. This woman recovered; but whether the restoration is permanent is a question concerning which authorities have not been able to decide, owing to the fact that no available reports have been made on the subsequent course of the disease.

Therapeutics

DISTURBANCES OF THE HEART

Of prime importance in the treatment of diseases of the heart is a determination of the exact, or at least approximately exact, condition of its structures and a determination of its ability to work.

This is not the place to describe its anatomy or its nervous mechanism or the newer instruments of precision in estimating the heart function, but they may be briefly itemized. It has now been known for some time that the primary stimulus of cardiac contraction generally occurs at the upper part of the right auricle, near its junction with the superior vena cava, and that this region may be the "timer" of the heart. Though a wonderfully tireless mechanism, this region may fall out of adjustment, and the stimuli proceeding from it may not be normal or act normally. It has been shown recently that not only must there be perfection of muscle, nerve and heart circulation, but that the various elements in solution in the blood must be in perfect amounts and relationship to each other for the heart stimulation to be normal. It has also been shown that if for any reason this region of the right auricle is disturbed, a stimulus or impulse might come from some other part of the auricle, or even from the ventricle, or from some point between them. Such stimulations may constitute auricular, ventricular or auriculoventricular extra contractions or extrasystoles, as they are termed. In the last few years it has been discovered that the auriculoventricular bundle, or "bundle of His," has a necessary function of conductivity of auricular impulse to ventricular contraction. A temporary disturbance of this conductivity will cause a heart-block, an intermittent disturbance will cause intermittent heart-block (Stokes-Adams disease), and a prolonged disturbance, death. It has also been shown that extrasystoles, meaning irregular heart action, may be caused by impulses originating at the apex, at the base or at some point in the right ventricle.

Anatomists and histologists have more perfectly demonstrated the muscle fibers of the heart and the structure at and around the valves; the physiologic chemists have shown more clearly the action of drugs, metals and organic solutions on the heart; and the physiologists and clinicians with laboratory facilities have demonstrated by various new apparatus the action of the heart and the circulatory power under various conditions. It is not now sufficient to state that the heart is acting irregularly, or that the pulse is irregular; the endeavor should be to determine what causes the irregularity, and what kind of irregularity is present.

A moment may be spent on clinical interpretation of pulse-tracings. It has recently been shown that the permanently irregular pulse is due to fibrillary contraction, or really auricular fibrillation — in other words, irregular stimuli proceeding from the auricle — and that such an irregular pulse is not due to disturbance at the auriculoventricular node, as believed a short time ago. These little irregular stimuli proceeding from the auricle reach the auriculoventricular node and are transmitted to the ventricle as rapidly as the ventricle is able to react. Such rapid stimuli may soon cause death; or, if for any reason, medicinal or otherwise, the ventricle becomes indifferent to these stimuli, it may not take note of more than a certain portion of the stimuli. It then acts slowly enough to allow prolongation of life, and even considerable activity. If such a heart becomes more rapid from such stimuli, 110 or more, for any length of time, the condition becomes very serious. Digitalis in such a condition is, of course, of supreme value on account of its ability to slow the heart. Such irregularity perhaps most frequently occurs with valvular disease, especially mitral stenosis, and in the muscular degenerations of senility, as fibrosis.

Lewis[1] believes that 50 per cent. of cardiac arhythmia originates in muscle disturbance or incoordination in the auricle. These stimuli are irregular in intensity and the contractions caused are irregular in degree. If the wave lengths of the pulse-tracing show no regularity — if, in fact, hardly two adjacent wave-lengths are alike — the disturbance is auricular fibrillation. Injury to the auricle, or pressure for any reason on the auricle, may so disturb the transmission of stimuli and contractions that the contractions of the ventricle are very much fewer than the stimuli proceeding from the auricle. In other words, a sort of heart-block may occur. Various stimuli coming through the pneumogastric nerves, either from above or from the peripheral endings in the stomach or intestines, may inhibit or slow the ventricular contractions. It seems to have been again shown, as was earlier understood, that there are inhibitory and accelerator ganglia in the heart itself, each subject to various kinds of stimulation and various kinds of depression.

Of course it is generally understood that children have a higher pulse-rate than adults; that women normally have a higher pulse-rate than men at the same age; that strenuous muscular exercise, frequently repeated, without cardiac tire, while causing the pulse to be rapid at the time, slows the pulse during the interim of such exercise and may gradually cause a more or less permanent slow pulse. It should be clinically remembered that athletes have slow pulse, and the severity of their condition must not be interpreted by the rapidity of the pulse. Even with high fever the pulse of an athlete may be slow. It is well known that high blood-pressure slows the pulse-rate; that low blood-pressure generally increases the pulse-rate; that arteriosclerosis, or the gradual aging of the arteries, slows the pulse, except when the cardiac degeneration of old age makes the heart again more irritable and more rapid. The rapid heart in hyperthyroidism is also well understood. It is not so frequently noted that hypersecretion of the thyroid may cause a rapid heart without any other tangible or discoverable thyroid symptoms or symptoms of hyperthyroidism. Bile in the blood almost always slows the pulse.

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[1] Lewis: Brit. Med. Jour., 1909, ii, 1528.

As above suggested, new and better instruments have been invented, and laboratory and clinical studies of tracings of heart and vessels have increased our knowledge of the varying blood-waves and of the pressure under which the blood is distributed. The development of these instruments of precision started with the sphygmograph of Marey, in 1860. While the sphygmomanometer was discovered in the first third of the last century, an instrument was not devised or used clinically until perhaps first in 1887 — the instrument of von Basch. Soon followed Marey's and Potain's instruments, then Ludwig's suggestion of the graphic method of study of blood-pressures and pulse-tracings, then the finger-ring suggestion which is not very accurate, then the Riva Rocci blood-pressure apparatus and the modifications that followed, such as Cook's, Sahli's, von Recklinghausen's, Janeway's, Erlanger's, Satterthwaite's and Faught's, all based on the reading of the mercurial pressure, and the Tycos air instrument gauged to mercurial pressure.

From the careful clinical studies of blood-pressure it has been shown that the pressure varies greatly with the age, sex, different physical and mental conditions, position and with disease. The pressure in a child may be about 100 mm. of mercury, in a woman about 120, and in a man about 130. It is now recognized that accuracy requires the taking of diastolic as well as systolic pressure, and that however carefully taken, errors in reading and interpretation are likely to occur. It is also recognized that whether or not a given pressure, if not excessive, is decidedly abnormal to a given patient must be determined individually; and it may be asserted here that a pressure deemed too high should not always be tampered with.

Wonderful accuracy in determining heart action has been developed by Crehore of New York by his method of light-interference rings. Crehore's registrations of heart action by this method and Meara's clinical interpretation of these cardiograms represents scientific work of a high order.

A short and clear exposition of the various polygraphic methods of studying circulatory ability is presented by Satterthwaite[2] of New York. As the number of circulatory tracings is multiplied, careful readings of the composite picture give greater and greater accuracy to the diagnosis and the selection of the advisable treatment. Polygraphy means two or more tracings taken simultaneously, as that of the heart, carotid, jugular, radial, liver or any two of them. The electrocardiograph, when used by an expert, becomes the most accurate of the clinical circulatory instruments. This has been well shown by Lewellys F. Barker of Baltimore. If the apex, carotid, radial and jugular tracings are superimposed the relationship of each one to the others is graphically demonstrated. As above stated, Satterthwaite's article is brief but illuminating in its explanation of graphic analysis of the circulation.

The interpretation of the arterial tracing shows that the nearly vertical up-stroke is due to the sudden rise of blood-pressure caused by the contraction of the ventricles. The long and irregular down-stroke means a gradual fall of the blood-pressure. The first upward rise in this gradual decline is due to the secondary contraction and expansion of the artery; in other words, a tidal wave. The second upward rise in the decline is called the recoil, or the dicrotic wave, and is due to the sudden closure of the aortic valves and the recoil of the blood-wave. The interpretation of the jugular tracing, or phlebogram as the vein tracing may be termed, shows the apex of the rise to be due to the contraction of the auricle. The short downward curve from this apex means relaxation of the auricle. The second lesser rise, called the carotid wave, is believed to be due to the impact of the sudden expansion of the carotid artery. The drop of the wave-tracing after this carotid rise is due to the auricular diastole. The immediate following second rise not so high as that of the auricular contraction is known as the ventricular wave, and corresponds to the dicrotic wave in the radial. The next lesser decline shows ventricular diastole, or the heart rest. A tracing of the jugular vein shows the activity of the right side of the heart. The tracing of the carotid and radial shows the activity of the left side of the heart. After normal tracings have been carefully taken and studied by the clinician or a laboratory assistant, abnormalities in these readings are readily shown graphically. Especially characteristic are tracings of auricular fibrillation and those of heart-block.

These preliminary suggestions for a careful study, both theoretically and clinically, of circulatory disturbances are to urge a more careful interpretation of the symptoms and signs in patients who may not show very evident symptoms of cardiac disability or insufficiency. As recently so well expressed by Dr. Charles L. Greene[3] many a patient who has circulatory debility is branded with the "misnomer of neurasthenia." Many a patient is treated for gastric indigestion, or intestinal disturbances, or muscular rheumatism, or myalgias, or "malaria," or general debility, or even for the more scientific interpretation of intestinal fermentation and putrefaction (the latter of which, of course, must often be corrected) when the trouble really is cardiac tire and cardiac muscular weakness.

The pulse is not necessarily irregular, the heart may show no manifest enlargement and no murmurs, and yet many of the symptoms which occur under the conditions above named will be corrected when the heart is aided or given rest. A slight exercise test for the heart will often demonstrate weaknesses or inability to sustain effort, when the examination of a patient after some rest or without any exertion would seem to show that the circulation was perfectly normal. Many an ache, referred not only to the left chest but to the right, not only toward the left shoulder but to the right, not only toward the left side but around over the right side of the liver or down into the abdomen, or up into the throat, with the diagnosis of the cause most uncertain, will be corrected when the heart is given a little more physical rest by resting the patient, or by the administration of small doses of digitalis. In fact, with the cause of such disturbances so uncertain, the therapeutic test of the administration of digitalis is satisfactory in any number of instances.

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[2] Satterthwaite, Thomas E.: Month. Cyclop. and Med. Bull., April, 1912.

[3] Greene, Charles L.: The Journal A. M. A., Aug. 31, 1912, p. 685.

In this age of cardiac and circulatory tire, owing to the recklessness, speed and intensity of the age, some physicians frequently postpone the diagnosis of the cause of a disturbance until after a week of the action of digitalis, and many times the improvement of the condition is so rapid as to be almost phenomenal. This is not to suggest that digitalis be used carelessly or recklessly or without a careful decision as to whether or not the drug is contra-indicated, but is to urge a more careful analysis of disagreeable internal sensations before we term the patient a hysteric, a neurasthenic, a melancholic or a malingerer.

To be specific, if the patient complains of pains in any part of the chest or upper abdomen, or of leg-aches, or of being weary, or exhausted, or of sleeplessness at night, or of pains in the back of his head, we should investigate the cardiac ability, besides ruling out all of the more frequently recognized causes of these disturbances.

If there is more dyspnea than normally should occur in the individual patient after walking rapidly or climbing a hill or going upstairs; if after a period of a little excitement one finds that he cannot breathe quite so deeply, or that something feels tight in his chest, the heart needs resting; if after one has been driving a motor car or even sitting at rest in one which has been going at speed or has come unpleasantly near to hitting something or to being run into, it is noticed that the little period of cardiac disturbance and chest tension is greater than it should be, the heart needs resting.

If the least excitement or exertion increases the cardiac speed abnormally, it means that for many minutes, if not actually hours during the twenty-four, the heart is contracting too rapidly, and this alone means muscle tire and muscle nutrition lost, even if there is no actual defect in the cardiac muscle or in its own blood-supply. If we multiply these extra pulsations or contractions by the number of minutes a day that this extra amount of work is done, it will easily be demonstrable to the physician and the patient what an amount of good a rest, however partial, each twenty-four hours will do to this muscle. Of course anything that tends to increase the activity or the disturbance of the heart should be corrected. Overeating, overdrinking (even water), overuse or perhaps any use of alcohol, tobacco, tea or coffee should all be prevented. In fact, we come right to the discussion of the proper treatment and management of beginning high blood-pressure, of the incipiency of arteriosclerosis, of the prevention of chronic interstitial nephritis, and the prevention of cardiovascular-renal disease.

Besides the instruments of precision above referred to, more careful percussion, more careful auscultation, more careful measurements, x-ray pictures and fluoroscopic examinations of the heart, and a study of the circulation with the patient standing, sitting, lying and after exercise, makes the determination of circulatory ability a specialty and the physician who becomes an expert a specialist. It is a specialization needed to-day almost more than in any other line of medical science.

Greene, referring to the work of Henry Head, Sherrington, MacKenzie, and Alexander Lambert's interpretation of their investigations, shows that the heart is a sensitive organ and can cause sensations from disturbances of its various parts much more subtle than the angina pectoris which we recognize. The auricles may refer their disturbances to the axillæ and shoulders; the ventricles may refer their disturbances to the lower parts of the thorax, to the upper abdomen, to the inner surfaces of the upper arm or to the ulnar side of the forearm and wrist; if the aorta is in trouble, pain may be referred up into the neck, or even into the back of the head.

As so much of our science, to-day, is aimed toward prevention, we should by every possible care prevent the heart from becoming weakened; we should, by treating every tonsillitis with the greatest of care and by removing or partially eradicating all tonsils that are diseased, take means to prevent the occurrence of rheumatism and chorea; we should never allow a patient to become active too soon after any serious illness, or even immediately after any slight illness, and certainly should keep a patient at rest for hours after every anesthesia, and in bed for at least two weeks after a severe operation. It is to be regretted that the aim of many surgeons to-day is to have their patients up and about, after an operation, in from a week to ten days. This is an unnecessary cardiac test, even if the operative region excused it. Even after so simple a thing as a migraine, a biliary colic, a renal colic or any other acute pain in which there has been a short starvation period and the administration of active narcotic drugs, with the reflex tire to the circulation from the pain, to say nothing of actual pneumogastric reflexes on the heart, if the patient rises too soon he will invariably feel cardiac exhaustion, and his heart will not recuperate for hours and perhaps days. If this is repeated several times the patient will develop a cardiac muscle weakness.

For the sake of discussing the therapy of cardiac disturbances in a logical sequence, they may be classified as follows:

Pericarditis
  Acute
  Adherent
Myocarditis
  Acute
  Chronic
  Fatty
Endocarditis
  Acute, simple
    malignant
  Chronic
Valvular Lesions
  Broken compensation
  Cardiac drugs
  Diet
  Resort treatment
Cardiac disease in children
Cardiac disease in pregnancy
Coronary sclerosis
Angina pectoris
  Pseudo-angina
Stokes-Adams disease
Arterial hypertension
Cardiovascular-renal disease
Arhythmia
Auricular fibrillation
Bradycardia
Paroxysmal tachycardia
Hyperthyroidism
Toxic disturbances
Physiologic hypertrophies
Simple dilatation
Shock
Stomach dilatation
Anesthesia in heart disease

(To be continued)

Clean Up at Home.—In many places outside our own fair land we have met and conquered tremendous sanitary problems. In fact, I have been told by Latin-Americans, "You clean up Manila, Havana, Panama, Colon, and threaten to clean Guayaquil. Why don't you clean your own home towns of their typhoid and malarial death-rates which are a disgrace to civilization?" I cannot answer, but I do say to you that I know that the same energetic application of sanitary laws which, and which alone, made the Panama canal an existent fact instead of an iridescent dream, and was able to do so because of ability in that instance to coerce, will ultimately be able through persuasion and sweet reason to convince our own people that the sanitarian is their best and truest friend, and seeks not to rob them of any portion of their heritage of liberty, and would take away none of their belongings save dirt, disease and death.—White in *Wisconsin Med. Jour.*

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THE "PRIMARY LUNG FOCUS" IN TUBERCULOSIS, ESPECIALLY IN CHILDREN

In 1876 Parrot published the results of studies on the relationship between lesions in the lungs, principally of infectious origin, and of the tracheobronchial lymph-nodes. He showed that lesions of the lungs were associated always with lesions of the same nature in the regional lymph-nodes. He found this to be true of tuberculosis also; whenever there was tuberculosis of the tracheobronchial lymph-nodes he found at least one tuberculous spot in the lungs. It is true that frequently this focus in the lungs might be so small that it was not easy to find, but it was hardly ever absent. This observation, which for a long time did not receive sufficient attention, has been confirmed by Küss and others.

According to Küss, tuberculosis in children manifests itself first by a small nodule in the lung, followed by tuberculous foci in the regional lymph-nodes. The size of the focus in the lung is variable; it may be encapsulated with caseous matter in the center; it is situated in the lower lobes oftener than in the upper, and since it is frequently small as compared with the changes in the lymph-nodes, may easily be overlooked or regarded as secondary. Küss never found a focus like this in the lungs of children without tuberculous changes of approximately the same age or younger in the corresponding lymph-nodes. He considered mostly simple forms, however, and believed that the lesions described, which he regarded as the first step in the infection, were caused by the inhalation of a limited number of bacilli. It has been asserted that the same relation holds in adults as well, and that in every case of tuberculosis of the tracheobronchial lymph-nodes there will be found a corresponding pulmonary focus (E. Albrecht).

In a recent study of this relationship Ghon,[1] the pathologic anatomist, who obtained his material from St. Anne's Children's Hospital in Vienna, brings forward some interesting results. From July, 1907, to Dec. 31, 1909, Ghon made 184 autopsies on the bodies of patients who had had tuberculosis, and the organs were examined thoroughly with reference to the distribution of the tuberculous lesions. The cases fall into two groups, one with a typical so-called primary pulmonary focus (170 cases, or 92.4 per cent.) and another without any such focus being discovered (fourteen cases, or 7.6 per cent.). The first group could be divided into several subgroups depending on the presence of other tuberculous changes and their relationships to those in the lung and lymph-nodes. It is not feasible at this time to consider these various groupings; suffice it to say that a rather large subgroup is composed of cases in which a pulmonary focus and foci in the regional lymph-nodes were found to exist uncomplicated with other demonstrable lesions.

In 142 of the 170 cases in the first group, only a single "primary focus" was found in the lungs. This focus may appear progressive; it may show caseation with perhaps softening, or it may be stationary and more or less calcified; sometimes there is simply a scar.

The special significance of this focus lies in its relation to the route of entrance of the bacilli. It clearly cannot be lymphogenic in nature, unless, indeed, it should be due to a retrograde transport of bacilli from the lymph-nodes at the root of the lung. This would be a most singular occurrence when we consider the frequency with which only one focus develops; besides, the focus practically always appears to be older than the areas in the lymph-nodes. At all events, it is never younger. In the second place, it is possible that bacilli might reach the lungs by way of the blood-vessels from primary foci elsewhere. These foci would have to be older than the lung focus. Ghon found that in only 15 per cent. of his cases did any conditions obtain that might be so interpreted. The fact that only one focus of this kind is found in the lungs as a rule certainly appears inconsistent with metastasis by way of the blood-vessels. There now remains to consider the aerogenic route, and from what has been said concerning the other two routes, we see at once that the indications point very strongly to this as the actual path of infection. Practically all who have studied this primary lung focus in relation to secondary nodules in the glands (Küss, E. Albrecht, H. Albrecht, Ghon) agree that this view does not come into conflict with any of the facts at hand. This conclusion that the infection in "the primary lung focus" is aerogenic is based on the assumption that tubercle bacilli, at least as a rule, do not enter the blood-vessels directly or by way of the lymphatics without leaving some lesion at the point of entrance.

The possibility that in advanced tuberculosis several points of dissemination may be concerned cannot be denied; in some cases it would no doubt be impossible on account of the number and character of the changes to make out which route was the principal and primary one as determined by anatomic criteria. In Ghon's series there were, however, only a few cases in which he was able to demonstrate extrapulmonary points of entrance that would fulfil the requirements of primary foci from the anatomic point of view. Approximately 95 per cent. of his cases of which we are speaking appeared to represent a primary localization of the bacilli; this indicates that in children primary infection of the lungs is the usual mode of tuberculous infection.

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[1] Ghon: Der primäre Lungenherd bei der Tuberkulose der Kinder, Berlin, 1912.

While the studies of Ghon and others are purely anatomic in scope, the demonstration that in tuberculosis in children there so commonly exist in the lungs one or more distinct tuberculous foci, which appear to be primary and aerogenic in nature, is of great interest in view of the question concerning the frequency of infection with bovine as compared with human tubercle bacilli in early life. These questions arise, for instance: What is the relation of this presumably aerogenic focus, which it is proper to assume is caused by human bacilli, to the disease in those cases in which bovine bacilli are found? Does it concern mixed and successive infections with bacilli of both human and bovine types? Is it possible that bacilli introduced in the food — and here it would concern bovine bacilli largely, as in Ravenel's experiments — may be absorbed from the intestines and carried to the lungs there to form a primary focus, at least to all appearances? In order to answer these and other questions satisfactorily it will be necessary to make further and even more comprehensive investigations by means of bacteriologic as well as anatomic methods.

A NATURAL OBJECT-LESSON IN HEREDITY

The long-looked-for history of the Kallikak family[1] has at last come from the press of the publishers. Under the auspices of the Training-School for Feeble-Minded at Vineland, N. J., Dr. Henry H. Goddard has investigated and compiled the results of his work in the heredity of this most remarkable family. During Revolutionary days, the first Martin Kallikak (the name is fictitious), descended from a long line of good English ancestry, took advantage of a feeble-minded girl. The result of their indulgence was a feeble-minded son. This son married a normal woman. They in turn produced five feeble-minded and two normal children. Practically all of the descendants of these defectives have been traced as well as those of the two normals.

From both normal and defective descendants of this union came a long line of defective stock. There were 480 in all. Of these thirty-six were illegitimate, thirty-three sexually immoral, twenty-four confirmed alcoholics and three epileptics. Eighty-two died in infancy, three were criminal, eight kept houses of ill fame and 143 were distinctly feeble-minded. Only forty-six were found who were apparently normal. The rest are unknown or doubtful. But the scion of the good family who started this long line of delinquent and defective progeny is also responsible for a strain of an entirely different character. After the Revolutionary War was over, he married a Quaker girl of good ancestry and settled down to live a respectable life after the traditions of his forefathers. From this legal union with a normal woman there have been 496 descendants. All of these except two have been of normal mentality. The exceptions were cases of insanity, presumably inherited through marriage with an outside strain in which there was a constitutional psychopathic tendency. In all the 496 there is not an instance of feeble-mindedness. The offspring descended from this side of the house have universally occupied positions in the upper walks of life. They have never been criminals or ne'er-do-wells. On the other hand, there has not been a single instance of exceptional ability among the descendants of the first Martin Kallikak and the feeble-minded girl. Most of these descendants have failed to rise above the dead level of mediocrity; indeed, most of them have fallen far below even this minimum standard.

The fact that the descendants of both the normal and the feeble-minded mother have been traced and studied in every conceivable environment, and that the respective strains have always been true to type, tends to confirm the belief that heredity has been the determining factor in the formation of their respective characters. In the cities the descendants of the legal marriage with the normal woman are physicians, lawyers and prominent business men, while the descendants of the feeble-minded mother are almost invariably found in the slums. In the rural districts the descendants of the normal mother and her consort are wealthy and influential farmers, while the others never rise above the rank of farm laborers and shiftless men and women who are unable to subsist without the aid of charity. Many representatives of the defective branch are inmates of almshouses, while there are no paupers at all among the normal descendants.

In many ways this study of Goddard's far outweighs in importance the famous comparison by Dr. Winship of the Jukes and Edwards families. In that case the simple fact was demonstrated that a good family like that of the illustrious Jonathan Edwards had given rise to innumerable examples of the highest intellectual and moral worth, whereas the criminal Jukes for seven generations contributed nothing to the common good and cost the state of New York large sums of money. But the Jukes family and the Edwards family had no ancestor in common. Their environment was totally different and they lived in entirely separate communities. Although from sociologic and economic points of view the history of the Jukes family and its comparison with that of the family of Jonathan Edwards has great value, it is of but scant scientific importance as compared with that of the Kallikak family, for here a natural object-lesson in eugenics shows unmistakably the manner in which after-coming generations from a given mating receive the characteristics of the dominant strain, which in the elder (illegitimate) Kallikak line was the inferior strain, with only a debased and enfeebled heritage to hand on.

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[1] Goddard, Henry Herbert: The Kallikak Family, a Study in the Heredity of Feeble-Mindedness, New York, the Macmillan Company, 1912.

FUNCTIONS OF THE SPLEEN

An examination of any text-book of physiology will suffice to indicate how utterly chaotic and uncertain have been the views with respect to the probable functions of the spleen. The chief reason for this state of our knowledge lies in the fact that the obvious fundamental experiment designed to test the uses of such an organ has hitherto completely failed to furnish any decisive evidence regarding the real purpose of the spleen. There are numerous records of its experimental removal in diverse groups of animals as well as its surgical removal in man; but either the observations made after splenectomy are entirely negative in so far as any observable perversions of function are concerned, or the evidence is conflicting. Removal of the spleen is certainly not incompatible with the maintenance of life as is the case in so many other instances of prominent organs which are far less conspicuous in size and apparent importance. There are no detected alterations of metabolism as the consequence of the operation;[1] yet, in spite of all this negative evidence, one cannot help but hesitate to relegate to the pigeon-hole of physiologic obscurity an organ which so evidently obtrudes itself on our consideration whenever the viscera are brought to light.

There are certain facts, however, which have tended to connect the spleen in some way with the formation of the blood elements. First of all is the well-known iron content of this organ which may at times become relatively large. Nevertheless, the evidence for the rôle of the spleen in the construction of new red corpuscles has been anything but convincing. Regeneration of blood-cells has been found, notably by Noël Paton and his associates, to occur even in young, growing individuals quite as readily after splenectomy as it does in the intact animal.

To Prof. Leon Asher and his pupils in Berne is due a series of interesting observations which promise to clear up some of the vexatious uncertainty mentioned.[2] They have demonstrated that the spleen is, indeed, an organ for the metabolism of iron. This important conclusion is based on the observed fact that under the most diverse conditions spleenless animals regularly excrete more iron than their normal companions; this finding has been confirmed by Bayer on splenectomized men. In the light of this fact it is possible to understand some of the older supposed discrepancies in the literature on the relation of the spleen to hematopoiesis. It is now quite conceivable that, if a spleenless individual is receiving a minimum of iron in the dietary, the continued loss of the element under the induced conditions of exaggerated iron elimination may lead to a real deficit when an extensive production of the ferruginous red blood-corpuscles becomes necessary, and the supply of iron for the manufacture of hemoglobin may actually here become scanty. When iron is ingested in abundance, however, the storage capacity of the liver and other organs may readily suffice for any regenerative emergency even under the unfavorable conditions of exaggerated loss which pertain in splenectomy.

This is, indeed, what has been found to occur. If healthy young dogs are maintained for even considerable periods on an iron-free diet, they do not suffer any anemia unless the spleen has been removed, whereupon a marked diminution in the content of hemoglobin and the number of red blood-corpuscles promptly ensues. This deficiency is at once made to disappear if meat — a food abounding in iron — is furnished in the diet. The reparative response to hemorrhages follows along similar lines after splenectomy, the blood-picture being determined essentially by the abundance or lack of iron in the food. As long as food which contains iron is given freely, the removal of the spleen is without apparent consequence even for the growth and development of the young. The conflicting evidence in regard to the blood-forming functions of the spleen may thus find their explanation in dietary factors. In any event the removal of the spleen, which is now a familiar surgical procedure, calls for an abundance of iron in the food as an obvious consequence of Asher's important investigations.

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[1] Compare Mendel, Lafayette B., and Gibson, R. B.: Observations on Nitrogenous Metabolism in Man After Removal of the Spleen, Am. Jour. Physiol., 1907, xviii, 201.

[2] Compare Asher, L., and Grossenbacher, H.: Beiträge zur Physiologie der Drüsen, Biochem. Ztschr., 1909, xvii, 78. Asher, L., and Zimmermann, R.: ibid., xvii, 97. Asher, L., and Vogel, H.: ibid., 1912, xliii, 386. Also Bayer, R.: Mitt. a. d. Grenzgeb. d. Med. u. Chir., xxi, 338; xxii, 111 and 532.

OXYGEN INHALATION AND OXYGEN PNEUMONIA

In the early days after the isolation of oxygen it was noted at various times that the breathing of the gas sometimes gave rise to inflammatory conditions in the lungs. Until quite recently most of the experiments on oxygen respiration were conducted with high-pressure atmospheres. This is essentially true of the classic work of Paul Bert, in whose trials the animals succumbed to the nervous effects after brief exposures to high oxygen pressures before the lungs became pneumonic. Neither Bert nor his immediate successors appear to have considered the possible effects of lower concentrations of oxygen acting for longer periods.

Since the use of oxygen has become popular in a variety of ways, the possible pathologic effects which its use may induce have attained an obvious importance. The gas is respired not only in the treatment of disease but also in caisson work and rescue work, in which it may be breathed for long intervals. There are similar uses of the gas for respiration in confined spaces or vitiated atmospheres. Adams[1] has investigated the alleged effects experimentally on animals under conditions which permitted of a rigorous control of all the conditions and a careful pathologic investigation of the subjects. He concluded that oxygen in any percentage at atmospheric pressure can be inhaled for short periods without ill effects. At percentages below 70 it can be inhaled for prolonged periods without giving rise to any symptoms or pathologic sign; but when the content rises above this, the use of oxygen is attended with serious risk of causing an irritative pneumonia, and, if persisted in, produces death. The pneumonia is of a lobal and catarrhal character. The lungs have been observed to fill with exudate in as short a period as five hours. This rather remarkable and interesting fact suggests that the exudate may be a kind of pathologic secretion by the lung epithelium, rather than an irritative exudation attributable to the injury of the latter. In any event that these effects are caused by the oxygen and not by incidental microorganisms is shown by the bacteriologic findings, which were essentially negative.

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[1] Adams, Alfred: The Effects of Atmospheres Enriched with Oxygen on Living Organisms, Biochem. Jour., 1912, vi, 307.

Others also have, of late, called attention to the dangers attending the careless use of oxygen for respiration under circumstances enforced by the exigencies of accident or the industries. When the higher pressures usually employed and often made necessary by the environmental conditions were imitated with the substitution of air in place of pure oxygen, the pulmonary derangements were not developed.[2] This fact is significant; for it places the responsibility for the pathologic outcome on the concentrated oxygen itself rather than on the undue atmospheric pressure at which it was administered. Since oxygen is used liberally in certain recent modes of inducing narcosis, a warning has been uttered against the harmful influence which may inadvertently result if the limits of safety are not clearly recognized and respected.[3]

It has been known for some time[4] that certain microorganisms, notably the *Bacillus tuberculosis* and *B. pestis,* are very sensitive to oxygen, their growth being markedly arrested by this gas. An atmosphere enriched with oxygen does not destroy them as it does the organisms of actinomycosis and mycetoma, although it exercises a decided inhibitory function. Acting on this clue Adams has attempted to ascertain whether the retarding effect of increased oxygen percentage on the growth of the tubercle bacillus *in vitro* cannot be extended to treatment *in vivo.* The outcome was entirely negative. We must conclude that the beneficial effects of fresh air and ventilation on strumous diseases are due, not to the small increase of oxygen over that of the interiors of dwellings or to any chemical condition of the air, but rather to some physical stimulus. Precisely such information is imperatively demanded before what may be called environmental therapy can be put on an intelligent basis and made to render its best service in the prevention and treatment of disease.

REPORT OF THE ILLINOIS PELLAGRA COMMISSION

The recognition of pellagra in the public institutions of Illinois in 1909 and the discovery of a considerable number of cases led to the creation of a commission to study the disease in that state. The report has recently been published in the *Archives of Internal Medicine.*[1] It is interesting chiefly on account of its negative findings, although some suggestions are offered in a general and tentative way with regard to lines along which the disease should be studied further in an effort to determine its exact etiology. The commission endeavored to study the disease with the object of either confirming or refuting the various theories that have been advanced as to its etiology and at the same time ascertain any other facts that might lead to independent conclusions concerning its origin. The maize theory in its various aspects was taken up and carefully worked over and the conclusion was reached that the burden of proof rests with the advocates of this theory. A clinical experiment was conducted for a period of a year with a number of inmates of Illinois institutions on a diet containing a large proportion of corn and with a like number of inmates under similar conditions on a corn-free diet. At the end of that period a larger number of cases of pellagra had developed among patients on the corn-free diet.

The findings in regard to the maize theory may be stated as follows: Excessive feeding of maize was not accompanied by more pellagra than was observed in individuals kept on a strictly maize-free diet, other conditions being as far as possible identical in regard to age, sex, mental and bodily condition, habits and occupation and general surroundings, although cases developed under both conditions. Cutaneous tests on pellagrins with extracts of corn gave rise to no anaphylactic symptoms. Animal experiments carried on with both good and damaged maize gave entirely negative results. Injection of extracts of maize contaminated with five different molds was found to be toxic in one instance. The blood of pellagra patients was found to be negative with regard to leukocytosis, and the complement-fixation tests were negative. The cerebrospinal fluid showed no increase of cell elements or albumin content and cultures were uniformly sterile. The urine showed increased amounts of indican and there were variations in color, quantity, specific gravity and composition. Anaphylactic tests by von Pirquet's method with corn extracts were uniformly negative.

Sambon's theory of the transmission of pellagra by the sand-fly was carefully studied by Professor Forbes, state entomologist, with a complete absence of results which would in any way confirm the *Simulium* theory of the etiology. A number of species of *Simulium* are found in Illinois, but not *S. reptans,* the species to which Sambon attributes the transmission of pellagra. Investigations carried out with the object of demonstrating a blood parasite were also negative, though it is stated that such a parasite may live and propagate in the blood, but may require special methods for its demonstration. The failure to produce pellagra in animals with infected blood does not exclude the possibility of such a cause.

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[2] Bornstein, A., and Stroink: Ueber Sauerstoffvergiftung, Deutsch. med. Wchnschr., Aug. 8, 1912, p. 1495; see abstract 114, The Journal A. M. A., Sept. 28, 1912, p. 1227.

[3] Schmidt, Adolf, and David, O.: Zur Frage der Sauerstoffvergiftung, Deutsch. med. Wchnschr., Sept. 5, 1912, p. 1697, where further references to the literature will be found.

[4] Compare Moore and Williams: Biochem. Jour., 1909, iv, 177; 1910, v, 181.

[1] Arch. Int. Med., August and September, 1912, pp. 123, 219.

Among the more or less positive findings which the commission feels are suggestive are the disturbed relationships of the normal forms of the intestinal bacteria, the appearance of several new forms of bacteria in appreciable numbers and the frequency with which amebas and flagellates are found. Some forms of bacteria not ordinarily found in the feces of healthy men were found in these patients in appreciable numbers and it is believed that these bacterial and protozoal forms play some part in producing the pathologic changes observed. These consisted in ulcerative lesions in the intestines and a peculiar form of fatty degeneration in the liver lobules. The latter condition and the findings in the nervous system really suggested a toxemia. The more favorable condition with reference to the incidence of pellagra in individuals on a more generous protein diet was also suggestive of the idea that this may have some predisposing relation to the disease. The report, therefore, states as the more or less positive conclusions of the commission that pellagra is a disease due to infection with some living microorganism, and that a possible habitat for this parasite in man is the intestinal canal. No specific organism, however, has been found or suggested. The report is highly interesting and comprehensive and will be of great value in the further study of the etiology of this disease.

THE NOBEL PRIZE IN MEDICINE FOR 1912—ALEXIS CARREL

The Nobel prizes were founded by Alfred Nobel, a Swedish engineer and inventor of high explosives. He directed that the income of a large sum of money should be divided each year into five prizes—in physics, chemistry, physiology or medicine, literature, and in work toward the establishment of peace. His purpose was "to compensate those who in the previous year have been most useful to humanity," regardless of their nationality. It is said that the value of each prize is $39,000. The prizes have been awarded annually since 1901, when Behring received the prize in medicine for his discovery of diphtheria antitoxin. Among the recipients of this prize are Pawlow, Koch, Laveran, Finsen, Ehrlich, Metchnikoff and Kocher. It has not been found practicable to follow to the letter the direction of the founder to give the prizes for the most remarkable achievements of the preceding year, this direction being interpreted to mean recent achievements. Previous to this year two Americans have received prizes, A. A. Michelson of the University of Chicago in physics, and Theodore Roosevelt for his efforts to establish peace between Japan and Russia.

This year for the first time the prize in medicine comes to this country. Alexis Carrel, who brings this honor to American medicine, was born in France in 1873 and graduated as doctor of medicine from the University of Lyons in 1900. Shortly afterward he came to this country and worked for a year or two in the physiologic laboratory of the University of Chicago, where he accomplished remarkable results in the suture of blood-vessels, and began his work on the transplantation of organs. Soon after the opening of the Rockefeller Institute for Medical Research in New York he joined its staff, and it is there that he has done the work for which he now receives the Nobel prize. This work has attracted wide notice. The results he has obtained in experimental surgery, more particularly in the surgery of blood-vessels and in the transplantation of organs and of limbs, are nothing less than sensational; they show a marvelous technical skill, perseverance and scientific ingenuity at the same time as they indicate possibilities of surgery heretofore undreamed of. His recent exploits in the work originated and developed by Professor Harrison, the cultivation of cells and tissues outside of the body, to say the least, richly promises new knowledge of biologic and physiologic processes.

The American medical profession extends congratulations to Dr. Alexis Carrel for the great honor he has received, and for his brilliant experimental achievements, which contribute to the advancement of practical medicine and surgery, and thus to human welfare.

Current Comment

MORE FACTS REGARDING PROTEIN METABOLISM

We recently directed attention[1] to the conflicting views held in the past on the immediate fate of the products of protein digestion as they leave the alimentary tract toward the blood-stream of the portal circulation. The evidence furnished by Folin and Denis, indicating that the amino-acids, which represent the real culmination of the digestive processes in the intestine, actually enter the blood and are carried as such to the tissues of the body before a final assimilation or destructive change is achieved, was reviewed. We remarked at that time that the accuracy of the deductions made by the Harvard investigators hinges on the validity of the newer analytic methods which they employed. It is gratifying to find that corroboratory evidence is now forthcoming from another American laboratory[2] in favor of the view that the amino-acids as such do normally traverse the intestinal wall and enter directly into the blood-stream. Van Slyke and Meyer of the Rockefeller Institute, employing an independent method, have actually demonstrated the presence of amino-acids in the blood. The blood of the dog, for example, normally contains amino-acid nitrogen, amounting, in animals which have fasted a day, to from 3 to 5 mg. per 100 c.c. of blood. When amino-acids are injected directly into the circulation and are thus made to avoid the intestinal barrier, they are rapidly removed from the circulation. The fact that the amount normally present in the blood is small, as already indicated, is presumably attributable to the rapidity with which the tissues take up the amino-acids as soon as these digestion fragments become unusually abundant in the circulating medium. The New York investigators further noted that the amino-acid content decreases little during the passage of the blood from the mesenteric vein out to the femoral artery, thus indicating that the amino-acids are not held back or destroyed by the liver before reaching the other tissues. On the contrary, they appear to traverse the entire organism and find no difficulty in reaching the body cells in general. With the growing evidence of the immediate significance of the amino-acids thus accumulating, our point of view in metabolism must experience a change. The intestinal wall may now be relieved of the chief responsibility for the immediate care of the protein fragments; the liver can no longer be charged with the functions of deamination or storage for nitrogenous end-products or newly made protein. But the real seat of the so-called assimilative functions still remains to be discovered, even if the scenes of previous tentative hypotheses have been shifted.

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[1] A New Theory of Protein Metabolism, editorial, The Journal A. M. A., Sept. 14, 1912, p. 880.

[2] Van Slyke, D. D., and Meyer, G. M.: The Amino-Acid Nitrogen of the Blood; Preliminary Experiments on Protein Assimilation, Jour. Biol. Chem., 1912, xiii, 399.

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BLOOD-SERUM IN HEMOPHILIA

The use of human or other blood-serums in cases of hemophilia or persistent hemorrhage is proving to be a measure of value. In this issue four cases are reported by different authors in which human or animal serum was used for various conditions of hemorrhage, the measure apparently being successful in three. The variety of conditions present makes these reports especially interesting. The case of Barringer was one of unilateral kidney hemorrhage which was controlled by the injection of human blood-serum supplied by the brothers of the patient. The case of Reichard was one of spontaneous hemorrhage of the new-born. In this instance normal horse-serum was used. Claybrook's case was one of hemophilia in an infant 15 months old, who had also bled persistently from a circumcision wound, ten days after birth. In this instance the kind of serum is stated as a "normal serum;" probably horse-serum was used. This child died. The serum was used late after other measures had failed and when such a profound anemia had been produced as perhaps to preclude recovery. The fourth case was one of hemophilia in a boy aged 16. In this instance, as no other serum was at hand or easily obtainable, diphtheritic serum was used, in combination, of course, with other measures; the result was successful. Another case illustrating the variety of conditions in which blood-serum may be used was one reported by C. Koch and W. Klein,[1] the case of a girl of 16 whose second and third menstruations suggested a hemophilic tendency. The menstrual hemorrhage had kept up for almost three weeks, with spontaneous hemorrhage from the gums and nose. Ordinary measures having failed, the defibrinated blood from a normal parturient was injected and there was no further hemorrhage. The hemoglobin, which had dropped to 20 per cent. during the hemorrhage, by the twentieth day had risen to 55 per cent., and the following menstruation was normal. The blood-findings in this case, a small leukocyte count with unusually high lymphocyte count, suggested the hereditary form of hemophilia. The blood was capable of only slow coagulation. It is suggested by Koch and Klein that the physiologic leukocytosis in the parturient woman may have contributed to the successful outcome in this case. In the case reported by Claybrook, the hemorrhage was from a small wound on the tongue. The blood clotted firmly but the hemorrhage did not stop. Claybrook suggests that the usually accepted conception of this condition may be wrong; that the trouble is not with the blood itself but may be due to a condition in the intima of the vessels. He believes that the intima of the vessels in a normal individual when injured, secretes or throws out a material that agglutinates and seals up the broken ends of the vessel and thus stops the hemorrhage. In the hemophiliac this property or function of the cells of the intima may be lacking, resulting in a continuance of the hemorrhage. This theory is deficient in that it does not explain the effect of the injected serum in stopping the hemorrhage. The procedure seems to be of value in a considerable variety of cases which often prove intractable to other measures.

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A SCHOOL FOR THE STUDY OF THE PREVENTION OF ACCIDENTS

Illinois is well in the forefront of states which have passed good laws for the health, safety and comfort of employees and for the prevention of occupational diseases. While the old method of fines is provided for in these statutes, the officials have determined to act on the principle that it is better to lead than to drive; accordingly a school has been established in Chicago for the education of both employees and employers in the principles and methods of the prevention of occupational diseases and accidents. The school is in charge of the state factory inspector, whose duty it is under the law to see that health and safety devices are adopted. Beside a technologic laboratory for the study of the causes of industrial accidents and diseases, there is a chemical laboratory, a model rest-room, a model emergency hospital, a museum of pictures and exhibits showing safety devices and a drafting-room for the preparation of plans and specifications for machinery guards; these plans and specifications will be furnished free to manufacturers. There is also a free reference library of 4,000 volumes on factory inspection, occupational diseases and welfare work. The facilities and equipment of the school are to be supplemented by lectures to foremen, superintendents and staff physicians of industrial plants and to social workers and others regarding occupational diseases and hazardous machinery. On the teaching-staff of the school is a physician who has made a special study of occupational diseases in this country and abroad, an engineer who is an expert in the guarding of hazardous machinery, and a corps of inspectors who are specializing in the problems involved in their work.

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[1] Koch, C., and Klein, W.: Gynäk. Rundschau, 1912, vi, 597.

Working men and women are also to be encouraged to visit the school and receive instructions in the way to protect themselves or to have examinations made in case they believe they are suffering from diseases due to their occupation, in which case conditions responsible for their troubles will be inquired into and corrected. The bulletins of the department of state factory inspection will be issued from this school and distributed to manufacturers, workers and others. Under this plan the state factory inspector, instead of acting in the rôle of policeman to compel compliance with the laws, will act as an expert in an advisory capacity. With manufacturers and laborers working in cooperation it is expected that Illinois will soon occupy a leading position in the condition of those employed in its industrial plants.

ANTIKAMNIA IN AMERICA AND GREAT BRITAIN

The following letter from the Antikamnia Chemical Company to The Journal was received about August 1:

> "You have at various times represented in your Journal that the Antikamnia sold in foreign countries, particularly in Great Britain, has a different formula from the Antikamnia sold in the United States, and you have also published alleged formulas of each to show wherein they are supposed to differ.
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> "We hereby respectfully notify you that the Antikamnia formula is the same for all countries, and the publication of any statements to the effect that the formula of Antikamnia is different in Great Britain, or any other foreign country, from that sold in the United States is a libel, and will be prosecuted as such."

On the receipt of this a letter was written to a correspondent in London requesting him to purchase in the open market a package of Antikamnia. This was done and the original sealed package reached the Association's laboratory a few days ago. Careful analysis of this specimen shows it to contain acetanilid but no acetphenetidin, while the Antikamnia sold in the United States contains acetphenetidin but no acetanilid. The company's protest to the contrary notwithstanding, the formula of some Antikamnia, at least, *is* still different in Great Britain from that sold in the United States. It is possible, of course, that some time in the future the composition of every package of this nostrum on sale in the United Kingdom will be similar to that of every package sold in the United States. It is even possible that "Antikamnia & Quinin" tablets will — or do — actually consist of quinin and the mixture called Antikamnia — although, as The Journal has shown, this has not been the case in the past. Since the patent expired on acetphenetidin, this drug has become so cheap — it can be bought at wholesale for less than 6 cents an ounce — that, commercially, it must make very little difference whether acetanilid or acetphenetidin is used in the manufacture of Antikamnia. But the question arises: Have our British confrères been notified of the change in formula? A careful study of the Antikamnia advertisements in English medical journals shows that the British medical profession has been given no more consideration by this concern than was the American medical profession when the change in composition was made on this side. But then why should it be? Physicians, British or American, who are addicted to the prescribing of secret proprietaries such as Antikamnia have little need of formulas —"Theirs not to reason why!" The medical profession on both sides of the Atlantic has never known the exact composition of Antikamnia and does not know it now. Physicians who call for preparations of the Antikamnia type are prescribing names, not drugs.

LIMITING ENROLMENTS IN MEDICAL SCHOOLS

The number of students who can be given a thorough training in a medical school necessarily depends on the qualifications of the students admitted, on the number and the ability of the teachers and on the laboratory equipment and clinical facilities possessed by that school. Yet we still have medical schools in this country which do not appreciate the necessity of limiting their enrolments to numbers that can be cared for properly. That some schools are not yet past the mercenary stage in the development of medical education is apparent from the fact that, even after their classes are crowded far beyond the utmost capacity of their laboratories and out of all proportion to their facilities, they nevertheless continue to allure still greater numbers — and incidentally receive larger incomes from fees — by the use of glowing, self-applauding or even misleading advertisements. Some schools, in fact, have adopted very ingenious methods whereby the largest possible numbers of students can be ground through with the minimum number of teachers and the least amount of trouble and expense. In fact, so long have such methods been the rule that the action taken recently by Johns Hopkins Medical School[1] in limiting its enrolment of medical students, and thereby recognizing the college's responsibility to the individual student, comes as an agreeable surprise. It is not so surprising, however, that the school which took this action was one of our highest-endowed and best-equipped medical schools and one of those having the best-prepared students and the largest corps of able teachers. If, therefore, this college considers that about ninety students are all that should be taken in a class, how much more important it is to have smaller classes of lower-grade students in schools having fewer teachers and less equipment! May the day speedily come when all our medical colleges may look less to "large" classes — and to correspondingly large incomes from fees received — and more to the thoroughness of the training furnished and the ability of the product turned out! Fortunately, this country has a rapidly increasing number of high-grade, thoroughly equipped medical schools which still have room for the well-trained students who are thus unavoidably turned away because one school has reached the limit of its enrolment.

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[1] See Medical News, under the head of Maryland, this issue.

Failure of Tuberculin Treatment in Surgical Tuberculosis.— Extensive experimental research and clinical experiences reported by A. M. Arquellada explain the failure of tuberculin treatment in surgical tuberculosis by the fact that these lesions are always the seat of mixed infection. The tuberculin is inclined to aggravate them, evidently by a tendency to anaphylaxis. His report on the subject was the leading address at the recent Spanish congress on tuberculosis. The report is published in the *Siglo Medico*, 1912, lix, 610.

Medical News

ILLINOIS

New Hospital for North Shore.—James A. Patten has offered $75,000 for a contagious disease hospital for Evanston and adjoining north shore towns provided that the towns will raise $100,000 as an endowment fund. A meeting was held in Evanston, October 17, and $20,000 has been subscribed. Physicians and citizens of Wilmette held a meeting and started a canvass. It is the plan to have this hospital building on a site immediately north of the present Evanston Hospital.

Red Cross Seal Endorsed by Druggists.—The Illinois State Association for the Prevention of Tuberculosis announces that the Chicago Retail Druggists Organization at its third quarterly meeting October 8 endorsed the Red Cross seal thereby showing cooperation of the druggists in the sale of the seal. The association suggests that physicians should place the Red Cross seal on the prescription blank, which will not only attach an appropriate emblem but will assist with reviewed cooperation in the antituberculosis campaign.

Chicago

Personal.—Drs. Edmund J. Doering, Dr. and Mrs. Glenn M. Hammon and Dr. and Mrs. G. Paull Marquis have returned from Europe.

Ball for Tuberculosis Funds.—The annual ball of the Jewish Relief Society will be given Sunday evening, October 27, at the First Regiment Armory, Sixteenth Street and Michigan Avenue.

INDIANA

State Society Meeting.—At the annual meeting of the Indiana State Medical Association held in Indianapolis, September 28-29, the following officers were elected: president, Dr. A. C. Kimberlin, Indianapolis; vice-presidents, Dr. J. Guy Hoover, Boonville; U. G. Poland, Muncie, and J. P. Ward, Vevay; secretary, Dr. C. N. Combs, Terre Haute (reelected); treasurer, Dr. D. W. Stevenson, Richmond, and delegates to the American Medical Association, Drs. Frank B. Wynn, Indianapolis, and C. S. Bond, Richmond. The 1913 meeting will be held in West Baden. The association, by resolution, declined to approve any plan of solving the vice problem, stating its belief that neither segregation nor licensing has satisfactorily solved the question and favoring the quarantining of persons with venereal disease.

KENTUCKY

New Clinic Opened.—The members of the Kenton County Antituberculosis League opened a clinic on Madison Avenue, Covington, September 21.

Child Welfare Exhibit for Louisville.—A child welfare exhibit will open at the Armory November 21, closing November 27. Model school rooms and play grounds will be shown and a daily clinic for infants will be held in the health section.

Personal.—Dr. Frank E. Corrigan, Louisville, who has been critically ill, is reported convalescent.——Dr. M. M. Moss, Franklin, was caught in a folding bed, October 10, fractured four of his ribs and sustained severe contusions.——The offices of Drs. C. G. Schott and Samuel L. Cochran, Louisville, were injured by fire to the amount of several hundred dollars, October 1.——Dr. Isaac T. Houck, Louisville, sustained serious injuries when his automobile was struck by an interurban car, September 24.——Dr. W. G. Dailey, Millersburg, is reported seriously ill with thrombophlebitis.

MARYLAND

State Society Meeting.—The date of the semi-annual meeting of the Medical and Chirurgical Faculty of Maryland has been fixed for October 12-13. It will be held at Cambridge on the Eastern Shore and Dr. William A. Fisher, Jr., is chairman of the committee on arrangements.

Johns Hopkins Limits Enrolment.—The dean of Johns Hopkins Medical School announces that it has become necessary to limit the number of students owing to the limited space and facilities in the various laboratories. The present enrolment is 355, the largest in the history of the school, and fifty other students were refused admittance prior to the beginning of the session.

Jarrett's Portrait Unveiled.—The portrait of Dr. James H. Jarrett, Towson, which has been painted by Miss Keller at the request of the Baltimore County Medical Association, was unveiled at the meeting of the association October 16, and was presented to the Medical and Chirurgical Faculty of Maryland for permanent hanging in its building, October 18. Dr. Jarrett has been in practice for sixty-one years.

Baltimore

Foreign Visitors in Baltimore.—Sir William Ramsay, Bart., of London, the discoverer of argon and helium, was the guest for four days of President Remsen and Johns Hopkins University. The university conferred on him the honorary degree of LL.D., October 18.——Drs. Ernst Tengwall, Fritz Bauer and E. S. Stallor of Sweden and Drs. P. A. Fenger and Karnberg of Copenhagen, Denmark, are visiting in Baltimore.——Dr. Axel Halst of the University of Christiania, Norway, visited Baltimore, October 16.

Personal.—Drs. Paul Wegefarth, Lewis Weed and Charles Bagley, Jr., have gone to Boston where they will be associated with Dr. Harvey Cushing in his work at the Peter Bent Brigham Hospital.——Dr. James D. Iglehart has been elected vice-president general of the Society of the War of 1812.——Dr. Thomas S. Cullen has been elected president and W. L. Moss, secretary of the Johns Hopkins Hospital Medical Society.——Dr. Fanny E. Hoopes sailed on a tour around the world October 18.——Dr. Joseph E. Giehner, who recently suffered a painful injury on a motorboat, necessitating the amputation of a toe, has recovered and resumed practice.

MASSACHUSETTS

Foreign Physicians in Boston.—The *Bostoner Deutsche Gesellschaft* tendered a reception and dance, October 9, to the German Central Committee for Physicians' Study Travel. The visitors inspected the hospitals and medical schools.

New Hospital Buildings.—The home for nurses of the Quincy City Hospital was formally dedicated October 10. The building has been erected at a cost of $30,000.——The Chicopee Common Council has passed an ordinance appropriating $19,200 for the new tuberculosis hospital at Aldenville.

Personal.—Dr. P. H. McCarthy, Chelsea, fractured his wrist while cranking his automobile, recently.——Dr. John M. Connolly, Boston, has been appointed professor of medicine in the medical school of the University of Oregon and started for Portland, October 7.——Dr. Francis W. Anthony, Haverhill, has been appointed associate medical examiner of Essex County.——Dr. W. P. Lucas has been placed in charge of the Boston Dispensary, which has recently been taken over by the Harvard Medical School.

MICHIGAN

Personal.—Dr. A. F. Fisher, Hubbell, assumed charge, October 1, as physician at the Quincy Mines.——Dr. Rudolph Opperman, Detroit, was thrown from an automobile in a collision with a trolley car, September 20, and seriously cut and bruised.——Dr. W. D. Wilson, Mount Clemens, was seriously injured by being thrown from his buggy.——Dr. H. V. Sutton, Benton Harbor, who has been seriously ill in Mercy Hospital, is reported to be convalescent.——Dr. Louis Barth, Grand Rapids, has returned from Europe.——Dr. R. B. Harkness and family, Houghton, have sailed for Europe.——Dr. J. W. Clark, of the Calumet and Hecla, Calumet, has resigned and will practice in Chicago.

MINNESOTA

Tag Day in St. Paul.—The Antituberculosis Committee of St. Paul reports a collection of about $12,000 from tag day, October 8.

Swedish Surgeons in Minneapolis.—Drs. Fritz Bauer, Malmo, Stellan Holmgun, Norrkoping, and Ernst Tengwall, Vexlo, Sweden, were guests of Dr. C. J. Ringnell at Odin Club, October 13.

Hektoen Addresses Society.—At the meeting of the Minnesota Pathologic Society at the university, October 15, the annual address was delivered by Dr. Ludvig Hektoen on "Recent Observation of Streptococci and the Streptococcal Infection."

Personal.—Dr. R. M. Phelps, Rochester, assumed charge of the St. Peter's Hospital for the Insane, October 8. Dr. H. A. Tomlinson, for twenty years head of this institution and who has gone to Willmar to become superintendent of the State Inebriate Hospital, was given a complimentary banquet by the citizens of St. Peter, October 7.——Dr. F. A. Dunsmoor, Minneapolis, was given a loving cup by physicians of the city at a dinner given in his honor, September 20.——Dr. Clyde Barney, Rochester, has been appointed superintendent of the department of children's diseases in a hospital in Syracuse, N. Y.

NEW JERSEY

New Hospital.—The Presbyterian Hospital, Newark, will be ready to receive patients this month. The association has purchased seven lots on South Ninth Street and has remodeled a large dwelling house on the site. The building now contains seventeen rooms and will accommodate about thirty-six patients. The expense thus far has been about $25,000 and the $5,000 that is still needed for equipment remains to be subscribed.

Tuberculosis Notes.—The Tuberculosis Day Camp, established by the Newark Antituberculosis Association, has been abandoned, the erection of the Essex County Hospital for advanced cases of tuberculosis, the enlargement of Glen Gardner, the shore camp of the association and the aid given by the Board of Education in the treatment of tuberculous school children having made it unnecessary to reopen the camp.——The formal opening of the Hoboken Tuberculosis Clinic and the office of the Hudson County Tuberculosis Hospital and Sanatorium took place September 21.

NEW MEXICO

New Officers.—New Mexico State Antituberculosis Society at Roswell: president, Dr. A. G. Shortle, Albuquerque; secretary, Dr. LeRoy Peters, Silver City.——Third Councilor District Medical Society at Albuquerque, October 5: president, Dr. C. G. Duncan, Socorro; secretary, Dr. H. B. Kauffman, Albuquerque.

State Society Meeting.—At the annual meeting of the New Mexico Medical Society held in Roswell, September 12-14, the following officers were elected: president, Dr. L. S. Peters, Silver City; vice-presidents, Drs. H. B. Kauffman, Albuquerque; W. T. Joyner, Roswell, and H. W. Goelitz, East Las Cruces; secretary, Dr. R. E. McBride, Las Cruces (reelected); treasurer, Dr. H. A. Ingalls, Roswell.

NEW YORK

Hospital News.—The people of Jamaica begin a twelve-day campaign on November 7 to raise an endowment fund of $50,000 for the Jamaica Hospital.——At the annual meeting of the corporation of the Frederick Ferris Thompson Memorial Hospital, Canandaigua, October 14, Drs. Franklin P. Warner, Canandaigua, and Alfred M. Mead, Victoria, were elected directors, and Dr. John H. Pratt, Manchester, vice-president.

New Officers.—Fourth District Branch of the Medical Society of the State of New York at Glens Falls, October 8: president, Dr. Silas J. Banker, Fort Edward; secretary, Dr. Frederick J. Resseguie, Saratoga Springs.——Wyoming County Medical Association at Warsaw: president, Dr. G. H. Peddle, Perry; secretary-treasurer, Dr. L. H. Humphrey, Silver Springs.——Seventh District Branch of the Medical Society of the State of New York at Corning, October 10: president, Dr. William T. Shanahan, Sonyea; secretary, Dr. John F. Myers, Sodus.

New York City

Street-Car Line Assists in Tuberculosis Work.—On the back of the transfers used by the Third Avenue Railroad Company, there appears the following legend: "You can learn how to prevent tuberculosis. Learn some cardinal facts about this disease. It causes 10,000 deaths every year in New York City alone. You can obtain literature free of charge, telling you what you can do to prevent it. Drop a post card to the Committee on the Prevention of Tuberculosis."

Berlin Therapeutist in New York.—Dr. L. Briger, professor of therapeutics and special pathology in the University of Berlin, lectured to the students of the hydrotherapeutic department of the Vanderbilt Clinic of the College of Physicians and Surgeons, October 9, demonstrating his method of hydrotherapy in sciatica. It consists of active and passive movements designed to put the nerve on the stretch together with a form of therapeutic pressure on the painful spot, first gentle, then increased until pain is no longer produced. After the painful parts have been subjected, he uses hot steam douches of ten minutes' duration. These movements may be made while the patient is submerged in water at a temperature of 90 degrees, the temperature being reduced at each treatment.

PENNSYLVANIA

Typhoid at Troy.—Troy, with a population of 1,500, had a record up to noon of October 19, of 140 cases of typhoid fever. Every resident of the village is being inoculated in the hope of checking the disease. Dr. Samuel G. Dixon, State Health Commissioner, has sent several trained nurses to Troy to establish an emergency hospital and Dr. C. J. Hunt, assistant medical inspector, and F. Herbert Snow, sanitary engineer of the State Health Department, is investigating the source of the epidemic.

Jefferson Alumni Association Branch Formed.—On October 15, all-day clinics were given by professors of Jefferson Medical College in the Altoona Hospital and in the evening graduates of the institution from the eight central counties, convened in Altoona and formed the Central Pennsylvania Branch of the Jefferson Alumni Association, electing the following officers: president, Dr. J. E. Smith, Altoona; vice-presidents, Drs. H. J. Sommer, Hollidaysburg, superintendent of the Blair County Hospital; H. F. Tomb, Johnstown; George W. Simpson, Mill Creek, and Dr. C. B. Kirk, Everett; secretary, Dr. Charles F. McBurney, Altoona; and treasurer, Dr. J. P. Getter, Belleville. After the business meeting a banquet was given to the visiting Jefferson professors and members of the college teaching staff at which 75 were present. Dr. Samuel C. Smith, Hollidaysburg, was toastmaster and speeches were made by Drs. S. MacCuen Smith, E. E. Montgomery, Hobart A. Hare, Randle C. Rosenberger, G. E. Price, P. Brooke Bland and Henry K. Gaskill, Philadelphia, and Henry J. Sommer, Hollidaysburg.

Philadelphia

Sanitation in Germany.—Dr. A. Weber, Geheimer Regierungsarzt, delivered an address before the Philadelphia Pathological Society, October 24, on "The Organization of the Health Department and of General Sanitary Conditions in the German Empire."

Plan Tuberculosis Hospital.—The Pennsylvania Society for the Prevention of Tuberculosis several days ago wrote an open letter to Dr. Joseph S. Neff, director of public health and charities, urging him to apply his department's portion ($250,000) of the proposed loan to the building of a hospital for the care of consumptive patients. Dr. Neff replied that his department had long recognized the need for a municipal hospital for the treatment and care of consumptives and that if the loan was authorized by the people at the next election, and if the department received its share, it was his intention to start immediately on the erection of a special hospital for tuberculosis.

VERMONT

State Board Adopts Higher Requirement.—Dr. W. Scott Nay, secretary of the Vermont State Board of Medical Registration, writes that the board unanimously adopted a resolution that after July 1, 1916, no applicant shall be admitted to examination for license to practice unless he has completed a year's work in a college of liberal arts in the study of physics, chemistry and biology. This is the eleventh state which has adopted this higher requirement of preliminary education.

State Society Meeting.—At the annual meeting of the Vermont State Medical Society in Montpelier, October 10-11, the following officers were elected: president, Dr. B. H. Stone, Burlington; vice-president, Dr. W. W. Townsend, Rutland; secretary, Dr. C. H. Beecher, Burlington; auditor, Dr. C. H. Cramton, St. Johnsbury; delegates to the Connecticut Valley Society, Dr. F. C. Angell, Randolph, and T. R. Stiles, St. Johnsbury; to the Maine Medical Association, Dr. T. T. Gorkin, White River Junction; to the New Hampshire Medical Society, Dr. C. S. Scofield, Richford; to the Massachusetts Medical Society, Dr. C. B. Ross, West Rutland; to the Connecticut State Medical Society, Dr. H. H. Lee, Wells River; to the Rhode Island Medical Society, Dr. Donly C. Hawley, Burlington, and to the Medical Society of the State of New York, Dr. G. R. Anderson, Brattleboro. The next meeting will be held in Burlington.

GENERAL

Clinical Congress in New York City.—The Clinical Congress of Surgeons of North America will hold its third annual session in New York City, November 11-16, under the presidency of Dr. Albert J. Ochsner, Chicago. The headquarters will be at the Waldorf-Astoria. Clinics on general surgery, gynecology, obstetrics, genito-urinary surgery, orthopedics and surgery of the eye, ear, nose and throat, and demonstrations in radiology, pathology and other specialties will be given by leading physicians and clinicians of Greater New York at the principal hospitals each day from 8 a. m. to 5 p. m., and six evening meetings will be held, at which papers dealing with live surgical subjects will be read by eminent American and European surgeons.

Railway Surgeons Elect Officers.—Minneapolis, St. Paul and Sault Ste. Marie Railway Surgical Association at Duluth, October 10-11: president, Dr. Frank S. Wiley, Fond du Lac, Wis.; secretary-treasurer, Dr. John H. Rishmiller, Minneapolis (reelected). Meeting next year in Milwaukee.——American Association of Railway Surgeons at Chicago, October 16-18: Dr. S. C. Plummer, Chicago, president; Drs. W. J. Means, Columbus, Ohio, J. H. Rishmiller, Minneapolis, and Battle Malone, Memphis, Tenn., vice-presidents. Meeting next year in Chicago.——Association of Surgeons of the Atlantic Coast Line Railway at Richmond, October 15: Dr. John S. McEwan, Orlando, Fla., president; Dr. C. P. Aimar, Charleston, S. C., secretary-treasurer (reelected).

News Concerning Various Swindlers, Embezzlers, Etc.—THE JOURNAL has received a large number of letters from which we summarize the following information for the benefit of those whom it may concern: —*Maynard*—This man, concerning whom THE JOURNAL published a warning October 5, p. 1303, was apprehended through the prompt action of Dr. W. L. Albin, University Place, Neb. Sheriff Knowles went to Nebraska and took the man to Adrian, Mich., to answer the charge of embezzlement.——*Sykora*—Many physicians have complained of one L. C. Sykora, an electric supply man, for withholding money paid for goods and for receiving apparatus for repair and not returning it. He seems to have victimized physicians in Peoria, Chicago, Rockford and elsewhere, as well as the Chicago Telephone Co. and the General Electric Co. The William Meyer Co., Chicago, have also been put to great inconvenience through the activities of this man. They state that he has been apprehended and put in jail through the work of detectives who were put on the man's track by a Muskegon (Mich.) physician whom Sykora is said to have swindled.——*Braun*—This man, mentioned in THE JOURNAL, September 28, p. 1204, as having stolen medical instruments, etc., is wanted by the Pinkerton Detective Agency. According to their information, he has gone by the additional names of Dr. J. Buxton Jacks, Dr. Buffin Barrow Jacks and Dr. Louis Jacques. Quarantine Officer Claude C. Pierce, Cristobal, C. Z., writes that he can give evidence against this man.——*Castle*—An agent who used the name of H. C. Castle is a stocky, short man with glasses and mustache and an unusual amount of gold fillings in his teeth. He understands medicine well, and pretends to operate for the Providence (R. I.) Electric Manufacturing Co. He takes orders for electric endoscopes made by the American Endoscope Co., also of Providence. According to Dr. W. P. Clancy, of Warren, Pa., who writes us, this man takes orders, secures part payment and makes no return.——All these instances emphasize that physicians should be extremely careful before paying money to unidentified strangers.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Oct. 12, 1912.

The National Insurance Act

While the insurance commissioners are already busy putting the insurance act into force, practically the whole medical profession is consolidating the defense against it. The almost unanimous handing over to the British Medical Association of the resignations of the contract practice of the country has forestalled the adoption by the government of one alternative —that of handing over to the friendly societies the administration of medical benefit—in case they cannot arrange terms with the physicians. As many as 23,000 resignations affecting 6,042 physicians holding contract appointments have been received. The only alternative left to the government—the organization of a state medical service—mentioned in my last letter, has been received with approval by the liberal and labor press. The labor party, of course, warmly supports the proposal, as it would be another instalment of the socialistic legislation which the party is constantly demanding. The proposal will prove most unacceptable to the medical profession, except a very small socialistic minority. It will evidently be the government's strongest card in the struggle and it may play an important part in determining a compromise on the final offer which the government will make. In well-informed quarters this is stated to be an advance of $5,000,000 on the amount previously allotted to medical benefit. The profession's present demands are estimated to require an advance of $20,000,000 on the present terms. Of course, it would be impossible for the government to establish at once a state medical service sufficient to work the act, but a beginning could be made, and once started, the scheme would almost certainly develop. The service would be in line with the whole tendency of modern legislation in this country, which is for the state to interfere more and more in the prevention and treatment of disease. Already the number of state-employed physicians, some only part time, amounts to about 2,000. These include poor-law physicians (for paupers in receipt of state relief), factory surgeons (who assist in the administration of the factory acts), health officers, school medical officers and vaccination officers. It is calculated that a state service for the insurance act would cost about $15,000,000 and would require 5,500 physicians. The profession is on the eve of a crisis unprecedented in its history and fraught with the most momentous issues. The final decision whether to accept the government's compromise or not will rest with the divisions of the British Medical Association, about 230 in number. When the government's final offer is made it will be considered by the divisions of the association who will appoint a delegate to attend a special meeting in London in the first or second week of November, where the final action of the association will be determined.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Oct. 4, 1912.

Second National Convention on Refrigeration

The refrigerating industry, which has reached such an enormous development in the United States, may perhaps be considered to have originated in France. Charles Tellier, a Norman engineer, in 1876, sent frozen meats from Rouen to Buenos Aires in the French ship *Le Frigorifique*, thus proving the possibility of transporting from one continent to another the most perishable foodstuffs. The scheme did not meet financial favor in France and even the name of Charles Tellier was forgotten. Only recently has justice been done to the originator of cold storage and his name connected with the employment of cold in feeding. At the second Congrès du froid, which was called at Toulouse, September 22-25, a new section, intended to study the use of refrigeration in medicine and hygiene, was added to the other five: the sections on refrigerating substances and low temperatures, the employment of refrigeration in food, in industry, in transportation, and legislative and administrative enactments regarding refrigeration.

EMPLOYMENT OF COLD IN THERAPEUTICS

Dr. Lortat-Jacob of Paris distinguishes general crymotherapy and local crymotherapy. In general crymotherapy cold rooms are used in which the temperature is —5 degrees C. (23 F.). Especially in America these rooms have been used to advantage in treating attacks of asthma and hay-fever. In those countries in which there is sleeping-sickness the physicians have placed the patients in a cold room with the idea of surrounding the pathogenic organism with an unfavorable environment. In some cases the results have been good but there have not been trials enough to justify any sweeping conclusions. The success which has been obtained in local crymotherapy by dermatologists is well known. Pencils of carbon dioxid snow have been used in the treatment of nevi, lupus erythematosus, certain tuberculous ulcerations, cicatricial keloid, etc. In the treatment of cancer the results are more uncertain and less satisfactory. Common snow has been used in treating rheumatism and sciatica in Norway. Fresh snow is applied for a short time followed by massage. The reaction which follows this application has resulted in some remarkable cures especially in sciatica.

For massaging with snow the hoar frost might be utilized which collects on the refrigerating pipes in the cold rooms. Dr. Letulle uses carbon dioxid snow at the pit of the stomach of tuberculous patients to stimulate the appetite. Liquid air gives low temperatures but its rapid evaporation interferes with its use.

Dr. Paul Delbet of Paris reported seven cases of tuberculous ulcerations entirely cured by carbon dioxid snow, and declared this treatment superior to surgical intervention, provided that the application is energetic and kept up for at least a minute.

Dr. Apert, physician for the hospitals of Paris, drew attention to the installation of apparatus to cool the air in summer in hospital wards for infants with estival gastro-enteritis. While infant mortality during the summer months depends largely on changes in cow's milk brought about by summer temperature, the state of the atmosphere itself plays a part. The mortality from great heat among breast-fed infants is less than among those fed by bottle, but is nevertheless three or four times more than the normal death-rate. During the hot summer of 1911 the infant mortality was increased proportionally almost as much among the breast-fed as among the bottle-fed infants. The statistical curves show that notwithstanding the reduction of mortality by hygienic efforts, the surrounding air weakens breast-fed and bottle-fed infants alike. It is difficult to reduce the temperature of infants by cold baths because the infant does not stand the treatment well. Besides, infants often are already below normal in temperature, or the limbs are cold while the temperature of the body is high. While the rooms in which the infants are kept may be cooled by pieces of ice in a bath-tub near the bed, or by the constant circulation of water in the radiators, these means are insufficient, and there should be a cooling-plant for use in summer just as there is a heating-plant for warmth in winter.

A resolution was unanimously adopted that all hospitals should be equipped with cooling apparatus, and that in Paris the first step should be taken in infant asylums and the infant wards of the regular hospitals.

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, Oct. 4, 1912.

Personal

The prominent physiologist, Prof. Hermann Munk, formerly professor of physiology at the veterinary college in Berlin, died in Berlin, October 1, at the age of 72. Munk belonged to the most important and successful investigators in the field of his profession. He deserves credit especially for his share in the extraordinarily valuable progress in the physiology of the cerebral cortex. Together with Professor Hitzig, the deceased psychiatrist of Halle, he established, through experiments on monkeys, the location of the motor and sensory centers in the cerebral cortex, and with this established the connection in general of the consciousness and mentality with the cerebral cortex. Everyone knows the fundamental importance of these findings also for the pathology and therapy of the brain, and how they have led especially to the advancement of brain surgery.

Munk was born in Posen, Feb. 3, 1839, and studied at Göttingen and Berlin as a pupil of Johannes Müller, Hanle, Weber, Du Bois-Reymond, Virchow and Traube. In 1862 he became privat-dozent, and in 1869 professor extraordinary in Berlin. In 1876 he was called as professor ordinary of physiology to the veterinary school, and in 1880 he was appointed a regular member of the Prussian Academy of Sciences, and in 1897 regular honorary professor. After the death of Du Bois-Reymond, Munk was proposed by the Berlin faculty, in the first place, as his successor. The government refused, in spite of Munk's prominence, and solely on account of his Jewish denomination, to enter into any transaction with him, a fact which, like many other similar occurrences, does not add to the fame of the Prussian government. In 1907 Munk resigned his office for reasons of health. The number of literary works produced by him is very extensive. When he was a student he delivered at Göttingen an excellent report of research on the finer structure of primitive muscular fibers. In Berlin he wrote a prize work on egg and sperm formation and fertilization of the nematodes. As assistant of Du Bois-Reymond, his studies covered chiefly the general physiology of the nerves and muscles, especially the electric phenomena. His collected pioneer works on the cerebral cortex were published in the eighties under the title "Ueber die Funktionen der Grosshirnrinde." His later works treat of the cardiac and laryngeal nerves, cataphonia, milk secretion, and the thyroid gland. Munk was an excellent speaker and a beloved teacher, high-minded and modest.

Professor Krusius, dozent at the Marburg university, has undertaken, with the help of several scholarships and the support of the Prussian and Bavarian governments, a ten-months' trip to foreign countries, to repeat on a big scale and on different races the investigations on myopia in the schools which he began some time ago in the province of Brandenburg.

Left-Handed School Children at Berlin

Dr. Schäfer, a medical school inspector, has made some interesting researches regarding left-handedness among Berlin school children. It is found more prominent in the lower classes, while the left-handed pupils of the upper classes either learn to use the right hand and are no longer conscious of their left-handedness, or they often conceal it. Heredity from parent to child was present in 16 per cent.; from the grandparents in 8 per cent., and the hereditary defect appeared in three successive generations in 2.45 per cent., with the simultaneous occurrence in blood relatives in 33.5 per cent. Altogether heredity was recognizable in 60 per cent. On the basis of these figures, the number of left-handed pupils in the Berlin public schools may be estimated at 9,265. Consequently over 9,000 children are being trained contrary to their natural inclination and this to their detriment, as is shown by their writing, drawing and hand work. It would be better, writes Dr. Schäfer, if more attention were given to this congenital condition and the compulsion to use the right hand were suspended in the case of left-handed children. The left hand should not be left untrained in left-handed children at this period of education but should be held as of the same importance in education as the right hand among the right-handed. Left-handed pupils, he affirms, should write, draw and work with the left hand, as the others do with the right.

VIENNA LETTER

(From Our Regular Correspondent)

Vienna, Oct. 1, 1912.

Health Statistics for the Month of August

The most unusually wet summer with a low mean temperature has been rather favorable as regards the morbidity of the population in Vienna. Owing to the absence of sudden changes of temperature and the lack of dust, usually so troublesome at this time of year, the usual catarrhal conditions of the respiratory organs were markedly less. Diseases of the gastro-intestinal tract were also less prominent than at the corresponding time of other years. This is due chiefly to the drop in the frequency of summer diarrhea of infants. In the public dispensaries (not hospitals) the number of cases of diseases of the respiratory organs was 1,700 and of the digestive organs, 1,972; 580 new cases of tuberculosis were reported. A marked decrease was noticed in the number of infectious cases; altogether 742 cases were reported against 982 in August, 1911. There were 171 cases of scarlatina; one case of small-pox (imported from Turkey); 139 of measles; four of rubeola; twenty-seven of varicella; 120 of diphtheria; 102 of pertussis; seven of parotitis; twenty-seven of typhoid, seventeen of which were imported, and ninety-seven cases of erysipelas. The mortality was only 12.82 per thousand, against 16.81 in the same month of 1911. In August, 1912, there were six deaths less per day than occurred in August, 1911. Altogether 2,224 persons died, 51.90 per cent. males and 48.10 per cent. females. For September, which was still more wet and cool in this country, the complete figures are available, but as this was the coolest and wettest September since the meteorologic records have been kept (137 years), the number of diseases of the respiratory organs has been observed to be much higher than in other years. On the other hand, the number of patients visiting the out-patient departments in our hospitals and ambulatories is reported as being extremely small, so that the work is now easily done by a few men.

Marriages

A. V. Banes, M.D., St. Joseph, Mo., to Mrs. Lillie Cassel Neal of Washington, D. C., at Monhegan Island, off Portland, Me., August 29.

Samuel Jay Turnbull, M.D., M.C., U. S. Army, to Miss Helen C. Chandlee, at Washington, D. C., October 9.

Walter Lewis Scofield, M.D., Stamford, Conn., to Miss Frances Gould of South Clinton, Conn., October 2.

William Buckley Peck, M.D., Freeport, Ill., to Miss Alvina Scherf of Rockford, Ill., in Chicago, September 26.

Robert Childers McElvain, M.D., St. Louis, to Miss Florence Thelma Coulter, at Joplin, Mo., October 10.

John Quince Roane, M.D., Carlyle, Ill., to Miss Nellie Gertrude Steele of Whitewater, Wis., October 9.

Casimir Charles Groblewski, M.D., Plymouth, Pa., to Miss Lucy Butkiewiez of Nanticoke, Pa., October 8.

William Easterly Ashton, M.D., to Miss Caroline E. Sullivant, both of Philadelphia, October 16.

Jozsef Irme, Jr., M.D., Budapest, Hungary, to Miss Evelyn Baxter Nason of Philadelphia, October 10.

Oscar Knutson, M.D., to Miss Addie Anderson, both of Dallas, Wis., at Minneapolis, October 8.

Edmund W. Rucker, M.D., Birmingham, Ala., to Miss Lillian Hill of Montgomery, Ala., October 16.

Ambrose Elisha Potter, M.D., to Miss Rose Rathbone, both of Springfield, Mo., October 5.

Thurman C. Siffert, M.D., to Miss Inez Holden, both of Canton, O., at Kent, O., October 9.

Herbert S. Guthrie, M.D., Louisville, to Miss Nellie Dean of Jeffersonville, Ind., October 7.

Fred W. Heyde, M.D., Detroit, to Miss Cora Maine of Galion, O., in Windsor, Ont., October 1.

Ferris Summerbell, M.D., Nahma, Mich., to Miss Josephine King of Omro, Wis., October 1.

Jane Catherine Hughes, M.D., and M. F. Sullivan, both of Mankato, Minn., recently.

Jesse Samuel Lancaster, M.D., to Miss Mildred Post, both of York, Neb., October 2.

William B. Wescott, M.D., Montgomery, Ala., to Miss Bonnie Andrews, October 9.

Dillis S. Conner, M.D., to Miss Elsie Lehman, both of Cannelton, Ind., recently.

Deaths

George Henry Knight, M.D. New York University, New York City, 1882; a prominent practitioner and legislator of Connecticut; died while making a political speech in his home town of Lakeville, October 4, from heart disease, aged 56. After his graduation from medical college he served as superintendent of the State Institute for Feeble-Minded Children, Faribault, Minn., and from 1885 until the time of his death he was superintendent of the School for Imbeciles, Lakeville, Conn., of which his father had been superintendent for many years. Dr. Knight was a member of the American Medical Association and in 1910 was appointed chairman of the State Tuberculosis Commission. From 1901 to 1903 he served on the staff of Governor McLean as surgeon-general. He had also served as a member of the State Board of Pardons. Dr. Knight was a member of the General Assembly from the town of Salisbury at the sessions of 1907, 1909 and 1911 and did splendid work for the state as chairman of the committees on appropriations, public health and safety, and humane institution. At the last state Republican convention he was candidate for governor but withdrew in favor of Judge Studley; he was the unanimous choice of the Republican convention for congressman from the fifth district, and it was while in attendance at a political gathering in Lakeville, that he was seized with his fatal illness.

Franklin R. Pitner, M.D. Transylvania University, Lexington, Ky., 1837; a resident of Illinois since 1830 and a practitioner of Clay City for seventy-five years; a member of the Illinois legislature in 1844; who went to California during the gold fever in 1850 and remained there two years; for several years president of the district medical society; died at the home of his son in Clay City, October 4, one week before his one-hundredth birthday.

Henry Johns Rhett, M.D. University of Pennsylvania, Philadelphia, 1890; a member of the Medical Association of the District of Columbia; of Washington, D. C., and Philadelphia; who was taken ill at his summer home in Jamestown, R. I., about two weeks before, died in the Newport, R. I., Hospital, October 7, from pneumonia following a surgical operation on the intestines, aged 52.

John Fannin Young Paine, M.D. Tulane University, New Orleans, 1861; a member of the Louisiana State Medical Society; surgeon in the Confederate service during the Civil War serving with the Seventh Louisiana Infantry; formerly professor of obstetrics and gynecology in the University of Texas, Galveston; died at his home in Charlestown, W. Va., October 2, aged 72.

John Dempster Taylor, M.D. Jefferson Medical College, 1891; of Minot; a member and once treasurer of the North Dakota State Medical Association; physician and member of the insanity board of Ward County; superintendent of the Minot Board of Health; died in a hospital in St. Paul, October 9, after a surgical operation, aged 53.

Edward Bond Foote, Jr., M.D. College of Physicians and Surgeons, New York City, 1876; a pioneer in eugenics and one of the first advocates of the teaching of sex hygiene in the public schools; conspicuous as a humanitarian; died at his home in New York City, October 12, aged 58.

Walter Savage Whitmore, M.D. New York University, New York City, 1887; of Oceanic, N. J.; a member of the Medical Society of New Jersey; died in the Long Branch Hospital, October 11, two days after an operation for appendicitis, aged 63.

William Brewster Clark, M.D. College of Physicians and Surgeons, New York City, 1879; a member of the American Medical Association and the New York Academy of Medicine; medical referee and chief examiner for the Mutual Benefit Life Insurance Company of Newark, N. J.; died at his home in New York City, October 11, aged 62.

Lee Ervin Brownrigg, M.D. Rush Medical College, 1899; died recently at his home in Frederick, Wyo., from the effects of a gunshot wound of the head, believed to have been self-inflicted with suicidal intent while despondent over financial matters.

Pierce H. Power, M.D. University of Dublin, Ireland, 1887; surgeon in the Royal Army Medical Corps during the Ashanti Campaign in West Africa; a practitioner of British Columbia since 1895; died at his home in Vancouver, August 28, aged 46.

Gist Palmer, M.D. College of Physicians and Surgeons, New York City, 1894; a member of the West Virginia State Medical Association; of Wellsboro; died in a hospital in Pittsburgh, Pa., October 7, from tuberculous peritonitis, aged 42.

Alonzo C. McClellan, M.D. Howard University, Washington, D. C., 1880; a leading colored practitioner of Charleston, S. C.; founder of the Colored Hospital and Training School for Nurses; died at his home in Charleston, October 4, aged 57.

John P. Atkinson, M.D. Atlanta College of Physicians and Surgeons, 1900; a member of the Medical Association of Georgia; of Milledgeville; died at the home of his mother, in Newnan, Ga., October 4, from abscess of the brain, aged 31.

John Coulson Howie, M.D. University of Glasgow, Scotland; for fourteen years a practitioner of Glasgow but since 1909 a resident of St. Catharines, Ont.; died in the General and Marine Hospital in that city, October 3, aged 49.

William Gilbert Wilson, M.D. Cincinnati College of Medicine and Surgery, 1876; a member of the Medical Society of the State of Pennsylvania; died at his home in New Castle, October 8, from cerebral hemorrhage, aged 62.

Richard R. Lansing, M.D. Detroit College of Medicine, 1889; for two years professor of chemistry in his alma mater; formerly coroner of Wayne County; died at his home in Detroit, October 11, from acute intestinal disease.

Leonidas H. McCoy, M.D. Medical College of Ohio, Cincinnati, 1881; vice-president of the Lake, Ind., State Bank, and president of the Lake Realty Company; died at his home in Richland City, Ind., October 7, aged 61.

Leverett E. Goodell, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1864; a pioneer practitioner of Iowa but for more than forty years a resident of Nebraska; died at his home in Wilber, September 23, aged 78.

Robert Emmett Wilson, M.D. University of Virginia, Charlottesville, 1910; afterward an intern in the Waltham (Mass.) Hospital; died at the home of his parents in Charlottesville, October 8, from tuberculosis, aged 24.

Robert J. Grimes, M.D. University of Pennsylvania, Philadelphia, 1875; a member of the Medical Society of the State of North Carolina; died at his home in Bethel, from appendicitis, September 28, aged 60.

James A. Leech (license, Colorado, ten year clause, 1897); for thirty years a resident of Colorado Springs, and formerly an alderman and a member of the school board; died in a local hospital, October 6, aged 63.

Samuel Dale Clarke, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1879; for nearly thirty years a practitioner of Verona, Pa., and later a resident of Oakmont; died at his home, October 8, aged 68.

Frank R. Wilson (license, Iowa, practitioner, 1886); a member of the American Medical Association; a practitioner of Iowa since 1873; died at his home in New London, October 6, from nephritis, aged 60.

Turner W. Avery, M.D. Keokuk (Ia.) Medical College, 1895; of DeWitt, Mo.; a member of the American Medical Association; died at the home of his mother in Higbee, Mo., October 3, from dropsy, aged 42.

Arthur Leonard Fulton, M.D. Missouri Medical College, St Louis, 1897; of St. Louis; formerly a member of the St. Louis Medical Society; died in Medina, Tex., September 1, from tuberculosis, aged 39.

Hubbard Kavanaugh Adamson, M.D. New York University, New York City, 1876; of Maysville, Ky.; died in the Kentucky State Hospital, Lexington, October 9, aged 58.

James W. Reeves, M.D. Kentucky School of Medicine, Louisville, 1887; died at his home in Rockdale, Tex., October 4, from nephritis.

Charles Edward Bean, M.D. University of Louisville, Ky., 1877; of St. Paul, Minn.; formerly a member of the American Laryngological Association and consulting laryngologist to the City and County and St. Luke's hospitals, St. Paul; died in the City Hospital, September 9, aged 55.

Raleigh C. Brenizer, M.D. Marquette University, Milwaukee, Wis., 1895; of Loganville and later of Ironton, Wis.; died in the Reedsburg (Wis.) Hospital, October 11, from cerebral hemorrhage, aged 45.

John A. Mack, M.D. Bennett Medical College, Chicago, 1878; a veteran of the Civil War and a resident of San Bernardino County, Cal., since 1886; died at his home in San Bernardino, October 9, aged 70.

Judson Stanley Gibbs, M.D. University of Syracuse, N. Y., 1876; of Hinkley, Cal.; was almost instantly killed by the cave-in of a well in which he was working, September 9, aged 63.

John W. Hughes, M.D. College of Physicians and Surgeons, Baltimore, 1911; of Pawtucket, R. I.; died at the home of his father in Westerly, R. I., September 26, from nephritis, aged 29.

Jesse F. Trippett (license, West Virginia, 1904); a member of the West Virginia State Medical Association; died at his home in Fairview, W. Va., August 20, from tuberculosis, aged 36.

James William Porter, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1878; College of Physicians and Surgeons, Chicago, 1889; died at his home in Hedrick, Ia., September 28, aged 59.

Charles Elisha Slocum, Jr., M.D. College of Physicians and Surgeons, New York City, 1887; died at his home, near Bentonville, Ark., September 17, from poisoning by strychnin, aged 50.

LaFayette Sproule (license, thirty years practice, Kentucky, 1895); of Williamsburg, Ky.; a veteran of the Civil War; died in Lexington, Ky., October 10, from senile debility.

Francis E. Chase, M.D. Cleveland Medical College, Homeopathic, 1894; one of the promoters of Grace Hospital, Cleveland; died at his home in that city, October 5, aged 49.

Arthur Macauley, M.D. Rush Medical College, 1877; a member of the local United States pension examining board; died at his home in Middlesboro, Ky., September 8, aged 62.

Michael W. Gillson, M.D. New York University, New York City, 1881; a member of the Medical Society of New Jersey; died at his home in Paterson, September 15, aged 56.

Elisha Avery Hewitt, M.D. New York University, New York City, 1850; for twenty years a resident of Denver, Colo.; died at his home, October 7, from pneumonia, aged 85.

Edward M. Fuller, M.D. Hahnemann Medical College, Chicago, 1890; a member of the American Medical Association; died at his home in Chicago, October 3, aged 70.

Abraham Joseph Gossett, M.D. College of Physicians and Surgeons, New York City, 1909; of New York City; died in Monticello, N. Y., October 8, aged 25.

W. N. Fisher (license, Eclectic State Board, Texas, 1903); formerly of Gunter, Tex.; died suddenly at Bagwell, near Clarksville, October 7, aged 51.

William A. Garman, M.D. University of Pennsylvania, Philadelphia, 1849; died at his home in Berlin, Pa., October 6, from senile debility, aged 83.

Daniel Webster Loney, M.D. University of Michigan, Ann Arbor, 1885; died at his home in Norwalk, O., October 7, from uremia, aged 51.

Albert Gallatin Jones, M.D. Chicago Medical College, 1862; died at his home in Lexington, Ill., about September 18, aged 85.

LeRoy Riddell, M.D. New York University, New York City, 1863; died at his home in Canisteo, N. Y., September 17, aged 79.

John S. Garman, M.D. College of Physicians and Surgeons, Baltimore, 1878; died at his home in Berlin, Pa., October 2, aged 52.

Herbert John Anderson, M.D. University of Toronto, Ont., 1900; died at his home in Winnipeg, Man., recently, aged 37.

Harry E. Poole, M.D. McGill University, Montreal, 1880; died at his home in Brier Hill, N. Y., September 11, aged 53.

Melvin Gregg, M.D. Columbus (Ohio) Medical College, 1881; died at his home in Salineville, O., September 21, aged 58.

Miles P. Sigworth, M.D. Rush Medical College, 1866; died in his home at Anamosa, Ia., October 8, aged 74.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

DIORADIN REFUSED RECOGNITION

Report of the Council on Pharmacy and Chemistry

A preparation called Dioradin was placed on the market as a cure for consumption three years ago in Europe and somewhat later in this country. It was first submitted to the Council in July, 1911. Because of the manifestly unwarranted claims made for its use in the treatment of tuberculosis, the Council voted that the product be refused recognition for conflict with Rule 8, without at that time taking under consideration the question whether or not it was in conflict with other rules of the Council.

In June, 1912, further consideration of Dioradin was requested. The American agent having promised a reform in the methods of advertising, the Council considered the available evidence regarding the identity and value of the preparation. Examination of evidence regarding the composition of Dioradin—claimed to consist of radium chlorid, iodoform and menthol in an ether-oil solution—showed serious discrepancies as to the amount of radium as well as to the identity and amounts of other constituents. It was further found that the experimental evidence was insufficient and biased. Then, too, in view of the difficulty of judging the effects of medicines in tuberculosis, the clinical data were unconvincing. There was nothing to prove that the reported improvements, even if they actually occurred, were to be ascribed to the mixture as a whole rather than to any one of its constituents.

As a result of these findings, the Council voted that Dioradin be refused recognition and that the publication of these facts be authorized. In accordance with its regular procedure, it also submitted the report to the agent. In reply the agent submitted evidence which showed that he was not responsible for the misstatements about Dioradin but offered no facts that affected the Council's findings.

The entire matter having been referred to a second referee, minor modifications of the first draft of the report were authorized. Since then the Dioradin Company has submitted two reports of examinations of Dioradin made for the company in Germany showing a higher radium content than that previously found. These reports do not alter the facts brought out in the report of the Council that the composition of Dioradin has been variable, which past variability arouses a feeling of uncertainty or lack of confidence. In view of this the amended report was ordered published and appears below.

W. A. PUCKNER, Secretary.

FIRST SUBMISSION OF DIORADIN

Dioradin, a preparation for the treatment of consumption originated by Dr. R. de Szendeffy, Budapest, Hungary, was submitted to the Council by Louis Gero, Ltd., New York, with the following statement of composition:

> "A radio-active preparation of Menthol, Iodin and Radium Barium Chlorid 1/10 of a drop; in ether solution."

A circular which accompanied the submission stated:

> "Preparation No. 3 of Dioradin contains not only terpins but also iodin salts . . . In view of the fact that emanations of the radium as well as the combinations of the evasive iodin terpins enter into the organism through the lung . . ."

Later these indefinite statements of composition were supplemented by the following:

"In 100 c.c. there are:
1 gr. Iodoform.
5 " Menthol.
10 drops Radium chlorid solution (1 milligr. in 100 c.c. of water).
5 gr. ether.
90 " Oil (ol. amygd. frig. press)."

a circular contained in the package these claims were made:

> "The preparations of the Dioradin are based on the miraculous effects which scientific researches have shown in regard to the lifferent sicknesses treated with radium.
>
> "It is generally known that radium, even if externally employed, aas proved itself to be a bactericidal remedy. Its effect is multiplied if one employs it internally even in infinitesimal doses, in consequence of its permanent action of emanation on the organism.
>
> "The preparations of the Dioradin contain the radium itself. For this reason their antiseptic and bactericidal effect is much more intensive than with medicaments which contain only its emanation, which disappears in a short time."

In view of the general extravagance of the claims made for therapeutic action the preparation was rejected without nsidering other possible conflicts with the rules of the uncil.

SECOND SUBMISSION OF DIORADIN

Having been advised of the rejection by the Council of oradin the American agency, which in the meantime had come the Dioradin Co., requested further consideration. ie Council therefore took up the subject again. After cerin typographical errors had been corrected the following was w given as the composition:

"1 gram Iodoform.
5 grams Menthol.
10 drops Radium Chlorid Solution (containing 1 milligram of radium chlorid in 100 cubic centimeters of water).
5 grams Ether.
89 grams expressed oil of almond.
This liquid is put up in ampules containing one cubic centimeter of liquid."

In support of the therapeutic claims for Dioradin the Amern agent submitted literature consisting chiefly of articles Dr. Bernheim of Paris. Before reporting on the requested consideration of Dioradin the referee directed the secretary of e Council to point out to the American agent that in the rmula given, the amount of non-volatile matter should be out 90 per cent., whereas the report of the Lederle Labatories which accompanied the request for reconsideration ates that but 72.08 per cent. was found in the analysis. reply the agent stated that he had called the attention Dr. Szendeffy (the originator of Dioradin) to the disepancies concerning non-volatile matter and that he felt re the discrepancy was wholly accidental (*sic*). In a later mmunication the agent submitted a statement of analysis om the Lederle Laboratories of a new specimen of Dioradin cording to which the amount of non-volatile matter agreed sentially with the amount claimed by the agent.

The referee, having examined the evidence, is of the opinion at the statement of composition is misleading and that the erapeutic claims are unwarranted, thus:

DISCREPANCIES IN RADIUM CONTENT

The chief claims for its therapeutic value are based on the dium content, yet the discrepancies and contradictions regardg this are serious.

In connection with the reconsideration of this product the gent presented a certificate of chemical examination by the derle Laboratories in which the following statement was ade as to the radio-activity:

> "Examination shows the preparation to possess slight radioactivity, corresponding in activity to less than 1-10,000 of 1 milligram of radium bromid per ampule. According to the sworn statement of Dr. A. de Szendeffy, the originator of Dioradin, the preparation contains 10 drops of radium chlorid solution (1 milligram in 100 cubic centimeters of water) in 100 cubic centimeters of the preparation. This would correspond to 5-1,000 milligram of radium chlorid in 100 cubic centimeters or about 1-20,000 of 1 milligram per ampule."

A cursory reading of this paragraph gives the impression iat Dioradin possesses fully the amount of radio-activity aimed by its originator, Dr. A. de Szendeffy. This impression greatly strengthened by the concluding paragraph of the ederle report, which says:

> "In conclusion, our examination shows that the preparation submitted to us as Dioradin possesses radio-activity, and contains a fixed oil (apparently expressed oil of almond), iodoform, menthol and ether, thus confirming the sworn statement of Dr. A. de Szendeffy in regard to the composition of this product."

On inquiry as to the method used by the Lederle Labatories, in determining radio-activity the agent submitted a further statement from the Lederle Laboratories which describes the gamma ray test by which the determination was made and a radium value equivalent to 0.000041 mg. of radium bromid per capsule was obtained. The report then says:

> "The variations of the single measurements from the mean in the case of the natural leak and the leak with the Dioradin near were so large that we did not feel justified in assigning much accuracy to the figure, 0.000041, but stated that the amount of radium per capsule could not be greater than 0.0001 mg., with the possibility of there being a much smaller amount present."

It is evident that the wording of the reports of the Lederle Laboratories is liable to give the impression that their examination confirms the claims made for Dioradin.

It is further evident from these reports that the amount of radio-active matter has not been definitely ascertained but that it is at the best very small. The unreliability of the claims for radium content of Dioradin was recently shown by Buechner,[1] who found a specimen obtained from an apothecary to contain but 1-1000 of the amount claimed.

VOLATILE AND NON-VOLATILE MATTER

The varying claims regarding the content of volatile and non-volatile matter throw doubt on the entire composition of Dioradin, for if the statement as to these is wrong the rest of the statement regarding composition cannot be given credence.

In the first submission of Dioradin about 89 per cent. of non-volatile matter was claimed but in the report of the analysis by the Lederle Laboratories, which accompanied the resubmission, only about 72 per cent. was found. Later the Lederle Laboratories reported that an examination of a new specimen of Dioradin had shown about 90 per cent. of non-volatile matter. The discrepancies between the composition claimed for Dioradin and that found for the product in the first Lederle report has shown that the agent was quite ignorant of the composition of the product which he was selling.

INDEFINITENESS OF THE IODIN CONTENT

The label on the trade package of Dioradin first submitted to the Council stated that the product contained iodoform; a similar statement was made in the submission of the product; the circular accompanying the first submission stated that "iodin salts" were contained in the product while the iodin content was referred to further on in this circular as "combinations of evasive iodin terpins." In Bernheim's papers, which have been used to advertise Dioradin, and which are referred to in the same circular, the iodin compound is called "iode peptonisé," which, according to information stated by the American agent to have come from Budapest, is to be translated "iodized peptone." What is the meaning of this confusion? One would naturally suppose that the preparation to be sold in this country contains iodoform in an ether-oil solution while the one used by Bernheim and Dieupart[2] was stated to contain an *ethereal* solution of "iodized peptone." This is another mystification, for an ethereal solution of any kind of peptone would be a novelty. The matter was of some importance, for Bernheim and Dieupart lay great stress on the difference between "peptonized iodin" and other iodin (loc. cit., p. 333) and of the superiority of ethereal over oily solutions (loc. cit., p. 334). The American agents, however, in the second submission, state that this is all a mistake; that the Dioradin used by Bernheim is the same Dioradin which was submitted to the Council; and that this does not contain, and never did contain, the ethereal solution of "iode peptonisé" to which Bernheim attached so great importance. Bernheim (report to Medical Congress of Lyons) himself has come to the same conclusion; for five months after his first paper he believes that the "special salt of radium" *(sic)* is the principal agent; so that the "peptonized iodin" must be unimportant, and in a cablegram of July 4, 1912, he now informs the Dioradin Company that the formula was incorrectly given in his first papers "owing to my ignorance of actual composition;" and that all the Dioradin used by him was of the composition stated in the submission to the Council.

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[1] Buechner: Pharm. Weekblad, March 2, 1912, p. 161.

[2] Bernheim and Dieupart: Revue Internationale de la Tuberculose, May, 1911, p. 336.

While this vindicates the good faith of the American Dioradin Company, it does not clear up the mystery. The question occurs at once: What led Dr. Bernheim to make such positive statements? Was he drawing purely on his imagination? If so, why did his imagination take this peculiar, special direction? Or if he did have some reason to imagine the "iode peptonisé," who supplied this reason? And if, at that time, he was given to understand by Szendeffy, who must have supplied him with the material, that it contained the iodized peptone, how can he be positive at this time, that it did not contain it? Has he actually analyzed the old material?

There is also a further question which needs to be answered. Why has Dr. Szendeffy waited until Dioradin was rejected by the Council before correcting Bernheim's serious misapprehension, in the meantime permitting the circulation of Bernheim's paper?

Until these questions have been satisfactorily answered, the element of mystery about the composition of Dioradin cannot be cleared away.

EXPERIMENTAL EVIDENCE

The available experimental evidence regarding "Dioradin" is restricted to some quotations from its inventor Szendeffy, in the paper of Bernheim and Dieupart (p. 334). These, if confirmed, would show that radium alone has practically no effect on cultures of tubercle or colon bacilli; that 0.1 gm. of "iodementhol" (concentration not stated) checks the growth of the acid-fast organisms; and that this antiseptic efficiency can be nearly doubled by the addition of a little radium. No quantitative data are given, so that it is difficult to judge the accuracy of the observation. Granting that it is correct, it would have little bearing on the therapeutic actions of Dioradin, for there is nothing to show that the effective test-tube concentration is reached in the pulmonary tissues.

It is also claimed that the injection of Dioradin prevents tubercle infection. The referee believes that the Council and the medical profession should hesitate to accept this conclusion without further details; and these would require confirmation by unprejudiced observers.

CLINICAL EVIDENCE

The Dioradin Company submits considerable clinical data in favor of Dioradin. It must be remembered that most favorable opinions have been published, from time to time, about scores of "consumption cures," which have mysteriously lost their efficiency when their novelty wore away. There is no more reason to doubt the good faith of those who are enthusiastic about Dioradin than of those who have been enthusiastic about other "cures." There appear to be features in the course of tuberculosis which make the judgment of therapeutic measures peculiarly difficult. It is possible that impartial clinical trials of Dioradin by tuberculosis experts appointed by the Council might facilitate judgment as to the actual efficiency of Dioradin. The referee doubts, however, whether this would advance the Council very much toward the acceptance of the substance. Such an investigation would be so lengthy, that it should not be undertaken until the Dioradin Company itself has offered at least presumptive evidence in this direction, especially in view of the adverse report recently made by Cecil Wall.[3] Ten tuberculous patients were treated by Wall in strict accordance with the method outlined to him by Bernheim, yet Wall concludes that none of the cases, though treated accurately in accordance with the instructions, can be quoted to justify any of the claims for the therapeutic efficiency of Dioradin. The Council cannot undertake lengthy investigations of this character, until it is put in possession of data which would show to its satisfaction that such investigations would probably be fruitful.

CONCLUSIONS

From investigations made, it appears that the claims in regard to the composition of Dioradin have contained vague statements and contradictions which arouse a feeling of uncertainty and lack of confidence. Until this uncertainty is cleared away, Dioradin cannot be considered as complying with Rule 1. The experimental data are insufficient and unconvincing. Some favorable clinical reports have been submitted, but tl accuracy of the observations is to be questioned and they a more than offset by the negative results observed by Cec Wall. As might be expected, other negative results, if observe have not been submitted and there is nothing in the manufa turer's claim to show whether the improvement reported really due to the peculiar mixture called Dioradin or to an one of its ingredients.

It is therefore recommended that Dioradin be not accepte for New and Nonofficial Remedies. In view of the extensiv advertising of this preparation and because of the admittedl incorrect statements in the earlier papers it is recommende that publication of this report be authorized.

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[3] Wall, C.: Brit. Med. Jour., July 20, 1912, p. 109.

Correspondence

Rat and Mosquito Extermination in Queensland

To the Editor:—Perusal of your interesting article on "Tl Rat as a Source of Economic and Health Waste" in Th Journal, Aug. 17, 1912 (p. 548) has led me to forward her with copies of recent public health legislation and orders ma thereunder in this state, in respect to rats and mosquitoes. A extensive organization for rat-destruction on the ordinary lin has been in operation in Brisbane for some ten years pas A detailed survey carried out in 1910 and 1911 showed th rats were being enabled to breed just about as fast as m department's men could destroy them, owing to the apath and neglect of householders. The provisions of Section 132 of the Amending Health Act and the subsequent order bas thereon were designed to check this. It is too early y to speak of results, but if the last two sentences of yo article represent the gist of the rat-reduction case—as believe they do—it may be possible to supply some applicab data in the course of the next year or two.

J. S. C. Elkington, Brisbane, Queensland.
Commissioner of Public Health.

[Comment.—The portion of our editorial referred to by o correspondent relates to the extermination of the rat by buil ing him out of existence and waging a continuous, vigila warfare against him by the individual property-owner. Se tion 132F of the Queensland Health Acts provides that "Whe ever the governor in council is satisfied that a visitation any epidemic, endemic or infectious disease may be prevente or that the spread or continuance of any such disease may checked, diminished or prevented by taking measures for tl destruction of rats, mice or other vermin, or any insect lif he may, by order in council . . . (duly published) decla rats, mice or other vermin, or any specified form of inse life, to be noxious, and direct that owners and occupiers all or any premises shall adopt such measures as are pr scribed in the order, for the purpose of destroying su vermin and insect life, preventing their breeding and preven ing their access to such premises . . . It is also provid that such order may be in general terms or may be of limit duration or of limited application to any specific areas localities, and may prescribe any special measures to adopted and carried out at the expense of the property-owne In default, the commissioner of health may go on the proper and carry out such measures as are necessary and charge tl expense thereof to the property-owner, which expense may recovered in the courts, with a penalty added. Among tl blanks provided by the health authorities are cards to filled out by the inspectors and filed in the office giving complete survey of each property with reference to rats a mosquitoes, notices to property-owners that on written appl cation to the department of public health skilled men may arranged for to exterminate the rats and mosquitoes—at tl expense of the property-owner, of course—and other blan for notifying them when in default and specifying a time with which the order must be complied with. It will thus be se that in Queensland the extermination of vermin and insec of noxious or disease-carrying character is a matter of publ statute which may be made of general application, and it

left to the discretion of local health boards to carry out
n measures. As stated by our correspondent, the vigorous
rcement of this statute should furnish some valuable data
irding rat and mosquito extermination and the prevalence
at- and mosquito-borne diseases.—Ed.]

Collective Investigation of Ulcer of the Stomach

o *the Editor:*—At the invitation of the German committee
this investigation, a similar committee has been formed
this country, consisting of Drs. George Brewer, Warren
man, Max Einhorn, James Ewing, J. M. T. Finney, Arpad
Gerster, John C. Hemmeter, Frederic Kammerer, J. Kauf-
m, William J. Mayo, Willy Meyer, William Gerry Morgan,
n B. Murphy, Franz Pfaff, William L. Rodman, Charles
Stockton and John S. Thacher.

he German committee says:

Any one who studies the clinical aspects of gastric ulcer
an unprejudiced manner will soon come to the conclusion
t our knowledge of the gravest of all benign affections of
stomach is distressingly scanty. The nature of ulcer of
stomach has not yet been explained. Even if we have
n successful in producing gastric ulcers experimentally, with
their characteristic signs, yet the etiology of gastric ulcer
nan is practically unknown. The explanation of the various
nptoms is correspondingly difficult. The diagnosis can in
st cases be made only with some degree of probability.

Our knowledge of the nature and causes of gastric ulcer
st be extended in order to enable us to recognize the trouble
lier and with greater certainty. There is at present no
phylaxis as a basis, for it is lacking. In spite of some
ances, treatment is still symptomatic and the end results
internal and surgical treatment are by no means so favor-
e as is commonly assumed.

In view of all these facts, we must ask ourselves whether
re is any means enabling us to clear up the various mooted
nts in the etiology of ulcer of the stomach, thus facilitating
recognition and treatment. In the opinion of the commit-
, a collective investigation would be the best method.

In the first place surgeons must be ready to send the
terial obtained from ulcer cases at operation (resected
ers, pieces of mucous membrane), properly preserved to a
tral bureau for examination.

Of equal importance would it be if pathologists would also
d material of gastric ulcers and scar tissue from the post-
rtem table to the same central bureau, at the same time
ng out the autopsy blank.

Finally, it would be desirable that all clinicians, internists
well as surgeons, should fill out the history blank, but only
ases which come to operation or autopsy."

he central bureau of the American committee is the
hologic Department of Cornell University Medical College,
First Avenue, New York City, where Professor Ewing will
ke the pathologic and bacteriologic examinations of the
tomic material. He will publish the results.

he American committee seeks the cooperation of all physi-
ns, surgeons and pathologists who may be willing to assist.
credit will be given in the published analysis of the cases
all who send histories and specimens.

)irections for preserving and forwarding the anatomical
cimens are given on the history and autopsy blanks which
obtainable on request. The autopsy reports should be sent
h the specimens to Professor Ewing. The clinical histories
y be forwarded with the specimens, or may be sent direct
the undersigned.

Warren Coleman, M.D., Secretary,
58 West Fifty-Fifth Street, New York City.

Correction in Article on Anaphylaxis to Salvarsan

'o *the Editor:*—In the summary of my article on "Anaphyl-
s to Salvarsan," in The Journal, Oct. 5, 1912, p. 1240,
ne lines have been misplaced. They should read:

'This phenomenon seems to depend on an alteration of the
ive serum by salvarsan so that the homologous serum acts
e a foreign proteid. In patients who show anaphylactic
nptoms on repeated injections of salvarsan, a similar reac-
n probably takes place between the patient's own serum and
varsan."

H. F. Swift, New York.

Queries and Minor Notes

Anonymous Communications will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SCHNITTER-KURASHIGE METHOD FOR DETECTING TUBERCLE BACILLI

To the Editor:—Please give a brief description of the Schnitter technic as modified by Kurashige for detecting tubercle bacilli in the blood, referred to in The Journal, Aug. 31, 1912, p. 754, in an abstract of an article by K. Kennerknecht.

V. Pleth, Guadalajara, Mexico.

Answer.—The description given by Kennerknecht is as follows: One c.c. of blood is drawn from the median vein and mixed with 5 c.c. of 3 per cent. solution of glacial acetic acid. It is shaken carefully to avoid formation of foam, and is allowed to stand from one-half to one hour at the most. After centrifuging for a half hour, the sediment is mixed with 5 c.c. of concentrated antiformin and stirred well; as soon as it is dissolved 5 c.c. of absolute alcohol are added, in order to reduce the specific gravity of the solution, as otherwise the sediment will collect on the surface. After centrifuging again for thirty minutes, the bottom of the tube is covered with a snow-white sediment, which is washed thoroughly with distilled water. The sediment is spread on two slides and stained, one preparation according to Ziehl-Neelsen, the other according to Much-Weiss.

Great care must be taken as to the purity of the reagents and materials. The tubes and rods are cleansed in nitric acid and boiled, or sterilized with steam, and only new slides are used which have been previously allowed to lie in nitric acid and alcohol.

LEGAL RIGHT TO OPERATE ON AN UNCONSCIOUS PERSON

To the Editor:—At times we are confronted with questions of a medicolegal nature which are dependent on the exercise of good judgment for their solution; the decision arrived at may appear correct from a medical point of view, but it may appear otherwise to the layman, and as a result we may be severely criticized.

Take, for instance, the case of a man brought to a hospital in a state of alcoholic intoxication and with a contused scalp wound. There is a question as to whether the semicoma is due to alcoholism or is the result of cerebral concussion or compression. To extend the incision and retract the pericranium so that any irregularity of the surface of the skull may be seen and felt is probably the best treatment. Have we a license to do this without the patient's consent? Is his consent of any value?

Suppose again that the man is in deep coma and that there is a fracture of the cranial vault with depression. To operate would be proper. The man has no means of being identified and there are no addresses of friends about his person. With these conditions, what legal right have we to operate or to apply any form of treatment? Then, also, presume that this person is a minor and a nonresident. To operate is imperative. Will good judgment protect the surgeon, should the parent at some future time believe otherwise?

William J. Anderson, M.D., Chicago.
Night Assistant Warden, Cook County Hospital.

Answer.—The position of the surgeon in cases of the kind suggested is a most trying one. He must exercise good judgment and a proper amount of skill, and may still be subjected to unjust criticism, or, worse yet, to suits for malpractice Moreover, the results of such suits seem to be so hard to forecast, depending on the way they are presented, etc., that specific rules cannot well be laid down for the surgeon. The decisions bearing on the subject reported from time to time in the medicolegal department of The Journal should aid him much, however, in determining where he stands legally in the matter.

One of the best decisions on the subject has but recently been rendered by the Supreme Court of New Jersey, in the case of Bennan *vs.* Parsonnet, 83 Atlantic Reporter 948, to be reported at length in The Journal. There it is held that the common-law rule with regard to consent must be adapted to the employment of anesthesia in surgical operations, and that when the patient has no other representative to act for him the surgeon must be deemed his representative. The last implication, it is said, accords with those analogies of the common law by which prompt and timely aid to accidentally injured or unconscious persons is secured from those not expressly authorized to render it. The justice writing the opinion says that he has no doubt that, should such an accident occasion a depression of the skull that rendered the injured person unconscious, the consent of the injured person to the necessary surgical operation would be implied at common law although he finds no such reported case. A like analogy to some extent is found in the American decisions touching actions for compensation for services rendered to unconscious persons. At bottom, these analogies all rest on the maxim that one is presumed to accept that which is beneficial to him, a doctrine which, if applied to commerce and the transfer of property, should surely be applied in circumstances in which life and health are at stake.

According to this decision medical attendants who are rightly in charge of a case are authorized to carry out any procedure which is vital to the life of a patient, though the interpretation would not justify unwarranted interference of a surgeon. The circumstances must be a matter of proof. The attendants at an emergency hospital or at any other institution to which a man had been brought by police or by witnesses of the accident, etc., would be authorized to do what was necessary to save a man's life or even to prevent serious untoward results which would follow the failure to carry out certain procedures such as those to which our correspondent refers.

If a man were brought to a private physician—a public hospital being too far away, perhaps—it might be wise for this physician to have a consultation so that he would have good medical testimony to bring forward in case his judgment were questioned by relatives later.

The same general reasoning will apply to the case of a minor.

QUESTIONS OF USAGE AND MEDICAL ETHICS

To the Editor:—1. In registering at a hotel, should a physician sign just plain "A. B. Jones" or "A. B. Jones, M.D."? I omit the degree and am always "Mister."

2. Which is better form in addressing an envelope, "Dr. A. B. Jones" or "A. B. Jones, M.D."? Which should be used in the heading of a letter?

3. B has attended a patient in consultation with A. After the patient recovers he suffers a relapse or again becomes sick. Is it ethical for B to attend the patient during the latter sickness?

4. B is called to see a patient for A because A is sick. What course should B follow when A resumes practice before the patient recovers?

5. A is sick or away from home and asks B to care for a patient. The patient recovers. Later the patient again becomes sick and calls B. A contends that B should not respond to the call because A introduced B into the family; except for this introduction B would never have received the call. Is A right? X. X. X.

Answer.—1. Register "A. B. Jones." If it is desirable that the hotel clerk should know that you are a physician or that he should use the title "Doctor" in addressing you, hand him your card when you register, which with propriety may read "Dr. Alfred Betterton Jones."

2. Both forms are correct. Personal taste determines the one used.

3. "When a physician (B) has attended a case as a consultant, he should not become the attendant of the patient during that illness except with the consent of the physician (A) who was in charge at the time of the consultation." ("Principles of Medical Ethics," Chapter II, Article III, Section 8). This principle should control B's course. In a word, B should do just what he would have A do were A in B's position. At a subsequent illness, the patient chooses the physician he wishes to employ.

4. When a physician (B) is called to the patient of another physician (A) during the enforced absence of that physician (A), the patient should be relinquished on the return of the latter (A) ("Principles of Medical Ethics," Chapter II, Article IV, Section 8).

5. If the second sickness of the patient occurred while A was still sick or away from home, B should care for the patient as in the first illness. If there was some time between the two illnesses and A had again resumed his practice, the patient was within his rights when he chose B to treat him. B should accept the case only if he would justify A in assuming charge were their positions reversed.

MAYR'S STOMACH REMEDY

To the Editor:—Please tell me about Mayr's Wonderful Stomach Remedy and cure for gall-stones. I have heard so much about it from the laity that I would like some information as to what it is. I think it comes from Mr. George H. Mayr of 40 Dearborn Street, Chicago. I. B. Gage, M.D., Atlantic, Me.

Answer.—Mayr's Stomach Remedy is a fraud. It was exposed in The Journal, Aug. 19, 1911, p. 671, and the matter has been reprinted together with an article on a similar fraud—Fruitola—in the pamphlet "Fake Gall-Stone Cures," price 4 cents. The matter also appears in "Nostrums and Quackery." Briefly summarized, these nostrums, by the combined action of olive oil and salts, cause the passage from the bowels of soapy concretions, making the victim think he is passing gall-stones!

IS SODIUM CHLORID POISONOUS?

To the Editor:—In The Journal, Oct. 5, 1912, three instanc
are given in which sodium chlorid was used or recommended. I
Hine advises two teaspoonfuls of table-salt in a pint of hot wa
for constipation (p. 1289). Is salt in this dose a poison? If n
how does it cause a movement of the bowels? Dr. Livermore, in l
case of anuria following the intravenous injection of salvarsan, ga
salines in enema and by the drop method (p. 1290). In view
what we are told regarding salt fever and the harmful effects
sodium chlorid in excess (Campbell's case, p. 1290), was that a w
thing to do?

I am not asking these questions in a spirit of criticism. I
looking for information. E. M. Highfield, M.D., Riverdale, Mich.

Answer.—As set forth in our editorial, Oct. 5, 1912,
1297, it is undoubted that excessive doses of salt, wheth
given by rectum or otherwise, may produce death, and or
narily speaking, this may be said to be the result of poiso
ing. The amount recommended by Hine as a laxative
cathartic would equal 10 gm. (150 grains) or more. Doubtl
many persons could take that amount of salt without harmf
results but that would depend on the susceptibility of t
patient to sodium chlorid poisoning. It is probable that wh
given by the hot-water method, described by Dr. Hine, it p
duced its laxative effects partially by the amount of fl
ingested and the stimulation of peristalsis and partial
through the excretion of fluid into the bowel after absorpti
in the attempt of Nature to establish an osmotic balance.
the case of Dr. Livermore, on account of the damage to t
kidneys, as evidenced by the presence of albumin casts in t
urine, the administration of saline solution, on theory, m
not have been a proper procedure. The outcome, howev
showed that it did no permanent damage and probably assist
in reestablishing the secretion of urine. The suggestion h
been made that, in cases in which the effect of sodium chlo
is feared, some other sodium salt, such as sodium bicarbona
should be used. The observations of different men do not ag
on the effects of giving salt in large quantities in defecti
conditions of the kidneys. For instance, M. Henkel (*Münch*
med. Wchnschr., Nov. 29, 1910) has found in his experie
that it may be given in edema, heart defect, nephritis
eclampsia, and reports having given it to six pregnant wom
in doses of 10 gm. daily for a month with only benefic
results. There are numerous observations, however, on t
extremely beneficial results of the salt-free diet in edema a
ascites. Physicians and surgeons are evidently assuming
more conservative attitude toward the employment of sali
in large quantities.

ARTIFICIAL EARS WANTED

To the Editor:—We have a patient who was born without ea
having in their place just little nubs. We desire to supply him w
rubber ears, if possible, for cosmetic purposes, and since we do
know of any house that supplies such articles, we take the libe
of asking who can meet our requirements.

Drs. Jerkins & Stuart, Moultrie, Ga

Society Proceedings

COMING MEETINGS

Clinical Cong. of Surgeons of North America, New York, Nov. 11-
Kentucky State Medical Association, Louisville, Oct. 29-31.
Southern Medical Association, Jacksonville, Fla., Nov. 12-14.

MEDICAL ASSOCIATION OF THE SOUTHWEST

Seventh Annual Meeting, held at Hot Springs, Ark., Oct. 8-10,

The President, Dr. A. L. Blesh, Oklahoma City, in the Ch

Officers Elected

The following officers were elected for the ensuing ye
president, Dr. W. T. Wootton, Hot Springs, Ark.; vice-pr
dents, Dr. Walter B. Dorsett, St. Louis; Dr. E. H. Car
Dallas, Tex.; Dr. J. H. Barnes, Enid, Okla.; Dr. C. C. Nesselrode, Kansas City, Kan.; secretary-treasurer, Dr. Fred
Clark, El Reno, Okla.

Kansas City, Mo., was selected as the place for holding
next meeting.

The Necessity of Gastric and Stool Analysis in Digest
Disorders

Dr. E. D. Holland, Hot Springs, Ark.: While the treatm
of digestive disturbances with the stomach-tube is overdo
the gastric juice analysis is not made nearly so often as
should be. Every case of digestive disorder that prese

lf should have a gastric juice analysis, and this analysis uld be repeated every five to seven days until conditions nme their normality. Next in importance to the gastric alysis is the examination of the stool. There is absolutely way to diagnose hookworm, in most cases, except by examng the stool, and we are finding out all the time that hookrm, like malaria, is not confined to any southern locality, is found all over the country, although it is more frequent the South.

)r. E. H. Eastman, Hot Springs, Ark.: Few realize how ch abuse the stomach will stand, and how beautifully it 1 be made to return to its normal function when it has sufed from disease as a result of abuse. I think the average ierican stomach is subjected to more abuse than the stomis of any other nationality. People in this country do not enough attention to the diet and to the care of their machs. They pour a conglomeration of food into their machs in a helter-skelter way, and were it not for the wonful recuperation of the stomach, the business and society ople of the United States would all be under the care of mach specialists.

\ woman came to me a short time ago suffering from stom- trouble. She had gastric neurosis, and at that time was king Dr. Miles' Nervine for her nerves, Swamp Root for kidneys, and some other kind of "patent medicine" for stipation. It took me about a week to coax this woman ay from using "patent medicines." I made an analysis of stomach contents and soon convinced her that my way of nking was correct, and she gave up the use of "patent dicines."

The Proper Lubricant and How to Use It In Urethral Instrumentation

Dr. Thomas M. Paul, St. Joseph, Mo.: The plan which I rsue is as follows: Immerse a small granite-ware bowl for 1 minutes in boiling water. Place this bowl on a small gasve and pour in a little over 200 c.c. boiling water. Add 6 . tragacanth, 46 gm. glycerin, 0.492 gm. mercuric oxycyanid d half a dram solution of cresol compound. Allow the whole boil ten or fifteen minutes, constantly stirring with a preusly sterilized glass rod or spatula. The stirring is essential keep the tragacanth from settling to the bottom and burn. In the meantime, a glass-stoppered salt-mouth bottle can immersed in the sterilizer. The lubricant can now be poured o the bottle and the latter stoppered. The compound cresol ution is added, not only as an antiseptic and preservative, t also on account of its anesthetic properties. If the mixture ems too thin, a little more tragacanth may be added; if too ick, a small quantity of glycerin and water.

As to urethral instrumentation: The best way is to oricate the urethra instead of the instrument. To do this, ounce glass syringe, with blunt urethral tip, is sterilized by iling and filled with the lubricant. The air is expelled from and the patient's urethra distended by injection. The excess lubricant is allowed to flow out into absorbent cotton held er the meatus. By this method, the instrument passing into e urethra, advances on a surface well coated with the lubrint. The excess of the lubricant remaining in the urethra pushed ahead of the instrument's tip and forced through the mpressor urethræ into the posterior urethra. This method of oricating the urethra instead of the instrument is especially sirable in cases of tight stricture and enlarged prostate or ien the urethra has been lacerated from rough instrumentan or external violence.

The Fee-Splitting Evil

Dr. David A. Myers, Lawton, Okla.: I try in every way to ve the patient to understand that his physician's attention is essential to the proper welfare and care of the case, except to actual operation, as is my own. I ask the physician and e patient whether or not the physician came with the patient the patient's request, and find out if the patient has been der treatment before coming. I then tell the patient or ends that the family physician is entitled to a fee for his sence from his business, on account of being in attendance this case; that the fee I have established is $25 and expenses per day; then I see that the physician is paid that fee, and I am guided by the wishes of the physician as to whether I charge that fee in with my own, or whether he chooses to settle with the patient direct. In case the physician expressly requests that I shall make no charge for him, that he desires to collect his own fees for attendance on the case, and time and money spent in coming with the patient to see that the patient receives the proper surgical attention, I tell the patient that I am not including a fee for the family physician, but that whatever agreement he makes with the physician is distinct from any fee the patient may pay me. If a physician calls me by telephone, or sends me a patient, I take advantage of the first opportunity I have to thank him for his kindness, and in the meantime I try to do the best work I know how to do for his patient, and send him home to the family physician for after-care and attention. I consider that I owe no man a cent for the reference of a case, unless he spends time and takes the trouble to come with the patient at the patient's request.

DISCUSSION

Dr. S. S. Glasscock, Kansas City, Mo.: This is not a theory that confronts the medical profession; it is a condition, one of the most serious that the American physician has ever had to deal with, and in some form it is here to stay. Any idea that a discussion of this kind will in a short time eliminate fee-splitting is a mistake. It will not do it. I am opposed to fee-splitting. I am glad to defend the country physician, because the country practitioner in ability, in morals and from every point of view is the equal, if not the superior, of the city physician. The country physician should be paid for his services in referring a case to a surgeon, and I think the surgeon should insist on and have an understanding with the patient or the patient's friends that the physician should be given a respectable fee aside from the fee of the surgeon for doing the operation. That is the best solution of the problem.

Dr. Jabez N. Jackson, Kansas City, Mo.: The time has come when the profession should take some action if it would keep its skirts clear. This subject is not simply a matter of secret conversation among physicians; the people are already becoming conversant with the fee-splitting evil. A great many of you have doubtless read the articles which have been published in *Pearson's* within the last year, discussing the fee-splitting evil among members of the profession to the utmost condemnation of the profession. We should try to arrive at some solution of the difficulty in order to preserve the integrity of the profession. I believe that in a great measure the faulty conditions as they exist lie with the specialist, for two reasons; the first is lack of consideration on the part of many specialists of the man who refers them work. The general practitioner feels that he has not been properly treated. Another indictment against the surgical profession is, and it has not been altogether the result of greed or avarice on the part of the family physician, that the practitioner has been solicited to do this thing. I will go further and say that he has been educated to believe in it. If I were to make one indictment stronger than another, it is that the proprietary medical schools of this country have been charnel-houses in the moral undoing of practitioners.

Dr. John F. Binnie, Kansas City, Mo.: The family practitioner ought to receive a dignified fee for his services, such as for making the diagnosis and for his time and judgment. But there is another point of view. The family physician attended Mr. Brown when he had typhoid. He was in charge of this case for two or three weeks, charging perhaps $2 or $3 per visit, making two or three visits per day. In this way a considerable bill is obtained. Again, Mrs. Brown becomes pregnant, the doctor attends her and receives a good fee for it. Little Johnnie has diphtheria and another child the measles, so that year in and year out the family physician is receiving a considerable income from this family. It is his duty to give the best advice he can. Should he receive a big fee for referring a case in that family to a surgeon for operation? I do not think so. He owes it to the family and to the confidence that the family reposes in him to refer the case to the best surgeon that can be had.

Treatment of Extra-Uterine Pregnancy

Dr. Walter B. Dorsett, St. Louis: If I should be asked what are the "dont's" to be observed in the operation for extra-uterine pregnancy, I should mention them as follows: Don't delay until the patient is *in extremis* from loss of blood. Don't examine the patient by palpation or bimanually too frequently or too roughly, lest you disturb a blood-clot and cause renewed bleeding. Don't disturb the patient mentally. Don't operate in a residence, if it is possible to move her to a hospital. Don't administer a general anesthetic too abundantly, but in extreme cases resort to local hypodermic anesthesia. Don't waste time in opening the abdominal cavity and seizing the bleeding point, but as soon as the opening is made grasp the bleeding point with the fingers and slide down a clamp and secure it. In desperate cases leave the clamp on, close the wound around the clamp, and put the patient to bed. In such cases don't waste valuable time in searching for small blood-clots or a little fetus. Don't give hypodermic injections of strychnin that will whip up an already flagging heart, but rather start your proctoclysis or intravenous infusion of normal saline solution when you begin the operation. When once the bleeding vessel has been secured, 10-minim hypodermic injections of neutral camphor will most frequently be all that will be needed in the way of drug stimulation. When it is reasonable to surmise that no active hemorrhage is going on and the patient is in a fair condition, less hurry may be enjoined and a more careful toilet of the peritoneal cavity may be undertaken.

Don't use the vaginal route. If you have done so and have not had your patient bleed to death on the table, don't do it again or you will meet your Waterloo sooner or later. However clever you may be in your diagnostic ability, you cannot always locate the placental attachment, and when once an active hemorrhage is brought on, no matter how quickly you may open the abdomen to secure the bleeding vessel, your patient is liable to bleed to death on the table, or succumb a short time afterward. If the culdesac is to be opened for drainage, it can be done more safely and equally as well from above, particularly if you have used good judgment in having placed the patient in the Trendelenburg position.

DISCUSSION

Dr. David A. Myers, Lawton, Okla.: The first case of extra-uterine pregnancy I had occurred in the wife of a physician. I examined her, kept her under observation, and thought she was having a miscarriage. I found a mass in the culdesac, and I thought it was a suitable case to open behind the uterus. Being inexperienced, I did that and about a week afterward I hurriedly opened the patient's abdomen and fortunately saved her life. She has since given birth to a child. A great many cases are not diagnosed.

Dr. St. Cloud Cooper, Fort Smith, Ark.: I recall one case of extra-uterine pregnancy in which the patient was taken with pain similar to that of gall-stone colic. She had missed menstruation about three months. She had pain in the upper quadrant of the abdomen which simulated very much a gall-stone colic. In fact, we thought she had a gall-stone colic. There was no elevation of temperature. She presented no symptoms of shock. In the last attack, which was accompanied with severe pain, attention was drawn to the lower part of the abdomen. A mass was found on the right side and it was suspected that she was pregnant. A closer examination fully confirmed this diagnosis. The physician who called me decided to operate through the vagina against my judgment. The culdesac bulged considerably. I told him that if he was going to operate by the vagina, he had better be prepared to go in above as well. He made an incision in the culdesac, which was followed by such a large stream of blood that I thought the woman would die. An incision was then made in the abdomen, the bleeding vessel found and tied. A cyst and fetus were found. There had not been a rupture. The fetus was removed and drainage established through the cyst wall. The patient recovered.

Dr. Joe Becton, Greenville, Tex.: The operator is often called in these cases when it is too late, because the average practitioner in the country is loath to make a vaginal examination. Physicians who live in cities do not appreciate tha There are many practitioners who never make a vaginal exam nation, except during confinement. My first case of tubal pre nancy was diagnosed by a general practitioner; I operated, a the woman made a good recovery.

Dr. Howard Hill, Kansas City, Mo.: Those cases of extr uterine pregnancy which begin slowly and progress like inflammatory condition are confusing. This spring I had patient who went through a series of treatments. She was the hospital three weeks. Four different physicians curett the uterus, and still the patient was not well. She was in bad physical condition, with a fluctuating mass behind t uterus. I made an incision and out came a fetus. The patie died of sepsis.

Dr. A. L. Blesh, Oklahoma, Okla.: To illustrate t peculiar property of the Langhans cell, I will briefly cite a cas We know that the dividing line between the Langhans c and syncytioma malignum has not been well defined and pro ably never will be. I operated on that diagnosis, but when got in, I found that the Langhans cell or placenta, which h ruptured through the tube, had attached itself to the sigmoi The fetus continued to grow. On one side of that structure had nothing left but the mucous membrane in the sigmoid a on the other the serous covering of the fetal sac. I introduc a rectal tube into the rectum, attached the proximal end the gut to the tube with a stitch and withdrew the tube, c it off at the anal margin and stitched it to the anus. I tel scoped the proximal portion of the intestine into the dist but the distal extremity was so soft and so much like wet blo ting-paper that I could not stitch around to make a secu union. So I buttressed it in front and behind with the sigmoi and the patient made a good recovery.

I recall a case of ruptured tubal pregnancy that had go on to term. The abdomen was opened, and a living child w extracted. The physician was much puzzled as to the conditio found at the time of the examination. He called me in to s the case and we diagnosed extra-uterine pregnancy at ter operated, made a rapid delivery, and the child lived two and half years, and then died of pneumonia. We dealt with the s by packing the membranes full of gauze and letting it slow separate by granulation.

Dr. W. B. Dorsett, St. Louis: I have made a diagnosis extra-uterine pregnancy before rupture in one instance onl and I have operated in sixty-four of these cases. Women not go to physicians to be examined at regular intervals, a they suffer a good deal before they submit to operation. T is particularly true in rural districts. The country physici and the general practitioner in the city do not make ma vaginal examinations. I have done several of these operatio without making a diagnosis of extra-uterine pregnancy befo operating, but the indications of trouble were sufficient to wa rant me in opening the abdomen and finding out the cause the trouble.

Etiology and Pathology of Infections of the Biliary Tract

Dr. C. C. Nesselrode, Kansas City, Kan.: The intellige treatment of cholelithiasis presupposes a clear conception the pathology of the disease, of the means of treatment at o command and the objects obtainable by their use. To attem by internal medication to dissolve a gall-stone that is insolubl to cause the passage through the biliary ducts of a gall-sto when the ducts are impassable to a stone of its size; attempt to cure supposed desperate symptoms by measur directed to the stomach when the cause of the symptoms adhesions about the gall-bladder or a condition within t biliary tract—these measures are as futile as they a irrational.

DISCUSSION

Dr. Jabez N. Jackson, Kansas City, Mo.: All these cas of gall-stones are infections to begin with, and infections th come through the radicles of the portal vein, but not so oft through systemic infection of the hepatic artery. It is strange coincidence that surgeons have operated for appen citis and found gall-stones also, in which case they may ha made a diagnosis of both appendicitis and gall-stones a found both, and there are many other instances in which ave had humiliating experiences. Twice I have made a diagosis of appendicitis and removed the diseased appendix, and wo or three days after the operation the patient has had a ypical gall-stone attack.

Dr. A. L. Blesh, Oklahoma, Okla.: Every surgeon who has ad considerable experience has found in the abdomen the freuent association of appendicitis with gall-tract infection, and lcer of the stomach or duodenum. This association is too requent to be accidental, and it is almost culpable to remove he appendix in the absence of suppuration, and not to explore hese other points at the same time.

Dr. John F. Binnie, Kansas City, Mo.: I fully believe that he majority of cases of gall-bladder disease, of which galltones are an accident, and ulcer of the stomach are due to the ame thing, absorption of a non-accustomed quantity of poisnous material from the sewage system of the body—that is, hrough the portal circulation. Postoperative hemorrhages seem be due to a reverse embolism of the gastric vein. These emorrhages are from lesions of the mucosa of the stomach hich recover very promptly just as promptly as acute ulcer f the stomach recovers if it does not kill the patient in the eantime.

Dr. Howard Hill, Kansas City, Mo.: I wish to call attenion to one anatomic fact; in certain cases we will find a disended gall-bladder with stasis, with absolutely no obstruction the biliary tract, and bile will flow through in an hour or so. have come to the conclusion that there is an abnormal disosition of the peritoneal fold which surrounds the so-called elvis, and whenever the gall-bladder becomes distended beyond certain point, it compresses the cystic duct, and the gallladder is distended by its own secretion.

Treatment of Compound Fractures

Dr. Charles H. Blickensderfer, Shawnee, Okla.: The sucessful treatment of compound fractures depends on three rinciples, asepsis, drainage and proper fixation or immobilizaion. The nature of these injuries is such that there is more r less destruction and laceration of the soft parts, and more r less extensive fragmentation and comminution of bone. The ascular supply is interfered with on account of laceration or aring of blood-vessels, resulting in a large outpouring of lood and exuded serum. These wounds are therefore highly sceptible to infection. Primary drainage is required in these ases, supplemented by efficient counterdrains as soon as indited. The resort to secondary drainage is many times imperavely demanded, and must be ample for the reason that infecon, which is now established, presents a condition urgently quiring relief by the immediate and complete removal of all fectious matter and secretions resulting from bacterial activy and tissue destruction. Secondary drainage is quite often n indication that primary drainage was incomplete or insufcient, and if a wound of this character is to be drained at ll, it should be done at the first dressing and provision made r free and extensive drainage. I think that compound fracures should receive early and free drainage. Operative interrence here, as in simple fractures, should be deferred for a eek or longer until asepsis is assured and the bones are in e most active state of repair. Exceptions to this rule are to found in instances when displacement and deformity are reat and reduction otherwise impossible.

The Value of Tuberculin in Diagnosis

Dr. L. G. Moorman, Oklahoma, Okla.: A failure to react tuberculin may mean: 1. The patient is not tuberculous. this case the tuberculin remains inert regardless of the size the dose employed. This is the explanation in the great ajority of negative cases. 2. The patient may have an estabshed tolerance through chronic autotoxic tuberculosis or rough tuberculin treatment. In this case a sufficient increase the dose will overcome the tolerance and give rise to a reacon. 3. The tissues are no longer sensitive to tuberculin on ccount of the failure to produce antibodies, and no reaction sults even when large doses are given. This is often the case advanced tuberculosis.

After a careful study of the case history and a thorough hysical examination, the cutaneous test should be employed with a view to confirming further any conclusions arrived at from symptoms and physical findings, or any suspicion aroused by history or general appearance which could not be confirmed by physical examination. In the first instance, a positive reaction further substantiates the diagnosis. In the second instance, a positive reaction calls for further observation and repeated examinations and possibly a subcutaneous test with a view to obtaining a local reaction. The subcutaneous test should also be employed in suspicious cases in which the cutaneous test is negative. The examination of the sputum and the use of the Roentgen-ray often aid in the diagnosis. The tuberculin reaction, so employed, is of great service in diagnosis and is extensively used in this way in most of the great clinics in this country and abroad.

Abortion

Dr. H. O. Leonard, Kansas City, Mo.: Abortion produced at any time for any other purpose other than to save the life of the mother or fetus is a crime. Every wife or mother who produces or submits to the production of unjustifiable abortion is a criminal and is guilty of murder. Every man who advises, assists or aids in any way in the performance of it is a murderer and is branded in his own heart as a criminal. Not all medical men are abortionists, but our attitude, our indifference, our failure to unite in a systematic effort to agitate and enlighten and solve it is at least indicative of indifference. I would have every abortion reported as a matter of law and the causes discovered. If it lies with the medical man or with the mother or father, imprisonment should be meted out. It is the duty of the leaders, if there be a conservation of life, to teach men what they ought to be taught, that sexual indulgence, when it is not for the divine purpose of creating a new life, is a direct cause of abortion. Self-control lies at the foundation of all civilization and all success, all true pleasure and happiness. Without these, we are as a race of weaklings physically, mentally and morally. We should teach men and women that the rearing of children is honorable and more worth while than the acquisition of money, and that abortion is criminal and punishable.

ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES

Twenty-First Annual Meeting, held in Baltimore, Oct. 1-5, 1912

The President, Surgeon Charles P. Wertenbaker, U. S. P. H. Service, in the Chair.

The meeting of the association was well attended and delegates were present from many foreign countries. The result of the election of officers was given in The Journal, October 5, p. 1303.

President's Address: The Sanitary Awakening of a Nation

Charles P. Wertenbaker, U. S. P. H. Service: The development of the sanitary awakening of the nation is to be accomplished by the following aims: broader and more general education in health matters, and a more thorough understanding of their relations to the daily life of the individual, so that proper measures for the preservation of health may be appreciated; closer relation between the health agencies of the state and the nation and with the people, so that the enforcement of sanitary laws and regulations may receive popular support; the scientific training of health officers and the establishment of a standard to be reached as a prerequisite to holding the position of health officer; more extended and thorough instruction in sanitary science and public health work in our medical schools and the establishment of a course leading to the degree of Doctor of Public Health; instruction in sanitation and the preservation of health in our public schools, commencing with the kindergarten classes and carried through every grade of the public school course; cooperation of great business enterprises in health work, and the development and practical application of rural sanitation.

The key to the situation is education, both for the layman and for the medical profession. The possession of a medical degree does not make a sanitarian. It is merely the foundation on which to build special instruction and training. A number of the leading medical colleges have now established courses in preventive medicine. What is most needed is a postgraduate school where a health officer may receive the latest information and learn the modern methods of dealing with sanitary problems in a relatively short time. The establishment of a school of sanitary science in connection with the Hygienic Laboratory of the Public Health Service would be a great benefit.

One of the most promising fields for public health work is the cooperation of great commercial organizations with health authorities for improvement in sanitary conditions. It means the conservation of the health of employees. A number of the great insurance companies are now interesting themselves in the health conditions of their policy-holders. The question of the care, preparation and service of food in public eating places is receiving attention and regular inspections are made in several states. There is considerable danger of the spread of typhoid fever, tuberculosis and other diseases through cooks, waiters and others handling foods who are infected with these diseases. A systematic inspection of these persons to eliminate disease carriers is most desirable and will be established when the public demands it. The time will come when the public in general will refuse to patronize any eating-place that does not display a certificate from the health department showing that the place has recently been inspected and found in good sanitary condition, the food wholesome and prepared and served in a proper manner.

Alcohol a Menace to the Army

Colonel Louis Mervin Maus, M. C., U. S. Army, presented statistics demonstrating that alcoholic stimulants have no place in the Army. Alcohol, he believes, lessens working capacity, marching endurance, accuracy and rapidity in rifle firing, and lessens the ability to command troops and solve military problems, to navigate and maneuver war vessels, to act on courts-martial and military boards, and properly to perform administrative work. It causes sickness, impairs health and usefulness, adds greatly to the non-efficiency of both officers and men, adds additional burden and cost to the medical department, deprives the government of otherwise valuable officers and enlisted men and forces them on the retired or pension list, with corresponding increase of governmental expenditures. Practically all of the crimes in the Army can be directly traced to the use of alcohol. The majority of degenerates who enter the Army, deserters, the inapt, moral perverts and venereal debauches are victims of alcoholic beverages or their hereditary effects and the sick-rate of the Army would be reduced 50 per cent. and its efficiency correspondingly increased should the enlistment of men of this class and the use of alcoholic drinks be interdicted. In view of its temporary and permanent disabling and disqualifying effects the government should prohibit the use of alcoholic drinks among officers of the military and naval forces and officials and employees of the civil service.

The Master-Key in Sanitation

Assistant Surgeon-General William Colby Rucker, U. S. P. H. Service, detailed the evolution of the public health edifice from the days the foundations were laid, through the dark ages, to the present, when there is a great awakening. In the middle ages there was a condition of promiscuity. Cleanliness, fresh air in dwellings and sewage-disposal were unknown. The people herded together, dipped in the same dish, and took no sanitary precautions whatever. Then disease ran riot. The ravages of plague, syphilis and cholera are matters of history. The master-key which will open every door which guards the secret of the prevention of the spread of diseases is non-promiscuity. He cited as manifestations of new conditions the abolition of the common roller-towel and the public drinking-cup; the campaign for the eradication of hookworm, and the extermination of rats, lice and ground-squirrels. Quarantine, isolation and examination of immigrants are measures of non-promiscuity. We should endeavor to create in the persons committed to our care a sanitary conscience, that is, the incarnate spirit of non-promiscuity.

Graduated Labor in Tuberculosis

Surgeon R. C. Holcomb, U. S. Navy: Work in the open air and the beneficial effects of the outdoor life in the treatment of tuberculosis have been practiced at the U. S. Naval Hospital, Las Animas, Colo., since March of this year, and have already proved a valuable aid in sanatorium treatment. The graded work at Las Animas commences with walking from half a mile to ten miles a day, and work about the institution. The patient is given a card and as he advances in grade his labor is changed in conformity. By this means the treatment is of economic value to the institution and to the patient. The patient leaves the institution trained and fitted for work.

Disinfection of Equipment in the Field

Major Edward L. Munson, M. C., U. S. Army, presented an original method, and an original apparatus weighing less than 5 pounds by which disinfection of the equipment of the soldier in the field may be accomplished by gaseous means within twenty minutes; the destruction of insects, vermin and parasites is accomplished with this apparatus in half the time that has heretofore been necessary with gas. Formaldehyd gas was selected. The requirements for the ideal generator for gaseous disinfection are as follows: use of a germicidal gas which can be handled without danger to the operator; compactness, portability and little weight; strength, with little liability to injury; few parts, with simplicity of operation and cleansing; freedom from danger of fire or scorching; freedom from danger of explosives, or the blowing-over of substances harmful to fabrics; ability to be used inside or outside a disinfecting container, whatever its size; sufficient generating capacity for the work at hand; delivery of gas under control of the operator, and short time-factor for developing the gas and accomplishing disinfection. The general requirements for an ideal disinfecting container are portability, compactness and little weight; sufficient strength and sufficient impermeability to the gas used for the work in hand; simplicity of use; possibility of improvising or procuring the necessary materials without difficulty in the field, and of utilizing them without delay; ability to be used with a gas generator operated either within or without such container; sufficient size for the work in hand; cheapness and ability to reduce to the minimum the amount of residual air otherwise diluting the disinfectant gas, with the purpose, but not on the same principle as the vacuum-chamber.

Determination of Potability of Water

Captain Robert S. McCaughey, M. C., Ill. N. G., referred to the appalling amount of water-borne diseases and the ignorance of the average officer of the medical corps of the National Guard as to methods of determining the purity of water and interpretating the results. Correct judgment can be formed only after chemical, physical and bacteriologic examination. After describing the tabloid method of Tresch of England and the ampule method of Fromont of France, he gave in some detail the technic of the examination of water to determine its potability, and formulated a modification which requires in its entirety from one to two hours and which will enable the sanitary officer properly to protect the health of those entrusted to his care.

Far-Reaching Effects of Camp Epidemics

Major Edward L. Munson, M. C., U. S. Army, in an exhaustive and carefully prepared paper on "The Influence of Camp Epidemics on the Geographical Expansion, Political History and Military Policy of the United States," showed how, by camp epidemics, the ultimate outcome of a resort to arms had been frequently influenced and how the destinies of nations had thereby been changed. Beginning with the dawn of history, he sketched epidemics in war and their far-reaching results. In this country the Quebec expedition is a notable example as, had not the expedition been crippled and delayed by disease, the Dominion of Canada would undoubtedly now be a part of the United States. In the light of subsequent history the political, geographic and material development of nations have hinged on camp epidemics of preventable dis-cases, which brought military movements of vast ultimate significance from avenues of success to complete disaster. Camp epidemics are not merely occurrences lamentable from the humanitarian point of view; they are often epochal crises in the fate of armies and the destinies of nations.

(To be continued)

PENNSYLVANIA STATE MEDICAL SOCIETY

Sixty-Second Annual Meeting, held in Scranton, Sept. 23-26, 1912

(Continued from page 1480)

Physiology of the Heart

Dr. C. C. Guthrie, Pittsburgh: The fundamental mechanism of the rhythmicity of the heart is not clearly understood. At present it is not possible to say whether the tissue of the bundle of His is muscular or nervous as the only definite investigations have been histologic and the tissue is of a peculiar structure. To gain information, members of my staff have made investigations to determine if the tissue is contractile, but as yet the results are not conclusive. Cardiac arhythmia associated with gastric disorders is frequently confused clinically with Stokes-Adams disease. Such irregularities quickly disappear under the influence of atropin, which temporarily impairs the inhibiting mechanism by acting on the terminal nerve filaments in the heart muscle.

Auricular Fibrillation

Dr. James E. Talley, Philadelphia: The polygraph and electrocardiograph have demonstrated that this condition is a distinct clinical entity in man. Fortunately, now a pretty certain diagnosis is possible without these instruments of precision, except in fibrillating patients with slow heart-beat. The pulse-rate is the best guide to digitalis administration. A patient with auricular fibrillation whose pulse-rate is about 80, and who has dyspnea only on unusual exertion, needs directions concerning his mode of life, but no digitalis yet. With a pulse-rate of 100 at rest, he should take digitalis, minims x-xv t. i. d. until his pulse-rate is reduced to 70 or the physiologic limit is reached. With a pulse of 150 or above he needs strophanthin, gr. 1/250, intravenously, every two hours, and at the same time by mouth, digitalis, minims xx-xxx, four times daily, until the pulse-rate slows up.

Infectious Febrile Heart

Dr. George W. Norris, Philadelphia: Infections may affect the heart as (1) gross lesions, (2) microscopic lesions, (3) chemical changes. Any one of the five physiologic attributes of the heart muscle may be involved separately or in combination, producing various forms of arhythmia. Fever is simply an index of reaction to infection, and may or may not indicate direct treatment. Therapeusis is divided into general and special methods, of which the former is by far the more important, and includes fresh air, enteroclysis, sleep, attention to diet and elimination, cold sponging and, when possible, specific medication. Direct treatment is far less important, and reliance is to be placed chiefly on strychnin, caffein and camphor.

Digitalis

Dr. M. Howard Fussell, Philadelphia: The preparations of this drug are the most useful and, sometimes, the least to be depended on of any set of drugs in the Pharmacopeia. Tincture of digitalis should be not more than one year old and should be tested physiologically. If this is used as a fat-free tincture, it may be used hypodermically without the slightest fear of abscess, without an extreme amount of pain, and certainly with good effect. The infusion of digitalis must always be made from fresh leaves which are assayed and physiologically tested. When so used it is the best form of digitalis when a diuretic action plus the action on the heart muscle is desired. The great indication for the use of digitalis is cardiac insufficiency. Yet all attacks of cardiac insufficiency are not helped by the administration of digitalis; indeed, in some such cases its use is contra-indicated. In cases of cardiac dilatation, whether the failure of the left heart is due to valvular disease or to a primary myocarditis, digitalis should not be given when the case is first seen. The only safe procedure is to put the patient to bed for at least twenty-four hours and feel one's way with digitalis. A most improper use of digitalis is in cases of broken compensation of slight degree while the patient is on his feet.

DISCUSSION

Dr. H. A. Hare, Philadelphia: One cannot see a heart which has undergone myocardial degeneration without marvelling that, if the myocardial theory is correct, the heart has beat as long as it has. The work with the polygraph has to be continued for a considerable time before anything like reliable results can be obtained by the practitioner. The important point to remember under the newer conception of the mechanism of the heart-beat is that every cardiac impulse arises from a small bundle of embryonal tissue where the great veins join the auricle. From this an impulse is radiated which goes to the auriculo-ventricular bundle, passes over the bundle of His and to the walls of the ventricles, going to the left and the right. Give digitalis to one who has a failing heart and there is great improvement; to another, and there is no improvement. Why? The moment you consider the myogenic theory of contraction, you recognize that in the first man the chief lesion was valvular; in the second, myocardial. Also in the second man there may have been a small lesion in the bundle of His, which has been more effective in combating treatment than a larger lesion in another part not so important. In pneumonia you may give digitalis with brilliant results, and you may have a mortality rate that is alarming. In the second class of cases the myocardium has been so affected that digitalis cannot have the same effect as in the first instance. If you know your pathology you will not have your views upset.

Dr. James M. Anders, Philadelphia: At one period in the embryonal state the heart movements are seen to occur without the presence of any discoverable nerve cells. Unquestionably we must turn to the myogenic theory to explain the principal rôle in the rhythmicity of the heart action. We must recognize such functions of the cardiac muscles as excitability, stimulus production, contractility and tonicity, but it is more important to recognize the fact taught by MacKenzie and others that not all the heart muscles are equally endowed with these various functions. The aim of the clinician should be to correlate the symptomatology of a given case with the condition of the different functions of the cardiac muscle. I quite agree that auricular fibrillation is a distinct clinical entity. According to my personal experience it must be a very common one. The most frequent cause is mitral disease, particularly mitral stenosis. As to prognosis, I believe that when a patient is willing not to put forth any unusual exertion, we may give a guardedly favorable prognosis in the majority of the cases. Cases due to rheumatism are most benefited by the free use of digitalis. In the febrile heart, the usual cardiac stimulants are much abused in the attempt to strengthen the circulation. It is better to attempt to maintain the arterial tension by equalizing the circulation, than to overstimulate a degenerated myocardium. A most useful measure in maintaining the peripheral circulation is friction of the extremities plus the application of heat. I have seen two patients with Stokes-Adams disease, most probably of the functional variety, recover under the use of atropin and other measures. Here digitalis in small doses appeared to act beneficially contrary to what we have noticed in cases due to organic change in the bundle of His.

Dr. Jas. E. Talley, Philadelphia: In cases of fibrillation, with the pulse running from 150 to 200, digitalis is too slow. Twenty to thirty minims three to four times a day should be given here, but first of all the patients should have strophanthin, 1/250 gr., intravenously every two hours, until the pulse-rate is lowered.

Dr. G. W. Norris, Philadelphia: Practically, digitalis will not raise blood-pressure in any case. Exceptional instances, with an elevation of up to 10 mm. may be met with. We need not, therefore, be afraid to give this drug in cases of aneurysm, for example, on account of any danger of increasing arterial tension. I have found that to improve vasomotor tension hot mustard foot baths, at intervals of two, three or four hours, are valuable; a marked improvement is shown both in mental symptoms and in the peripheral circulation.

Dr. H. A. Hare, Philadelphia: In giving digitalis in the case in which circulatory failure is such that the patient seems near to death, 20 drops of digitalis every two, four or six hours, until you bring him to somewhere near the normal point, may be given. But after you have so brought him up, cut the dose down, and hold him where he is.

Medical Expert Testimony From the Legal Standpoint

Francis Fisher Kane, Esq., Philadelphia: Expert testimony includes deductions and opinions, a distinction that the courts frequently overlook. What we demand is the real opinion of the expert not affected by advantageous considerations which the present system has thrown around him. There are expert medical advisers and expert medical witnesses, and this distinction the public does not appreciate. The fault lies in the system of expert testimony. The great majority of physicians are honorable and try to be honorable while testifying. To insure testimony without bias the expert should also appoint all experts.

Medical Expert Testimony From the Medical Standpoint

Dr. Francis X. Dercum, Philadelphia: Essentially the position of an expert is that of a witness who draws inferences from facts presented. Occasionally, an expert acquires subconsciously a personal bias which may lead to his mistaking altogether the nature of his function. His function does not consist in his trying the case. The expert should promptly present the scientific facts and his opinion to the counsel, who should be in possession of the unfavorable as well as the favorable facts in the case. While the expert may not testify to subjective symptoms, he may, after a full presentation of the physical facts, add that he has received a statement of subjective symptoms consonant with the symptoms observed by himself. Technical terms cannot be insisted on too strongly as objectionable. Conference should be had with counsel in the preparation of hypothetical questions. During cross examination, the witness should be as frank and open as under the questioning of the direct examination. There is a gross misconception and often improper comment by the public and lay press regarding differences of opinion shown by experts. These differences of opinion are not as to the actual findings but as to their interpretation. In every department of knowledge similar differences of opinion are developed.

Dr. George C. Johnston, Pittsburgh: In contradistinction to the all too prevalent ridicule accorded the medical expert witness, I would call attention to the respect with which courts look on the testimony of the chemist and microscopist. Yet, those of us who know realize that there is very little more confidence to be put in that kind of testimony than any other. When the ordinary physician testifies for the first few times, he feels that it is quite an honor to be called, and he testifies freely—until the cross-examination is begun. He then wishes he had testified one-fortieth as much. The fact should be emphasized that the medical man in court unconsciously appears for the attorney whom he knows. He should remember that while he may be paid by the counsel who called him, he is there as an officer of the court whose function it is to educate the court along a particular line. All a man has to do is to testify to those things he knows to be true, and when he makes a statement of personal opinion he should preface it with "In my opinion." It would be better to have the expert witnesses selected by the court and not by the counsel.

The Pituitary Body in Disease and the Results of Surgical Intervention

Dr. Charles H. Frazier, Philadelphia: The operation which I have found appropriate for the exposure of the pituitary consists essentially in the reflection of an osteoplastic flap from the right frontal region, in the removal *en bloc* of the supra-orbital ridge with a portion of the roof of the orbit, and in the rongeuring of what remains of the orbital roof down to the optic foramen. When this point is reached, we are within striking distance of the sella turcica, and by making a centimeter incision, parallel with and a little above the base of the skull, the optic tract and commissure is exposed and, immediately behind them, the pituitary gland. In certain cases, I believe this method will be the operation of choice and will be preferred to the transphenoidal route, which has so often been followed by fatal attacks of meningitis.

DISCUSSION

Dr. William Campbell Posey, Philadelphia: Ophthalmologists are usually able to recognize diseases of the pituitary region, but we do not yet feel that we are always able to advise means to relieve the conditions. We have not as yet full confidence in operative procedures. It is my belief that Dr. Frazier's method of exposing the pituitary body is the least dangerous and the simplest of all the methods tried.

Dr. Wendell Reber, Philadelphia: I have knowledge of one case in which there were well marked focal symptoms with complete bitemporal hemianopsia. Operation was absolutely declined and the man was placed on pituitary body extract and thyroid. He recovered full visual fields in both eyes. The results of surgery are brilliant, and if the focal symptoms do not show prompt improvement on resort to organotherapy operation is, of course, indicated.

The Medical Profession, Public Opinion and Animal Experimentation

Dr. Oskar Klotz, Pittsburgh: We in the medical profession must come to a closer understanding with the public. Instead of allowing only rumors of our work to filter through to the public, there should be a careful exposition of our findings portrayed in language understood by all. The best medicine is written in words of two syllables. On the other hand, the public is ill-advised to attempt democratic rule and regulation of matters vital to the progress of medicine. This has been the attitude of some who, I fear, fall into the category of the "uninformed." I hold no brief for the carrying on of promiscuous animal experimentation in any science. It is evident, however, that progress can be obtained only by demonstration of truth and the truth of living tissue lies in those tissues themselves.

DISCUSSION

Dr. J. E. Sweet, Philadelphia: The whole of the great development of medicine can be traced to the four postulates laid down by Robert Koch. Two of these fundamental requirements demand an animal experiment, and there is no other way. Without these experiments, bacteriology would have become merely a branch of botany and not the corner stone of modern medicine. Laboratory men are here to plead for the cause of animal experimentation because of criticism on the part of the public and of the medical profession. The former is due to a lack of knowledge; the latter to thoughtlessness. There are destroyed yearly in the public pounds in Pennsylvania twenty-five to thirty thousand dogs for no other purpose than to get rid of them. In view of this useless destruction of material I hold that any teacher of physiology or pharmacology, who believes that he can teach his students by the use of these animals, is entitled to his belief without criticism. To the criticism that much of animal experimentation is foolish, I would reply that he who at the autopsy table has not discovered his line of reasoning regarding diagnosis and treatment to have been foolish must have been either peculiarly fortunate or extremely young.

Dr. James D. Heard, Pittsburgh: We must as individual physicians be awake to the danger of the present situation regarding the continuance of animal experimentation. It should be known that the majority of animals which ought to be available for medical research never reach the laboratory but are merely killed without having served any useful purpose. Every physician should actively engage in a campaign of public education. He must therefore inform himself of the conditions and of the probability that future bills will be introduced further hampering scientific work. We should use our influence with our own clientele and with legislators in the interest of bills favored by our profession.

(To be continued)

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, November 12. Sec., Dr. F. T. Murphy, Brinkley; Homeopathic, Little Rock, November 12. Sec., Dr. P. C. Williams, Texarkana; Eclectic, Marion Hotel, Little Rock, November 12. Sec., Dr. C. E. Laws, Fort Smith.

CONNECTICUT: Regular, City Hall, New Haven, November 12. Sec., Dr. Charles A. Tuttle, 196 York Street; Homeopathic, Grace Hospital, New Haven, November 12. Sec., Dr. Edwin C. M. Hall, 82 Grand Avenue; Eclectic, New Haven, November 12. Sec., Dr. T. S. Hodge, 19 Main Street, Torrington.

FLORIDA: Regular, Jacksonville, November 11-12. Sec., Dr. J. D. Fernandez.

LOUISIANA: Regular, Tulane University, New Orleans, November 4-6. Sec., Dr. A. B. Brown, 108 Baronne Street; Homeopathic, New Orleans, November 4. Sec., Dr. Edward Harper, 702 Macheca Bldg.

MAINE: City Council Rooms, Portland, November 12-13. Sec., Dr. Frank W. Searle, 776 Congress Street.

MASSACHUSETTS: State House, Boston, November 12-14. Sec., Dr. Edwin B. Harvey, Room 159, State House.

NEBRASKA: State House, Lincoln, November 13-14. Sec., Dr. C. P. Fall, Beatrice.

NEVADA: Carson City, November 4. Sec., Dr. S. L. Lee.

TEXAS: Dallas, November 13-14. Sec., Dr. J. D. Mitchell, Wheat Bldg., Fort Worth.

WEST VIRGINIA: Wheeling, November 11-13. Sec., Dr. H. S. Barbee, Point Pleasant.

Cotner Convicted in the Supreme Court

J. W. Cotner of Lebanon, Kan., a "suggestive therapeutist" and "magnetic healer," was arrested on complaint of Dr. H. A. Dykes, secretary of the Kansas State Board of Medical Registration and Examination, in December, 1911, and was convicted on seven counts in the District Court of Smith County. Cotner appealed to the Supreme Court and the decision of the lower court was affirmed. In rendering the decision, the Supreme Court said:

"The act of this state relating to medical registration and examination is one of a series devoted to the conservation of public health. The state is especially interested in the protection of sick people from empiricism and from charlatanry; from the quack who is ignorant of healing and the faker who is an adept at swindling. Consequently, the legislature has provided that any one proposing to practice medicine must apply to the State Board of Medical Registration and Examination for leave, prove his qualifications, obtain a certificate of authority, and register it in the county of his residence, before assuming the duties and exercising the privileges of a physician. Should he undertake to practice without a certificate, he is guilty of a crime and liable to punishment.

"The subject is of such moment and gravity, and the legislature has dealt with it so carefully and so seriously that a plea that the taking out of a certificate had been inadvertently overlooked would be an affront. Unless he be of weak mind, whoever ignores the statute does so wilfully and without any reason to expect acquiescence or toleration on the part of the authorities. Enforcement of the law is not left to private initiative or prompting of mercenary motives. That duty is expressly enjoined on the secretary of the board of registration and examination and all other law officers may be expected to cooperate, as in other cases of infractions of the criminal law. A prosecution is not a mere admonition to take out a certificate or else to desist from practice. Its purpose is punishment.

"The life, health and financial resources of individual men, women and children were to be protected from ignorance and imposture. Each repetition is a new peril and instead of applying to a certain course of conduct, the statute specifies and condemns each impulse to the very end that it may not unite with others in swelling a common stream of action. The judgment of the District Court is affirmed."

Cotner has jumped his bond and has gone to Texas, where the state board should look after him. Secretary Dykes has rid Kansas of almost every faker including the so-called "chiropractors," "suggestive therapeutists" and "magnetic healers," and each of these systems has been brought under the jurisdiction of the State Board of Medical Registration and Examination by the Kansas Supreme Court within the past year.

Utah July Report

Dr. G. F. Harding, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, July 5, 1912. The number of subjects examined in was 22; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 9, of whom 8 passed including 2 osteopaths. For one candidate the grades were withheld pending the presentation of credentials. One candidate was licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Colorado	(1911)	79.1
Rush Medical College	(1912)	80.2, 82.1, 82.1
College of Physicians and Surgeons, Baltimore	(1912)	82.1
Medico-Chirurgical College, Philadelphia	(1911)	81.7

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Keokuk Medical College, Coll. of Phys. and Surg.	(1908)	Iowa

Colorado October Report

Dr. David A. Strickler, secretary of the Colorado State Board of Medical Examiners, reports the written and oral examination held at Denver, Oct. 1, 1912. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 3 of whom 1 passed and 2 failed, both of whom were osteopaths. Twenty-two candidates were licensed on presentation of satisfactory credentials including state licenses. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Harvard Medical School	(1912)	87

LICENSED ON PRESENTATION OF SATISFACTORY CREDENTIALS

College	Year Grad.	State Licenses
Columbian College, Washington, D. C.	(1896)	Ohio
George Washington University	(1910)	Dist. Colum.
College of Physicians and Surgeons, Chicago	(1907)	Illinois
Northwestern Univ. Medical School.	(1905) Iowa; (1905)	Oklahoma
Illinois Medical College	(1907)	Illinois
Keokuk Medical College, College of Physicians and Surgeons	(1906) Iowa; (1907)	Iowa
Johns Hopkins University	(1909)	Indiana
Univ. of Michigan, College of Medicine.	(1895) (1912, 2)	Michigan
Washington University, St. Louis	(1901)	Missouri
St. Louis University	(1905) (1909) Missouri; (1910)	Oklahoma
Barnes Medical College	(1907)	Illinois
University of Nebraska	(1908)	Nebraska
Eclectic Medical Institute, Cincinnati	(1888)	Texas
University of Pennsylvania	(1887)	Penna.
Vanderbilt University	(1901)	Tennessee
University of Vermont	(1908)	Vermont

Wyoming July Report

Dr. A. B. Tonkin, secretary of the Wyoming State Board of Medical Examiners, reports the written and oral examination held at Cheyenne, July 12-14, 1912. The total number of subjects examined in was 13, total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 5 all of whom passed. Six candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Rush Medical College	(1890)*	91.6
Chicago College of Medicine and Surgery	(1909)	75
Washington University, St. Louis	(1911)	91.5
Ohio Medical University	(1898)*	87.7
Milwaukee Medical College	(1911)†	75

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of Colorado	(1911)	Colorado
College of Physicians and Surgeons, Chicago	(1906)	Illinois
Washington University, St. Louis	(1906)	Illinois
University Medical College, Kansas City	(1908)	Kansas
Memphis Hospital Medical College	(1903)	Tennessee
University of the South	(1905)	Nebraska

* Licensed previously, under the old law, on presentation of a diploma. † Supplementary examination.

The following questions were asked:

ANATOMY

1. Locate and briefly describe the gall-bladder. 2. Describe the formation of the teeth. 3. Name the abdominal muscles. Describe any one of these muscles. 4. Into what two great classes are mus-

cles divided? Give a macroscopic and a microscopic description of each. 5. Describe and give the anatomic relations of the appendix vermiformis. 6. Indicate the collateral circulation if the femoral artery were obstructed at the apex of Scarpa's triangle. 7. What are the vesiculæ seminales? 8. What structures are severed in tracheotomy? 9. Describe the male urethra and name its divisions. 10. Give the distribution of the pneumogastric nerve.

GYNECOLOGY

1. Mention the pathogenic bacteria that invade the vagina and state how the vagina is normally protected from them. 2. Describe the difference between the virgin uterus and that of the multipara. 3. What are the conditions liable to produce sepsis after abortion? 4. Differentiate ovarian cyst, uterine fibroid and pregnancy at the fifth month. 5. Describe the genupectoral posture and mention some of its important uses. 6. What is the management of carcinoma of the cervix with reference to pregnancy and labor? 7. Differentiate vaginitis and vaginismus and mention treatment of each. 8. What are the essential causes of sterility in the female? What may be done to promote fertility? 9. Mention the causes and state the management of cystitis in the female. 10. What are the dangers to the female from latent gonorrhea? How should the resultant infection be treated?

PHYSICAL DIAGNOSIS

1. What cardiac lesions are likely to accompany or follow acute articular rheumatism? How are they recognized? 2. What is the diagnostic significance of dropsy? 3. In what conditions does bronchial breathing take the place of vesicular breathing? 4. What are the physical signs in the first stage of lobar pneumonia? 5. State where topographically mitral and tricuspid murmurs are most distinctly heard. 6. In what diseases may blood be expectorated? 7. How may pleuritic friction sounds be distinguished from râles occurring in the bronchial tubes? 8. Enumerate the diagnostic sounds in a diseased respiratory apparatus. 9. What are the physical signs of aortic regurgitation? 10. Differentiate catarrhal from croupous pneumonia.

CHEMISTRY AND TOXICOLOGY

1. What are the characteristic properties of solids; of liquids? 2. What is meant by weight; by specific gravity? 3. Define capillary attraction, absorption and diffusion. 4. Give an explanation of chemical symbols and formulas. 5. Explain atom, molecule, elementary substance and compound substance. 6. What are acids, neutral substances and salts? 7. Write about iodin. Occurrence in nature, symbol, atomic weight, description and use in medicine. 8. Give symptoms, fatal dose, fatal period and treatment of morphin poisoning. 9. Give symptoms, fatal dose, fatal period and treatment of oxalic acid poisoning; of concentrated lye poisoning. 10. Give test for sugar in urine. Give test for albumin in urine.

OBSTETRICS

1. Give short anatomic description of uterus. 2. What is meant by (a) puberty; (b) ovulation; (c) menstruation; (d) conception; (e) menopause? 3. Describe fully a fetus at term. 4. Classify subjective and objective signs of pregnancy. 5. Write your management of a normal case of labor with respect to mother and child. 6. Describe the use and application of forceps. 7. Give diagnosis, prognosis and treatment of puerperal fever. 8. Outline artificial feeding for the first year for child. 9. What is eclampsia? Give prognosis and treatment. 10. Write what you consider an important question and give its answer.

PRACTICE OF MEDICINE

1. Give symptoms, etiology, prognosis and treatment of typhoid fever. Discuss this subject fully. 2. Discuss tetanus. 3. Give etiology, symptoms and four principal varieties of myalgia with treatment. 4. Define (a) Addison's disease; (b) cretinism; (c) diabetes insipidus; (d) epistaxis; (e) chlorosis; (f) Pott's disease; (g) vaccination; (h) inoculation. 5. Write about general constipation: its cause, effects, treatment and in what class of persons is it most prevalent? 6. Describe a case of eczema. Give prognosis and treatment, local and constitutional. 7. What is psoriasis? Furuncle? Erysipelas? Favus? 8. Give etiology, symptoms and treatment of acute myelitis. 9. Outline case of paralysis agitans and mention treatment. 10. What is idiocy? Hysteria? Epilepsy?

SURGERY

1. Classify ileus and give symptoms, diagnosis and treatment of same. 2. Give symptoms, diagnosis and treatment of fracture of neck of femur. 3. Describe (a) complete indirect inguinal hernia; (b) the symptoms of strangulation; (c) methods of reduction, and (d) operation if strangulation exists. 4. State how to proceed to diagnose a suspected rupture of the bladder. 5. Give symptoms of shock and state when the prognosis is grave. 6. Describe, give treatment of, and also give prognosis of fracture of femur in upper third. 7. Give causes and treatment of paraphimosis. 8. Describe the condition known as talipes equinovarus. 9. Describe Pott's fracture, name structures involved and outline treatment. 10. Describe intermediate and secondary hemorrhage, giving both preventive and curative treatment of each.

PHYSIOLOGY AND HYGIENE

1. Mention, in their order of superiority, the best methods of disinfection, and tell how you would proceed to disinfect a house in which there had been a case of scarlet fever. 2. What digestive changes take place in the small intestine; (b) in the large intestine? 3. State origin and uses of lymph. 4. Name and give function of all principal and accessory organs of digestion. 5. Describe the portal circulation. 6. What do you understand by absorption, and how is it accomplished? 7. Define reflex arc and give examples of reflex action. 8. Define the office and characteristics of the gray matter of the brain. 9. Describe different coats of eye and give functions of each. 10. Define myopia, hypermetropia and astigmatism; state cause of each condition.

MATERIA MEDICA AND THERAPEUTICS

1. Give definition of (a) serum therapy; (b) vaccine therapy. 2. What is meant by "opsonins"; and what is the "opsonic index"? 3. Give dose, therapeutic uses, composition and pharmaceutic name of (a) Basham's mixture; (b) Hoffman's anodyne; (c) Dover's powder. 4. Name two respiratory stimulants and two vasomotor depressants; the dose and methods of administration. 5. What are the physiologic effects and medicinal uses of the preparations of "belladonna"? 6. Give medical uses of carbolic acid. Describe physiologic actions. 7. Give physiologic effects of and therapeutic uses of jaborandi or its constituents. 8. What are antacids, anhidrotics, carminatives, hypnotics, revulsives? 9. Give and describe the various kinds of incompatibilities. 10. Describe hypodermoclysis and state the circumstance under which it is practiced as a therapeutic measure.

PATHOLOGY AND BACTERIOLOGY

1. Describe bacterins, serums and toxins. 2. Where is the gonococcus usually found? Describe its characteristics. 3. Give functions and products of bacteria. 4. Name the common pyogenic bacteria. 5. How are tumors classified? Differentiate between sarcoma and myoma. 6. Describe the pathogenesis of gall-stones; also characteristics, physical and chemical, of some variety. 7.. Describe microscopic and gross appearances of the lesions in acute parenchymatous nephritis. 8. Mention some pathologic conditions influencing variations in color of stools, and how would you determine presence of substances producing such results? 9. How would you stain any exudate with Gram's method, and what is meant by Gram-positive; Gram-negative? 10. How would you do the Widal reaction?

Book Notices

A Manual of Surgical Treatment. By Sir W. Watson Cheyne, C.B., D.Sc., LL.D., Hon. Surgeon in Ordinary to H.M. the King; and F. F. Burghard, M.S., F.R.C.S., Surgeon to King's College Hospital. New Edition. Entirely Revised and Largely Rewritten with the Assistance of T. P. Legg, M.S., F.R.C.S., Surgeon to the Royal Free Hospital; and Arthur Edmunds, M.S., F.R.C.S., Surgeon to the Great Northern Central Hospital. In Five Volumes. Vol. I, Treatment of General Surgical Diseases, Including Inflammation, Suppuration, Ulceration, Gangrene, Wounds and Their Complications, Infective Diseases and Tumors, Deformities. With an Appendix on Administration of Anesthetics by Dr. Silk, and the Examination of the Blood, by Dr. W. D'Este Emery. Pp. 552, with 223 illustrations. Vol. II, Treatment of Surgical Affections of the Skin and Subcutaneous Tissues, the Nails, the Lymphatic Glands and Vessels, the Muscles, the Tendons and Tendon-Sheaths, the Nerves, the Veins, the Arteries and the Bones: Amputations. Pp. 570, with 252 illustrations. Cloth. Price, $6 per volume. Philadelphia: Lee & Febiger, 1912.

A complete revision of this popular work in so short a time after the appearance of the previous edition speaks well for it. The original authors have, however; been obliged to turn over the work of revision to two assistants, Legg and Edmunds. The arrangement of previous editions has been adhered to, but much that is new has been added, thus bringing the subject matter up to date. Volume I is practically a surgical pathology, although it contains an appendix of about fifty pages given over to a concise but none the less complete discussion of anesthesia and anesthetics. Volume II is devoted to surgical affections of the soft tissues, and the bones. Amputations are also discussed from the present point of view of surgeons who hold that these operations should be done much less often than formerly. The authors rely in the main on personal experience, but give cognizance to whatever may have been done by others, which naturally adds to the value of the books. The illustrations are good and fairly numerous.

Die vasomotorisch-trophischen Neurosen. Eine Monographie. Von Dr. R. Cassirer, Privatdozent an der Universität Berlin. Second Edition. Paper. Price, 20 marks. Pp. 988, with 48 illustrations. Berlin: S. Karger, 1912.

Cassirer's monograph on the vasomotor neuroses has become a classic since its first appearance in 1901. Nothing has been published on the same subject which in any degree equals it in thoroughness or monographic accuracy. Constant reference is made in neurologic literature to this meritorious work of Oppenheim's most industrious pupil. The second edition, now before us, is richly illustrated with original drawings and numerous illustrations. The number of pages has been increased from 609 in the first to 988 in the present edition. Perhaps the most praiseworthy feature is the complete and up-to-date bibliography at the end of the volume. This monograph constitutes additional proof of the colossal industry of our German colleagues.

Die physikalische Therapie der Gelenkkrankheiten für Ärzte und Studierende. By Dr. Eduard Weisz, Budapest. Cloth. Price, $1.50. Pp. 265, with 83 illustrations. New York: Rebman Company, 1912.

Although the purpose of this book is the presentation in concise form of the methods of treatment of joint diseases, the author devotes the first chapter to a very able discussion of the relation of joint lesions to lesions elsewhere in the body. He regards joint lesions as, in the main, metastatic expressions of some other disease, local or general. Therefore, he says, the treatment of all joint lesions is both local and general. What this treatment should be, is the subject discussed in the remaining chapters. Pathology and diagnosis are also discussed briefly. Nothing new is contributed, although emphasis is laid on the treatment of stiff joints by means of specially devised weight traction, which is well illustrated by diagrammatic sketches. One of the chief merits of this little book is the clear and concise statement of facts in headlines for lack of which the physician is often compelled to waste much time.

Manual of Surgery. By Alexis Thomson, F.R.C.S., Professor of Surgery, University of Edinburgh, and Alexander Miles, F.R.C.S., Surgeon, Edinburgh Royal Infirmary. Three Volumes. Fourth Edition. Cloth. Price, $3.50 per Volume. New York: Oxford University Press, 1912.

This excellent work, although now comprising three volumes, maintains its high standard in this, the fourth, edition. The volumes are small and easily handled and each volume is complete in itself. Volume I is devoted to surgical pathology and bacteriology and surgical principles so far as they bear directly on diagnosis and treatment. The clinical application of each topic is presented in a concise but illuminating manner. A valuable feature in connection with the discussion of injuries and diseases of individual organs and tissues is the summary of the surgical anatomy of the tissue or region concerned. An examination of the subject-matter shows that it embraces everything that is accepted in surgery to-day as fact.

Volume II is devoted to regional surgery and Volume III to operative surgery, thus dividing the technical part of surgery into two natural divisions, theory and practice. The unusually large number of well-made and well-selected illustrations, about 300 per volume, adds greatly to the descriptive features. Of course the small size of the volumes precludes extensive or exhaustive discussion; but each subject is well covered.

Manisch-depressives und periodisches Irresein als Erscheinungsform der Katatonie. Eine Monographie. Von Dr. Med. Maurycy Urstein. Paper. Price, 30 marks. Pp. 650. New York: Rebman Company, 1912.

In this monograph the author endeavors to prove that many cases considered by Kraepelin and his school as belonging to manic-depressive and periodic insanity really belong to the disease first thoroughly described by Kahlbaum as catatonia. By the latter term Urstein does not mean the so-called form of catatonic dementia præcox; he recognizes catatonia as an independent disease, which may appear under various guises. He differs radically from Kraepelin and supports his contention by publishing *in extenso* case histories which have been accurately recorded in the Schweizerhof asylum under the direction of the deceased Henry Laehr. The greater portion of the monograph (545 pages) is devoted to a reproduction of these histories with comments. Students of psychiatry, whether they agree with the author's interpretation or not, will undoubtedly enjoy reading these.

Handbuch der Nervenkrankheiten im Kindesalter. Von Prof. L. Bruns, Prof. A. Cramer and Prof. T. Ziehen. Paper. Price, 30 marks. Pp. 980, with 189 illustrations. Berlin: S. Karger, 1912.

In this handbook Cramer wrote the section devoted to the functional nervous diseases of childhood, Bruns described the diseases of the spinal cord and of the peripheral nerves as they occur in childhood, while the chapters on diseases of the brain and its membranes were furnished by Ziehen. The book contains an account of the most recent work in the neurologic field pertaining to the period of which it treats. As a concise and yet comprehensive treatise on the nervous diseases of childhood, it will no doubt take as high rank as the larger work of Oppenheim, which covers the entire subject of nervous diseases. The book will be found of value by both the general practitioner and the pediatrician.

Recent Methods in the Diagnosis and Treatment of Syphilis. By Carl H. Browning, M.D., and Ivy McKenzie, M.B.

In our review of this work, October 5, page 1318, we stated that the second part of the work—the part on Ehrlich's treatment—takes up about eight pages. This was a mistake; it should read "about one hundred and forty pages."

Medicolegal

To What Physicians May Testify—Hypothetical Questions

(Union Pacific Railroad Co. vs. McMican (U. S.), 194 Fed. R. 393)

The United States Circuit Court of Appeals, Eighth Circuit, says that a physician called as a witness for plaintiff, McMican, in this personal injury case, examined the plaintiff at the time of the trial for the purpose of testifying in the case, and not for the purpose of treating him. The physician testified that the plaintiff at the time of the examination gave to him a history of himself prior to the time he received his injuries, also a history of the injury, but he did not testify what that history was. The physician was then asked a hypothetical question based in part at least on what the plaintiff had told him relative to his previous history and how the injury occurred. It was error to permit him to answer it. The rule is well settled that, where a physician is called to treat a party professionally, he may give his opinion, based on subjective as well as objective symptoms, but where he is called, not for the purpose of treating the party for the ailment, but for the purpose of giving testimony in the case, he can testify to objective symptoms only. Statements made by the plaintiff at such an examination are mere self-serving declarations, not made under oath. When a hypothetical question is submitted in such a case it should embrace only facts which have been given in evidence. Because that rule was violated in this case a new trial must be granted. The fact that the witness, when interrogated by the court, stated that in his opinion the question fully covered and represented statements made in evidence and the history of the case as stated to him by the plaintiff, did not remove the vice. It was for the court primarily, and the jury finally, to determine whether the question embraced a proper statement of the facts as shown by the evidence, and not for the witness to base his opinion on partly undisclosed statements.

Unnecessary Particularity in Stating Offense

(State vs. Morris (Mont.), 122 Pac. R. 917)

The Supreme Court of Montana reverses a conviction of practicing medicine and surgery without a certificate from the State Board of Medical Examiners, remanding the case for a new trial. The court says that the information charged that the defendant, without having been granted a certificate to practice medicine in the state of Montana, "did . . . prescribe and direct for the use of Emma Van Orsdel, a person then and there afflicted with a certain physical ailment of the body, to wit, sickness from pregnancy, a certain appliance or apparatus, to wit, a certain surgical instrument commonly known as and called forceps. . . ." The offense against which the statute (sections 1591 and 8544, Revised Codes) is directed is practicing medicine or surgery without a certificate from the State Board of Medical Examiners. The statute is in very broad and general terms, but the pleader undertook to state the circumstances of the offense with unnecessary particularity, and in doing so confined the charge to a single act, namely, the giving of a particular prescription, and the evidence offered on the trial failed entirely to sustain the charge thus made.

Distinguishing Between Impairment of Mind and of Power of Expression

(Campbell vs. Hayden (Mo.), 145 S. W. R. 403)

The St. Louis Court of Appeals says that a physician, in describing the condition of a man who had had a stroke of apoplexy, after stating that the conversation carried on between the man and other persons was confined generally on his part to saying "Yes" or "No," said that a certain woman "had the knack of getting on to what he wanted;" that she had become so accustomed to him that she could intuitively guess at what he wanted and ask him if that was it, and he would assent or not. The physician then stated: "It was a condition in which the mind was not impaired but the way of expressing was the impairment." This sentence, together with what is stated as immediately preceding it, was stricken out on objection. But that was error. It was within the province of the physician to state the condition of his patient, the objective symptoms, and the sentence quoted should not have been excluded in a suit involving the question of the man's capacity to contract or dispose of certain of his property.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Journal of Experimental Medicine, New York

October, XVI, No. 4, pp. 395-579

1 *Fibrillation of Auricles; Its Effects on Circulation. T. Lewis, London.
2 Characteristics of Different Culture Media and Their Influence on Growth of Tissue Outside of Organism. R. Ingebrigtsen, New York.
3 *Relative Prevalence of Human and Bovine Types of Tubercle Bacilli in Bone and Joint Tuberculosis in Children. J. Fraser, Edinburgh.
4 *Acute Vascular Lesions in Mice Following Injections of Pneumococci. T. P. Sprunt and J. A. Luetscher, Baltimore.
5 *Sinus Stimulation as Factor in Resuscitation of Heart. J. Erlanger, St. Louis.
6 Antigenic Properties of Split Products of Casein. F. P. Gay and T. B. Robertson, Berkeley, Cal.
7 Antigenic Properties of a Protein Compounded with Casein. F. P. Gay and T. B. Robertson, Berkeley, Cal.
8 Studies on Ferment Action; Specific Immune Lipase. J. W. Jobling and C. G. Bull, Chicago.
9 Conditions Governing Growth of Displaced Normal Tissue. C. V. Craster, New York.
10 Testing for Epinephrin (Adrenalin) in Blood; Comparison of Plasma and Serum. G. N. Stewart, Cleveland.
11 Lipoid Metabolism in Developing Chick and Its Relation to Calcification. F. M. Hanes, New York.
12 Cell Proliferation and Parasites in Rats. F. D. Bullock and G. L. Rohdenburg, New York.
13 Action of Epinephrin on Coronary Artery. E. A. Park, New York.
14 Question of Epinephrin in Circulation and Its Relation to Blood-Pressure. T. C. Janeway and E. A. Park, New York.
15 *Cultivation of Malarial Plasmodia (Plasmodium Vivax and Plasmodium Falciparum) in Vitro. C. C. Bass and F. M. Johns, New Orleans.

1. **Fibrillation of Auricles.**—Lewis summarizes his paper as follows: When the auricles fibrillate, the following effects are observed: 1. The arterial blood-pressure may rise, fall, or remain stationary. Usually it falls. If it falls, it generally rises again toward or to the initial pressure. 2. The venous pressure changes are the reverse of the arterial. 3. The intestinal volume and the cardiac output changes are in the same direction as those of arterial blood-pressure. 4. From these observations it may be concluded that the peripheral circulatory effects are purely passive. 5. The volume of the heart decreases except in instances in which there is reason to believe that the circulation is failing. All these changes and also the variations in blood-pressure reactions which occur from time to time, are attributable to alterations in the rate of ventricular contraction. Similar, though perhaps less profound, changes are seen when the heart-rate accelerates in like degree in response to regular induction shocks.

3. **Tubercle Bacilli in Bone and Joint Tuberculosis.**—The all important point revealed by Fraser's investigation is the fact that a large proportion of bone and joint tuberculosis occurring in children in Edinburgh owes its origin to infection by the bovine bacillus. The bovine bacillus is introduced into the system practically by one route only, that of ingestion, and the medium with which it is ingested is cow's milk. In those cases in which the human bacillus was present, a considerable proportion showed a definite history of pulmonary tuberculosis affecting a co-resident, and every fact went to prove that the infection had been a direct one from patient to child. A complete distinction can be drawn between human and bovine bacilli, and the distinction is best secured by subjecting the organism to a series of tests such as Fraser details.

Seventy cases of bone and joint tuberculosis were studied by Fraser. With three exceptions the cases were limited to children 12 years of age and under. Without exception the material was obtained by operation. Out of a total of seventy, thirty-nine were cases of joint disease, thirty-one of bone disease. Each case was systematically worked out, and evidence of the identity of the bacillus accumulated until a final conclusion could be reached regarding the class to which the organism belonged. In forty-one instances the bovine bacillus was present, in twenty-six cases the human bacillus, and from the remaining three cases both the human and bovine bacilli were isolated. The outstanding feature is the large proportion of cases which owed their origin to infection by the bovine bacillus.

Fraser says there can be no doubt that milk was the medium through which infection occurred. In the list which he compiled there are a number of children less than one year old; in each of these cases the bovine bacillus was the organism present and each had been entirely nourished on cow's milk. The same lesson is obvious throughout; in the group of cases, the ages of which range from one to two years, twelve in number, there are eight which owed their origin to the bovine bacillus, and every one of the number had been nourished from birth on cow's milk and each showed a family history of pulmonary tuberculosis. It was instructive to note that in no case investigated had any attempt been made to ensure the purity or sterility of the milk.

4. **Acute Vascular Lesions in Mice.**—The authors found that mice dying several days after injections of pneumococci, both living and dead, frequently show at autopsy large intrathoracic hemorrhages. The histologic study of the thoracic organs indicates that there occurs in each case a sharply circumscribed, acute degeneration of the wall of some large vessel, usually the ascending aorta or one of the pulmonary arteries. This degenerated portion is torn out by the pressure of the blood with almost complete disappearance of the vessel wall, leading to a gross hemorrhage. A similar change is occasionally found in the walls of the veins which contain cardiac instead of smooth muscle. They have found this lesion only in mice which had been recently inoculated with pneumococci. Negative cultures at autopsy, the lack of inflammatory reaction, and the occurrence of the conditions after injection of dead pneumococci suggest the cause to be a toxic degeneration of the vessel wall brought about by the poisons of the injected organisms.

5. **Sinus Stimulation in Resuscitation of Heart.**—The experiments described by Erlanger indicate clearly that tetanic stimulation of the sinus region of the auricles is of material assistance to massage in the resuscitation of the heart. It causes the auricles to generate impulses, either rhythmic or irregular, to which the ventricles, when susceptible, respond. When massage administered for brief periods has failed to resuscitate the heart, the same period of massage combined with tetanic stimulation of the sinus has usually brought the circulation back to normal. In some instances massage alone when continued over long periods has been without effect, and to all appearances would have continued to be without effect, whereas at such a time massage combined with stimulation of the sinus has effected recovery. Whether the stimulus causes the auricles to beat normally or to fibrillate seems to make no essential difference in the end result.

Not infrequently conductivity and irritability are lowered to such an extent by the cessation of the circulation that impulses generated in an auricle started by stimulation can at first manifest no effect on the ventricles. Under such circumstances massage alone or, more frequently, massage plus stimulation may cause the ventricles to beat with their inherent slow rate. Often, then, the force of the ventricular contractions is insufficient for the maintenance of an effective circulation. In such cases, however, with the gradual improvement in the condition of the heart, the auricular impulses, as a rule, soon begin to reach the ventricles, with the result that the latter immediately begin to beat more rapidly and effectively. The beneficial results of stimulation of the auricles, therefore, manifest themselves relatively late, but none the less effectively. It has been found that even after the heart has begun to beat, stimulation of the sinus region may still be of some assistance, though in another direction.

It not infrequently happens that after resuscitation of the heart the blood-pressure fails to rise above a certain low and insufficient level. In such cases repeated tetanic stimulation of the sinus may accelerate the rise of blood-pressure and so hasten recovery. No attempt has been made to determine the mechanism of this effect. The insertion of a sound electrode directly through the chest wall was the method employed by Erlanger. It is inserted as follows: After nicking the skin in the third left interspace as close as possible to the sternal margin, the tip of the sound is placed against the subcutaneous tissue. It is directed perpendicularly to the chest wall and boldly pushed into the pleural space. The point is then directed to the right, and carried through the anterior mediastinum close to the sternum until it has passed some distance beyond the right border of the heart. The sound is then turned until the point looks downward and to the left, and while more and more of the sound is allowed to enter the chest, the outer end is carried upward and to the right. This pass will not meet with any resistance whatever, and will carry the point of the sound exactly to the sinus region of the heart. It just slides along the right side of the pericardium, or, in case it has been carried farther to the right, it is returned to the pericardium by slipping between the lobes of the lung from right to left. Unipolar stimulation is employed. The sound carries the stimulating electrode; the indifferent electrode is placed on the thigh. The pericardium lies between the electrode and the heart. Ordinarily it is so thin that it in no way interferes with the application of the stimulus to the heart. Occasionally, however, the pericardial fat is so abundant as to insulate the heart more or less completely. In such a case the method is of no value. When the sound is withdrawn, even though no precautions are taken, air does not enter the chest, provided the subcutaneous tissue has not been cleaned away from the muscle. In this series of experiments stimulation of the sinus was employed as an adjuvant to subphrenic cardiac massage.

15. See Editorial in The Journal, October 12, p. 1381.

Journal of Michigan State Medical Society, Battle Creek

October, XI, No. 10, pp. 609-682

16 Plea for Combined Scientific and Literary Course Preliminary to Study of Medicine. C. L. Girard, Escanaba.
17 Primary Hyperplastic Tuberculosis of Appendix. A. W. Blain, Detroit.
18 Chronic Suppuration of Antrum of Highmore; Its Cure by Resection of Nasal Wall. O. T. Freer, Chicago.
19 Direct Transfusion of Blood; Report of Two Cases. A. M. Campbell, Grand Rapids.
20 Treatment of Ascites. W. J. Wilson, Detroit.
21 Salvarsan in Intestinal Keratitis; Report of Ten Cases. W. R. Parker, Ann Arbor.
22 Nature, Symptoms and Treatment of Toxemias of Pregnancy. J. B. Whinery, Grand Rapids.
23 Surgical Tonsil; Indications and Technic Required for Enucleation. B. R. Shurley, Detroit.
24 Pituitary Extract in Obstetrics and Gynecology. A. W. Leschoier and O. E. Closson, Detroit.
25 Indications for Enucleation. C. R. Elwood, Menominee.
26 Vaccine Therapy in Diseases of Eye, Ear, Nose and Throat. D. B. Cornell, Saginaw.

New Orleans Medical and Surgical Journal

October, LXV, No. 4, pp. 265-338

27 *Culture and Biologic Characteristics of Lepra Bacillus. A. J. Smith and D. Rivas, Philadelphia.
28 Detection of Cholera Bacillus from Feces and Water in Twenty-Four to Forty-Eight Hours. D. Rivas and A. J. Smith, Philadelphia.
29 Clinical Study of Arteriosclerosis of Heart. A. J. Delcourt, Houma, La.
30 Non-Poisonous Anesthesia of Mucous Membranes. O. Joachim, New Orleans.
31 Prevention of Deafness W. Scheppegrell, New Orleans.
32 Importance of Prompt Recognition and Treatment of Laryngeal Diphtheria. G. C. Chandler, Shreveport, La.
33 *The Moving Picture and the Eye. C. A. Bahn, New Orleans.
34 Treatment of Pellagra. I. Dyer, New Orleans.
35 Diphtheria. S. G. Wilson, New Orelans.
36 Needs of American School of Tropical Medicine Recently Established at New Orleans in Tulane University. I. W. Brewer, Fort Niagara, N. Y.

27. **Characteristics of Lepra Bacillus.**—Two lepra cases were studied carefully and thoroughly by Smith and Rivas. Blood cultures made from lepra nodules, venous blood and peripheral blood from the finger, showed the presence of acid-fast bacilli resembling *Bacillus lepræ*. These cultures, though impure, have been transplanted four times with successful results in so far as the reinoculated tubes show the organism in question in association with other bacteria. Finally, the blood samples were taken from the nodule, the finger and great toe. The latter locality was preferred in order to eliminate any possible contamination of the finger from the nose, through scratching of the nodule, etc. About 0.1 c.c. to 0.2 c.c. of blood was removed and immediately mixed with about 5 c.c. of a 2 per cent. acetic acid solution. After thorough shaking and complete solution of the erythrocytes, the mixture was centrifuged and the sediment stained for acid-fast bacilli. The result was very interesting.

The presence of the acid-fast bacilli, resembling *B. lepræ* in their grouping, and more especially the finding of lepra cells, filled with acid-fast bacilli, is an evidence, the authors believe, of the presence of *Bacillus lepræ* in the circulating blood in cases of leprosy, more especially since, not uncommonly, these acid-fast bacilli were found phagocytized by some lymphocytes and endothelial cells. This is another proof of the favor of the bacteremic nature of leprosy, because this phagocytosis can be interpreted only as taking place in the circulating blood, or, at any rate, inside of the blood vessels. The question naturally arose whether these acid-fast organisms were not present in the material used for the solution of the blood. The authors have centrifuged their acetic acid solution, and the scanty sediment spread on slides previously prepared with a film of albumin and stained for acid-fast organisms; the albumin above was treated in like manner; finally the blood of one of the authors was tested as control. In each case, in the water, in the albumin and in normal blood, acid-fast structures are found, if looked for long enough; they are, however, very few. Most of them are what are called acid-fast amorphous masses, and though bacillary types were occasionally encountered, these were very few, and in no case were they found in the form of lepra cells, phagocytized by the lymphocytes.

33. **Moving Picture and Eye.**—The symptoms Bahn has noted, after a more or less protracted moving picture seance, in normal eyes, are in order of frequency: 1. Injection of the lid margins and conjunctiva, increased in those predisposed, and produced in the normal. 2. Lacrimation, usually associated with the above, but not always. 3. Retinal fatigue or a sense of tiring deep in the eyes, as may be produced by looking at any point for a more or less protracted time. 4. Pain in and around the ciliary region, which Bahn has noted especially in the astigmatic, and in those with muscular anomalies. 5. Headache, either frontal or occipital, usually the former, on both sides. 6. Muscæ volitantes. 7. Dizziness. Bahn believes that moving pictures, if favorably presented, under the most favorable conditions, are a more or less severe test of distant vision and endurance on the normal eye, depending, of course, on the length of time the pictures are viewed. The vast majority of persons with normal eyes can endure four sittings of thirty minutes each per week, with but little or no temporary unpleasant symptoms and no permanent ill effects.

The large proportion of those who complain of unpleasant symptoms under this time from moving pictures under the most favorable conditions have some error of refraction not properly corrected, improper muscle balance or defect of sight, or constitutional condition lowering eye endurance. The symptoms produced are essentially those of asthenopia and their sequelæ. Moving pictures, however, under unfavorable circumstances, poorly developed, scratched or defective films, inferior cameras, objectionable screens, irregular and poorly-focused projection, too great or too slight illumination, etc., even in moderation, will produce asthenopic symptoms in any pair of eyes, normal or abnormal. In those who suffer premature or severe asthenopic symptoms from moving pictures under the most favorable circumstances and in moderation, relief lies in the correction of any refraction error, and the benefits that medical science can afford, on the one hand, and less or no moving pictures on the other.

Journal of Oklahoma State Medical Association, Muskogee

October, V, No. 5, pp. 181-234

37 Abdominal Infections. H. Reed, Oklahoma City.
38 Puerperal Eclampsia; Causation and Treatment. R. W. Williams, Anadarko.

39 Lymphatic Diseases of Children. W. M. Sanger, Oklahoma City.
40 Physician as Teacher of Sexual Hygiene. A. S. Risser, Blackwell.
41 Failures in Gall-Bladder Surgery. J. H. White, Muskogee.

Journal of Biological Chemistry, Baltimore

October, XIII, No. 1, pp. 1-109

42 Copper Complexes of Amino-Acids. Peptides and Peptones. P. A. Kober and K. Sugiura. New York.
43 *Mechanism of Phlorhizin Diabetes. F. P. Underhill, New Haven, Conn.
44 *Animal Calorimetry; Metabolism After Ingestion of Dextrose and Fat, Including Behavior of Water, Urea and Sodium Chlorid Solutions. G. Lusk, New York.
45 Idem: Absorption of Dextrose and Effect It Has on Composition of Blood. G. Fisher and M. B. Wishart, New York.
46 Bacterial Metabolism. A. I. Kendall and C. J. Farmer, Boston.
47 Behavior of Fat-Soluble Dyes and Stained Fat in Animal Organism. L. B. Mendel and A. L. Daniels, New Haven, Conn.
48 Some New Compounds of Cholin Type. G. A. Menge, Washington, D. C.

43. **Mechanism of Phlorhizin Diabetes.**—The mechanism of phlorhizin diabetes has been subjected to investigation by Underhill after the removal of the renal secretory function by (a) ligation of the renal structures in the dog and (b) abolition of kidney secretion through subcutaneous administration of sodium tartrate to rabbits. In both conditions a significant hyperglycemia may be in evidence. With dogs this is accompanied by a decrease in the proportion of solids in the blood; that is, the water content is increased. The data presented lead to the suggestion that phlorhizin may possess a two-fold action: (a) an influence is exerted on the kidney whereby this organ becomes more permeable for blood sugar, and (b) an action on other structures resulting in the production of sugar in quantities sufficient to cause hyperglycemia if the kidney function is removed.

44. **Metabolism of Dextrose and Fat.**—It was noted by Lusk that, after giving 100 grams of dextrose to a dog, the skin temperature rose during the second hour, while the rectal temperature fell slightly. When 50 grams of dextrose are given the sugar content of the blood in per cent. is first increased, but by the end of the second hour and thereafter, it is found to have returned to its normal percentage value. The volume of the blood, however, increases during the second hour, obviously in response to the osmotic pressure exerted by the increased sugar concentration. The increase in blood volume is demonstrated by the fall in the hemoglobin content of the blood. During this period, the metabolism shows an increase of 20 per cent. above the normal basal value. During the fourth hour there is final absorption of all the dextrose ingested, the metabolism remains high and there is a large excretion of water in the urine. At the end of the same fourth hour, the blood sugar content is normal, indicating that, during the withdrawal of water and the concentration of the blood, the liver and muscles maintain the normal sugar content of the blood. During the second, third and fourth hours, the high metabolism is accompanied by respiratory quotients of about 1.00 (after allowing for the influence of protein metabolism). However, during the fifth hour, when the metabolism has returned to its basal value, a non-protein respiratory quotient of 0.83 indicates that a mixture of fat and carbohydrate is being oxidized.

The glycogenic function apparently enters into control and reduces the amount of carbohydrate available for combustion, and fat is oxidized as well. If 20 grams of dextrose be given, a rise of 15 per cent. may take place during the second hour after sugar ingestion, to be followed by a normal basal metabolism in subsequent hours. If 75 grams of dextrose be given, a 20 per cent. increase in metabolism continues from the second through the fifth hour, during which hour the volume of urine becomes large, indicating that this is the final hour of the higher metabolism. It is shown that ingestion of 200 c.c. of water, of 150 c.c. of an 8 per cent. solution of urea have no influence on metabolism. It is, therefore, concluded that the high metabolism after giving dextrose is not due to osmotic changes between the blood and the tissues. The only remaining conclusion which appears possible to Lusk is that the increase in metabolism is due to the presence of a greater amount of free diffusible carbohydrate than is present when there is no absorption of carbohydrate from the intestines.

Military Surgeon, Washington, D. C.

October, XXXI, No. 4, pp. 357-489

49 Medical Department of U. S. Army in Civil War. L. C. Duncan, U. S. Army.
50 Leprosy in Philippines. J. R. Hurley, Island of Panay, P. I.
51 Division Field Laboratory; Its Possibilities as Illustrated by Experiences with Maneuver Division. G. B. Foster, U. S. Army.
52 Poisoning from Bacillus Enteritidis. F. Anderson, U. S. Navy.
53 Pneumonia and Allied Diseases at Newport Training Station. O. Diehl, U. S. Navy.
54 Quarterly Report of Board for Study of Tropical Diseases in Philippines—March 31, 1912. P. M. Ashburn, E. B. Vedder and E. R. Gentry, U. S. Army.
55 Diagnosis Tag. M. Ashford, U. S. Army.
56 Disposal of Garbage in Barracks. P. L. Jones, Fort Leavenworth, Kan.
57 Salvarsan and Malaria. R. H. Goldthwaite, U. S. Army.

Illinois Medical Journal, Springfield

October, XXII, No. 4, pp. 417-540

58 *Means for Accurate Determination of Human Internal Parasites. H. B. Ward, Urbana, Ill.
59 *Some Modern Medico-Sociologic Conceptions of Alcohol, Venereal Diseases and Tuberculosis Problems. S. A. Knopf, New York.
60 Tuberculosis Work in Europe. J. W. Pettit, Ottawa, Ill.
61 Value of Field Work in Study of Heredity in Mental Diseases. H. A. Cotton, Trenton, N. J.
62 *Adenoid Vegetations of Nasopharynx. J. W. Smith, Bloomington, Ill.
63 Rationalé of Sinus Disease and Its Treatment. W. L. Ballenger, Chicago.
64 Primary Melanotic Sarcoma of Iris, Followed by Extensive Metastatic Melanosarcoma of Liver. G. F. Suker and L. N. Grosvenor, Chicago.
65 Ringworm Infections and Their Management. J. S. Eisenstaedt, Chicago.

58. **Accurate Determination of Human Internal Parasites.**—Within very recent years, says Ward, the discovery of important causes of disease in the animal field has accentuated the need of some reliable basis in knowledge or technic for diagnosing accurately the animal organisms related to disease. Such a determination falls within the field of clinical microscopy and constitutes an evidently important section of that field. In spite of its importance, however, this study has been seriously neglected and men of scientific training and habits have been contented with a rough approximation or even with a guess at the character of parasitic material which has presented itself in the course of clinical examinations.

How scanty the knowledge of this field and how low the standards which seem to satisfy even the better class of workers is evidenced by the publication recently in one of the foremost medical journals of a cut representing the seat worm of man (*Oxyuris vermicularis*), which would not be accepted from a freshman in any reputable college course in zoology. Errors in observation and delineation, faulty descriptions of structure and incorrect measurements have resulted in confusing forms of very different clinical importance and in concealing the presence of new and dangerous human parasites. Many are already fully alive to the possibilities in unexplained etiology and are searching diligently for an explanation in the form of some unrecognized parasite, either animal or plant. It has been in part no doubt the lack of such data which has necessitated the general diagnosis of "worms," when a determination of the particular species would have been more to the point. Moreover, the unfamiliarity with such organisms and the criteria for distinguishing them from each other and from extraneous substances has certainly led to frequent misinterpretation of harmless residual food materials as dangerous parasites, or *vice versa*, to the failure to recognize parasites which were abundant and significant.

To sum up, then, this phase of the discussion: The physician must first of all look for parasitic organisms of the animal type as well as those of plant nature, and in the next place it is equally important that he be able to determine the nature of the material that comes within his notice. Ward then enters into a very excellent and wide discussion of animal parasites that have been found in the human body and how they may be identified.

59. Abstracted in The Journal, June 1, p. 1709.

62. **Adenoid Vegetations of Nasopharynx.**—It has been Smith's practice for several years in treating these growths to use a finger curet of his own design, that has proven serviceable. The curet is placed on the index finger, with its cutting blades above, and when it is introduced into the

postnasal space, the blades of the instrument come into direct contact with the adenoid tissue to be removed. There is freedom in its use from the dangers of injuring the soft palate and the posterior end of the nasal septum, which may occur in the use of forceps or curets with long handles. Having ascertained the condition of the nasopharynx by a digital examination previous to the operation, the operator with the finger and the finger-curet in place, when introduced into the postnasal space, has some advantage in feeling his way as he removes the growths and is thus enabled to some extent by tactile sensation to make the proper amount of pressure when and where it is needed in excising them.

Journal of Medical Association of Georgia, Augusta

October, II, No. 6, pp. 179-203

66 Tobacco vs. Alcohol. J. G. Dean, Dawson.
67 Experimental Pellagra. G. C. Mizell, Atlanta.
68 Induction of Labor in Puerperal Eclampsia. T. J. Carswell, Waycross.
69 Menstruation, Normal and Abnormal. J. R. B. Branch, Macon.
70 *Intestinal Resection in Strangulated Inguinal Hernia; Report of Cases. W. W. Battey, Augusta.
71 Radical Surgery of Cases of Cancrum-Oris or "Noma," with Report of Case of Bilateral Infection Complicating Typhoid; Recovery. B. S. Moore, Atlanta, and J. S. Clifford, Charlotte, N. C.

70. Abstracted in THE JOURNAL, June 8, 1782.

Mississippi Medical Monthly, Vicksburg

October, XVII, No. 6, pp. 111-130

72 Puerperal Injuries. J. W. Gray, Clarksdale.
73 Tetanus; Report of a Case. C. B. McCown, Prairie.
74 *Prevention and Treatment of Malaria in Negro Race Under Delta Conditions. W. B. Harrison, Whitney.
75 Surgical Treatment of Hemorrhoids. J. O. Gurney, Tupelo.
76 Water Cure for Snake-Bite. A. L. Chapman, Lyon.
77 Peculiar Fetus. J. A. Davis, Dockery.
78 Consideration of Most Common Diseases of Tonsils and Treatment. H. L. Murphy, Arkabutla.

74. **Malaria in Negro Race.**—The treatment of malaria in the colored man, Harrison says, differs from routine treatment in the whites, not so much in kind as in method of administration. Negroes are so prone to neglect the taking of medicine, the nearer we can come to the giving of all under physician's eye, the better. The dose of calomel employed by Harrison is larger than that ordinarily recommended in the text-books. He has never been able to get more than watery actions from the bowels with the smaller doses. Ordinarily, he gives from 15 to 40 grains in conjunction with the compound extract of colocynth. This thoroughly cleanses the bowels, removes accumulated bile from the system, and acts as a diuretic. Salivation is rare. If the negro can be seen directly following the chill, it is better to give a massive dose of quinin and follow this with the same drug on succeeding days. In estivo-autumnal malaria it is better to give the quinin in small doses frequently repeated.

The follow-up treatment is most important, and at the same time most difficult to accomplish. Indeed, were it not for the natural relative immunity of the negro, and the tendency to spontaneous cure, this disease, Harrison says, would produce sad havoc in this people. As it is, pernicious malaria is not common, neither is the chronic type, while malarial cachexia is rare. Owing to prejudice against capsules, and a hysterical difficulty in swallowing them, it is often less difficult to get these patients to take a disagreeable potion than to take quinin in what is, to the Caucasian, the much more pleasant way. These patients will often take the drug in coffee.

Lancet-Clinic, Cincinnati

September 28, CVIII, No. 13, pp. 323-350

79 Abdomen Philosophically and Clinically Considered. W. E. Lewis, Cincinnati.
80 Twenty-One Cases of Pulmonary Tuberculosis Treated by Dioradin. M. J. Schwerd and A. L. Goldwater, New York.

October 5, CVIII, No. 14, pp. 351-378

81 Our Imbecility. I. O. Allen, Metamora, Ind.
82 Tumor and Clinical Pathology of Hypophysis. D. I. Wolfstein, Cincinnati.

Interstate Medical Journal, St. Louis

October, XIX, No. 10, pp. 819-918

83 Critical Review of Theory of Muscle Rigidity and Degeneration in Pulmonary Tuberculosis and Other Conditions of Thorax; Nervous Mechanism and Diagnostic Limitations. J. L. Pomery, Monrovia, Cal.
84 *Bacterin Treatment of Pertussis. J. Zahorsky, St. Louis.
85 Auscultatory Blood-Pressure Phenomenon; Clinical Determination of Diastolic Pressure. L. M. Warfield, Milwaukee, Wis.
86 Results of Early Diagnosis of Urinary Tuberculosis. W. F. Braasch, Rochester, Minn.
87 Drug Influence on Extrasystoles of Mammalian Heart. C. P. McCord, Ann Arbor, Mich.

84. **Treatment of Pertussis.**—Pertussis bacterin in doses of 30 to 50 million has been found by Zahorsky to be a very helpful therapeutic resource. He says it should be given hypodermically every three of four days in infants from the very beginning; in older children at the height of the disease. It is questionable whether it hastens permanent immunity.

Proctologist, St. Louis

September, VI, No. 3, pp. 93-258

88 Relationship and Duties of Proctologist to Profession. J. L. Jelks, Memphis, Tenn.
89 Proctologic Literature from March, 1911, to March, 1912. S. T. Earle, Baltimore.
90 Postoperative Care of Rectal Cases. W. M. Beach, Pittsburgh.
91 Patulous Anus; Its Clinical Significance. A. J. Zobel, San Francisco.
92 *Surgery of Colonic Obstipation. L. J. Hirschman, Detroit.
93 Roentgenographic Method of Examining Cases of Constipation and Obstipation; Method of Visualization of Abdominal Lesions of Intestinal Tract. A. F. Holding, New York.
94 Valvotomy. G. B. Evans, Dayton, Ohio.
95 Multiple Adenomata of Rectum. E. H. Terrell, Richmond, Va.
96 *Relationship of Tuberculosis to Perirectal Suppurations. C. F. Martin, Philadelphia.
97 Anorectal Disease Due to Venereal Infection. J. A. McVeigh, Detroit.
98 Pruritus Ani; Its Probable Etiologic Factor. D. H. Murray, Syracuse, N. Y.
99 Colonic Dilatation (Congenital and Acquired) as Factor in Chronic Intestinal Obstruction (Obstipation). S. G. Gant, New York.
100 Acute Postoperative Paresis of Intestine. J. A. MacMillan, Detroit.
101 Próphylaxis and Treatment of Postoperative Retention of Urine. F. C. Yeomans, New York.
102 Intrarectal Rupture of Suppurating Sinus from Hip-Joint Disease. R. W. Jackson, Fall River, Mass.
103 Keloidal Tuberculoma: Fibromatous Keloid. A. B. Graham, Indianapolis.
104 Three-Step Operation in Tumors of Sigmoid Colon. J. P. Tuttle, New York.
105 Subnormal Colonic Function as Diathesis. J. C. Brick, Philadelphia.
106 Demonstration of Hanes' Position and Table. G. S. Hanes, Louisville, Ky.
107 Excision Operation for Internal Hemorrhoids, with New Clamp. R. H. Barnes, St. Louis.

92. **Surgery of Colonic Obstipation.**—From an experience with a considerable number of cases, Hirschman concludes that most cases of chronic constipation are colonic in origin and many are obstructive in type. Many cases of colonic obstipation suffer from chronic dilatation of the colon with or without ptosis. Roentgenography he regards as a most vital necessity in the diagnosis of all cases of chronic interference with bowel function. Its negative value may be greater than its positive. A chronically over-distended colon, whether adherent or not, never again becomes a normally functionating bowel. Intestinal adhesions usually tend to recur in increased intensity, and adhesions only cause symptoms when put under stress or tension. The prevention of tension is physiologic rest to the affected organ and colonic rest is obtained only by colectomy, colostomy or exclusion.

Colectomy, as advocated by Lane, Hirschman says, is an operation seldom advisable and has many obvious objections from the standpoint of patient and physician. It is too grave a procedure to be undertaken except in the most aggravated cases. Strictures, neoplasms and other obstructions should be removed by excision of the diseased tissue and lateral anastomosis of the bowel. Exclusion by ileo-colostomy is safe, easy to perform, and most satisfactory in the restoration of normal peristalsis and consequently normal health. After an experience with nearly fifty cases requiring exclusion or resection of the colon for obstructive constipation, with but one failure, Hirschman feels fully justified in recommending it in all cases of aggravated colonic obstipation, whether congenital, postoperative or dependent on some mechanical obstruction or narrowing of the bowel.

96. **Tuberculosis and Perirectal Suppurations.**—The frequent association of pulmonary tuberculosis with perirectal suppurations prompted Martin to determine such frequency of coincidence, and, if possible, the relationship between these two conditions. Careful observation and study of nearly 400

consecutive cases of such suppurative rectal conditions as abscess, fistula and stricture, disclosed facts which seem to point to some definite relationship, pulmonary tuberculosis being, at least, a very strong predisposing factor toward these conditions. Of the 376 consecutive cases studied 288 were males and eighty-eight females. The ages of these patients ranged from 7 months to 87 years. The large number of patients between the ages of 21 and 60 years is explained in two ways. It is during this period that patients in active pursuit of a living are more exposed to traumatism. On the other hand, since there is a tuberculous element in most of these cases, it is highly probable that few of these live much beyond 50 or 60 years of age. In fact, between 51 and 60 years there is a rapid falling off in number to 40 and against 84 in the preceding decade.

For purposes of study, Martin has divided the cases into four major groups, the actively tubercular, the chronically tubercular, the phthisenoid, and those in apparently good health. The active cases (144) included those with signs of infiltration or cavity formation, with the presence of râles, cough, expectoration, hemoptysis and other typical signs of active pulmonary involvement. In the classification of chronic tuberculosis (sixty-eight cases) are included those cases showing infiltration, without the presence of discernible râles, those giving a history of previous active pulmonary infection, but with improvement in health, weight, absence of cough or expectoration; in other words, arrested or quiescent cases. Some cases gave a few physical signs, other than slightly impaired resonance over one or both apices, with retraction of the supra- and infra-clavicular spaces. A very few patients seemed to be in good physical condition but gave pronounced tuberculin reactions. The phthisenoid cases (twenty cases) included those whose general appearance would suggest a tuberculous process, but in which either no lung examination had been made or no definite local lesions could be brought out. The group reported as being in good health (fifty-five cases) were those robust in appearance, without any demonstrable local pulmonary changes.

Boston Medical and Surgical Journal

October 10, CLXVII, No. 15, pp. 495-530

108 Surgical Aspects of Fat. J. M. T. Finney, Baltimore.
109 Norway Revisited. C. K. Austin, Paris, France.
110 *Effect of Pasteurization of Milk on Babies. J. L. Morse, Boston.

110. **Effect of Pasteurization of Milk on Babies.**—Morse believes that it is impossible to determine from the evidence at present available whether or not babies fed continuously on pasteurized milk thrive as well as those fed on raw milk or whether or not the continuous use of pasteurized milk predisposes to the development of the diseases of nutrition. There is sufficient evidence to show, however, that if the continuous use of pasteurized milk is injurious to babies, its possibilities for harm are much less than those of bacteria. All but the cleanest milk should, therefore, be pasteurized before it is given to infants. There is, on the other hand, sufficient doubt as to the innocuousness of pasteurized milk to justify the avoidance of pasteurization whenever the character of the milk warrants it. The question as to the effect of the pasteurization of milk on the nutrition of infants can only be settled by a much more careful and extensive study of the whole subject, both in the laboratory and clinically, than has hitherto been undertaken.

West Virginia Medical Journal, Wheeling

October, VII, No. 4, pp. 109-146

111 Surgery of Our Own Country. E. W. Strickler, Kingwood.
112 Prophylaxis of Typhoid. F. W. Hachtel and H. W. Stoner, Baltimore.
113 Cancer a Motile Germ, and Meaning of This Fact to Clinician. G. B. Massey, Philadelphia.
114 Pyorrhea Alveolaris. C. H. Chapman, Webster Springs.
115 Septic Sore Throat. W. S. Link, Parkersburg.

Medical Record, New York

October 12, LXXXII, No. 15, pp. 645-690

116 *Gout of the Intestines. A. Haig, London, England.
117 Agar Tubes for Estimation of Pancreatic Ferments. M. Einhorn, New York.
118 History of Lithotomy Operation. M. Kahn, New York.
119 Some Blunders Made by Nature in Treating Disease. A. Maverick, San Antonio, Tex.
120 Etiology of Adhesions of Large Intestine. G. B. Rhodes, Cincinnati.
121 *Increase in Death-Rate from Diabetes in New York; Possible Explanation. J. G. Wilson, Ellis Island, N. Y.

116. **Gout of Intestines.**—Gout of the intestines according to Haig is a catarrhal process, affecting first of all the mucous coats of the alimentary canal. It may be limited to the mucous coat or spread to neighboring fibrous tissues. It goes through various stages of congestion, with mucous, mucopurulent and purulent exudation, and is more easily cured in its early stages before the exudations are purulent. It may go on to ulceration, fibrous tissue increase, adhesion and distortion of structure, more rarely to definite accumulation and deposit of urate in bulk (biurate) visible to the naked eye; but a certain amount of interstitial accumulation to be found by chemical analysis is not uncommon. It affects chiefly and in the first place parts exposed to cold, acids, heat, or irritant substances. It may spread from these parts either by fibrous tissue continuity or by the spread of microbic invasion hand in hand with urate precipitation and defective circulation and metabolism through the tissues.

The chronic irritation it produces in these tissues may, like the similar irritation similarly produced in other tissues, though called by other names, pave the way for cancer and cancer, like the catarrh which precedes it, affects chiefly the parts exposed to cold, acids, heat, and irritant substances. Both cancer and catarrh avoid those parts which are not so exposed, or which, owing to warm position, alkaline secretion and a large supply of alkaline blood are but little liable to urate precipitation. They both also affect largely the acid parts, stomach and rectum. These intestinal troubles not only occur in constant relation to gout and rheumatism in other tissues, but in common with bronchial and other respiratory catarrhs are all made worse by acids, cold and retentives, and all made better by alkalies, heat and solvents of uric acid, so that the diagnosis in any given case need not long remain in doubt. And once this diagnosis has been correctly made, Haig says, it is a matter of certainty that the uric-acid-free diet, properly inaugurated and continued, will remove eventually not only all signs of and all tendency to catarrh but many even of the fibrous tissue changes and distortions.

121. **Increase in Death-Rate from Diabetes in New York.**—Wilson claims that the increased death-rate from diabetes finds its chief explanation in the increase of the Jewish population.

New York Medical Journal

October 12, XCVI, No. 15, pp. 721-772

122 Blonds and Brunettes in Tropics. C. E. Woodruff, San Francisco.
123 Treatment of Diabetes. A. Bassler, New York.
124 Errors in Treatment of Senile Cases. I. L. Nascher, New York.
125 Specific Complement Deviation Reaction in Gonorrhea; Its Value as Aid to Clinical Diagnosis. J. A. Gardner and G. H. A. Clowes, Buffalo.
126 Ten Sex Talks to Girls. I. D. Steinhardt, New York.
127 High-Frequency Currents in Eczema. E. G. Charbonneau, Newark, N. J.
128 Traumatic Separation of Epiphyseal Beak of Tibia. G. B. Rhodes, Cincinnati.
129 Tuberculous Cervical Lymph-Nodes Cured by Roentgen-Ray. M. Strunsky, New York.
130 *New Theory Concerning Origin of Heart-Beat. B. Kaufman, Marysville, Cal.
131 Anatomy of Colon; Frequent Surgical Annoyance. J. D. Bloom, New Orleans.
132 Sputum Examinations and Tuberculin Tests at Gouverneur Hospital Tuberculosis Clinic. M. M. Fladen, New York.

130. **Origin of Heart Beat.**—The intracardiac pressure of the fluid in the heart chambers, or what was originally a straight tube, is held by Kaufman to be responsible for heart action. The fluid stimulates the muscle and other cells to contract by reason of the great pressure and then to relax when the fluid is expelled.

Journal of Nervous and Mental Disease, Lancaster, Pa.

October, XXXIX, No. 10, pp. 649-720

133 Two Cases Exhibiting Lesions of Special Interest for Localization of Aphasic Disorders. L. Archambault, Albany, N. Y.
134 Apparently Normal Man with Persistent Ankle Clonus. C. S. Potts, Philadelphia.
135 *Central Pain; Pathologic Study of Eight Cases. J. H. W. Rhein, Philadelphia.
136 Polioencephalitis Superior of Wernicke; Report of a Case. H. M. Langdon, Philadelphia.

135. **Central Pain.**—One personal case and seven others of hemiplegia with painful manifestations were analyzed by Rhein. In four of these cases the pain was spontaneous. In one case there was no pain on pressure, the pain being entirely independent of pressure or movement of the limbs. The multiplicity of the lesion in this case makes it impossible to draw any definite conclusion, though the basal ganglia were the seat of a wide-spread lesion of a minute character. In a second case, the pain was also spontaneous and there was no note of pain on pressure. The lesion was in the lenticular nucleus. In another case, the pain was not only spontaneous, but when the bony parts were pressed on there was also complaint of pain. There was an old scar in the contralateral optic thalamus. In a fourth case, sharp shooting pains were complained of as well as pain on pressure over the nerve trunks. In this case the lesion was one of cerebrospinal lues, and the meningeal irritation at the roots may have been the cause of the pain. In four of the cases the pain was only manifested on movements of the limbs or pressure.

In one case, there was pain in the right arm on pressure or movement. The left optic thalamus was the seat of a hemorrhage, which implicated also the internal capsule. In one case, passive movements of the left leg gave great pain. The lenticular nucleus was the seat of an area of softening which involved also the motor cortex. In one case, pressure over the calf muscles and the right arm was painful. A recent hemorrhage was seen in the left cornu ammonis and linear scar was present in the left external capsule. Some degeneration of the pyramidal tract on one side could be seen by the Marchi method. In one case, passive movements of the right arm and leg gave pain, though pressure was painless when the limbs were at rest. The lesion was in the left lenticular nucleus and in the external capsule. The painful conditions found in these cases were independent of contracture. Rhein believes that it seems justifiable to conclude that central pain may be found associated with lesions in many localities, but the cases in which the optic thalamus is implicated are in the majority.

Journal of Tennessee State Medical Association, Nashville

July, V, No. 3, pp. 93-138

137 Modern Advances in Operations for Cataract and Glaucoma. L. W. Fox, Philadelphia.
138 *Surgery of Tonsil as Related to Chronic Diseases. C. B. Wylie, Chattanooga.
139 *The Tonsils. C. B. Jones, Knoxville.
140 *Traumatic Neuroses Due to Alleged or Actual Injury, from Medicolegal Standpoint. R. Wallace, Chattanooga.

August, V, No. 4, pp. 139-173

141 Cold-Blooded Zoologic Inquiry Into American Patriotism. C. W. Stiles, U. S. Public Health Service.
142 Vaccination Against Typhoid. W. Litterer, Nashville.
143 Prevention of Typhoid. W. C. Officer, Monterey.
144 Typhoid. R. E. L. Smith, Doyle.
145 Perforation of Gall-Bladder, with Report of Seven Cases. B. Malone, Memphis.
146 Man's Friend, the Doctor. J. T. Lelyett, Nashville.

September, V, No. 5, pp. 175-218

147 Surgical Management of Exophthalmic Goiter. W. D. Haggard, Nashville.
148 Treatment of Compound Fractures of Long Bones. S. R. Miller, Knoxville.
149 Acute Anterior Poliomyelitis. J. H. Atlee, Chattanooga.
150 *Treatment of Peritoneal Infections. W. M. McCabe, Nashville.
151 *Placenta Prævia, with Report of Case. M. A. Blanton, Baileyton.
152 Treatment of Fracture. R. Caldwell, Nashville.

138, 139 and 140. Abstracted in THE JOURNAL, April 27, pp. 1307 and 1308.

150 and 151. Abstracted in THE JOURNAL, April 27, p. 1309.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

September 28, II, No. 2700, pp. 753-828

1 Carcinoma of Colon. V. Z. Cope.
2 *Appendicitis: Results of Operations on 619 Patients. W. G. Richardson.
3 Spontaneous Reduction of Intussusception. T. B. Henderson.
4 Fractured Pelvis Complicated by Laceration of Femoral Vein Treated by Lateral Vein Suture. M. Moritz.
5 Reflections After Twenty-One Years of General Practice. F. W. Jollye.
6 *Sterilization of Skin by Spirituous Solution of Mercury Perchlorid. C. Clarke.
7 *Iodin as Dressing for Operation Wounds. F. C. Madden.
8 *Iodin as Sole Preparation and Dressing for Operation Wounds. F. J. A. Dalton.
9 Development and Growth of Bone, Normal and Abnormal. W. Macewen.
10 Diaphragm in 7 mm. Human Embryo. P. Thompson.
11 Abnormality of Urinary System. A. C. Geddes.
12 Specimen Illustrating Pseudohermaphroditism. A. C. Geddes.
13 Case of Transposition of Viscera. J. S. Manson.
14 Anatomy of Vestigial Structures in Neighborhood of Epididymis and Cord. W. Wright and R. G. Brown.
15 Comparison Between Two Hearts. J. S. Dickey.
16 The Stomach. R. J. Anderson.
17 Asymmetry. R. J. Anderson.
18 Anatomy of Normal Stomach. A. F. Hertz.
19 Biophysics and Biochemistry of Neuron. F. W. Mott.
20 Some Dynamic Principles Involved in Progression. T. G. Brown.
21 Substance from Yeast and Certain Foodstuffs Which Prevents Polyneuritis (Beriberi). C. Funk.
22 Tissue Respiration. H. E. Roaf and H. M. Vernon.
23 Function of Lipoids in Vital Processes. H. M. Vernon.
24 Estimation of Urea in Urine. J. A. Milroy.
25 Production of Apnea. T. H. Milroy.
26 Animal Activities in Relation to Training. R. J. Anderson.

2. **Appendicitis.**—Richardson records the results in 619 cases of appendicitis submitted to operation. Of the so-called "interval" cases, in which there had been one or more attacks of appendicitis and in which the operations were performed while there was no active inflammation, there were 113 cases and no deaths. This does not include any cases in which the appendix was removed in the course of an abdominal section performed for some other condition, merely because it was an appendix. Such removal of the appendix does not appear to Richardson to be either a wise or justifiable procedure. The appendix was removed in sixty-three early cases in which the inflammation was confined to the appendix itself. No drainage of the wound was necessary. There were no deaths. Of later cases there were ninety-three in which there was localized peritonitis and two deaths. In all of these cases the appendix was removed and drainage of the wound was necessary.

There were 274 cases in which the abscess was localized. In all these the appendix was removed and the wound drained. Cases in which the abscess was localized and was drained, the appendix not being removed, twenty-five; one death. These include some cases in which the abscess was bulging into the rectum and was opened per rectum; others in which, on account of the size of the swelling, it was not thought advisable to search for the appendix; and others in which, on account of the density of the adhesions, the same treatment was adopted. In all cases in which the appendix was gangrenous and had given rise to general septic peritonitis, without the formation of a local abscess, that is, "fulminating" cases, the appendix was removed and the wound drained. There were twenty-nine cases and twenty deaths. Similar cases, with the complication of an abscess, and in which the appendix was removed and the wound drained, numbered twenty, with fourteen deaths. Cases in which the patient was so ill that the peritoneal cavity alone was drained—two cases and two deaths.

By arranging the cases, according to this classification, it was found that there is a rise in the relative mortality which followed operations as they were performed during later stages of the disease. The method of operating which Richardson employs is by an oblique incision parallel to the crest of the ilium, and of such length as the case requires. In "interval" cases the incision is usually 4 or 5 in. long, and Richardson never employs the muscle-splitting method, because it requires one to operate in a hole without a sufficient view. In abscess cases he avoids, if possible, division of the epigastric vessels and opening of the sheath of the rectus muscle. The incision is extended into the flank, sometimes a long way, and this has the double advantage of giving an excellent view and of affording good drainage. He generally uses both a gauze and a rubber drain, which are brought out through the posterior extremity of the wound. The stump of the appendix is clamped, ligatured with catgut and tucked in with a catgut purse-string suture.

6. **Sterilization of Skin.**—Mercury perchlorid in methylated spirit (strength 1 in 500), Clarke says, is a more powerful

antiseptic than tincture of iodin, and has practically none of its disadvantages. It can be painted all over the penis, scrotum, anus, etc., and causes only a slight burning sensation when first applied. It can be freely used, and no local inflammation results as long as the spirit is allowed to evaporate. A small superficial burn, however, is caused by the spirit solution if a swab or towel soaked with it is left in contact with the patient's skin during the operation. This can easily be avoided. The perchlorid solution does not stain clothing or towels, and no irritating vapor is given off, as it dries on the skin. As an antiseptic the perchlorid solution is said to be very efficient, and no preparatory dressing of the skin is required before the operation. The actual sterilization of the skin is very simple. The skin is painted or swabbed over twice with spirit and perchlorid solution immediately before the commencement of the operation.

7. **Iodin as Dressing for Operation Wounds.**—In fifty cases Madden used iodin as the sole dressing for operation wounds according to Alcock method with very good results. These cases include six operations for ventral and umbilical hernia, many inguinal hernias (both single and double), several hydroceles, two complete removals of breast for cancer, four goiters, two epitheliomas of lip with removal of glands in the anterior triangle, four circumcisions, one hare-lip, trephining, amputations of legs, suprapubic lithotomy, plating of fractured tibia, plastic operations for cicatricial contractions after burns, and two partial amputations of the hand at the carpometacarpal joints for enchondroma and sarcoma. Only one case in the whole series has gone wrong, and that Madden ascribes to stupidity and neglect.

8. **Iodin as Sole Preparation and Dressing for Operation Wounds.**—Dalton has used iodin as the sole preparation and dressing for operation wounds in seventy-seven clean cases. His method is as follows: (a) The evening before operation: (1) Shave the operation area; (2) hot bath and thorough drying afterwards; (3) paint the operation area with tincture of iodin. (b) At the operation: (1) Paint operation area with tincture of iodin immediately before making the incision; (2) paint the wound again after insertion of stitches. (c) After-treatment: (1) Paint wound with iodin on second day after operation; (2) paint again on ninth day, after removal of the stitches. So far the results in all his cases have been uniformly excellent, and he has yet to see a stitch abscess. The only objection he has seen to the method up to the present is, that in cases where a space is left in the tissues by the removal of a tumor, this space is apt to fill up with serum, which would not happen with a firmly-applied dressing and bandage. This happened in three cases of hernia and one of removal of a fibroid tumor from the great trochanter in this series of cases. It was a matter of no moment. A probe was passed through the wound, the serum let out, and the wound again painted with iodin.

Lancet, London

September 28, II, No. 4648, pp. 865-926

27 Dust and Fume, Foes of Industrial Life. T. Oliver.
28 *Etiology of Dementia Paralytica. W. F. Robertson.
29 Amputation in Infantile Paralysis. E. M. Corner and C. E. Bashall.
30 Earlier Stages in Development of Pituitary Body. J. E. Frazer.
31 Acute Colliquative Necrosis of Spleen. G. W. Watson and M. J. Stewart.
32 Acute Irreducible Intussusception in Child Aged Six Months; Resection; Recovery. G. S. Hughes.
33 Record of Treatment of Bacterial Infections by Autogenous Vaccines. T. B. Scott and G. B. Scott.
34 Fracture of Cervical Spine; Operation; Necropsy. A. Don.
35 Melanotic Sarcoma Treated with Coley's Fluid. H. H. Greenwood.
36 Case of a Swallowed Fork. R. W. Willcocks.

28. **Etiology of Dementia Paralytica.**—For the past ten years Robertson has made a special study of the question of the etiology of dementia paralytica and tabes dorsalis. He has tried to establish an etiologic relationship for an organism which he terms the *Bacillus paralyticans*. He says that if hemoglobin agar is used as the culture medium, it can be shown that the *Bacillus paralyticans* is constantly present in the genito-urinary tract and the nasal mucosa of the general paralytic. In tabes dorsalis there is always in the early stages an infection of the genito-urinary tract by a similar micro-organism; in the later stages this bacillus may be entirely displaced by a coliform one. The nasal infection in general paralysis can be traced along the lymphatics, through the base of the skull, to the intracranial lymphatic system, and a culture of the bacillus can be obtained from the cerebrospinal fluid in a considerable, though certainly not a very large, proportion of cases. Intraspinal injection of living cultures of the *Bacillus paralyticans* in rabbits has produced lesions in the cord identical with those that occur in the brain of the general paralytic. This organism is classed as a diphtheroid bacillus and yet it is said not to be a bacterium at all, but phases in the life cycle of a protozoon. Robertson says he has cultural evidence in support of this view.

There is a special feature of the brain in cases of dementia paralytica that Robertson has had under observation for the last fifteen years; its meaning was inexplicable until other facts suggested that the *Bacillus paralyticans* is only a stage in a life-cycle. This feature consists in an accumulation of very minute bodies, sometimes rod-shaped but generally quite irregular in form, in the lymphatic spaces around the vessels and nerve cells of the cerebral cortex. These bodies are quite invisible in sections stained by the ordinary methods; they are clearly revealed only by the palladium methyl-violet method. Robertson has observed them in a very large number of brains, but only in those of general paralytics. They are very minute, being as a rule much smaller than a staphylococcus, though larger forms also occur. When closely examined they are seen to consist of a deeply-stained central particle and a comparatively very pale surrounding portion. They have, in short, the morphologic characters of amebulas.

Another body which in Robertson's experience is special to the brain of the general paralytic, and which is probably of a parasitic nature, is a very minute delicate rod which is revealed also by the palladium methyl-violet method. Though it occurs throughout the cerebral tissues, it is most easily recognized within the cytoplasm of the nerve cell, where there are no neuroglia fibers and axis-cylinders to complicate the picture. Two or three such rods may commonly be seen in one cell. They are perfectly smooth, and therefore differ morphologically from the granular diphtheroid bacilli. They have also been found in the cerebrospinal fluid.

In view of the results of the bacteriologic and experimental investigations, it has seemed legitimate to endeavor to cure these diseases by means of vaccines and antiserum. In tabes dorsalis, especially in early cases, the results of vaccine treatment have in many instances been highly satisfactory. The gait has become steadier, pain has been relieved, the patient's general health has improved, and he has been able to resume work. It has only been in very advanced cases, and in the thin, neurasthenic type of patient, that the results have been in the least discouraging. In general paralysis, on the other hand, the most that Robertson claims is that in a few cases there has apparently been some retardation of the rate of progress of the malady. The antiserum which he has employed has been prepared in the sheep. Given by hypodermic injection, this antiserum has produced at most only slight and very temporary beneficial effects. Given by intraspinal injection, it has, however, yielded some very striking results. Robertson has treated one patient with tabes dorsalis by intraspinal injection of antiserum. The case was that of a young man in whom the disease was progressing rapidly. Following a series of three intraspinal injections of antiserum, there has been a complete arrest of the further progress of the malady, and the patient after nearly a year remains in this satisfactory condition. In several of these cases of dementia paralytica recently treated with fresh antiserum very marked improvement has already been reported.

Medical Press and Circular, London

September 18, XCIV, No. 3828, pp. 295-316

37 *Infectious Disease Characterized by Jaundice and a Meningeal Syndrome. G. Guillain.
38 Migration of Cecum Producing Obstruction of Ascending Colon. J. Bland-Sutton and S. Hastings.
39 Causes of Failure of Roentgenization in Deep-Seated Cancer. F. Hernaman-Johnson.
40 Vacuum Electrode in Nevrodermite. J. G. Tomkinson.

41 Preliminary Laryngotomy in Operations on Tongue. G. P. Newbolt.

September 25, XCIV, No. 3829, pp. 317-342

42 Syphilis of Nervous System, Illustrated by Three Cases. H. L. McKisack.
43 Some Rarer Forms of Breast Cancer. W. S. Handley.
44 Inflammatory Tuberculosis with Neoplastic Tendencies: Adenoma of Breast, Tuberculous Lipoma, Coid Abscess, Lumbar and Thoracic Pulmonary Tuberculosis. A. Poncet.
45 Syphilis. D. Sommerville.
46 Acute Perforation of Stomach. J. H. Watson.

37. **Infectious Disease.**—Guillain again calls attention to the act that there seems to exist among the benign forms of meningitis a special clinical type which deserves to be individualized; this is characterized by the association of a meningeal yndrome and an icteric syndrome. The infection which pro-uces the icterus with meningeal syndrome would seem to be septicemia. This septicemia may affect the heart, the lungs r the adrenals, but it specially determines hepatic and meningeal troubles, troubles apparently serious, but which, in every ase hitherto recognized, have terminated in recovery. Apparently, this icterus with a meningeal syndrome may be cured without medicaments. Lumbar puncture is useful for diminishing the hypertension of the cerebrospinal fluid, for removing a fluid which is surely injurious to the neural axis and for nodifying the meningeal circulation. It is, however, useless o give a patient too many drugs, for "icterus with a meningeal syndrome" habitually tends to a spontaneous cure.

Clinical Journal, London

August 28, XL, No. 21, pp. 321-336

47 Sphygmomanometer in General Practice. F. de H. Hall.

September 4, XL, No. 22, pp. 337-352

48 Diagnostic Value of Sensory Changes in Diseases of Nervous System. H. Head.
49 Acute Poliomyelitis. A. Saunders.

September 11, XL, No. 23, pp. 353-368

50 Synovitis of Knee-Joint. W. M. Eccles.
51 Diagnostic Value of Sensory Changes in Diseases of Nervous System. H. Head.

September 18, XL, No. 24, pp. 369-384

52 Diagnostic Value of Sensory Changes in Diseases of Nervous System. H. Head.

September 25, XL, No. 25, pp. 385-400

53 Diagnosis and Treatment of Mitral Disease. F. W. Price.
54 *Aching Throat. W. H. Kelson.
55 Diagnostic Value of Sensory Changes in Diseases of Nervous System. H. Head.

54. **Aching Throat.**—In Kelson's experience aching throat is more commonly associated with flatulent dyspepsia than anything else. This seems to act either by the formation of toxins, or possibly the aching may be a referred pain such as that which occurs in the ear so commonly in disease of the larynx nd upper part of the esophagus. There may also, however, be local conditions, which, if they do not actually cause, certainly ccentuate, and must be sought out and dealt with in obstinate cases, not forgetting that the condition of the nose and ccessory sinuses has a very distinct bearing on the state of the pharynx, as also have the teeth. In order to relieve the lyspepsia, first of all the teeth must be examined and the patient referred to a good dentist if necessary. The diet must be inquired into and corrected. As regards alcohol, it certainly seems in some cases to bring on and in others to aggravate the aching, and on the whole, these patients are better without it. Kelson knows of several cases in which washing out the stomach has completely relieved the aching, and considers it a most valuable form of treatment if not carried to excess. Among the drugs which have proved most useful, gentian, calumba, strychnin, bicarbonate of soda, bismuth, magnesia and charcoal are the principal. Constipation is very common and very troublesome, and if not relieved by careful dieting, the best drugs to use are cascara, podophyllum and sulphur, also small doses of mercury followed by a saline aperient are valuable. As a means of giving temporary relief massage is useful, and so is the galvanic current, but as permanent curative agents both are disappointing. Smoking, if in excess, must be forbidden, but Kelson has not been able to convince himself that moderate smoking was in itself a cause of aching throat, and certainly many women suffer from it who do not smoke at all, and one finds a good many patients who are anxious to get well and willingly abstain entirely from both tobacco and alcohol, and yet the pain continues.

Annales de Médecine et Chirurgie Infantiles, Paris

September 1, XVI, No. 17, pp. 513-544

56 Alleged Pathognomonic Symptoms of Eruptive Fevers. M. Perrin.
57 *Treatment of Nevi. F. de Courmelles.

September 15, No. 18, pp. 545-576

58 Bacteriology of Noma. A. Zuber and P. Petit.
59 *Excessive Menstrual Hemorrhage at Puberty. E. Weil.

57. **Nevi.**—De Courmelles says that nevi may now be regarded as readily curable, especially by radium. He has had extensive and prolonged experience with this method and regards it as superior to all others. He generally applies the radium for two hours at least and up to six or eight hours at a time, day after day, for about a week.

59. **Excessive Menstrual Hemorrhage at Puberty.**—Weil is convinced that in many cases this tendency is a manifestation of constitutional inferiority from defective functioning of one or more of the ductless glands. Consequently menorrhagia at puberty should compel careful examination for possible disturbance in these glands and appropriate organotherapy. He reports the cases of nine girls with excessive menstrual hemorrhage at or near puberty, with much anemia but no local findings on palpation through the rectum and no functional genital disturbances, but with associated hemorrhages, epistaxis, purpura, etc., and a history of hemorrhages preceding menstruation; the mothers stated that they had had the same troubles. The coagulating power of the blood was reduced, and four of the girls were unusually small for their age, and three obese, one of the latter being exceptionally large. The hemorrhage in such cases must be combated by general measures; operative measures are useless and dangerous. The first thing is to check the hemorrhage, and this Weil accomplishes by local application of fresh normal blood-serum, in vaginal douches or enemas, and subcutaneous injection of the same; 20 c.c. may prove sufficient or the injection may have to be repeated every month or twice a month. This serotherapy must be supplemented by the appropriate organotherapy. In his cases, thyroid extract in small doses seemed to improve the general condition, accelerating growth or reducing obesity—all tending to restore the physiologic balance in the ductless glands and thus arresting the tendency to excessive hemorrhage. Otherwise it may persist until the menopause. [Weil's previous work on serum treatment of hemophilia was summarized in THE JOURNAL, April 18, 1908, p. 1311, and there have been numerous other communications on the subject, such as Rugh's "Thyroid in Hemophilia," April 1, 1911, p. 988; Welch, July 2, 1910, p. 83; Trembur, Jan. 1, 1910, p. 86. Rabbit-, horse- or human serum may be used, or diphtheria antitoxin.]

Archives Générales de Médecine, Paris

July, XCI, No. 7, pp. 581-672

60 The Seashore in Prophylaxis of Pulmonary Tuberculosis F. Lalesque.

August, No. 8, pp. 677-760

61 *The Heart as Factor in Hemoptysis. (Les hémoptysies phtisicardiaques.) C. Sabourin.
62 Hay-Fever and Allied Conditions and the Gouty Diathesis. (Les coryzas spasmodiques et le terrain arthritique.) Dardel.

61. **The Heart as Factor in Hemoptysis.**—Sabourin ascribes the local congestion, which generally precedes the hemoptysis, to some circulatory disturbance, some valvular affection or neurovascular trouble. The tuberculous often have inherited or acquired taints of the kind; he estimates the proportion at 40 or 50 per cent. who have some cardiac affection alone or associated with more or less cyanotic angioneuroses in the hands or feet. As a rule, these circulatory disturbances date from childhood but cause no appreciable symptoms until tuberculosis is installed. Then the anomaly in the cardiovascular system manifests itself functionally, at least, and these disturbances persist or subside with the tuberculosis. The general treatment of the tuberculosis must be guided by the knowledge of the cardiovascular disturbance and the patient warned to avoid conditions liable to induce local congestion. With any taint of the kind the physician should forbid an altitude over 1,800 feet and places where there is liable to be excitement. The tuberculous who spit a little blood morning or night and none the rest of the day, almost always have

some circulatory trouble. Let them drink water and live on a vegetarian diet, and nine out of ten will lose the last trace of blood in forty-eight hours. Forced feeding is injurious for the tuberculous with a cardiac taint; they should abstain from tobacco, alcohol and coffee, and drink as little as possible with their meals to prevent distention of the stomach and its injurious action on the heart. When the patients once realize the benefit from these rules, they apply them habitually, eating little meat, masticating with special care and drinking water only between meals. Sabourin has often found that restricting the diet had a marked beneficial effect on the general health and especially on the tendency to hemorrhage. Some patients required complete abstention from meat and others had to live for weeks on bread and milk alone to control the tendency to hemoptysis. Their tuberculous process once healed over, most of these patients can return to the ordinary diet, keeping within bounds. It is unwise to order exercise for a febrile tuberculous patient with a circulatory taint. The intoxication from muscle waste enhances the tendency to fever. Sabourin has encountered many tuberculous patients presenting more or less marked symptoms of hyperthyroidism, up to actual exophthalmic goiter. As their tuberculous process healed over, the exophthalmic goiter subsided more or less completely and all were able to resume an active life. Among the factors contributing to these results he mentions the prolonged administration to patients with a tendency to severe angioneurotic disturbances of moderate doses of the fluid extracts, mixed, of hamamelis, hydrastis and viburnum. This proved particularly useful when the general circulatory disturbances were accompanied by menstrual disturbances.

Archives des Maladies de l'App. Digestif, Paris

VI, No. 8, pp. 421-480

63 *Unusual Forms of Gastric Cancer. E. Rousseau. To be continued.
64 *Diagnostic Importance of Antitrypsin Test for Cancer. J. C. Roux and R. Savignac.

63. **Unusual Forms of Gastric Cancer.**—Rousseau's study of this subject is based on 526 cases of gastric cancer in Mathieu's service and 150 cases published from Johns Hopkins Hospital (1900). He classifies the unusual cancers as those with complications overshadowing the true disease, those with predominant mechanical disturbances, those with a single symptom, those with an exceptional course and, lastly, those occurring under unusual conditions of the soil as in the very young or very old, in pregnancy or associated with another cancer. In the first class, anemia of the simple or pernicious type, edema or anasarca may be for a time the only manifestation of a gastric cancer. A latent gastric cancer may exceptionally induce fever without other cause to explain it, even at necropsy. When ascites develops with much impairment of the general health, it should be borne in mind that ascites frequently accompanies malignant linitis, diffuse infiltration of the stomach walls with consequent retraction. After having excluded tuberculous and simple chronic peritonitis, that of cancer origin should be sought for. Nodular cancer of the liver being generally secondary, the stomach should be examined for the probable primary lesion in the stomach. Jaundice from compression of the liver or bile ducts was noted in 2 per cent. of the material analyzed; secondary involvement of the liver in 6.5 per cent. of 526 cases and in 15 per cent. of 150. Obstinate diarrhea or signs of obstruction of the intestines may be the predominant sign of a gastric cancer, or fecaloid vomiting or symptoms on the part of the rectum alone. The diarrhea may occur without actual involvement of the intestine. Insufflation of the stomach or of the rectum may reveal a gastrocolic fistula; radioscopy is almost always useful. By excluding ulcer, tuberculosis and ordinary inflammatory processes, the diagnosis of cancer is reached. Metastasis in the intestines is frequently multiple. The discovery of cancer in the bowel should lead to search for the primary growth in the stomach the same as, with a gastric cancer, search should be made for intestinal metastases. If severe diarrhea keeps up, with increased debility and no fistula, if no tumor or other lesion in the bowel can be found and the stools show lack of gastric digestion, cancer of the stomach is probable.

64. **Antitrypsin Test.**—Roux and Savignac have applied the antitrypsin test in 125 cases, including fifty-three reported two years ago and traced to date. They tabulate the details of the entire number. In only one of the total 125 cases was a cancer found with a normal antitrypsin index, and in this case no microscopic examination was made of the inoperable tumor found in the pylorus region. An abnormally high antitrypsin index is strong presumptive evidence of malignant disease, particularly when associated with symptoms suggesting possible cancer. The later history of the fifty-three patients tested two years ago has corroborated the findings with the test then. Those with an index below 1:4 are still free from signs of cancer (with the exception of the one patient mentioned above), while those with an index of 1:4 and over have all succumbed to the progress of their malignant disease. The milk casein technic was used for the test, as described in their previous communication, summarized in The Journal, March 4, 1911, p. 701.

Archives de Médecine des Enfants, Paris

September, XV, No. 9, pp. 641-720

65 Desiccated Milk in Infant-Feeding. (Le lait sec dans l'alimentation des nourrissons.) E. C. Aviragnet, L. B. Michel and H. Dorlecourt.
66 Day Nurseries. (Crèches et pouponnières.) P. Nobécourt.
67 *Advantages of Subcutaneous Elastic Ligature in Treatment of Umbilical Hernia in Children. V. Brun.
68 Epileptoid Convulsions as Only Signs of Adenoids. G. Pignero.
69 Nervous Anorexia in Infants. J. Comby.

67. **Umbilical Hernia in Children.**—Brun expatiates on the ease, harmlessness and effectual outcome of the method which Nota of Turin has applied since 1890 to 244 children from 2 months to 9 years old. The earlier it is done the smaller the hernia and the better the outcome. An elastic cord 30 or 40 cm. long is passed around the base of the hernia with a long curved needle worked through horizontally under the skin. The hernia is then reduced and held in place with the finger while the elastic cord is drawn tight until the opening is entirely obliterated. The ends of the cord are then held with a clamp and tied with silk close to the skin and cut off, leaving only the short ends protruding. The cord is drawn taut by an assistant while the reduced hernia is controlled by the operator. In the course of a few days the rubber cord gradually cuts through the soft tissues in its grasp, the tissues growing together in its wake, thus solidly closing the opening. After twelve or fifteen days the entire cord comes out through the hole in the skin where the ends protrude, and a thick solid cicatrix is left around and on top of the old hernia opening. The dressings are not disturbed for ten days; then a new dry dressing is applied, and it is wise to have the child wear a simple cloth binder around the abdomen for two or three months afterward. The elastic cord is sterilized by soaking for an hour in 70 per cent. alcohol containing 1.5 per cent. glacial acetic acid. No complications of any kind were ever observed, and the abdominal wall gradually becomes smooth and supple. Recurrence was observed in only one case, a young infant with hernia 5 cm. in diameter. The hernia recurred during an attack of coughing, but was radically cured six months later by repetition of the procedure. General anesthesia is not required for infants; for older children Nota introduces the cord under a few whiffs of ethyl chlorid, the child coming to at once after the little operation which never takes over six minutes, and the children are allowed to be taken home if kept quiet.

Presse Médicale, Paris

September 14, XX, No. 75, pp. 757-764

70 Streptococcus Complications with Erysipelas. (Streptococcémie, pyohémie et endocardite végétante à streptocoques dans l'érysipèle de la face.) M. Lesné, Françon and Gerard.
71 *Operation on Intercostal Nerves for Tabetic Gastric Crises. (Operation de Franke.) G. Mouriquand and G. Cotte.

71. **Operative Treatment of Gastric Crises.**—Mouriquand and Cotte report a case in which they applied Franke's method of tearing the intercostal nerves in treatment of gastric crises in a tabetic of 39. They tore merely five nerves, from the seventh to the eleventh intercostal nerves inclusive, and they think that this is not enough as the patient already shows

signs of recurrence of trouble. The operation put an end completely to the gastric pains, but it did not influence the lightning pains and bladder crises. The case teaches the necessity for making the operation more extensive, including from the fifth to the twelfth intercostal nerves and possibly the first wo lumbar nerves. With the Franke and Förster technics here is nothing to prevent regeneration of the nerves, and it eems logical that the functioning of the ganglion should be uppressed as the only certain means to ward off recurrence. f the Franke technic can thus be improved while retaining its comparatively harmless character it will represent a great advance. (The technic for it was described in THE JOURNAL, Feb. 10, 1912, p. 446, and May 4, 1912, p. 1402.)

Revue de Médecine, Paris

July, XXXII, No. 7, pp. 505-584

72 Action on Blood of "Metal Ferments." J. J. Manoukhine and others.
73 Fever in Prodrome of Leprosy. G. Barbezieux.

August, No. 8, pp. 585-672

74 Syphilis and Dilatation of the Bronchi. L. Bouchut and Dujol.
75 *Latent Meningitis in Second Stage of Syphilis. (Méningopathies syphilitiques secondaires cliniquement latentes.) E. Jeanselme and P. Chevallier. Commenced in No. 5.
76 Symptoms of Hyperthyroidism Following Use of Iodin During a Gynecologic Operation. L. Lépine.

75. **Latent Meningeal Disturbances in Secondary Syphilis.**—Jeanselme and Chevallier recommend Nageotte's counting chamber for demonstrating lymphocytosis in the spinal fluid, claiming that it shows a lesser degree of lymphocytosis than other methods; that it takes only a fourth as much time and distinguishes the small and medium-sized lymphocytes, and whether or not they are surrounded by protoplasm, medium and large mononuclear cells, plasma cells, basophils, vacuolated cells, eosinophils and polynuclears. The spinal fluid is negative in the first stage of syphilis, positive in a large majority of cases in the secondary stage, and in a much smaller percentage in the tertiary. In doubtful cases of syphilis, the diagnostic value of lumbar puncture is very great. The meningeal affections of the secondary period may not show any symptoms even when there is a considerable lymphocyosis, or there may be a continuous headache, periodically ncreased in intensity generally in the evening. It is frequently relieved by lying down with the head lowered, or by lumbar puncture (patients often ask for this every day), and especially by potassium iodid. The patients are capable of doing as much muscular work as before but they are so preoccupied with their illness that they take no interest in their surroundings and go about with vacant gaze and expressionless face. This psychasthenia is sometimes associated with evening headache or intense pain in the neck or in the dorsolumbar region, sometimes accompanied by contracture of muscles during the paroxysms, and radiating to the thorax or abdomen. Other symptoms are fleeting paresthesias and a feeling of heaviness in the limbs, buzzing in the ears, abolition of the nee reflex and sluggishness of the eye reflexes. They consider the number of cells in the spinal fluid of much greater importance than the kind. There are more apt to be plasma cells in cases with high lymphocytosis. The development of gummata in the tertiary period or of tabes and general paralysis seems to depend on whether the meningeal affections of the secondary period were circumscribed or diffuse. The severity of the mucous and cutaneous eruptions and of the lymphocytosis do not correspond. A secondary syphilis with no eruption at all may show a marked lymphocytosis, and this is so often true that the physician should be sure the spinal fluid is negative before giving up treatment. In more than half the cases, skin eruptions and mucous patches were accompanied by a slight lymphocytosis, more rarely by a moderate lymphocytosis with plasma cells. The latter are much more resistant to treatment. The eruption that is prolonged or late in developing and the longer macular eruptions are frequently accompanied by a marked meningeal reaction. Hypertrophic vulvar syphilids are accompanied in two-thirds of the cases by pronounced lymphocytosis. In any case of eruption the meninges are apt to be affected to some extent. But the condition of the meninges is not dependent on that of the skin, and can be determined only by lumbar puncture. The lymphocytosis is much more resistant to treatment than the cutaneous and mucous eruptions. When present it indicates more energetic mercurial treatment. It has been affirmed that salvarsan causes a secondary meningitis, but Jeanselme and Chevallier's experience has been that it tends to cure it.

Archiv für Gynäkologie, Berlin

XCVIII, No. 1, pp. 1-220

77 Cancer in Uterine Corpus Polyp. A. v. Winiwarter.
78 Treatment of Abortion; 1,012 Cases. (Zur Behandlung der Fehlgeburten.) R. Patek.
79 Dangers of Intraperitoneal and Extraperitoneal Infection. K. Baisch.
80 Cystic Placenta. (Subchoriale Cysten der Placenta.) W. G. Balowsky.
81 Normal and Pathologic Anatomy of the Endometrium. R. Schröder.
82 The Blood During Pregnancy. (Blutuntersuchungen bei Schwangeren, mit bes. Berücksichtigung der Aetiologie der Schwangerschaftsniere und Eklampsie.) M. Doi.
83 Fats and Lipoids in the Placenta. G. Ballerini.
84 Prophylaxis of Gonorrhea of the Newly Born. (Zur Vorbengung der Blenorrhoea neonatorum in Stadt und Land.) O. v. Herff.

Beiträge zur klinischen Chirurgie, Tübingen

September, LXXX, No. 1, pp. 1-189

85 *Acute Osteomyelitis of Pelvis and Sacrum. (Die akute Osteomyelitis des Beckens und Kreuzbeins.) P. Klemm.
86 *Chronic Form of Osteomyelitis with Sclerosis. P. Klemm.
87 *Goiter and Pregnancy. (Struma und Schwangerschaft.) B. v. Beck.
88 *Bone Grafts in Treatment of Pseudarthrosis. L. Stuckey.
89 The Bacteria Found in Aseptic Operations. L. Dreyer and F. Nothmann.
90 Diverticulum Formation in Appendicitis. M. Krabbel.
91 Complications After Operations on the Thorax. M. Tiegel.
92 *Conservative Treatment of Tuberculous Glands in the Neck. (Tuberkulöse Halslymphdrüsen.) T. v. Mutschenbacher.
93 *Combination General and Local Anesthesia. (Ueber die Verbindung der Lokalanästhesie mit der Narkose; über hohe Extraduralanästhesie und epidurale Injektionen anästhesierender Lösungen bei tabischen Magenkrisen.) A. Läwen.

85. **Acute Osteomyelitis of Pelvis, Sacrum or Spine.**—Klemm found staphylococci in 70.3 per cent. of 243 cases in which bacteriologic examination was made, out of a total of 269 cases of osteomyelitis. In twenty-six cases the affection was in the ileum; the germs were found in the blood in some of the cases but only five of these patients died. The sacrum was the site of the lesion in six cases; he could find only eleven cases in the literature in which the sacrum alone was involved. Treatment of all forms of osteomyelitis of the pelvis consists in the most radical removal of all diseased bone tissue. Some of his cases teach anew that an operation may yet be in time when the general infection is not far advanced even although the whole of the spongiosa of the sacrum may be the seat of diffuse purulent infiltration and with strips of softening in the compact bone tissue. The diagnosis frequently wavers between acute articular rheumatism, typhoid and tuberculosis. Dislocation testifies more for osteomyelitis, so that this is more probable when the limb is shorter on account of a luxation.

86. **Chronic Osteomyelitis with Sclerosis.**—Klemm reviews seventeen cases of osteomyelitis with an unusual course; the trouble began like an acute osteomyelitis but the symptoms soon subsided. This deceptive lull persisted for years or there were periodical febrile exacerbations or constant severe neuralgic pain. An abscess was generally found toward the end of the long bone, with sclerosis in the vicinity. In some cases there were several abscesses. In some the contents were more serous-mucous than actual pus. Notwithstanding the subsidence of the acute symptoms, the nutritional disturbances in the bone continued a progressive course. The result in some cases was an acceleration of growth. In one of Klemm's cases the diseased limb was over 3 inches longer than its mate, and the bone grew larger in circumference throughout or in parts. In a few of the cases the onset was more insidious, and it was difficult to decide between tuberculosis, syphilis, sarcoma or simple osteomyelitis. It is possible that in some of the cases of recovery after mere curetting of a supposed sarcoma, the trouble was really merely an osteomyelitis. The discovery of pyogenic germs and a history of slight acute febrile exacerbations suggest the latter. After years of supposed cure the process is liable to flare up into an acute severe phase.

87. **Goiter and Pregnancy.**—Beck did not notice any disturbance from the goiter in 670 cases in parturients or at most a suggestion of thyroid toxins in the first half of the pregnancy. In sixty other cases the goiter increased in size soon after the childbirth and caused symptoms and the thyroid was removed. He had 420 other patients apply for relief from thyroid symptoms in the course of their pregnancy. In 260 in this group there had been preceding symptoms of hyperthyroidism and these increased in intensity about the end of the second month, but under sodium phosphate the symptoms gradually mitigated and by the end of the fifth month the signs of thyroid hyperfunctioning subsided except in five of the ten cases of pronounced exophthalmic goiter. In one case a woman of 25 with a goiter for seven years had half of the goiter removed and two years later, becoming pregnant for the third time, tetany developed, and the part of the goiter left was causing suffocation. The patient was cured by an emergency tracheotomy, strumectomy, implantation of pig parathyroid, and when this proved inadequate, implantation of thyroid tissue from another patient, followed by interruption of the pregnancy. His experience warns that no operative measures should be attempted, not even artificial delivery, in severe exophthalmic goiter with persisting thymus. The treatment can only be internal and directed against the thyrotoxicosis.

88. **Bone Grafts for Pseudarthrosis.**—Stuckey reviews what has been done in this line, and the encouraging results obtained in ten cases at the Obuchow hospital at St. Petersburg, after failure of conservative measures including systematic knocking on the pseudarthrosis with the percussion hammer. Excellent results were obtained with these conservative measures alone in some old inveterate cases. The preferable technic is a free graft of a wedge of bone taken from the patient or an amputated limb, with the periosteum intact and the marrow canal exposed.

92. **Conservative Treatment of Tuberculous Glands in the Neck.**—Mutschenbacher's conclusions are based on 1,344 cases of tuberculous glands in the neck in his service at Budapest during the last four years. He declares that treatment should be absolutely conservative or else extremely radical. A systematic course of conservative measures improves conditions for operative treatment if such is necessary. They include dieting, iron, arsenic and exposure to the sunlight, the aspiration of the contents of the abscess through the smallest possible needle, and a small amount of iodoformed glycerin (5 c.c. at most) is injected. The aspiration is repeated every third or fourth day and the cure is generally complete by the fifth or sixth puncture, with no scar left. Except with severe complicating tuberculous processes elsewhere, the cure was generally complete under these conservative measures as he shows by a few of the more remarkable case histories.

93. **Varied Technics for General Anesthesia.**—Läwen expatiates on the importance of reducing the amount of the anesthetic inhaled, as by doing this we eliminate the principal factor in the post-operative complications on the part of the respiratory apparatus. By combining local anesthesia with a minimal inhalation anesthesia or with spinal anesthesia superior ultimate results are obtained. The vitality is not lowered so much and the patient leaves the table in much better condition than when the entire dependence has been on inhalation of the anesthetic. Läwen has experimented with various combinations of different methods of anesthesia, and with high epidural injections in treatment of the gastric crises of tabes. In the one case described epidural injection of 50 c.c. of a 1 per cent. novocain-sodium bicarbonate solution, raising the pelvis afterward, arrested the pain, but did not stop the vomiting and symptoms of severe intoxication followed. The central nervous system of a tabetic seems to be more sensitive to novocain when it is rapidly absorbed than the brain of a normal individual. Consequently this epidural method is too dangerous for tabetics. For operations, the method did not give deep enough anesthesia, and he was disagreeably surprised by the extent of the hemorrhage when he tried Schlimpert's technic of extradural injection of novocain in combination with scopolamin and raising the pelvis. This capillary hemorrhage under this technic was particularly severe with hernia operations; in one case after amputation of the thigh the stump bled like a sponge from the smaller vessels, so freely that the hemorrhage was arrested only with the greatest difficulty. Anesthetics injected in this way have the disadvantages of delay and uncertainty of action. Far better is a combination of direct local anesthesia followed by minimal inhalation anesthesia. He gives 0.01 gm. morphin half an hour before the operation, then anesthetizes the abdominal wall by the infiltration method. While waiting for this to take effect, the operator completes his own preparation for the operation, and the field is then sterilized by painting with ether, alcohol and tincture of iodin. By this time the patient is ready for the ether and very little is required. Whatever method of anesthesia is employed, Läwen recommends preliminary anesthetization of the abdominal walls; even this alone will prove a great help in reducing the amount of ether required. He has been experimenting with drugs to promote the relaxation of the abdominal walls to permit coaptation, but he knows of none that will produce this effect on local application. Klapp's method of reducing the amount of anesthetic needed by shutting off the limbs from the circulation, damming the blood in them, leaves the organs in the trunk exposed to a strong concentration of the anesthetic while the rest of the blood is shut off. Hence the heart and respiratory organs are liable to suffer just as much as with the ordinary technics.

Berliner klinische Wochenschrift

September 9, XLIX, No. 37, pp. 1733-1780

94 *Epinephrin in Treatment of Certain Disturbances of the Artificial Menopause. (Die sogenannten Ausfallserscheinungen.) A. Martin.
95 *Importance of Extragenital Factors in Gynecologic Disturbances. L. Landau.
96 *Operative Treatment of Uterine Hemorrhage. A. Dührssen.
97 *Uterine Hemorrhage. (Indikationen bei Uterusblutungen.) A. Mackenrodt.
98 *Treatment of Perforation of Uterus Walls. W. Sigwart.
99 *Toxicity of Blood in Abdominal Cavity. (Giftigkeit des in die freie Bauchhöhle ergossenen Blutes.) P. Bröse.
100 *Amenorrhea and Gynecology. T. Landau.
101 *Treatment of Myoma. (Zur Röntgen- und operativen Behandlung der Myome.) L. Blumreich.
102 "Menstruating Fistulas." A. Hirschberg.
103 Roentgenotherapy in Gynecology. P. Sippel.
104 *Operative Treatment of Double Uterus and Vagina. (Operative Vereinigung bei sogen. Verdoppelung des Genitalkanales und bei Verschluss einer Hälfte.) P. Strassmann.
105 *Vaginal Hysterectomy. W. Nagel.
106 The Urogenital Trigonum from the Surgical Standpoint. W Liepmann.
107 Operation for Pendulous Abdomen. (Zur Technik der Fettbauchoperation.) R. Jolly.
108 Favorable Influence on Pregnancy Nephritis from Death of the Fetus. (Einfluss des Absterbens der Frucht auf die Schwangerschaftsnephritis.) Molinari.
109 *Severe Pregnancy Toxicoses. R. Freund.
110 Pulmonary Tuberculosis and Pregnancy. H. v. Bardeleben.
111 Treatment of Sterility. (Zur Deutung und Behandlung der Unfruchtbarkeit des Weibes.) W. Bokelmann.
112 *Puerperal Eclampsia Without Convulsions. S. Gottschalk.
113 Stroganoff's Prophylactic Method of Treating Eclampsia Voigts.
114 Indications for Cesarean Section. (Zur Indikation des extra- und intraperitonealen Kaiserschnitts auf Grund von 37 Fällen.) F. Gutzmann.
115 Tumors Complicating Childbirth. (Schwangerschaft, Geburt und Wochenbett, kompliziert durch Genitaltumoren.) E Runge.

94. **Epinephrin in Climacteric Disturbances.**—Martin states that among the symptoms ascribed to deficiency of the interna secretion of the ovaries in the natural or artificial menopause the blood-pressure may be abnormally high or abnormally low In the abnormally low cases he has been gratified with the result of systematic administration of epinephrin, a few drops of a 1/1,000 solution from one to three times a day for from one to four months. The eleven women thus treated found themselves much improved, the heart action growing stronger and the depression, headache and tendency to insomnia subsiding while the remedy was being taken. No cumulative action was evident and the stomach did not seem to be affected Three other women did not complete the course, one on account of gastric disturbance, the others because they felt so much improved after three weeks that they stopped the medicine.

95. **Gynecologic Findings Liable to Be Overestimated.**—Landau warns that the gynecologic findings are not always responsible for the symptoms observed. Even when there is apparently serious trouble in the genital organs, it may be

clinically latent and the symptoms be the result of some general or local affection elsewhere. When a pus tube is walled off by adhesions it may not cause half as much disturbance as a minute inflammatory process in a tube not walled off. The unreliability of the insignificant local findings is particularly evident in a tubal pregnancy, while expectant treatment or curetting on account of the atypical bleeding observed, may have disastrous results. The fate of the patient may depend on whether the physician has heeded her statements as to suspension or delay of a few days of the last menstrual period. Properly heeded, this statement will suggest that the slight enlargement noticed on one side of the uterus may be a pregnant tube, and compel its removal at once. Gastroptosis, enteroptosis, hysteria, neuralgia in the iliac region, etc., may cause disturbance in the genital apparatus, but its functional nature should be recognized and the futility or absolute harmfulness of local measures be appreciated.

96-97. **Operative Treatment of Uterine Hemorrhage.**—Dührssen extols anew the advantages of vaginal cesarean section for uncontrollable uterine hemorrhage during delivery or post partum. By making the incision down over an inflated bag, "metreurynter section," the operation becomes so simple that it is within the reach of all. He says that the Russians have adopted the method extensively and cites numerous favorable statistics. During the first seven months of pregnancy, vaginal celiotomy or anterior colpohysterotomy or vaginal cesarean section, as the operation is variously called, does not require to be done over the inflated bag, but later, this is a valuable aid. He classifies the various indications and insists in conclusion that the modern obstetrician must be an up-to-date surgeon and gynecologic operator, skilled in vaginal operative methods. Dührssen's contention is that the general practitioner must not only think more surgically but be ready to act surgically, and that the vaginal route is along the line of least resistance while the results are equally good.

Mackenrodt states that in normal menstruation all parts of the uterine mucosa seem to participate in the process and in arrest of the hemorrhage, but in pathologic hemorrhage the fundus does not contract properly. Consequently this region keeps on bleeding when the hemorrhage elsewhere has been arrested. His treatment, therefore, of excessive uterine hemorrhage in young women is by slitting the uterus and excising the mucosa in the fundus; it is impossible to reach it effectually by curetting alone. This excision of part of the fundus mucosa has put an end to the pathologic hemorrhages in his cases and menstruation has resumed its normal course. His series includes cases of myoma of the fundus. The permanent success thus realized compels him to commend this enucleation of the fundus mucosa or amputation of the fundus, through a colpotomy, as a useful means of arresting a tendency to uterine hemorrhage in appropriate cases.

98. **Perforation of the Uterus.**—Sigwart reports six cases which show the advantages of simple expectant treatment with repose in case of perforation of the uterus when the injury has been recognized at once and further injury avoided. Under opium and bed rest the minute wound will heal readily, but if there is any question of secondary injury or contamination, immediate laparotomy is the only means to ascertain and correct conditions. As a rule there is no necessity for a mutilating operation. In the very serious cases even these are unable to save the patient.

99. **Toxicity of Blood in Abdominal Cavity.**—Bröse warns against the danger of absorption of toxic products from the decomposition of blood left in the abdominal cavity, to say nothing of the culture medium it affords for germs making their way into it from the intestines or circulating blood. He reports six cases to illustrate the picture of intoxication from this cause. When collapse, somnolency, rise of temperature, acceleration of the pulse and paralysis of the bowel are observed after an operation for tubal pregnancy or the like, the abdomen should be opened anew to remove every trace of blood.

100. **Amenorrhea and Gynecology.**—Landau declares that in the majority of cases the amenorrhea is due to constitutional causes, internal disease, or else it is of no moment; numbers of women who menstruate irregularly or not at all are free from all subjective or objective disturbances.

101. **Treatment of Uterine Myomas.**—Blumreich expatiates on the possibility of unsuspected cancer as the gravest objection to roentgenotherapy of uterine myomas, and adds that his last series of 153 operations for uterine myoma does not include a fatality during the nearly ten years.

104. **Operative Treatment of Double Uterus and Vagina.**—Strassmann succeeded in restoring approximately normal conditions in the genital apparatus, and normal pregnancy and delivery followed in most of the seven cases reported. Instead of cauterizing or mutilating the genital apparatus, he merely cut away the obstructing wall or septum separating the uterus or vagina or both into two parts; this left a practically normal single organ. He discusses the preferable technic with uterus septus, bicornis, didelphys, etc., and says that he would not hesitate to correct conditions in this way even with an existing pregnancy in one half.

105. **Vaginal Hysterectomy.**—Nagel has performed this operation in 114 cases in the last six years without a death. The series includes thirty-one cervix and three corpus cancer cases.

109. **Pregnancy Toxicoses.**—Freund reiterates that the only rational way to treat pregnancy disturbances indicating serious injury from toxins is by putting an end to the pregnancy, thus removing at one stroke the cause of the intoxication. This should be supplemented by venesection to remove large amounts of blood saturated with the toxins. Last but not least in importance is the isolation of the patient to remove all source of irritation. He declares that the idea of treating pregnancy intoxication by keeping the woman under the influence of sedatives (Stroganoff's prophylactic method) may keep down the number of convulsions but it fails to remove the cause, and it adds another poison to the poisons with which the organism is already contending.

112. **Puerperal Eclampsia Without Convulsions.**—At necropsy in the case reported the placenta showed necrosis of numbers of villi. The woman was 39, at the seventh month of her fifth pregnancy, apparently healthy at 9 p. m. and dying at 8 a. m. the next morning in profound coma.

Deutsche medizinische Wochenschrift, Berlin

September 19, XXXVIII, No. 38, pp. 1769-1816

116 Pathology of the Pupil. A. Westphal.
117 Action of Caffein on Bronchi and Respiration. (Zur Kenntnis des experimentellen Bronchospasmus.) J. Pal.
118 Diathermy. (Das Verhalten der Körper- und Gewebetemperatur des Menschen bei der Thermopenetration.) A. Fürstenberg and K. Schemel.
119 Artificial Pneumothorax. M. Ascoli.
120 Transmission of Leprosy to Monkeys. (Kultivierbarkeit des Lepraerregers und die Uebertragung der Lepra auf Affen.) J. Reenstjerna.
121 Myoma of Gastro-Intestinal Canal. (Zur Kasuistik der Myome des Darmkanals; zugleich ein Beitrag zur Differentialdiagnose des Ulcus duodenl.) G. Rosenow.
122 Acute Ulcerative Colitis. A. Albu.

Deutsche Zeitschrift für Chirurgie, Leipsic

September, CXVIII, Nos. 5-6, pp. 403-593

123 *Operative Treatment of Traumatic Brachial Plexus Paralysis. P. J. Winnen.
124 Periosteum Emulsion as Aid in Production of Bone. (Exp. Beitrag zur Knochennenbildung durch Injektion bzw. Implantation von Periostemulsion.) T. Jokoi.
125 Treatment of Oblique Inguinal Hernia. (Zur Behandlung des schrägen Leistenbruchs.) F. Torek (New York).
126 Neurofibromatous Enlargement of the Tongue. (Makroglossia congenita neurofibromatosa.) A. Hayashi.
127 Case of Adenomatous Polyposis of the Intestines with Carcinoma of the Rectum. S. Oseki.
128 *Advantages of Local Treatment of Gonorrhea from Above, Introducing Cannula Through Bladder Wall. A. Müller.
129 Minor Plastic Operations on Fingers and Hands. R. Klapp.
130 Care of Stump in Resection of Stomach. (Statistische Mitteilung über die Resultate des Wilmsschen Verfahrens zur Stumpfversorgung. bei Magenresektion.) S. Kunika.
131 Two Cases of Extensive Syphilitic Necrosis of Skull. (Syphilis der platten Schädelknochen.) A. Wertheim.
132 Development of the Tubercle of the Metatarsal Bone of the Little Toe. (Entwicklung der Tuberositas metatarsi V.) J. Schouwey.
133 *Calculi in the Urethra. (Harnröhrensteine.) A. Britnew.
134 Clinical Importance of Coagulating Properties of Blood with Jaundice. (Koagulationsbestimmung des Blutes bei Ikterus.) S. Kunika.
135 Intra-Abdominal Myorraphy of Levator Anus for Prolapse of Rectum. (Intraabdominelle Myorrhaphie der Heber des Afters beim Vorfall des Mastdarms.) A. Jianu.

123. **Brachial Plexus Paralysis.**—Winnen has operated in three cases of this kind and has collected forty-three from the literature; 70 per cent. of the patients were improved or entirely cured by operative treatment. The proportion would probably be still larger now with the improved technic. His three patients were entirely unable to use the arm, but now have full functional use of it. The operation was done twelve years ago in one case. The results attained justify wide application of operative measures, especially when cicatricial changes or other conditions indicate that conservative treatment is scarcely likely to be effectual. His patients were 7, 17 and 50 years old. In two the plexus had been injured by a fall on glass or a stab wound, cutting the fifth and sixth roots, with Erb's paralysis of the shoulder in one case; in the other only the deltoid muscle was paralyzed. No benefit could have been obtained from conservative measures alone, as the roots had been severed and the nerve stumps embedded in thick scars. One of the patients was accepted for military service as sound.

128. **Descending Treatment of Gonorrhea.**—Müller comments on the folly of injecting the disinfecting solution from below in treatment of gonorrhea in the male as this is liable to sweep germs into still intact regions. Far better is it to wash them down by flushing the urethra from above, and he says that as no one can tell which case of gonorrhea is going to run a mild and which a severe and chronic course, it is much better to treat them all in the most thorough, radical manner. The minute incision to introduce the cannula into the bladder is counterbalanced by the certainty of cure when the injection is attacked from above, thus preventing its upward spread, killing the gonococci and washing them out at one stroke.

133. **Urethra Calculi.**—Britnew has encountered twenty-four cases of concrements in the urethra in the last ten years at Smolensk. In only two of the cases was the stone formation primary at this point. Phosphate stones were the most frequent, and in one case the urethra stone was responsible for the death of the patient. He has never met with a case in a female.

Jahrbuch für Kinderheilkunde, Berlin

September, LXXVI, No. 3, pp. 247-368

136 *Non-Pathologic Cardiac Murmurs in Children. (Ueber pseudokardiale und kardiale Geräusche im Kindesalter ohne pathologische Bedeutung.) W. Schlieps.
137 Institutional Treatment of Hysteria in Children. (Anstaltsbehandlung der Hysterie im Kindesalter.) F. v. Reusz.
138 Congenital Myatonia. O. Thorspecken.
139 Mongolian Idiocy. (Ueber Mongolismus bei Kindern.) W. Shukowsky and R. Aisenberg.

136. **Cardiac Murmurs in Childhood of No Clinical Significance.**—Schlieps states that a large percentage of children under 14 years of age have a functional heart murmur. They should not be called anemic murmurs because they have no relation to anemia. About two-thirds of them originate in the lung as it accommodates itself to the changing size of the heart in systole. The other third arise from the lowered tone in the heart muscle, and are to be cured by improvement in the general health. Rest in bed, which is indicated in organic murmurs, is the very worst treatment in these cases.

Medizinische Klinik, Berlin

September 15, VIII, No. 37, pp. 1485-1530 and Supplement

140 *Joint Disease. (Zur Klinik der Gelenkerkrankungen.) R. Schmidt.
141 Unusual Causes for Hemorrhage During Pregnancy. (Schwangerschaftsblutungen.) O. v. Franqué. Commenced in No. 36.
142 Immunization and Chemotherapy with Experimental Cancers. P. Uhlenhuth.
143 Symposium on Early Rising After Operations and Childbirth. (Umfrage über das Fruhaufstehen nach Operationen und Geburten.) H. Kümmell and others. To be continued.
144 Syringomyelic Shoulder Disease. (Arthropathie des Schultergelenks durch Syringomyelie bei einem Arzte, durch 22 Jahre für Folge traum. Fraktur gehalten.) R. Kienböck.
145 *Gastro-Intestinal Hemorrhage as Unusual Symptom of Internal Disease. J. Meinertz.
146 *Nephritis. (Neuere klinische Anschauungen über Nephritis.) K. Schlayer.

140. **Joint Disease.**—Schmidt holds up in review a number of puzzling cases of joint affections to show the necessity for being on the alert to suspect syringomyelia, tabes, gonorrhea or syphilis in apparently simple joint troubles. In one case a man of 36 had seven years of what was supposed to be gout until other signs of tabes developed. Another patient had three recurrences of apparently typical acute articular rheumatism in eight years. Schmidt noticed, however, that the polyarthritis was never ushered in by a febrile sore-throat and that there was no tendency to acid-smelling sweats. Another feature of the case was a sudden painful eye affection which had come on six days before the last recurrence of the polyarthritis. Up to two liters of urine were voided, notwithstanding the high temperature, and gonococci were found in it. It was then learned that gonorrhea had been contracted three weeks before the first attack of polyarthritis eight years before. The young man had become a coccus carrier, and the germs lurking possibly in the prostate had sallied forth at intervals and caused a specific polyarthritis and finally the iridocyclitis. In another case ordinary acute articular rheumatism was associated with recent gonorrhea; this possibility should always be borne in mind as the prognosis is unfavorably influenced thereby. He suggests that the reason why joint affections are not more common in gonorrhea is because the pus gets drained away; when it is dammed up, as when the process is in the prostate, the tendency to joint complications is more imminent. In one of the most instructive cases cited, a patient with a tuberculous affection of the lymph-nodes around the stomach developed immediately after a gastro-enterostomy an extra-articular polysynovitis, all the tendon sheaths and bursæ becoming fluctuating tumors. Schmidt further presents evidence to prove that acute articular rheumatism is one of the branches on the trunk of congenital asthenia; the importance of the constitutional soil is shown especially, he says, in the fact that acute articular rheumatism is not contagious. The joint affections in inherited or acquired syphilis are liable to yield to specific treatment. Schmidt reports further a case in which an appendicitic abscess was followed by a chronically recurring febrile polyarthritis with contracture in time. Arthritic symptoms after delivery, if accompanied by the diazo reaction, should suggest sepsis; the lymph-nodes and spleen should be examined—the spleen is rarely enlarged with acute polyarthritis. After the age of 40, pure acute polyarthritis becomes less and less frequent. Occasionally remarkable benefit is derived from thyroid treatment of chronic joint disease. Schmidt has been much impressed with the benefit from epinephrin; the patients feel immensely relieved and large effusions in the joints have retrogressed under daily subcutaneous injections of 0.5 or 1 c.c. of a 1 per 1,000 solution. He found this treatment peculiarly effectual in a case of osteomalacia. After ten injections the woman was freed from all pain. He explains its remarkable action in these cases as breaking up a vicious circle. The partially active and partially passive congestion in the bone marrow sets up the pain and the pain in turn induces hyperemia in the bone marrow. The epinephrin reduces the congestion and the vicious circle is broken up and the osteomalacia, asthma or arthritic process benefits at once. The assumption of some analogy of this kind between osteomalacia and arthritic processes is sustained by their both being favorably influenced by similar measures, by heat, etc., and by their having certain predisposing factors in common (damp houses, etc.). As the epinephrin seems to benefit indiscriminately joint affections of various origins, ordinary acute polyarthritis, the gonorrheal and syphilitic, it must act in a general way and probably on the vessels in the joints. Arthritic processes, asthma and osteomalacia seem to have thus a common factor which can be controlled by epinephrin.

145. **Gastro-Intestinal Hemorrhage as Symptom of Internal Disease.**—In the first of the three cases related a woman five months pregnant had repeated gastric hemorrhage for ten days; necropsy revealed an unsuspected sepsis. In the second case an elderly man had sudden threatening hematemesis in the midst of apparent health. It proved to be the earliest manifestation of incipient cirrhosis of the liver. There was no ascites and the spleen was not enlarged. The liver was rather large and hard and there was some tendency to tympanites, but the levulose and galactose tests of liver functioning were negative.

146. **Progress in Our Knowledge of Nephritis.**—Schlayer writes from the medical clinic at Tübingen in charge of Romberg to call attention to the results of recent extensive research which have thrown new light on kidney disease. It has shown that the kidney output is determined by the biological functional condition of the organ, regardless of the histologic or etiologic character of the injury, if the organ is not entirely normal. The first effect of the injury is an abnormal irritability and in this stage the kidney does extra work, the output of urine increasing. Then follows a stage of exhaustion during which the kidney functionates sluggishly, and oliguria or anuria is the result. Between these two extremes, during the transition from the excessive to the subnormal functioning, the kidney passes through a stage in which the output of urine is apparently normal. This fluctuating between extreme irritability and deadening from exhaustion, with the deceptive midway stage of pseudonormal output, explains many puzzling conditions in kidney pathology. The deceptive character of the pseudonormal stage is unmasked by the curve of salt in the urine and the specific gravity and by test elimination of milk sugar and potassium iodid. These tests and the curve of the urine output during the day, especially after meals, allow complete oversight of the activity of a diseased kidney and a clear understanding of the morbid condition. They show that with ordinary contracted kidney the kidney vessels are predominantly affected and they are hyperirritable. On the other hand, with chronic parenchymatous nephritis the kidney vessels are predominantly involved likewise, but they are in a torpid state, incapable of functioning. During the stage of hyperirritability the kidney reacts to a small dose of a mild diuretic with intense diuresis—this is one of the best tests for revealing the excessive irritability. During the midway pseudonormal stage the response is apparently normal. In the hyperirritable phase not only the output of water but also of salt is very much increased, so that the discovery of albuminuria accompanying polyuria and normal or above normal salt content of the urine suggests serious injury of the kidneys, even if the albumin disappears from the urine. Complete recovery should not be assumed until the output of both water and salt is normal and the test milk sugar is eliminated in the normal period. Schlayer regards the polyuria as of equal diagnostic import to albuminuria, both in acute or chronic nephritis. The milk-sugar test reveals contracted kidney with polyuria in an earlier phase than we have hitherto been able to detect it. On the other hand, contracted kidney with the pseudonormal urine or oliguria, is revealed by the response to intake of more salt and more water, by the abnormal response to diuretics, and by the delay in elimination of milk sugar. The views here presented explain the danger of whipping up the exhausted kidney with diuretics; after a brief spurt, conditions are worse than before, while measures to spare or gently stimulate the kidneys materially improve conditions.

Mitteilungen aus den Grenzgebieten der Med. und Chir., Jena

XXV, No. 2, pp. 211-402. Last indexed October 12, p. 1414

147 *Sterile Purulent Meningitis. (Meningitis purulenta aseptica.) B. Zabel.
148 *Leukocytosis and Rivalta's Reaction in Blood-Serum. U. Gironi.
149 Epigastric Pain with Appendicitis. S. Solieri.
150 *Parenchymatous Inflammation of the Liver with Erysipelas. W. Hildebrandt.
151 Pericardiotomy. P. R. v. Walzel.
152 *Immunization Against Cancer. (Zur Frage der Immunisierung gegen maligne Tumoren.) E. v. Graff and E. Ranzi.
153 *Invagination of the Intestine in Children. (Die Darminvagination im Kindesalter, durch ca. 400 dänische Fälle beleuchtet.) A. Kock and H. P. T. Oerum.
154 *Calcium Lactate in Fibrous Ostitis. (Einwirkung von Calcium lacticum auf einen Fall von Ostitis fibrosa mit experimentell-therapeutischen Stoffwechseluntersuchungen.) M. Jacoby and Schroth.
155 Antipepsin Content of Blood with Gastric Cancer. (Antipepsingehalt des Blutes in Fällen von Ulcus ventriculi.) V. Lieblein.

147. **Sterile Purulent Meningitis.**—Zabel's patient was a boy of 12, previously healthy, who suddenly developed an acute syndrome with all the signs and symptoms of meningitis, the cerebrospinal fluid containing blood and numerous leukocytes but no microbes. The conditions seemed to indicate that the admixture of blood was due to diapedesis secondary to the inflammation. The lad's brother was having mumps at the time, and some writers assert that fully 10 per cent. of all cases of mumps are accompanied by signs of meningitis. In this case the boy had no symptoms of mumps at any time nor of any general bacterial infection, and he had soon completely recovered, confirming the generally favorable prognosis of aseptic meningitis. No cause for the cryptogenic aseptic meningitis could be discovered.

148. **The Rivalta Reaction as Sign of Leukocytosis.**—Gironi says that Rivalta's acetic-acid test is proving an instructive index of the numbers of leukocytes and of the proportions between the red and white corpuscles. (The technic was described recently on page 978, Sept. 21, 1912.) He tabulates the findings in twenty-one patients with various affections—all showing that the reaction is most pronounced in organic fluids containing the largest numbers of leukocytes, and is thus directly proportional to the leukocytosis and inversely proportional to the ratio between the whites and reds.

150. **The Liver with Erysipelas.**—Hildebrandt reports nine cases in which erysipelas was accompanied by urobilinuria. The latter may be the expression of an acute parenchymatous hepatitis. The liver affection may survive the erysipelas, and the suspicion of the liver involvement should contra-indicate the use of chloroform.

152. **Immunization Against Cancer.**—Graff and Ranzi make a subcutaneous injection of an emulsion of the patient's own tumor after removal of a cancer, and report nine cases in which this method was applied, after extensive experimental research. In the cases reported a recurring tumor was excised and the patient injected with the extract. On account of the rapid recurrence, the prognosis had been regarded as unusually bad, but three or four years have now passed without a sign of recurrence in three cases. One patient had returned every second year since 1901 for removal of a fascia sarcoma. Since the tumor extract was injected in 1907 there has been no further signs of renewed growth. The technic is approximately the same as for Coca's vaccine therapy (described in The Journal, 1910, liv, 1904. See also 1911, lvii, 1947).

153. **Intussusception in Children.**—Of the 397 cases reported by Kock and Oerum, 288 were in infants less than a year old. The results of a primary operation are just as good as those of bloodless methods, and it protects against "sham reduction." After the second day, one might flush the intestines and try taxis, resorting to a secondary laparotomy at need. The results of this were excellent for more than half of the children on whom the bloodless method had been tried and failed. A full bibliography is appended.

154. **Calcium Lactate in Fibrous Ostitis.**—Under the influence of calcium lactate, callus began to form at the points of the fractures and the long bed-ridden patient was soon able to be up and about. She was a woman of 49, in good health until four years before when she grew weak and helpless, with wandering pains in the bones of the entire skeleton. The calcium lactate was given in the dose of 2 gm. twice a day at first and then three or five times a day. Improvement was rapid and in less than a month consolidation had occurred. On suspension of the lactate the condition became stationary, but on its resumption with exposures of the ovaries to the Roentgen rays, improvement continued.

Monatsschrift für Geburtshilfe und Gynäkologie, Berlin

XXXVI, Internat. Congress Festschrift, pp. 1-336

156 *Tuberculin Reaction in Pregnant Tuberculous Women. (De l'intra-dermo-réaction à la tuberculine chez les femmes enceintes tuberculeuses. Son utilité au point de vue du pronostic.) P. Bar.
157 *Tuberculous Peritonitis with Effusion in Pregnant Women. L. Mangiagalli.
158 Twisting of Pregnant Uterus. (Lateralflexion, Torsion und Achsendrehung des graviden Uterus.) O. Küstner.
159 *Hematuria in Pregnant Women. (Zur Frage der Schwangerschaftshämaturie.) H. Treub.
160 Uterine Cancer and Pregnancy. C. Jacobs.
161 *Child-Bearing After Myoma Operations. (Eigene Erfahrungen in bezug auf Schwangerschaft und Geburt nach ventraler Enukleation intramuraler Uterusmyome.) O. Engström.
162 *Artificial Premature Delivery in Treatment of Contracted Pelvis. (Stellung der künstlichen Frühgeburt in der Therapie des engen Beckens.) M. Hofmeier.
163 Premature Separation of Normally Located Placenta. (Solutio praematura placentae normaliter insertae.) P. Zweifel.
164 Cavities in Placenta. (Einige bisher nicht beschriebene Hohlräume in der Placenta.) L. Meyer and J. E. Lōhse.

165 Operative Treatment of Septic and Gonorrheal Peritonitis. J. Veit.
166 Hypophysis Extract in Treatment of Peritonitis. R. Klotz.
167 Prophylaxis of Operation Peritonitis. (Ueber Vermeidung der Operations-Peritonitis.) E. Bumm.
168 *The Internal Secretion of the Mamma. (Ueber die innere Sekretion der Brustdrüse.) L. Adler.
169 *Cystoscopy, etc., Through a Condom. (Transkondomoskopie.) O. Mansfeld.
170 New Vagina Made from Rectum. (Scheidenbildung aus dem Rektum nach Schubert bei angeborenem Scheidenmangel.) O. v. Franqué.
171 "Verify, Verify, and Again I Say Verify." (A Retrospect.) H. Macnaughton-Jones.
172 Operative Treatment of Genital Prolapse. E. Pestalozza and K. Franz.
173 Vaginal Operations for Cancer. (Bericht über das 11te Beobachtungsjahr der erweiterten vaginalen Krebsoperation.) F. Schauta.
174 Radiotherapy of Uterine Myomas and Hemorrhagic Uterine Disease. P. Jung, E. Essen-Möller and E. Runge.
175 Psychoneuroses and Gynecology. M. Walthard.
176 Mixed Anesthesia. (Ueber den Dämmerschlaf in der Geburtshülfe durch Scopolamin in Verbindung mit Morphium, Pantopon und Narkophin.) E. Zweifel.

156. **Tuberculin Reaction in Pregnant Women.**—Bar has applied the intradermal test to sixty-three pregnant tuberculous women. The response and the course of the cases showed that a negative or nearly negative reaction with certain tuberculosis is a bad sign, even if the local lesions are not very pronounced. On the other hand, a lively reaction should turn the scale against the necessity for interrupting the pregnancy, other things being equal. If a lively reaction is followed by a negative response on repeating the test, this is a bad sign. A negative reaction persisting after delivery suggests a speedy fatal outcome in advanced tuberculosis.

157. **Tuberculous Peritonitis Complicating Pregnancy.**—Mangiagalli's case demonstrates the wisdom of conservative expectant measures when a woman with tuberculous peritonitis becomes pregnant. His patient bore a viable child at term, and both are now in the best of health, six years after the birth of the child, three years after the woman had had a posterior colpoceliotomy to remedy conditions and two years after a final operation, in which a cystic papilloma had been removed. The first signs of the peritonitis had been first observed at the third month of pregnancy and the ascites soon required tapping. The abdomen was opened and six liters of fluid were evacuated but the adhesions contraindicated any further operation and the gravid uterus was left undisturbed. Delivery was practically normal and there was no exacerbation for two or three years, when the tuberculous peritonitis flared up again. This time a permanent cure was realized by removal of cystic ovaries.

158. **Pregnancy Hematuria.**—Treub has encountered a case of this kind, blood being found in the urine for a few weeks during the third month of the woman's second pregnancy. Bed rest, restriction to milk and injection of 10 c.c. of inactivated rabbit-serum had no effect on the hematuria. The blood came exclusively from the left kidney and amounted to an average of 20 gm. a day. The patient had a valvular affection which forbade general anesthesia for decapsulation or nephrotomy, and there seemed no resource except to interrupt the pregnancy. As soon as the uterus was emptied the hematuria began to subside gradually. Treub has found eighteen other cases of pregnancy hematuria on the records of his hospital. Analysis of this material confirms the view that the pregnancy is liable to induce hematuria by the active and passive hyperemia or the autointoxication, but that this does not occur unless the kidney is inferior to begin with.

161. **Pregnancy After Myomectomy.**—Engström states that twenty of twenty-seven women conceived and bore a healthy child or children after abdominal enucleation of myomas in the wall of the body of the uterus.

162. **Induced Premature Delivery with Contracted Pelvis.**—Hofmeier states that induced delivery at the very beginning of labor offers many advantages with contracted pelvis. His rule hitherto has been to induce delivery early by mechanical means; none of the seventy-one women thus treated succumbed but ten of the children died.

168. **Internal Secretion of the Mamma.**—Adler devotes forty pages to his report of experimental research with mamma extract, epinephrin and normal serum on the guinea-pig uterus, etc., on prevention of conception and checking the development of the embryo. Epinephrin seems to inhibit and normal serum to stimulate the tonicity of the guinea-pig uterus.

169. **Transcondomoscopy.**—Mansfeld has coined this term to express endoscopy through a condom, the condom pushed partly into the bladder and then filled with salt solution and the cystoscope introduced directly into the middle of the distended condom. It lies against the wall of the bladder and is as transparent as glass, showing up the conditions better than with any other technic; the walls are seen as they are, not modified by a preceding rinsing with fluid; clots, ulcers, fistulas, deposits of any kind are shown up undisturbed and to perfection. Any blood that oozes does not get into the fluid and render it turbid, while it can be seen oozing. The ureter catheter can be introduced in a condom piercing the latter at the last minute as it enters the ureter, thus avoiding carrying infection from the bladder into the ureter. Another advantage of the condom is that in case of rupture of the bladder there is no danger of fluid leaking through the tear. The condom is also useful in case of a fistula to repair the wall enough to permit rinsing out the pelvis above. This technic may be found an improvement also, he suggests, for endoscopy of the rectum and abdominal cavity.

Monatsschrift für Kinderheilkunde, Leipsic

XI, No. 4, pp. 141-174

177 *Artificial Pneumothorax for Children; Ten Cases. (Ueber künstlichen Pneumothorax bei Kindern.) F. Pielsticker and H. Vogt.
178 Treatment of Infants with Serious Losses of Weight. (Behandlung von Säuglingen bei schweren Gewichtsverlusten.) K. Stolte.
179 Buttermilk in Infants' Diarrhea. L. Schaps.

177. **Artificial Pneumothorax in Children.**—The ages of the children in the ten cases reported ranged from 10 months to 14 years. In eight of the cases the conditions favored the successful compression of the lung by this means and confirmed anew the wonderful tolerance for the shutting off of an entire lung, even in the youngest children. The great difficulty in applying the procedure to children is that it is hard to tell when the needle is in the open pleural cavity. We cannot get the child to hold its breath which in adults readily shows on the manometer whether we are in the pleural space or not. By-effects were observed in only one case and they were explained in this by the discovery next day that the child was coming down with scarlet fever. The results were disappointing in the cases of chronic bronchiectasia; radioscopy showed that adhesions prevented the collapse of the lung at certain points. In the cases of tuberculosis the outcome has been excellent, the disease taking an unhoped-for turn for the better; in two such cases the condition had been regarded as absolutely hopeless before. One was in the youngest child treated and in this case there was a slight effusion into the gas-filled cavity. The first incision is made under general anesthesia. The lung must be immobilized as completely as possible, and roentgenoscopy is a great help for determining when this is realized.

Münchener medizinische Wochenschrift

September 17, LIX, No. 38, pp. 2033-2088

180 Moving Roentgenography of the Heart. (Verfahren zur Darstellung der Herzbewegung mittels Röntgenstrahlen—Röntgenkymographie.) T. Gött and J. Rosenthal.
181 *Improved Technic for Epiphanin Reaction. (Ueber Versuche Antigen-Antikörperwirkungen sichtbar zu machen.) K. v. Angerer and H. Stötter.
182 *Beneficial Influence of Febrile Processes on Parasyphilitic Nervous Disease. (Einwirkung fieberhafter Prozesse auf metaluetische Erkrankungen des Zentralnervensystems.) Friedländer.
183 One Hundred Laparotomies in the Home. (100 Operationen mit Eröffnung des Bauchfells im Privathause.) W. Konopka.
184 Circumcision in Treatment of Large Carbuncles. Heddaeus.
185 The Campaign Against Malaria in Italy. (8 Jahre staatlicher Chininbetrieb in Italien und der Kampf gegen die Malaria.) A. Lustig.

181. **Simplified Technic for the Epiphanin Reaction.**—This test is based on specific changes in the drop-forming properties of the serum. (It was described in THE JOURNAL, 1911, lvi, 228). Further applications of the test are recorded here with a simplified technic. The literature on the subject to date is reviewed, and the diagnostic value of the simple visible reaction is extolled.

182. **Influence of Febrile Processes on Parasyphilitic Nervous Disease.**—Friedländer says that even Hippocrates had noticed that a mental affection was liable to be cured by an intercurrent typhoid fever, and this influence from a febrile process has been recorded in a number of affections involving the nervous system. He experimented with a typhoid bacillus extract, like a tuberculin, in treatment of tabes and paralysis but obtained no appreciable results as he was unable to obtain an extract that induced a febrile reaction. His study of the literature disclosed a surprising number of cases on record between 1813 and 1900 in which an intercurrent typhoid cured a severe psychosis. Wagner von Jauregg tried extracts of the germs of recurring fever, intermittent fever and erysipelas, in treatment of progressive paralysis, but he finally settled on tuberculin in 1895 and has published a number of reports of his success in this line since then. Friedländer has been using this method of treatment for parasyphilitic nervous disease for some years, commencing in 1897, and here relates two especially instructive cases. The first patient had severe taboparalysis which was making rapid progress, the pupil reaction and tendon reflexes being abolished. After the first febrile reaction to tuberculin, the reflexes were found normal, and the man of 37 was soon able to practically resume his life as an artist. The remissions in Friedländer's clinical experience followed so systematically on the tuberculin injections that, he thinks, the number excludes the possibility of chance. In the second case the reflexes returned to normal and the Wassermann reaction became negative. He knows of no cases on record in which in such severe forms of parasyphilitic nervous disease the reflexes became normal again as in these here reported. His aim is to induce a febrile reaction, and after a test injection to exclude tuberculosis, he pushes the tuberculin from 0.005, 0.01, 0.06 to 0.1 or 0.3 gm. Wagner makes about nine injections, beginning with 0.1 and increasing to 0.6 gm., but Friedländer proceeds more cautiously and does not care to induce a fever over 38.5 or 39 C. On the days between the injections—which are given at evening—warm packs and carbonated and other baths are given. Chronic heart or kidney disease and much debility contra-indicate the treatment, but not gastric crises or paralysis. He never applied the tuberculin and mercury together, as this would make too great demands on the patient, and the mercury might interfere with the therapeutic action of the fever.

St. Petersburger medizinische Zeitschrift

September 14, XXXVII, No. 17, pp. 249-262

186 *Tardy Chloroform Fatality. (Zur klinischen Symptomatologie des protrahierten Chloroformtodes.) B. Ottow.

186. **Tardy Fatal Chloroform Accident.**—Ottow reports one of the rare cases—only fifteen are on record to date, he says—in which death followed a few days after general chloroform anesthesia with no cause to be found for it except the toxic action of the anesthetic. The patient was a previously healthy young woman with uncontrollable vomiting at the third month of pregnancy; at the fourth month the fetus was extracted by vaginal cesarean section under chloroform. Twenty-four hours later the heart action grew weak, the pulse 140 to 160, and jaundice, apathy alternating with agitation, led into coma, with death the third day after the operation. The wound was healing and there were no signs of sepsis. The debility and dehydratation of the tissues in consequence of the uncontrollable vomiting, and the considerable loss of blood during the operation may have contributed to enhance the toxic action of the anesthetic. Necropsy in these tardy chloroform fatalities shows degeneration in the heart, liver and kidneys.

Virchows Archiv, Berlin

August, CCIX, No. 2, pp. 161-320

187 Toxicology of Thorium X. H. Löhe. Commenced in No. 1.
188 Functional Adaptation. (Anpassungslehre, Histomechanik und Histochemie.) W. Roux.
189 Alien Bacteria in Stools. (Zur Frage der fäkalen Ausscheidung darmfremder Bakterien.) H. Raubitschek.
190 Intestine Defect. (Zur Pathologie des kongenitalen partiellen Darmdefektes.) Y. Noguchi.
191 Invagination of Pylorus Induced by Polypous Myoma. F. Lotsch.
192 Pancreas Tumors. B. Roman.
193 Primary Carcinoma of the Liver. M. C. Winternitz and C. Davidsohn.
194 Tumors of Vagina in Children. (Zur Lehre von den Mischgeschwülsten der kindlichen Scheide.) M. Westenberger.

Wiener klinische Wochenschrift, Vienna

September 19, XXV, No. 38, pp. 1405-1436

195 *Tabes and Gastric Ulcer. (Tabische Krisen, Ulcus ventriculi and Vagus.) A. Exner and E. Schwarzmann.
196 *Spasm of the Cardia and Gastric Ulcer. H. Heyrovsky.
197 Toxins Generated by Action of Organ Emulsions on Atoxyl. (Beeinflussung der Atoxylwirkung durch Organbrei.) L. Arzt and W. Kerl.
198 Primary Carcinoma of the Trachea. P. Kaunitz.
199 Paroxysmal Hemoglobinuria from Primary Injury of the Kidney. (Eigenartige Kombination von paroxysmaler Hämoglobinurie mit Nierenschädigung.) F. Tedesko.
200 Pupil Phenomena. (Nachtrag zur "Klinik der Pupillenphänomene.") S. Goldflam.

195. **Tabes and Gastric Ulcer.**—Exner's method of treating the gastric crises of tabes by severing the vagus nerve on both sides has led to the discovery that gastric ulcers are surprisingly frequent in tabetics and that the vagus is certainly pathologic in many such cases. In the necropsy records of seventy-five tabetic cases, gastric ulcer is mentioned in five and gastric cancer in three. Eight of the group had had gastric crises during life. In his own experience with a laparotomy in tabes, he has encountered six cases of gastric ulcer but in four others the stomach seemed to be free from organic changes. The above findings and especially the pathologic changes in the vagus found in five cases, suggest that gastric ulcer in tabes is a trophic affection, analogous to perforating ulcer of the foot. He now makes a point of doing gastro-enterostomy after the vagotomy to ward off possible trouble from this source. In one case of vagotomy and simple gastro-enterostomy, roentgenoscopy several months later showed slight stenosis of the pylorus.

196. **Cardiospasm and Gastric Ulcer.**—Heyrovsky reports from the same clinic six cases of cardiospasm and comments on the frequent coincidence of gastric ulcer. A vagus neuritis was evident in another case of chronic cardiospasm, as in Kraus' case, and Heyrovsky is inclined to refer both the ulcer and the spasm to a common cause, disease of the vagus. He gives radiograms of his cases and adds that repeated radioscopy may be necessary to detect intermittent cardiospasm.

Zeitschrift für Geburtshülfe und Gynäkologie, Stuttgart

LXXI, No. 3, pp. 449-693. Last indexed October 12, p. 1417

201 Auto-Infection in Parturients. (Die endogene Infektion in der Geburtshilfe.) O. Pankow.
202 Virulence of Non-Hemolytic Streptococci. (Nichthämolytische Streptokokken und ihre Bedeutung für die puerperalen Wunderkrankungen.) M. Traugott.
203 Silver Atoxylate in Streptococcus Infection. W. Kirchhoff.
204 *Repeated Dual Pregnancy in Double Uterus. (Wiederholte Doppelschwangerschaft bei Uterus bicornis bicollis.) R. Köhler.
205 Physical Development of Fetus at Different Stages of Gestation. (Die körperliche Entwicklung der Frucht in ihrer Beziehung zur berechneten Schwangerschaftsdauer.) W. Hannes.
206 Sugar Content of Blood with Genital Hemorrhage, Mental Disease, Eclampsia and in Normal Pregnancy. (Der Blutzuckergehalt bei genital bedingten Blutungen und bei Psychoneurosen, etc.) W. Benthin.
207 *Prophylaxis and Treatment of Septic Infection. F. Heimann.
208 Adenomyoma of Fallopian Tube. E. Santi.

204. **Dual Pregnancy with Double Uterus.**—In the case reported by Köhler the uterus was double, with a single vagina, and in the course of fourteen years the woman had fifteen apparently normal pregnancies and seven abortions. At one time she had four fetuses in the uterus at once, as one was expelled in February; in March she aborted with twins, and in November was delivered of a child at term. He discusses the cause of the deformity and similar cases on record.

207. **Prophylaxis of Septic Infection.**—Heimann has been experimenting with mice to determine the protecting power of intraperitoneal injection of camphorated oil, oil alone, silver salts or antistreptococcus serum. In his experiments on 300 mice quite favorable results were obtained with an antiserum derived from the same strain of streptococci as had been used for immunizing the serum-yielding animals. On the other hand, serum made from streptococci pathogenic for human beings never displayed the slightest efficiency on the mice, unless it had been passed through an animal. Each strain of streptococci seems to have a special and specific action and the various strains cannot be used indiscriminately. The results of the prophylactic use of oil and chemicals were

entirely negative while camphorated oil in a 10 per cent. concentration killed the animals and a 2.5 per cent. caused severe symptoms.

Zeitschrift für Urologie, Berlin

September, VI, No. 9, pp. 727-806

209 Treatment of Undescended Testicle. (Behandlung der Hodenretention.) O. Uffreduzzi.
210 Reflex Disturbances from Hypertrophy of the Verumontanum. (Reflektorische Folgezustände der Colliculus-Hypertrophie.) Orlowski.

Zentralblatt für Chirurgie, Leipsic

September 21, XXXIX, No. 38, pp. 1289-1320

211 Partial Laceration of Tendon Cause of Snapping Finger. (Zur Frage der Entstehung des schnellenden Fingers—partieller Sehnenriss.) F. Franke.

Zentralblatt für Gynäkologie, Leipsic

September 21, XXXVI, No. 38, pp. 1241-1264

212 Obstetric Laceration of Tentorium. (Tentoriumriss bei noch nicht eingetretenem Kopfe.) O. v. Herff.
213 Hematomyelia as Complication of Eclampsia. E. Liebich.
214 "The Fetus is Part of the Mother's Viscera." (Verbrechen und Gesetz.) J. Kocks.

Zentralblatt für innere Medizin, Leipsic

September 21, XXXIII, No. 38, pp. 941-964

215 Disturbance in Circulation of Lymph Responsible for Rheumatism. (Das Wesen und die Behandlung rheumatischer Erkrankungen. Betrachtung über Lymphzirkulationsstörung.) H. Röder.

Revista de Medicina y Cirugia, Havana

September 25, XVII, No. 18, pp. 505-530

216 Technic for Diathermy. E. Fortun.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 12, XXXIII, No. 110, pp. 1145-1152

217 *Differential Diagnosis of Sciatica and Tuberculosis of Sacro-Iliac Region. F. Ubertis.

September 15, No. 111, pp. 1153-1168

218 Technic for Serotherapy. N. Federici.

September 17, No. 112, pp. 1169-1176

219 Pneumonia in Course of Typhoid; Two Cases. (Febbre tifoide e polmonite cruposa.) M. Gioseffi.

217. **Differential Diagnosis of Sciatica and Tuberculosis in Sciatic Region.**—Ubertis was able to diagnose the tuberculous nature of the supposed tuberculosis in the two cases illustrated by a preceding pleurisy, tuberculosis in the family, the tendency to epistaxis during childhood, the slow development of the affection, the rheumatoid disturbances rebellious to all the ordinary measures and the persisting pain in the sacroiliac region. One patient died later of Addison's disease but the second made a clinical recovery under general and local iodin treatment.

Policlinico, Rome

September 15, XIX, No. 38, pp. 1369-1408

220 Differential Diagnosis of Cerebellum Tumor and Hydrocephalus. (Il tumore del cervelletto e l'idrocefalo interno cronico nella sintomatologia.) A. Ceconi.
221 Recurring Spontaneous Dislocation of the Patella. (Lussazione spontanea e completa della rotula all'interno recidivante.) E. Borelli.

Riforma Medica, Naples

September 14, XXVIII, No. 37, pp. 1009-1036

222 *Autoserotherapy of Hydrocele. L. Caforio.
223 Roentgen-Ray Cancers. (Cancroidi da raggi Röntgen.) C. Piazza.

222. **Autoserotherapy of Hydrocele.**—Caforio extols the simplicity, ease and harmlessness of this method and the freedom from by-effects at the time or later. He found it effectual in 45 per cent. of the cases in which he has applied the method, the outcome depending in large measure on the age of the hydrocele and the pathologic process responsible for it. In four bilateral cases he aspirated a few c.c. of the fluid on one side alone and reinjected it with the usual technic, and the hydrocele on both sides retrogressed, showing the general action of the procedure. Jovane has reported similar retrogression of both a peritoneal and pleural effusion after reinjection of the peritonitic fluid alone. Carletti found that the peritonitic effusion alone was absorbed when he had reinjected pleural effusion. Other experiences in Italy with autoserotherapy are reviewed. The method seems to be promising when too much is not asked from it; when the hydrocele or other effusion is merely one manifestation of constitutional or heart or liver disease, it is folly to expect a cure from autoserotherapy alone.

Nordiskt medicinskt Arkiv, Stockholm

XLV, Internal Medicine No. 1. Last indexed July 27, p. 318

224 Twin Monsters. C. F. Heijl. Concluded.
225 Action on Heart of Maximal Acute Excrtion. (Die akuten Anstrengungsveränderungen des Herzens.) I. Jundell and T. Sjögren.

Ugeskrift for Læger, Copenhagen

September 12, LXXIV, No. 37, pp. 1303-1342

226 *Importance of Hypersecretion for Diagnosis of Gastric Ulcer. (Til Mavesaarets Patologi og Terapi.) S. Kemp. Commenced in No. 36.

September 19, No. 38, pp. 1343-1362

227 *Can the Properties of Absorbed Light Rays be Conserved and Used in Therapeutics? (Kan Energien fra absorberede stærkt brydbare Straaler frigøres og anvendes terapeutisk?) T. Brinch.

226. **Hypersecretion with Gastric Ulcer.**—Kemp comments on the scant attention that has been paid Rubow's assertions in regard to the importance of large amounts of extremely acid stomach contents after a test breakfast as a sign of gastric ulcer. When the motor functioning is excessive, the stomach content is passed along so quickly that the amount of gastric juice secreted thereafter seems to indicate abnormally increased secretion, when in reality this is not the case. It depends on the motor functioning, therefore, whether the stomach content will be small in amount and extremely acid or large in amount with moderate acidity when there is hypersecretion with a qualitatively normal gastric juice. The only certain sign of hypersecretion is a very large and at the same time very acid stomach content one hour after the Ewald test breakfast, at least 120 c.c. of contents and an acidity of 80 or over. Kemp has been examining 550 patients with various stomach affections which he groups as ulcer, ulcer suspected and simple dyspepsia with nothing to suggest ulcer. The findings confirm anew the great diagnostic importance of the amount of residue for the diagnosis of ulcer. Whether fluids are taken with the test meal or not is immaterial, as water passes so quickly out of the stomach that the findings in regard to the chyme an hour later are not modified by it. In fact, the tendency of the dry meal is possibly to increase gastric secretion as chewing a dry tobacco will cause more saliva production than a moist tobacco. Kemp's research and reexamination of a number of his old patients reaffirm that an actual digestive hypersecretion can be assumed only when there is a large amount of very acid chyme or the absolute amount of hydrochloric acid is abnormally large, over 85 c.c. decinormal hydrochloric acid one hour after an Ewald test breakfast of 35 gm. rolls.

227. **Therapeutic Utilization of Stored Light Rays.**—What becomes of light after it has been absorbed by matter? The law of conservation of energy prevents anything from being actually lost, and consequently, Brinch asserts, the light rays entering matter are probably left in it, as they do not emerge again as light. The bactericidal powers they possess may be conferred on the matter that has absorbed them. He has been applying this principle in experimental research, inoculating animals with tuberculous sputum and injecting at the same time a 1.5 per cent. solution of quinin sulphate which had been exposed for two hours in a shallow dish to the direct sunlight. The results were negative, but the harmlessness of the procedure was established, and he has recently applied it in a case of lupus of forty years' standing, recurring anew each time after various methods of treatment, including Finsen phototherapy. The results were encouraging, the lupus subsiding as under Finsen treatment, although to a lesser degree.

Upsala Läkareförenings, Fôrhandlingar

XVII, No. 8, pp. 561-657. Last indexed Sept. 28, p. 1230

228 Propagation of the Râles in Pulmonary Tuberculosis. (Om rassels fortledning vid lungtuberkulos.) G. Bergmark.
229 *Roentgenoscopy in Diagnosis of Tuberculosis of the Kidneys. (Till frågan om njurtuberkulosens, speciellt den s.k. "kittnjurens," röntgendiagnostik.) G. Söderlund.
230 Pulse in Thickened Arteries. R. Friberger. See 119, p. 1412.

229. **Roentgenoscopy of Tuberculous Kidney.**—In the three cases reported, catheterization of the ureters was impossible on account of bladder complications. Roentgenoscopy, however, revealed which kidney was pathologic and thus rendered operative treatment possible. Söderlund does not regard roentgenoscopy as of much use alone for disclosing tuberculosis of the kidneys. But when tuberculosis is certain, roentgenoscopy may be the only means to localize the process.

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ALL-STONES COINCIDENT WITH OTHER SURGICAL LESIONS *

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PHILADELPHIA

With the low mortality now attending abdominal operation in the hands of skilled surgeons, there can be little xcuse for a failure under ordinary conditions to correct ll lesions present in the abdominal cavity at the time f any primary celiotomy. Only a few years ago it ppeared too hazardous to attempt more than the operation of election, leaving all subsidiary pathologic lesions ither to shift for themselves or to be dealt with at a econd sitting. Under these conditions the good effects f the primary operation were often overshadowed by he increasing dominance of the remaining lesions. Even nore striking was the fact that the gynecologic eye in its oncentration on some minor or even major pelvic disbility failed to take into account coincident diseases f even greater moment than those for which the gynecologic operation was performed. Gynecologists have aught the general surgeons many lessons, but the latter ave done much in return by comprehensively developing the surgery of the upper abdomen. It is mpossible to concentrate one's attention solely on any ne group of abdominal organs, for they are all too ntimately linked together in many composite symptonatic pictures to permit accurate discrimination between ne set without a survey of other cognate organs.

Thus the gynecologist has inevitably been led to the ccurate investigation of kidney and vesical complaints, or the symptoms of the diseases of the pelvic organs nay so closely simulate those of the bladder or kidneys, nd vice versa, as to leave one quite at sea as to diagnosis unless special methods of ureteral and renal liagnosis are invoked. It is not necessary to elaborate this point, for it is too obvious to require discussion.

Formerly, we heard much of reflex disturbances in the upper abdomen from pelvic disabilities, but the physician who has the temerity to announce his pelvic findings and attempts to include in his category of reflex symptoms those of manifest organic disturbance in the stomach, gall-bladder or appendix, must run counter to rather drastic criticism. Oversights in the diagnosis of coincident diseases usually lie in the failure to take a comprehensive history. Even with our resident physicians, who have been trained in first-class medical schools, the tendency is frequently to overlook the most obvious manifestation of the diseases which do not come directly into the scope of his history pertaining to a special set of organs.

Time and time again when gall-stones have been found in former years, and to a lesser extent now, or when other upper abdominal conditions have been encountered in the course of a pelvic operation, there has been no suggestion of such in the history, and yet on questioning the patient subsequent to the operation, a very clear and often classic description has been obtained. After a general history has been taken, especially in any abdominal or gynecologic condition as a final summary, the analysis which is to be followed in the operating-room should indicate, first, the major diagnosis, and second, the lines leading to possible disabilities in other organs. Through this analytic method, an apparently subsidiary condition may assume primary importance by the time the operation is completed.

The question as to whether an appendix should be removed as a coincident part of another abdominal operation is, I believe, settled quite uniformly in all clinics, provided this organ shows any sign of distortion or inflammation, and many surgeons are accustomed to remove it as a routine measure regardless of whether it is diseased or not.

In the presence of gall-stones, this question should be even easier of settlement; for, with a more complete knowledge of the pathologic incidents and sequelæ attendant on cholelithiasis, the theory as to the innocuousness of gall-stones is being abandoned and we hear less of so-called dormant cases.

In my series of over 100 cases of cholelithiasis with operation in various hospitals coincident with some other primary lesion for which the patient was admitted to the hospital, there are only a very few in which there was not more or less direct physical disturbances, ranging from the classical attacks of colic to the less direct symptoms of indigestion, etc. Thus, in eighty-six cases now under immediate review from my service in the University Hospital, thirty-nine gave a history of unmistakable gall-stone attacks. In fourteen the patients complained of indigestion, a term which encompasses such symptoms as gaseous eructation, sour stomach, heaviness after eating, vague distress in the epigastrium, etc.; in seven there was pain in the dorsal region posterior to the gall-bladder; in two the symptoms were questionable, and in only nineteen were there no symptoms which could be attributed to the cholelithiasis. The conditions for which the primary operation were performed varied quite widely. The commonest coincidence was gall-stones and myoma uteri, there being twenty-seven such associated cases. The remainder were distributed as follows:

Retroflexion of uterus	13
Relaxed pelvic floor	9
Ovarian cyst	6
Umbilical hernia	7
Salpingitis	7
Appendicitis	4
Movable kidney	1

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* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

Uterine polyp	1
Prolapse of uterus	1
Hemorrhoids	1
Metritis	2
Pyosalpinx	1
Intestinal adhesions from former peritonitis	3

In this series there was one death from cholemia in a common-duct case coincident with a large ventral hernia. Argument against the removal of the stones as unnecessarily dangerous, therefore, in the face of the small mortality is hardly necessary to sustain the combined operation.

CONSIDERATIONS FOR AND AGAINST OPERATION

In equalizing values from the patient's standpoint, the question naturally arises, Will the patient run greater hazards from the additional operation or from the presence of the stones? General deductions, which are helpful to a correct conclusion, may be derived from a consideration of (1) the physical wear and tear to the patient of the additional operation and (2) the subsequent benefits to be derived from such a procedure. Under the added cost to the patient of the extra operation Dr. Jackson, a former student, in a study of a smaller series of our cases, has summarized our views as follows:

1. *Increased Mortality.*—Operations for simple gall-stone disease are exceedingly safe, while in advanced cases with numerous adhesions and other complications, the operation is difficult and the mortality high. For simple cholelithiasis the operation of choice, cholecystostomy, has a primary mortality in expert hands from all causes of not more than 1 per cent. When performed coincidently with other abdominal or pelvic operations, the above mortality percentage is obviously influenced only by the gravity of the primary operation. If the stones are allowed to remain in the gall-bladder and an operation has to be performed later on the common duct, a mortality must be faced of 10 per cent., for "last resort" operations must have a much higher mortality.

2. *Greater Shock.*—This, as a result of prolongation of the anesthetic and extra handling of the abdominal viscera, is a factor to be considered, but is almost negligible if the operation is carefully and speedily performed and the contra-indications noted below observed.

3. *Prolongation of the Period of Convalescence.*—It is usual for convalescence to be prolonged by a few days.

4. *Additional Pain and Discomfort.*—During the period of convalescence additional discomfort is frequent. Several of the histories in this series record more or less severe pain in the gall-bladder region during the earlier period of convalescence.

5. *Intestinal Adhesions.*—These may develop, causing symptoms of obstruction or severe colic, but it is rare for postoperative adhesions to form and persist sufficiently to cause serious trouble.

6. *Ventral Hernia.*—The small stab incision in the upper right quadrant over the gall-bladder predisposes only remotely to the formation of a hernia.

7. *Postoperative Neurosis.*—This tendency is apt to be diminished rather than increased by the removal of gall-stones found coincidently.

8. *Mucous and Biliary Fistulas.*—These are possibilities which can be avoided easily by thorough operation and good technic.

The benefits to be derived from the removal of the stones are evident, for it relieves the suffering caused by them, leads to a cure of the cholecystitis and frees the patient of the possibility of much more serious lesions in the future, which the stones are prone to cause, effecting a cure in over 95 per cent. of all cases.

The contra-indications, observed in my clinic in the University Hospital, to the usual cyclic examination of the upper abdomen are:

1. In the event of a liberation of pus in the pelvic or lower abdominal cavity, the hand should never be passed from a septic into a non-septic area.

2. When the incision is too small to admit the hand and there are no symptoms to cause suspicion of cholelithiasis, the examination of the gall-bladder is omitted.

3. When the patient is not taking the anesthetic well and a prolonged anesthetization and further manipulation of the viscera would be immediately harmful, the gall-bladder is left untouched.

In the presence of a lesion inevitably fatal, as inoperable carcinoma of the gall-bladder, etc., the stones are not removed, as the operation would only add to the immediate discomfort of the patient with no hope of any permanent good.

SUMMARY

In conclusion, I might state some of the foregoing facts worthy of special attention as follows:

1. Gall-stones give rise to symptoms in a much larger proportion of cases than is commonly supposed.

2. Many cases heretofore diagnosticated and treated as "chronic indigestion" and other vague stomach disorders are in reality cases of cholelithiasis.

3. Gall-stones are not necessarily innocuous when they are producing no symptoms, but may produce fatal lesions while their presence is unsuspected.

4. Unless contra-indicated, the gall-bladder as well as the appendix should be examined in all cases of celiotomy, and gall-stones, if present, should be removed whether they offend or not, provided the patient's local and general condition is favorable.

2017 Walnut Street.

ABSTRACT OF DISCUSSION

Dr. Charles H. Mayo, Rochester, Minn.: The general upward progress during the last twenty years of the gynecologist from his lowly position has met with much opposition. Twenty years ago had he found, during the course of an abdominal operation, an appendix which needed removal, it would have been thought that he should call in a general surgeon to remove it. Now, true to his grasping disposition, he reaches clear to the top of the abdomen. This is right and, as the result, the patient to-day gets more relief because more things are done in a given case than ever before. Much of the progress of surgery has come about from the surgeon's observation through a larger incision of the actual diseased conditions. While a preoperative diagnosis of the principal condition is important, it is equally important to remember that there are other conditions which may produce almost the same symptom-complex. The abdominal incision should be made large enough to determine the condition present. In this country much of the general progress of surgery has come about through these explorations in which a certain condition demanding operation is known to exist, and by such exploration other conditions previously unknown are found to be present which can be relieved at the same time.

Last year we went over the records of 1,244 abdominal operations for uterine myomas. In over ninety of these cases we operated also for gall-stones. It is so common to take out a diseased appendix when the abdomen is open that we no longer feel it is worthy of comment. Observation has shown that some years ago one-sixth of all people operated on by the abdominal route were not relieved of their symptoms. This probably meant that they had more than one disease and that only one was relieved. The methods of shortening the round ligament internally have not been mentioned. Of course, a very large number of women have retroversion and fortunately do not know it. The knowledge that the kidney is movable gives them the idea that the kidney ought to be fixed. If they learn that the uterus is movable they think that that ought to be fixed. We often find that the retroversion is not the cause of the symptoms, but if repair be necessary, it should be by internal methods, because the woman with retroversion may have something more the matter with her which would otherwise not be relieved.

Dr. W. H. Wathen, Louisville: If the general surgeon knew more about gynecology and the gynecologists knew more about abdominal surgery, operations in the abdominal and pelvic cavities would be more successful. No gynecologist should open the abdomen unless he is prepared not only to examine the diseased condition in any part of the abdominal cavity, but to treat it successfully. I always, unless the condition of the patient will not permit, make an incision large enough to admit my hand so as to examine all the structures within the abdominal and pelvic cavities. In operations for uterine fibroids or pelvic infections, we should examine the viscera in the upper abdomen. In operations for gastric or duodenal ulcer or gall-stones we should make an incision large enough to admit the hand into the bottom of the pelvic cavity. Any other method of treatment is false and should be condemned. We may operate for a diagnosed condition in one structure, and when the abdomen is open find a diseased condition in one or more structures that may be at once removed. Diseased organs in the pelvis may have etiologic relation to gastric and duodenal ulcer and gall-stones, just as we find association of cholelithiasis and gastric and duodenal ulcer with appendicitis. It is now generally agreed that in gall-bladder disease the infection is through the blood-current to the bile and not through the common duct from the duodenum. Therefore, there is no reason why we should not find a septic condition in the pelvis or in the appendix that may cause gall-bladder infection: also gastric and duodenal ulcer.

Dr. John B. Deaver, Philadelphia: The history is most important. I insist that my house physicians shall examine the patient and record everything from head to foot. Then, when the history has been carefully digested, there is better opportunity to make the diagnosis. Dr. Clark has well laid stress on the primary condition.

I am struck with the fact that in thirty-nine of his cases there were gall-stones; also that twenty-sever occurred in connection with fibroids. I would not have been surprised if he had told me that they occurred in connection with pyosalpinx, because we know that the gall-bladder frequently becomes involved after typhoid, and why not after infection of the fallopian tubes? We know that the typhoid bacillus invades it. We know that we will get cultures of typhoid forty-one years after a gall-stone attack, and that in patients operated on for acute typhoid cholecystitis manipulation of the gall-bladder has been followed by another attack of typhoid infection.

Dr. M. Howard Fussell, Philadelphia: Dr. Clark has called attention to the very absolute necessity of a diagnosis before any treatment is attempted. He secures the histories, makes physical examinations of every case and finds out whether the symptom complained of is due to a floating kidney, pyosalpinx or what not, or whether the entire symptom-complex is due to that condition, and then, finally, as all of us know who have seen his operations, when at the operation he has finished the thing presented to him, he finds out by another method of diagnosis whether there is anything else wrong. The necessity of these procedures is illustrated in a case recently under my notice. Diagnosis of gall-stones was made and the surgeon removed a small fibroid, saying that there were no gall-stones. Subsequently twenty-six gall-stones were removed, the patient having had pain all the time since.

Dr. H. O. Marcy, Boston: There are three primary ways of possible infection of the internal organs in women: the uterus, appendix and passages of the gall-bladder. I would emphasize that which Dr. Deaver has said, the necessity of making a very careful study of the whole organism. Take the watch to the watch-maker and he does not look at the mainspring only. All the facts brought out in my clinic are carefully analyzed and the diagnosis is the result. I was the first in America to diagnose and operate for the removal of gall-stones; the first in the world to remove a stone from the common duct. I mention it only to tell you the storm of criticism I aroused in daring to do these operations. Those from whom I had expected support were the most bitter in declaring me rash and reckless. The whole series of results of these many years shows clearly enough that this was one of the steps of progress. The seat of abdominal disease may be covered by a hand, but the hand must be a very large one.

Dr. L. C. Morris, Birmingham, Ala.: If you have infection anywhere in the abdomen, you are likely to have it in the gall-bladder simultaneously, because the liver throws out toxins. The chronic insidious infections of the bile-tract are commonly overlooked.

Dr. Philemon Truesdale, Fall River, Mass.: An examination of my records including 1,200 laparotomies showed that in 500 cases the abdomen was opened for lesions within the female pelvis. Gall-stones as a concomitant condition were found in thirty-four of the 500 celiotomies. As an example of the importance of removing gall-stones during other operations within the abdomen, or at least recognizing their presence, I may cite the following case: About three years ago a patient consulted me in behalf of her troublesome stomach. She complained of epigastric distress, flatulence, occasional attacks of short colic, which she remembered to have awakened her in the night, and an inability to digest many articles of food, especially fats. One year before she came to me she had had a hysterectomy done by an able gynecologist. An inquiry relative to the condition of the gall-bladder at the time of the hysterectomy brought out the statement that the hysterectomy *per se* was considered a serious operation, and no examination of the gall-bladder was attempted. The patient continues to suffer because of the diseased gall-bladder, and is unwilling to submit to another procedure, believing that the cause of her symptoms might again be overlooked.

The gynecologist who invades the upper abdomen should adopt early the methods of dealing with the diseased gall-bladder which are generally practiced by abdominal surgeons. While the operation of cholecystostomy through a small counter-incision will answer for most cases, the conditions which demand cholecystectomy should always be remembered, and patients will thus often be spared troublesome sinuses, as well as secondary—and, one might add, unnecessary—operations.

Dr. Arthur E. Benjamin, Minneapolis: Every case in which a laparotomy is done should be carefully examined in general to ascertain exactly what conditions are to be dealt with. My idea is to investigate every organ and then attack the one really causing the trouble. Many cases are neglected by being turned over to the junior intern when they should be taken charge of by the surgeon himself. We are all endeavoring to operate on too many patients. Our statistics of 10,000 or 15,000 in so many years is leading many of us into trouble. I think that if we will pay particular attention to the histories we shall make fewer mistakes.

Dr. John Clark, Philadelphia: Dr. Deaver has brought up the relationship of pyosalpinx and gall-stones. When we have pyosalpinx we do not examine the gall-bladder.

The Cost of Caring for the Insane.—It costs a little over thirty-two million dollars a year to care for the patients suffering from mental diseases in the public institutions in the United States. This is equal to or even somewhat greater than the annual expenditure for the construction of the Panama Canal. The amount expended in 1910 for the care of the insane in public institutions exceeded the amount appropriated by Congress for the support of the executive, legislative and judicial departments of the federal government. To this great sum must be added the economic loss to the country through the withdrawal from productive labor of so many people in the prime of life. It has been ascertained that the average value to the community of an adult between the ages of 18 and 45 is $700 a year. On this basis the economic loss to the country through insanity is over one hundred and thirty million dollars a year, which amount taken together with the annual institutional cost is more than one hundred and sixty-four million dollars—a sum equaling the entire annual value of the wheat, corn, tobacco and dairy and beef products exported from the United States.—*The Outlook.*

SPOROTRICHOSIS IN MAN

WITH A SUMMARY OF THE CASES REPORTED IN THE UNITED STATES AND A CONSIDERATION OF THE CLINICAL VARIETIES AND THE IMPORTANT FACTORS IN THE DIFFERENTIAL DIAGNOSIS*

WALTER W. HAMBURGER, M.D.
CHICAGO

Following the publication by Hektoen and Perkins[1] of a report of the second authentic case of sporotrichosis in the United States in 1900, four years elapsed before the third American case was reported. In contrast to the infrequent finding of the disease in this country is the striking rapid accumulation of cases in Europe which followed Beurmann's original report from Paris in 1903. Up to the present more than 200 cases have been put on record from all over the civilized world. As a result there has accumulated a growing mass of pathologic and clinical data, facts which show, among other things, that sporotrichosis is not alone a local skin disease, but under certain conditions becomes a generalized systemic infection similar to the other granulomas. These reports contain examples of the localization of the *Sporotrichium* in muscles, joints, bones, kidney, lung, etc., the organism being recovered from the blood-stream by the usual methods of blood culture.

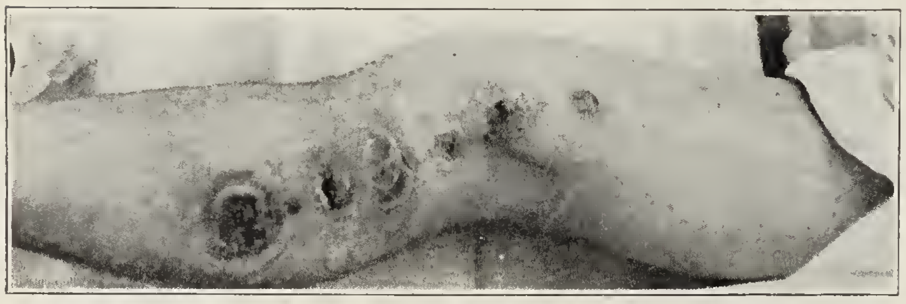

Fig. 1.—Appearance of leg on entrance into hospital, Jan. 31, 1911, four months after initial lesion.

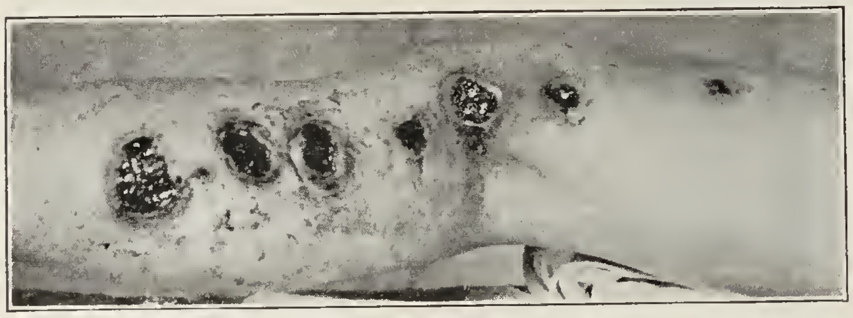

Fig. 2.—Appearance of leg Feb. 20, 1911, fourteen days after curettement and carbolizing with 95 per cent. phenol.

It would seem highly probable, therefore, that sporotrichosis is a wide-spread prevalent disease, particularly in the country and farming districts, and that many unhealed chronic ulcerative processes now passing under the caption tuberculosis, syphilis, glanders, blastomycosis, actinomycosis, etc., are in fact unrecognized sporotrichosis.

In the belief that with greater familiarity with the clinical picture will come earlier and more general recognition of the disease, I present this paper; for it is my conviction that the history of the development of sporotrichosis will parallel that of actinomycosis and blastomycosis as soon as the attention of the profession, particularly those practicing in the farming districts, is directed to the infection. In this connection it is interesting to note that in 1910, following R. L. Sutton's report[2] from Kansas, eleven cases, or nearly one-third of all those reported in this country, were published from the same state during the succeeding twelve months.

REPORT OF A NEW CASE OF SPOROTRICHOSIS

History.—In January, 1910, C. A., aged 28, a native of Wisconsin, journeyed to Cresbard, S. D., to engage in farming. In October of the same year, after nine months' residence in the state, he noticed a small "pimple" on the calf of his right leg. He remembered no preceding trauma and believed there had been none. He described the lesion as a small, firm nodule about the size of a split pea, lying beneath the skin surface. In the course of the following week two similar nodes appeared immediately above the first. These small tumors gradually became harder and larger and ultimately—in six or eight weeks—softened and broke down, discharging a small quantity of viscid, bloody pus.

On consulting his physician, he was told he had probably contracted glanders, although as far as could be ascertained there was no evidence of this disease among the horses on his farm.

Within the succeeding few weeks several more nodules, exactly similar in character and in a direct line above the others, appeared; on the advice of his physician he returned to Wisconsin to seek further medical aid. During December and January the disease gradually traveled up the leg, along the inner aspect of the thigh in a line corresponding to the course of the deep lymphatics, the nodules beginning deep in the subcutaneous tissues, becoming larger and softer as they approached the skin surface and then breaking down to form deep necrotic foul-looking ulcers. There were no subjective pain, little if any tenderness to pressure, no febrile reaction and no constitutional disturbance.

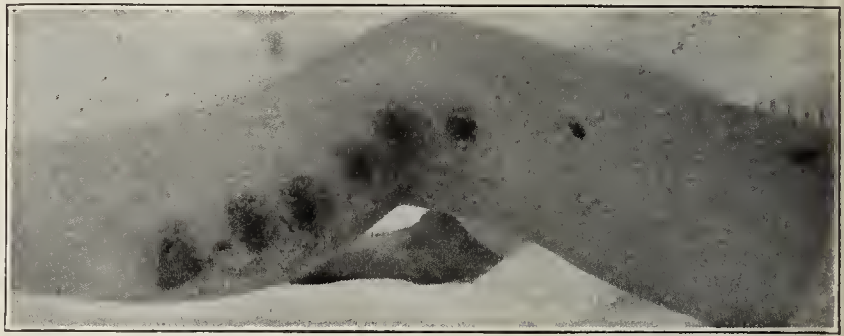

Fig. 3.—Appearance of leg on leaving hospital, March 6, 1911, after one month of local surgical dressing.

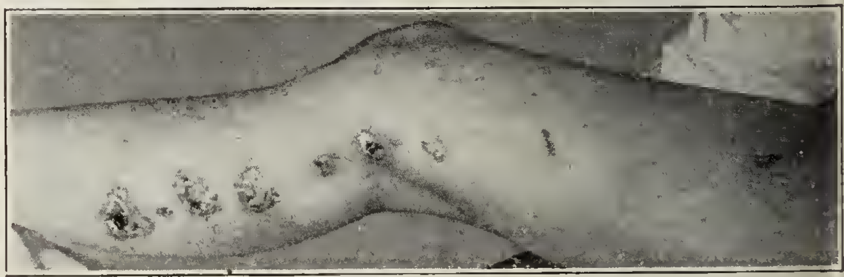

Fig. 4.—Appearance of leg March 18, 1911, after six weeks of local surgical dressing.

Examination.—In January, 1911, the State Hygienic Laboratory of the University of Wisconsin secured some pus from a freshly formed ulcer, and subjected it to the usual bacteriologic examinations, including the injection of a portion into the peritoneal cavity of a male guinea-pig. The results of this examination were completely negative for all organisms, in spite of which, however, a probable diagnosis of glanders was made. Sporotrichosis was not considered.

The patient entered the service of Dr. Bevan at the Presbyterian Hospital, January 31. The appearance of the leg at that time is best given in the words of the hospital history. "On the posterior surface of the calf of the leg (right) beginning about half way between the ankle and knee and running upward, are a series of slightly elevated, sharply defined, deep red areas, about the size of a dollar. These bleed readily when injured. On the posterior side of the knee just over the tendons of the semimembranosus and semitendinosus muscles are two or three nodules which are not so large as those mentioned above but are more elevated or dome shaped. From these a bloody serum is discharging. Farther up on the inner anterior part of the thigh are three nodules which can be felt under the skin as hard lumps the size of hickory nuts. In all there are nine nodules making a straight series from the middle of the calf running toward the groin" (Fig. 1).

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* From the surgical service of Dr. Arthur Dean Bevan and the Morris Institute for Medical Research.

* Preliminary report read before the American Association of Pathologists and Bacteriologists, Chicago, April 13, 1911.

On entrance, his appearance was that of a robust, well-developed, well-nourished young man. Except for the leg lesions there was no evidence of organic disease. His temperature was 98 F.; leukocytes 8,900; hemoglobin 84 per cent. (Dare); urine negative. He complained of slight tenderness on pressure over the lesions on his leg, but of no subjective pain. He was isolated and placed under infectious precautions.

February 2, Dr. Bevan incised one of the unopened nodules, allowing a small quantity of greenish-gray, blood-streaked, slightly viscid pus to escape. Cultures and smears were prepared, and a portion of the pus obtained in an aspirating syringe for animal inoculation. The smears stained with methylene-blue, Gram and carbol-thionin showed many pus cells but no organisms of any kind. The culture tubes at the end of the fourth day appeared sterile. Subcutaneous and intraperitoneal injections of the pus into male guinea-pigs produced no orchitis. At this time the probable clinical diagnosis of sporotrichosis was made.

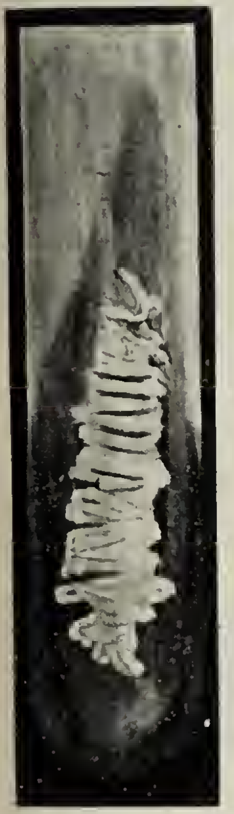
Fig. 5.
Seven-day growth on 2 per cent. glucose agar.

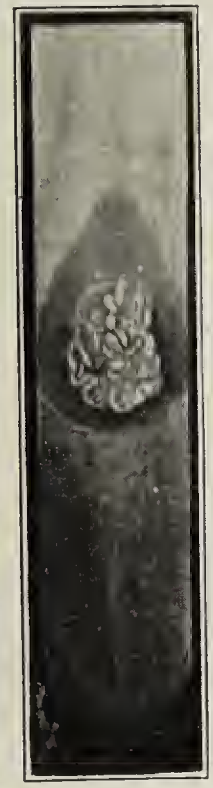
Fig. 6.
Sixteen-day growth on 2 per cent. glucose agar.

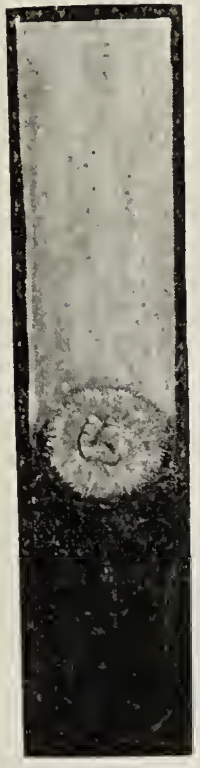
Fig. 7.
Litmus glucose agar; sixteenth day; room temperature.

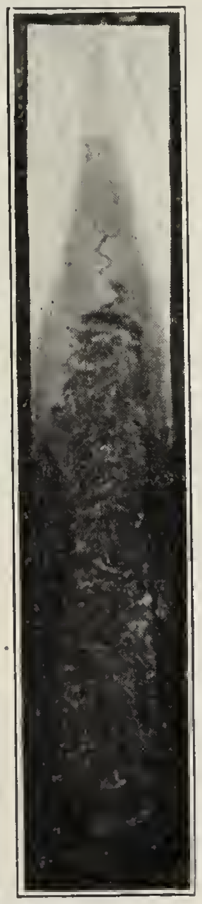
Fig. 8.
Sixteen-day growth on blood agar showing pigment.

February 6, the two upper nodules were dissected out under ether anesthesia. The nodules which had broken down were carefully curetted and cauterized with 95 per cent. phenol (carbolic acid) followed by alcohol (Fig. 2). Fresh culture mediums, including glucose and blood-agar, were inoculated and placed at 37 C. (98.6 F.) and a duplicate set of tubes inoculated and placed at room temperature. February 10 an agar-slant tube of the first series, eight days after inoculation, showed a single, small, slightly elevated, gray-white colony, which on examination proved to be a pure culture of sporothrix.

The patient remained in the hospital until March 6, during which time the curetted and phenolized areas under dry iodoform dressing became covered with granulation tissue and gradually healed (Fig. 3). March 18 he returned to the hospital for examination. The areas were covered with newly formed scar tissue and crusts, underneath which were some bluish discoloration and induration (Fig. 4). The patient was placed on potassium iodid for the first time, 10 grains three times daily.

Subcultures were made of the growth which had subsequently appeared on the second series of tubes in pure culture, white rats and guinea-pigs were inoculated and the organisms studied in more detail at the Morris Institute.

The laboratory study of the organism showed it to be identical with the sporothrix described first by Schenck[3] in 1898, by Hektoen and Perkins[1] in 1900, and by Hyde and Davis[4] in 1910, its cultural characteristics, morphology, results of animal inoculation, etc., agreeing closely with the excellent description in the report of Hyde and Davis.

GROWTH AND CULTURAL CHARACTERISTICS

The first growth of the organism was exceedingly slow, eight days elapsing after inoculation of the culture tubes before the first small gray-white colony appeared on the plain agar-slant in the incubator. The growth of the second and third generations, following transfers to fresh mediums, appeared within from forty-eight to seventy-two hours. The importance of this slow initial growth should be emphasized, as it shows the need for repeated observations of the culture tubes for a considerable period of time, in order that the slow-appearing colonies might not be overlooked. Had this been done in this case when cultures were first made, it is probable that the diagnosis would have been made months earlier, thereby saving the patient useless worry and expense.

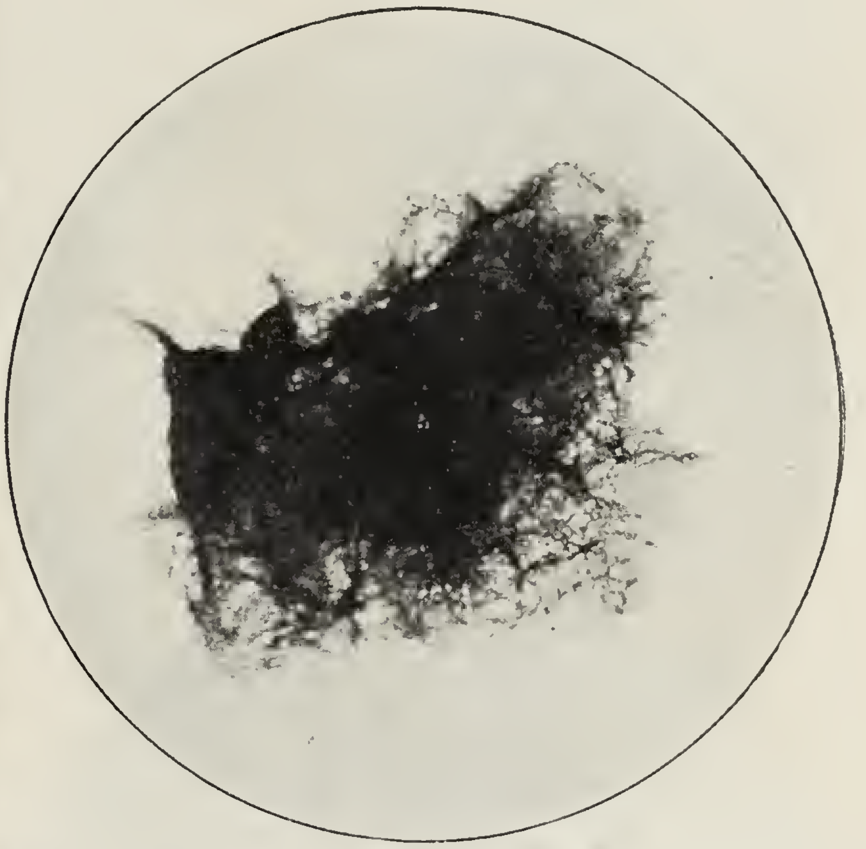
Fig. 9.—Four-day-old colony in plain bouillon; methylene-blue; low power.

Growth was abundant on all mediums after the organism had been under cultivation for some time, but particularly so in mediums containing sugar. In testing out various mediums, it was found that the organism grew best and with equal vigor on 2 per cent. glucose, levulose and maltose agar, less luxuriously on lactose and saccharose agar, and poorly or not at all on mannite and inulin agar. The small gray colonies rapidly germinate and coalesce to form a slightly elevated pale gray layer, which later becomes corrugated with a sticky, moist-appearing surface resembling soft putty (Figs. 5 and 6). In the stab cultures this central coral-like mass becomes surrounded with fine needle-like radiating lines on the surface of the mediums (Fig. 7).

In liquid mediums, growth was readily obtained in plain broth of an acidity of 1 per cent. and in so called "whey" mediums of an acidity of 0.5 per cent., as a delicate downy growth at the bottom of the tube.

Pigment Formation.—In certain of the older cultures, and particularly in cultures on blood agar and in glucose agar containing from 3.5 to 4 per cent. glucose, a brownish-black pigment appeared, as has been noted by Davis and others (Fig. 8).

Morphology.—The organism consists of an abundant branching septate mycelium with clusters of pear-shaped spores within the meshes of the interlacing filaments (Fig. 9). A single colony of mycelium fished out of a broth-culture, mounted and stained with methylene-blue, suggests somewhat the contour of a crushed granule of actinomyces (Fig. 10). The detail of the periphery of such a mycelial colony shows the typical branching filaments with occasional clinging spores (Fig. 11). With the oil-immersion lens, the refractive borders and septa of the filaments may readily be seen (Fig. 12).

The oval, pear-shaped spores are typical of sporothrix, the protoplasm staining for the most part evenly with Gram, although some spores contain clear unstained apices which Davis thought resembled vacuoles (Fig. 13). Mycelial production was more abundant in broth and in 4 per cent. glucose agar; spore formation in 2 per cent. glucose agar.

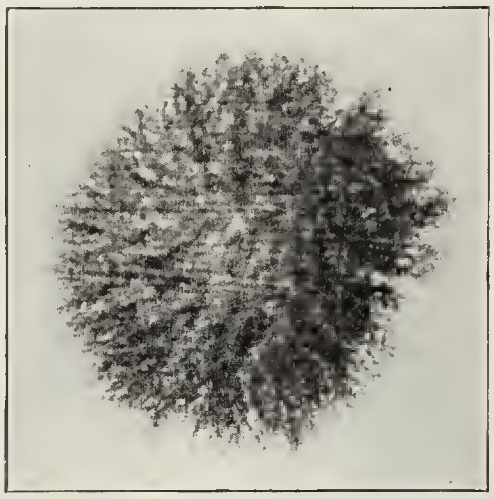

Fig. 10.—Four-day-old colony in plain bouillon; methylene-blue; low power; showing similarity to actinomyces.

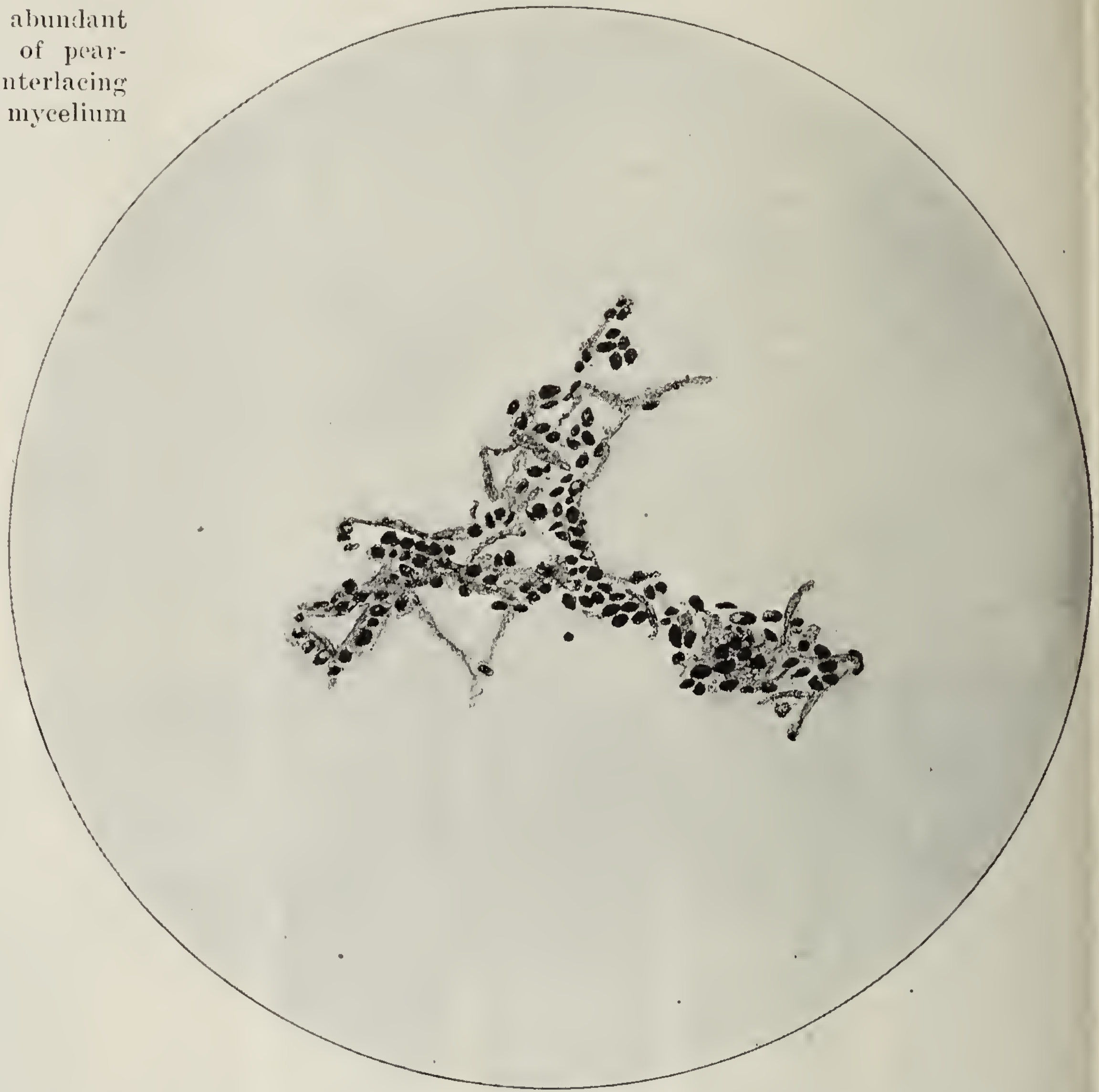

Fig. 13.—Three-day growth on 2 per cent. glucose agar; Gram; oil immersion.

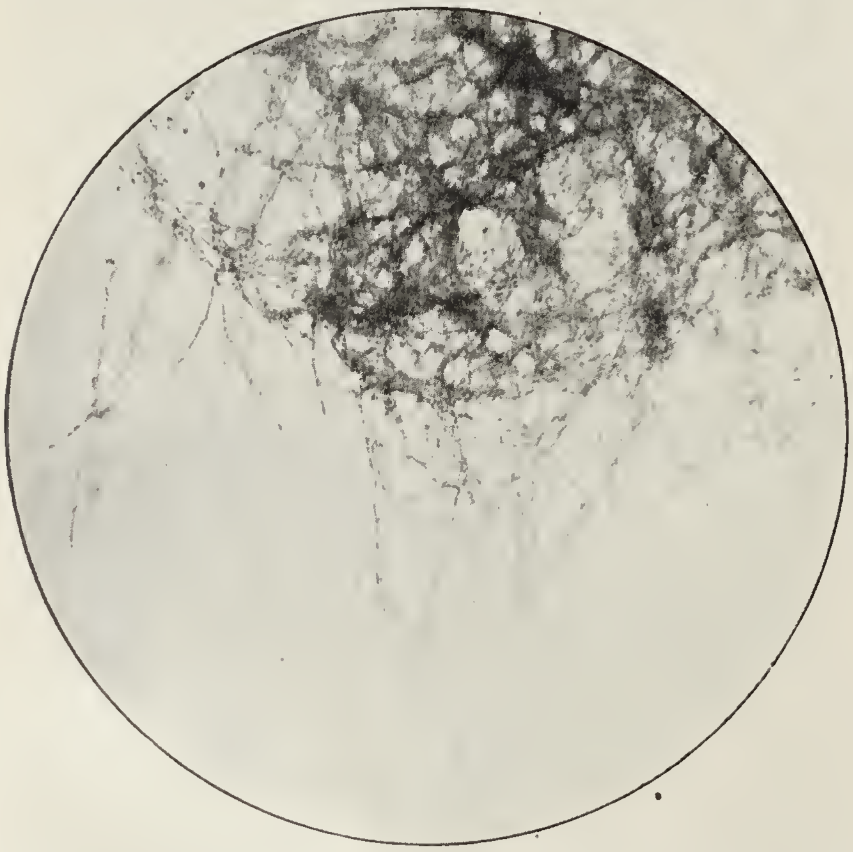

Fig. 11.—Four-day-old colony in plain bouillon; methylene-blue; high power; detail of periphery, showing branching, mycelium and spores.

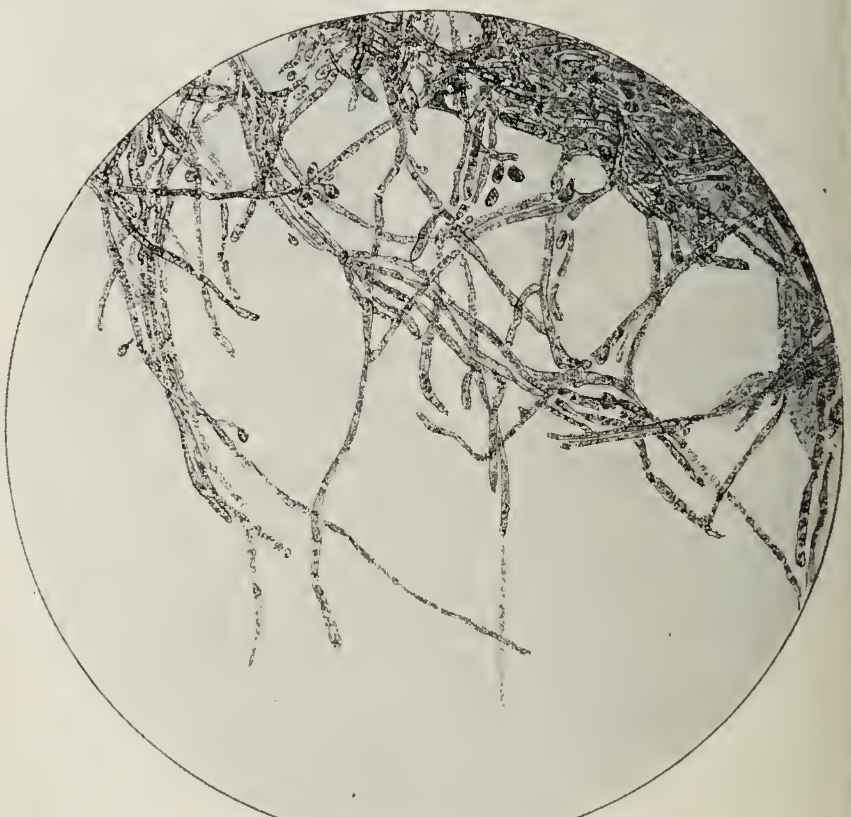

Fig. 12.—Four-day-old colony in plain bouillon; methylene-blue; oil immersion; showing septa in mycelium.

Histology.—Microscopic section of the excised nodules showed a chronic inflammatory tissue consisting of round and epithelioid cells with occasional plasma cells. One portion contained a considerable number of large giant-cells with nuclei arranged at the periphery. In the center of two giant-cells was a short, poorly stained oblong rod resembling a thick, short bacillus. These are probably modified tissue forms of the organism as described by Beurmann and Gougerot.

Another area of the section contained a considerable number of eosinophils. I could find no reference in the American literature to a similar finding nor in the recently published monograph by Beurmann and Gougerot.[5] However, de Massary, Doury and Monier-Vinard[6] described in 1907 an infiltration of polynuclear eosinophilic leukocytes in the periphery of a sporothrix nodule.

Animal Experiments.—Pure cultures of sporothrix inoculated intraperitoneally into white rats and guinea-pigs produced in some instances small subcutaneous abscesses about the point of injection and multiple abscesses in the parietal and visceral peritoneum and in the liver and spleen. Smears from these abscesses showed many spores, some apparently within the leukocytes, but no budding forms or mycelium. In tissue sections, oval spores were found in large numbers within and between the fixed tissue cells. No giant-cells were found. Numerous eosinophils were present.

SPOROTRICHOSIS IN AMERICA

As the result of a rather careful search through the American literature, I have found that twenty-eight cases (including the present one) of undoubted sporotrichosis (as proved by positive cultures of the organism) have been reported during the thirteen years following Schenck's original publication. In addition, I have collected thirty cases of highly probable sporotrichosis, cases clinically identical with the twenty-eight positive cases, but without positive cultures. The first group of cases is tabulated in Table 1, the second in Table 2.

A summary of the findings in these cases is as follows:

Geographic Distribution.—Fourteen states are represented* from various localities in the United States, divided as follows: North Dakota twenty-two cases; Kansas, thirteen; Nebraska, five; Illinois, two; Missouri, three; New York, two; Minnesota, two; California, one; Iowa, one; Indiana, one; New Jersey, one; South Dakota, three; Montana, one; Wisconsin, one; total, fifty-eight cases.

TABLE 1.—DIAGNOSIS BY CULTURES

Case	Author	Year	Location	Patient			Primary Infection	Nature of Trauma
				Sex	Age	Occupation		
1	Schenck[3]	1898	St. Louis.	M.	36	Ironworker.	Index-finger of right hand.	Nail on keg of red lead.
2	Hektoen and Perkins[1]	1900	Shenandoah, Iowa.	M.	5	. . . .	Left index-finger.	Blow by hammer.
3	Quain[26]	1904	North Dakota.	F.	35	. . . .	Inner side leg.	
4	Burlew[13]	1909	San Juan Capistrano, Cal.	M.	. .	Farm hand	Left cheek and ant. surface right leg.	
5	Trimble and Shaw[14]..	1909	Kansas.	. .	. .	Report not available.	. . . .	
6	R. L. Sutton[2].	1910	Ottawa, Kan.	F.	30	Housewife.	Ball of right thumb.	
7	Hyde and Davis[4]. . . .	1910	North Dakota.	M.	24	Farmer.	Back of left hand.	
8	Zuraski[15]	1910	Chicago.	M.	25	Packer for express company.	. . . .	
9	R. L. Sutton[12]. . . . . . . (Wood)	1910	Independence, Mo.	F.	18	Farmer's daughter.	Back of right hand.	Feeding kaffir corn to dog.
10	Gifford[27]	1910	Omaha, Neb.	F.	. .	. . . .	Eyelids.	
11	J. M. Sutton[16]. . . . . . . (First case)	1911	Halstead, Kan.	M.	52	Laborer.	Palm of left hand.	Puncture wound by small nail.
12	J. M. Sutton[16]. . . . . . . (Second case)	1911	Halstead, Kan.	M.	40	Farmer.	Index-finger of right hand.	Disk harrow.
13	J. M. Sutton[16]. . . . . . . (Third case)	1911	Halstead, Kan.	M.	36	Farmer.	Second phalanx of thumb.	Cut.
14	J. M. Sutton[16]. . . . . . . (Fourth case)	1911	Halstead, Kan.	M.	28	Farmer.	Pimple opened with pin.	
15	Ruediger and Miller[28]	1911	North Dakota.	M.	45	Farm laborer.	Middle finger of left hand.	
16	R. L. Sutton[18]. . . . . . . (Ashley)	1911	Earlton, Kan.	M.	44	Farmer.	Right wrist.	Piece of baling wire.
17	Hamburger . . . . (Bevan)	1911	South Dakota.	M.	28	Farmer.	Calf right leg.	
18	Turrell[29]	1911	Smithtown Branch, N. Y.	M.	12	Inmate children's home.	Top of great toe.	
19	Turrell[29]	1911	Smithtown Branch, N. Y.	M.	. .	. . . .	Back of hand.	
20	Ruediger[30] . . . . (Altnow)	1912	Morton County, N. Dak.	F.	20	. . . .	Pimple on elbow.	
21	Ruediger[30] . . . . (Newlove)	1912	McHenry County, N. Dak.	M.	32	. . . .	Hand.	
22	Ruediger[30] . . . . (Johnson)	1912	Poplar, Mont.	M.	41	Farmer.	Tip of index-finger.	
23	Ruediger and Smith[31]	1912	North Dakota.	F.	3½	. . . .	Index-finger left hand.	Cut.
24	Armstrong[32]	1912	St. Paul.	M.	50	Handler of green hides.	Pimple back of right hand.	
25	Thabes[30]	1912	Frazee, Minn.	M.	50	Woodman.	Back of hand.	
26	Adams[33]	1912	South Dakota.	M.	27	Farmer.	Index-finger.	
27	Foster and Thearle[34].	1912	Fort Leavenworth, Kan.	M.	. .	U. S. Army.	. . . .	
28	Olson[35]	1912	Tappen, N. Dak.	M.	19	Farm laborer.	Pimple back of hand.	Probable infection from gophers.

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* This probably does not indicate the relative frequency of the disease, for, as already mentioned, eleven of the twelve Kansas cases were reported in the twelve months immediately following the report of the first Kansas case by Sutton.

Sex.—In the reports in which sex is mentioned, there were thirty-two males and twenty-one females.

Age.—All ages are represented, the youngest patient being 3 years, the oldest 70; twenty-seven cases occurred in persons between the ages of 15 and 45.

Occupation.—Infections occurred in farmers and farmers' children fifteen times; in florists two times; once each in an iron-worker, a berry-picker, an express-company packer, a laborer, a housewife, a school-teacher, a potato-peeler, a woodman and a soldier.

Seat of Primary Infection.—Back of hand five times; index-finger four times; palm of hand twice; thumb twice; once each in wrist, arm, thigh, anterior surface of leg, knee and calf.

Trauma.—Occurrence of preceding trauma is mentioned nine times; no history of trauma in nine cases; of the nine cases mentioning trauma, two were caused by nails; two by wire; one each by hen bite, blow by hammer, disk harrow and knife.

Duration of Disease.—From three weeks to eighteen months.

There has been no case of systemic sporotrichosis reported in this country, so far as I am aware.

CLINICAL VARIETIES

The classification of the clinical varieties is that given by Beurmann:[7]

1. Localized sporotrichosis with sporotrichotic chancre and ascending lymphangitis and local lymphadenitis (present case).

2. Disseminated gummatous sporotrichosis; multiple subcutaneous nodules distributed without systematic arrangement throughout the body; early small hard painless round masses; late small and large soft cold abscesses. *No ulceration.*

3. Disseminated ulcerative sporotrichosis; multiple polymorphic ulcerations of the nature of tuberculous, syphilitic, ecthymatous, rupial or furuncular lesions or a mixture of these.

4. Extracutaneous sporotrichosis, with localization in mucous membranes, muscles, bones, joints, ocular tissues, synovial membranes, kidney (one case) and lungs (two cases).

DIAGNOSIS

The features which are helpful in the differential diagnosis of sporotrichosis may be grouped as follows:

TABLE 2.—DIAGNOSIS BY CLINICAL FINDINGS

Case	Author	Year	Location	Patient			Primary Infection	Nature of Trauma
				Sex	Age	Occupation		
1	Brayton[19]	1900	Indianapolis.	M.	30	Florist.	Index-finger left hand.	Wire prick.
2	Quain[26]	1904	Bismarck, N. Dak.	F.	..	....	Dorsum of hand.	Bruise.
3	Quain[26]	1904	Bismarck, N. Dak.	F.	18	School-teacher.	Left thumb.	Cut.
4	Quain[26]	1904	Bismarck, N. Dak.	F.	40	....	Back of left hand.	
5	Quain[26]	1904	Bismarck, N. Dak.	M.	70	....	....	
6	Quain[26]	1904	Bismarck, N. Dak.	F.	48	....	Right forearm.	Bruise.
7	Quain[26]	1904	Bismarck, N. Dak.	F.	3	Granddaughter of patient No. 6.	Wrist.	Scratch bandaged with sporothrix-infected dressings.
8	Quain[26]	1904	Bismarck, N. Dak.	..	..	....	Forearm and arm.	
9	Stickney[36]	1905	Dickinson, N. Dak.	..	..	....	Hand and forearm.	
10	Stickney[36]	1905	Dickinson, N. Dak.	..	..	....	Arm and upper arm.	
11	Stickney[36]	1907	Dickinson, N. Dak.	..	..	....	Right shoulder, left neck and face.	
12	Stelwagon[20] .... (Stout)	1910	New Jersey.	F.	67	Berry picker.	Palm of left hand.	
13	Pusey[21]	1910	Chicago.	F.	..	Florist.	Arm.	
14	R. L. Sutton[12]....... (Chadwick)	1910	Tyro, Kan.	M.	11	Farmer's boy.	Back of right hand.	Hen bite.
15	R. L. Sutton[12].......	1910	Highpoint, Mo.	F.	16	....	Index-finger.	Kraut-cutter.
16	Gifford[27]	1910	Omaha, Neb.	F.	14	....	Right lower eyelid.	
17	Gifford[27]	1910	Omaha, Neb.	M.	10	....	Left lower eyelid.	
18	Gifford[27]	1910	Omaha, Neb.	F.	32	....	Left lower eyelid.	
19	Gifford[27]	1910	Omaha, Neb.	M.	4½	....	Right lower eyelid.	
20	Gifford[27]	1910	South Dakota.	F.	4	....	Right lower eyelid.	
21	Barker[22]	1911	Horton, Kan.	M.	5	Farmer's son.	Back of right hand.	Scratch.
22	Beam[23]	1911	Wilsey, Kan.	M.	17	Farmer's son.	Left knee.	Indolent ulcer opened with needle.
23	Steward[24]	1911	Denison, Kan.	F.	42	....	Inner surface right thigh.	
24	Henderson[25]	1911	Erie, Kan.	M.	19	Farmer.	Dorsum left hand.	Pimple opened with pin.
25	Ritchie[37]	1911	Wisconsin.	F.	..	Potato peeler.	Middle finger.	Knife cut.
26	Hanson[30]	1912	Charlson, N. Dak.	M.	4	....	Back of hand.	Scratch.
27	Hanson[30]	1912	Charlson, N. Dak.	M.	48	....	Pimple dorsum right hand.	
28	Hanson[30]	1912	Charlson, N. Dak.	M.	7	....	Back of hand.	
29	Ruediger[30] .... (Johns)	1912	Adams County, N. Dak.	F.	42	....	Pimple inner surface forearm.	
30	Ruediger and Smith[31]	1912	Bismarck, N. Dak.	F.	43	....	Pimple back of hand.	

Clinical.—The occurrence in men between the ages of 15 and 45, in the country and farming districts (but also in the cities).

The occurrence in farmers, fruit and vegetable dealers, berry-pickers, florists, etc.

A history of preceding trauma by nails, wire, knife, hammer, bite of animals (rat, hen), pin-prick, etc.

The slow period of incubation, following the initial trauma; the insidious onset and slowly progressing course; the slow ascending infection following the course of the deep lymphatics.

The production of characteristic small, round, hard, subcutaneous nodules, and their uniform evolution into softened cold abscesses or cutaneous ulcers.

The long-drawn-out clinical course of the disease, with little or no pain or temperature and little or no effect on the general health.

Laboratory.—The local and general eosinophilia. The presence of eosinophils in the nodules has already been mentioned. In addition, eosinophils have been noted in the initial chancre,[8] in the pus from the broken-down nodules[9] and in the circulating blood of experimental animals,[10] as well as clinically.[11] It will be of great clinical interest, therefore, to see whether more extended observations will show the eosinophilia in sporotrichosis to be of diagnostic importance.

The cultivation of the organism on artificial mediums, the growth of *Sporotrichium* being characterized by its slow initial appearance; its ready growth on 2 per cent. glucose agar at room or incubator temperature; its raised corrugated appearance on slant agar and its radiating, flower-like appearance in stab culture; its brownish-black pigment production in old cultures and on 4 per cent. glucose agar; its branching septate mycelium and pear-shaped spores.

TREATMENT

Treatment is well summed up in Beurmann's words, as follows: "Potassium iodid should be administered internally in increasing doses as high as 6 gm. a day and even more, and the local lesions should be dressed with a weak iodi-iodid solution: water, 500 gm.; potassium iodid, 10 gm.; iodin, 1 gm. Finally, the ulcerated points should be cauterized with tincture of iodin. The prolongation of general treatment for a month after complete, apparent recovery is indispensable to prevent relapse and recurrences."

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THE APPLICATION OF CONSERVATIVE SURGERY TO OVARIAN DERMOIDS

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The case which prompted this investigation occurred in the practice of Dr. Edward Reynolds of Boston, during my service as assistant to him, and I am indebted to him for permission to report it, and for the first suggestion of the interest and importance of the subject.

A young woman, with excellent history and in good general health, the mother of one child, came to operation for the repair of a lacerated cervix and perineum, and the correction of certain ovarian abnormalities which had become evident on examination. The ovaries were both found to be somewhat enlarged, and each contained a small dermoid cyst, apparently of the usual type. In addition, there were several small serous cysts. As the patient was extremely anxious that the ovarian function be retained, both dermoids were excised, the serous cysts were evacuated, and their linings removed. This procedure left an ample amount of apparently normal ovarian tissue on the left side, and somewhat less on the right. Convalescence was uneventful.

A pathologic report on the dermoids stated that they were not free from the suspicion of malignancy, as the cells were somewhat too numerous, and showed a tendency to atypical arrangement. After consultation with the patient and her husband (a physician), it was their choice to take the possible risk involved in delay, rather than to submit to another immediate operation which would necessitate a perhaps unjustified sterilization.

About ten months later, she was obliged to submit to a second operation on the discovery of a second enlargement of the right ovary. This was done in another city; but her husband subsequently reported that the tumor was a simple dermoid.

The question of the possibilities of malignancy in ovarian dermoids was naturally considered immediately after the first operation, but a hurried search of the literature of both text-books and journals failed to throw any considerable light on the subject. A more complete and thorough investigation of the available facts forms the basis of this article.

The coexistence of pregnancy and ovarian dermoids is sufficiently common to permit the definite assertion that an ovary which is the seat of one or more of these tumors is usually capable of performing its share in the reproductive function. Bland-Sutton[1] mentions two cases of double ovariotomy for dermoids during pregnancy. In one of these cases, normal ovarian tissue was not detected in either ovary after microscopic investigation. In determining the advisability of conservation in these cases, we have then to deal with the possibilities of recurrence, extension and metastasis which they present.

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[1] Bland-Sutton: Surgical Diseases of the Ovaries and Fallopian Tubes.

It is generally accepted that the ovarian dermoid is to be sharply differentiated from the dermoid tumors occurring in other organs, in that it arises, not from the ectoderm alone, but from all three germinal layers (Wilms, quoted by Neumann[2]). From this the further deduction can be made that they are to be considered as a one-sided development of a teratoma (Dr. James Ewing—personal communication), and that the true dermoid bears to the teratoma the same relation that an adenoma bears to a carcinoma, or a fibroma to a sarcoma (Pfannenstiel[3]). The latter authority goes on to state that the same gradations occur between the dermoid and teratoma as exist between adenoma and carcinoma, or between fibroma and sarcoma.

If these parallels are accepted, it is evident that the true, simple dermoid represents the benign manifestation of the same neoplastic process, the malignant phase of which is the complex teratoma. Undoubtedly the simple dermoid is a benign growth in itself (Ewing, Askanazy,[4] Bland-Sutton,[5] Pfannenstiel[3]), but there is the possibility of inherent malignancy in atypical dermoids which approach the teratoma type. The teratoma itself is usually possessed of varying degrees of inherent malignancy, both as to its tendency to invade surrounding structures and to metastasis, as well as to its clinical picture (cachexia, etc. Pfannenstiel[3]).

Frank,[6] in a discussion of ovarian teratomas, gives the following basis for gross and histologic differentiation:

SIMPLE DERMOID	TERATOMA
1. Cystic, but may show projections of cyst wall.	1. Solid, though riddled with small cysts.
2. Well-defined arrangement of fetal layers.	2. Atypical arrangement of fetal layers (von Rindfleisch—a histologic potpourri).
3. Structures attain high development; i. e. late fetal or adult period.	3. Tissues rarely advance beyond early embryonal stage.

The last point of differentiation made is open to the criticism that certain contents (notably teeth) of undoubted teratomas are found to be fully formed and very similar to the corresponding structures in the adult.

Another phase of this question must be considered. True dermoids, benign in themselves, are subject to:

Primary malignant degeneration.
Secondary malignant implantation.
Coexistence with, but independence from, malignant tumors of the same ovary.

The most complete discussion of this subject is by Neumann,[2] in 1899. He covers the literature up to that time, and deals with both dermoids and teratomas which present carcinomatous or sarcomatous cells. I have collected the reports of cases from then on, taking only those dealing with simple dermoids. In many of the cases, the line between dermoids and teratomas has been difficult to draw, as many writers seem to use the terms interchangeably. This fact, in connection with the objection that Neumann's classification may be somewhat antiquated, will tend to lessen the value of this summary as an accurate pathologic survey of the cases, but from the clinical point of view, I feel that it will be of some service.

SUMMARY OF REPORTED CASES OF MALIGNANT TUMORS COMPLICATING OVARIAN DERMOIDS

1. Dermoids undergoing primary malignant degeneration:	
A. Carcinomatous.	
Recorded by both Neumann[2] and Tauffer,[7] including Tauffer's own case	5
Recorded by both Neumann[2] and Yamagiva,[8] including Yamagiva's own cases (two)	2
Recorded by Neumann,[2] other than above	6
Reported by Norris,[9] own case	1
Recorded by Ludwig,[10] including own case	5
Recorded by Pölzl,[11] including own case	6
Recorded by Clark,[12] including own case	3
Reported by Menestrina,[13] own case	1
Reported by Shoemaker,[14] own case	1
	30
B. Sarcomatous.	
Recorded by Neumann,[2] including own case	7
Reported by Lorrain,[15] own case	1
Recorded by Shoemaker,[14] including own case	2
Reported by Amann,[16] own case, melanotic sarcoma	1
	11
2. Dermoids showing combination with other malignant tumors:	
A. Carcinoma.	
Recorded by Neumann[2]	3
Reported by Brettauer,[17] own case (cancer growth noted as being entirely distinct from dermoid)	1
Reported by Benjamin,[18] own case	1
	5
B. Sarcoma.	
Recorded by Neumann[2]	2
C. Endothelioma.	
Recorded by Neumann[2]	1
Total	49

To the above may possibly be added one case (Bierman's), classified by Neumann[2] as a teratoma, but which is accepted by Tauffer,[7] and Clark,[12] as a dermoid undergoing primary carcinomatous degeneration, and four cases which Neumann[2] mentions but does not classify.

The incomplete data on most of the cases give little to work on in any attempt to classify them as to etiology, etc. Both married and unmarried women appear in the list, and the number of pregnancies has no apparent influence. Practically the only conclusions which can be fairly drawn point to this complication of ovarian dermoids as a rare occurrence, but one which still rther emphasizes the necessity of submitting these mors to careful microscopic analysis in every case.

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[2] Neumann: Dermoidcyste eines überzähligen Eierstockes mit maligner (peritheliar) Degeneration der Cystenwand, Arch. f. Gynäk., 1899, lviii, 185.

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[5] Bland-Sutton: Tumors, Innocent and Malignant, p. 496.

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Still another characteristic of the ovarian dermoid mands attention in a discussion of possible malig-ancy, and that is the occurrence of "peritoneal metas-ses." This condition is one in which the peritoneum dotted with minute knots, each furnished with a nall tuft of hair. Bland-Sutton[5] applies the term epithelial infection" to this process, and does not seem consider it an indication of malignancy. The subse-uent course of the majority of these lesions seems to ear out his theory; as many of them are found, on xamination, to be dead or dying.

Randall[19] believes that there is an element of trau-atism in the etiology of this process, and he distin-uishes between slow leakage of the contents of the der-oid, and the entrance into the peritoneal cavity of the ontents of the cyst in bulk. In the former case, the esult is that small collections of cells are widely dis-ributed over the peritoneal surface, and delicate adhe-ions are formed, while in the latter instance dense ands and adhesions are formed everywhere. He escribes a case and reports several others. His own ase is one in which the peritoneum was found studded ith firm, whitish nodules, varying in size from a mus-ard-seed to a pea. These, as well as the original der-oid, were removed so far as possible. Thirteen months ater, the patient was taken with neuralgia, vomiting nd right hemiplegia, and died in two days. No utopsy was obtainable. The abdomen was negative uring the latter illness.

Pfannenstiel[3] holds that this process should be con-idered as a phase of malignancy, and it would seem air to venture the statement (based on the description f the original tumors in the reported cases), that this omplication is one occurring chiefly in the tumors of he type bordering on the teratoma.

I would offer the conclusion that primary conserva-ion of the ovary, if technically possible and otherwise lesirable, is the operation of choice in dealing with varian dermoids which give no evidence of malignancy n the gross or on the immediate examination of a rozen section. The excised tissue should invariably be xamined subsequently with the utmost detail for micro-copic evidence of the threefold possibilities of malig-ancy, each of which, fortunately, is rare. In young vomen, a radical operation is imperative only if lemanded by positive pathologic findings.

BILATERAL FIBROMATOSIS OF OVARIES, WITH OSSIFICATION OF OVARIAN FIBROMA *

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If one excludes certain varieties of teratoma, true sseous tumors of the ovary are exceedingly rare. In recent communication, Pozzi and Bender[1] critically eview the somewhat meager literature on the subject, nd report two new examples of the disorder. According to Williams[2] the case described by Le Clerc de Beaucoudray[3] in 1760, was probably the first authentic instance of this condition ever recorded.

Pozzi and Bender express the opinion that the vast majority of cases reported as examples of ossification of the ovary, or ovary and tube, are in reality, either teratomas with bone admixture, or simple calcareous degeneration of the usual anatomic structures, with or without associated tubo-ovarian fibromatosis.

The following case of ossification of the ovary, which was recently under my care, is of interest, not only on account of the rarity of the condition, but also because of the comparatively large size of the tumor and the very slight amount of subjective disturbance to which its presence gave rise.

History.—The patient was a strong and active single woman of 18 years, and one of a family of ten healthy children. Her parents and grandparents are alive and well. The patient first menstruated at the age of 14. Since that time, the periods have been more or less irregular, although painless, and marked by a discharge which was normal in appearance and amount. Her general health has always been excellent. One year prior to the date of consulting me, she weighed 160 pounds. At the time of examination her weight was 145 pounds. In June, 1911, the patient's menses ceased, and did not reappear. No pain, discomfort or illness had been present at any time. The temperature was normal, and there was no increase in the pulse-rate. Except for an occasional sensation of numbness in the lower limbs, the patient felt normal in every way.

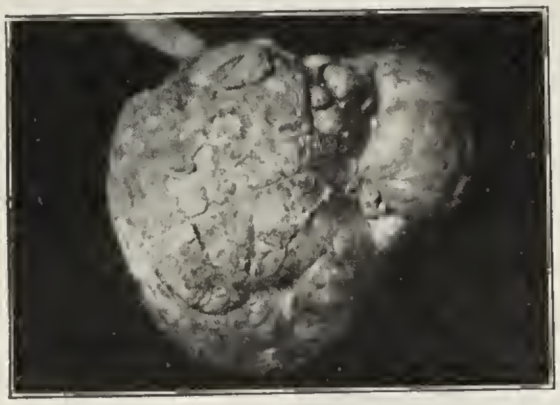

Fig. 1.—Right ovarian mass, prior to division.

Examination.—The young woman presented every appearance of good health, despite the history of recent loss of weight. Inspection revealed an irregular contour of the lower half of the abdomen, greater in prominence on the right side. Palpation showed the presence of a firm, lobulated, slightly movable mass in the right lower quadrant. On rectal palpation, a large, somewhat rough, irregular mass could be felt occupying the greater portion of the pelvic cavity.

Operation.—The surgical removal of the tumor offered no unusual difficulty, aside from the rather firm impaction of the growth in the pelvis, necessitating the exertion of considerable force in its extraction. The uterus was found to be unchanged, and rested on the upper surface of the tumor mass.

Pathologic Specimen.—The growth itself was irregularly oval in shape, and measured 12.5 by 15 cm. At the time of removal it weighed 2.26 kilos. When sawed in two, it was found to consist of a solid, body wall, varying in thickness, with an oval cavity in the center. This cavity was filled with a grayish, granular material which probably represented disintegrated and degenerated fibrous tissue. Nothing suggestive of teratoma fragments was to be found anywhere in the tumor.

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[19] Randall: Ovarian Dermoid with Secondary Cysts Connected with the Omentum, Proc. Roy. Soc. Med., 1908, i, Part 2.

* Read before the Jackson County Medical Society, March 26, 1912.

[1] Pozzi and Bender: Rev. de gynéc. et de chir. Abd., 1912, xviii 129.

[2] Williams: Am. Jour. Obst., 1893, p. 1; quoted by Pozzi and Bender.

[3] Le Clerc de Beaucoudray: Jour. de méd., de chir. et de pharmacol., 1760, xii, 530.

Portions of the mass were examined, both clinically and microscopically, by Dr. Otto Leslie Castle. Although the lamellæ were irregularly arranged, a section of the tumor revealed the characteristic structure of bone tissue.

The left ovary also was enlarged, and measured 4.5 by 6 cm. On section, it was found that the organ had undergone the changes incidental to fibromatosis, but no trace of either bony or calcareous matter could be discovered.

I am indebted to Dr. Otto Leslie Castle and to Dr. Walter M. Cross for the following pathologic report, and quantitative analysis:

"Left ovarian specimen consists of simple fibroma. The fibromatous tissue is continuous with ovarian tissue. Right ovarian specimen consists of fibromatous nodules, and a bony mass which has the appearance of eburnated bone. The central cavity contains degenerated connective tissue, with some lime salts. The saw-cut body surface is of nutmeg appearance. A section of the bony mass was made by grinding a thin fragment on a water-stone, dehydrating in alcohol and mounting in hard balsam. Histopathologically, the specimen is found to consist of atypical bone tissue with irregular spaces and canals. No typical haversian systems can be recognized, although numerous connecting canals between bone spaces can be seen. This process probably represents a metaplasia of the fibrous tissue. There is no evidence of teratoma."

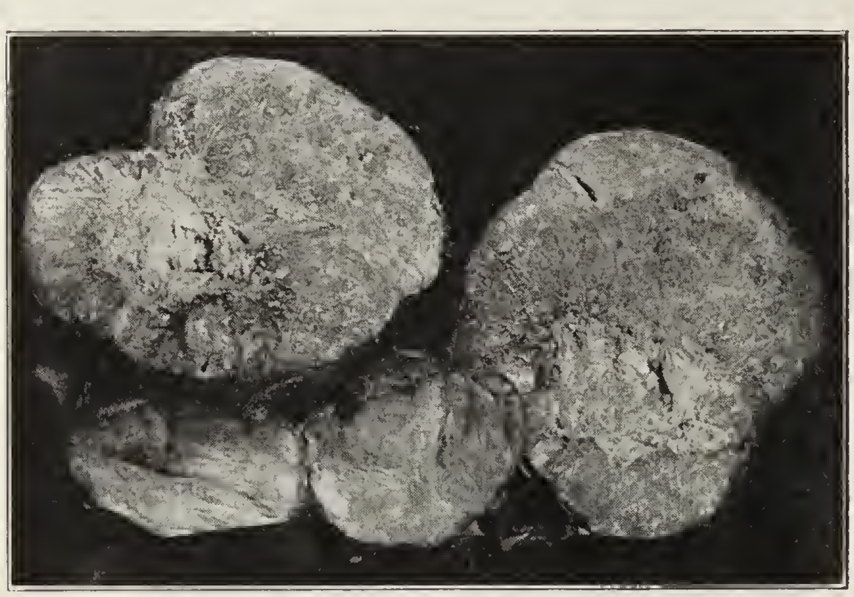

Fig. 2.—Right ovarian mass, after division, showing cavity in center and the character of the bony walls.

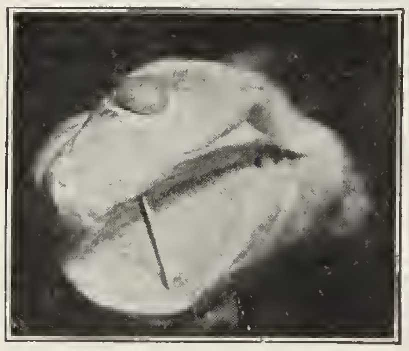

Fig. 3.—Left ovary, showing presence of fibrous tissue and thickening of capsule (beginning fibromatosis).

Chemically, Dr. Cross, city chemist, found the mass to consist of:

$Mg_3(PO_4)_2$ 1.65% ; $CaCO_3$ 10.40% ; $Ca_3(PO_4)_2$ 84.88%

Wells[4] gives the comparative results of quantitative analyses of bone and calcified masses as follows:

	$Mg_3(PO_4)_2$	$CaCO_3$	$Ca_3(PO_4)_2$
Calcified Masses	0.84 to 1.5	7.6 to 13.4	85.4 to 90.6
Normal Ossification...	1.02 to 1.75	9.2 to 12.8	83.8 to 87.8

Consequently, the analysis places the tumor here reported in the normal classification class.

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[4] Wells: Jour. Med. Research, 1906, vii, 491.

Women and Quacks.—Among the victims to quackery of every sort women far outnumber men. They are always more trustful, and, as a rule, find it more difficult, especially when suffering, to believe that anyone can be base enough to abuse their confidence, much less to take advantage of their helplessness in order to plunder and injure them.—Henry Sewill in *Vanity Fair.*

INFLUENCE OF SODIUM IODOXYBENZOAT ON REACTIONS OF INFLAMMATORY CHARACTER*

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AND
J. H. MASON KNOX, JR., M.D.
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A rabbit sensitized to horse-serum responds to a injection of a small amount of serum into its epidermi with a local reaction at the place of injection. Th reaction consists of a swelling accompanied sooner o later with reddening and heat, while frequently more o less pronounced hemorrhages with necrosis occur.

In the course of our investigation it became apparen that the size of these local reactions may be used as fairly accurate expression of their intensity. We studie the variations in the intensity of these reactions unde different conditions. Since the reactions of differen animals showed rather wide variations, we followed th extent of the reactions in the same animals for varyin periods of time before and after the injection of th drugs to be experimented with.

A number of rabbits received shortly before or afte the injections of the serum 10 c.c. of twentieth-norma neutral sodium ortho-iodoxybenzoate solution, intravenously. The effect of the drug on the extent of the reactio is strikingly shown by the accompanying tabulation:

EFFECT OF SODIUM IODOXYBENZOATE ON AREA OF LOCA REACTION TO SERUM

	2 Hours. mm.	4 Hours. mm.	6 Hours. mm.	24 Hour mm.
Before administration of sodium iodoxybenzoate..	18.8	22.5	24.6	21.5
After administration of sodium iodoxybenzoate..	5.1	6.6	9.4	9.0

A series of experiments in which sodium iodosobenzoate was used in the same concentration and dosage als showed an inhibitory effect on the reactions, but not s striking as that of the sodium iodoxybenzoate.

The administration of sodium iodbenzoate and sodiu benzoate in equal molecular concentrations had n inhibitory effect on the local reaction. It was necessar to determine whether the iodoxybenzoic acid exercises a influence on the mechanism of the allergic reaction wit which we were dealing.

In another series of experiments, intravenous injections of larger doses of horse-serum were given befor the intradermal injections. This also reduces the loca reactions very markedly. In this case we have to d with an anti-anaphylactic phenomenon.

It is known that the fall in blood-pressure on reinjection of sensitized dogs can be prevented by the slo injection of small amounts of horse-serum; but a previous injection of sodium iodoxybenzoate in dogs sensitized to horse-serum does not prevent the usual larg drop in blood-pressure on the injection of a second dos of horse-serum. It is therefore evident that the mechanism by which the sodium iodoxybenzoate influence the cutaneous reaction cannot be attributed to an influence on the general allergic reaction.

In another series of experiments we studied the local effect of sodium iodoxybenzoate in the following manner:

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* Read in the Symposium on Antiseptics and Germicides in th Sections on Pharmacology and Therapeutics and Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Pediatric and Pharmacologic departments of the Johns Hopkins University.

The animals (rabbits) received in the right side of he abdomen a certain amount of serum diluted with aline solution, in the other side the same amount of erum diluted with a sodium iodoxybenzoate solution; in third situation a solution of iodoxybenzoate alone was njected as a second control.

The results were plotted in a chart, which is not reproduced here,[1] but which showed that here also the sodium odoxybenzoate exercises an inhibitory influence particuarly during the first four hours.

From the studies of Loevenhart[2] it appeared probable hat the iodoxybenzoate and iodosobenzoate may affect xidation processes in the organism. Therefore we hought it possible that the influence of these drugs used n our experiments is attributable to their effect on oxiation processes, a point of view supported by the inacivity of the iodbenzoic acid.

A further ground for this hypothesis was furnished by he results attained in a series of experiments with odium cyanid, a drug which is known to interfere with he oxidative processes of the tissues. In the latter xperiments the rabbits received intradermally in the ide of the abdomen a certain amount of serum diluted with a solution of sodium cyanid, and in the other side he same amount of serum diluted with a solution of odium hydroxid, the alkalinity of which corresponded o that of the sodium cyanid solution. A third injecion was given at another point with the same solution of odium hydroxid alone. The results showed that particularly during the first few hours the reactions obtained with the serum-sodium cyanid are more intense than hose with the serum-sodium hydroxid.

From our studies we incline to the view that the sodium iodoxybenzoate does not affect the general allergic reaction but that it does influence the local intracuaneous reaction which owes its origin to the production of some toxin resulting from the reunion of allergin and ergin.

The intracutaneous reaction is of an inflammatory type. The influence of the iodoxybenzoate noted seems o inhibit particularly the degree of swelling. This local swelling is chiefly characterized by serous infiltration, that is, by edema. Therefore we may, perhaps, express our results as follows:

Sodium iodoxybenzoate inhibits a certain phase of an inflammatory reaction, while sodium cyanid intensifies it.

Since the influence of these drugs possibly may be attributable to their effect on oxidation processes in the tissues our results seem to confirm the contention of Martin Fischer[3] that any interference with the oxidative processes of the tissues is likely to favor the production of edema.

Edema we consider one of the manifestations of inflammation, and we suggest the hypothesis that any measures, favoring the oxidative processes have a tendency to inhibit certain phases of inflammatory phenomena, while measures interfering with oxidative processes have the opposite tendency.

We recall here the results obtained by Loevenhart[4] in the treatment of certain skin infections by an ointment of benzoyl peroxid. This author thought that the healing effect of the ointment was due partly to the antiseptic property of this drug and partly to its influence on the tissue-cells favoring oxidations. The beneficial result of the open-air treatment of tuberculosis, of infective conditions in general and even of open wounds may possibly be explained in part on the same hypothesis.

So far our experiments were conducted with a peculiar form of reaction, but our recent experiments with mustard-seed oil have shown that here also iodoxybenzoate and iodosobenzoate have a striking inhibitory effect on the local intracutaneous reaction, while iodbenzoic acid has none.

Of special interest are results with the intracutaneous administration of diphtheria toxin. Twenty-four hours after the injection rabbits treated with iodoxybenzoate showed a marked inhibition of their reactions, while subsequently the reactions of treated and untreated animals took about the same course. This result is the more remarkable as the reactions of the untreated animals do not develop visibly before about twelve hours after injection of the toxin; that is, at a period when the immediate effects of the iodoxybenzoate are not likely to exist any longer.

The conception is therefore suggested that the injection of the iodoxybenzoate produced such changes in the organism as to alter its local reactivity to diphtheria toxin.

It appears to us not impossible that the altered reactivity in this case is primarily due to some influence on the oxidative processes of the organism.

THE RETAIL PHARMACIST AS A PURVEYOR OF PURE DRUGS *

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PHILADELPHIA

In a recent novel[1] which has attracted considerable attention among pharmacists is the following: "I don't see what bigger thing a man can do than to combine pure, clean, unadulterated roots and barks into medicines that will cool fevers, stop chills and purify bad blood. The doctors may be all right, but what are they going to do if we men behind the prescription case don't supply them with unadulterated drugs?" This seems like a fair question for the layman to ask and the answer to it would seem a simple one, involving only the question of honesty or integrity; but we know that the problem itself is much broader, more complicated and difficult than the writer implies, not only on account of the division of interest and responsibilities, but also on account of the inherent difficulties of the drug problem itself.

That the ideals of the reliable pharmacist are not surpassed by those of the harvester, as just quoted, is shown by an incident referred to by Professor Procter in his address to the graduating class of the Philadelphia College of Pharmacy in 1858.[2] The incident occurred in New York and related to a friend of Professor Procter's whom he called Colton, and who at that time was a prominent pharmacist on Broadway. The pharmacist, having occasion to replenish his stock of cantharides and finding that the wholesale druggist with whom he usually dealt had none, went to another wholesale druggist whom the narrator named Haswell. When Colton entered the extensive establishment the following dialogue ensued:

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[1] Amberg and Knox: Jour. Pharmacol. and Exper Therap., 1912, iii, 223.

[2] Loevenhart and Grove: Jour. Pharmacol. and Exper. Therap., 1909-1910, 281; ibid., November, 1911.

[3] Fischer, Martin H.: Oedema, 1910.

[4] Loevenhart: Therap. Monatsh., 1905, xix, 426.

* Read in the Symposium on Drug Standards in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] Porter, Gene Stratton: The Harvester, p. 41, Doubleday, Page & Company.

[2] Procter, William: Am. Jour. Pharm., 1858, xxx, 202.

Colton: "I am informed that you have powdered cantharides of good quality, and I am desirous of getting some that are reliable."

Haswell: "Oh, certainly! You will find none better. We had the powder made expressly for our sales from selected flies."

Colton: "I am particular in providing this drug, as you know how much depends on its efficient and prompt action."

Haswell: "You may rely on our article as in good condition."

Here the conversation closed; Colton gave his order and left the store. Some weeks after while he was engaged at his counter, Haswell walked in, evidently under some nervous excitement, and the following occurred:

Colton: "Good morning, Mr. Haswell, can I serve you to-day?"

Haswell: "A member of my family has been taken suddenly ill; her physician, among other treatment, has prescribed a blister, and I have come out of my way, believing from your well-earned reputation that we may rely on your cerate, and much depends on the rapid action of the plaster."

Colton: "I have always been careful in preparing this cerate from good flies and, fortunately, in this instance, I have your own testimony, in addition, in their favor."

Haswell, who had till that moment forgotten the first transaction, quickly replied: "But, sir! Are you sure those flies were active? Have you tried them?"

Colton: "You said they were when you sold them to me."

Haswell: "But, my dear sir, this blister is for my *daughter!* Don't you understand? For my only *daughter!* Can I rely on it?"

Colton: "For your *daughter!* And so my cerate is for every other man's daughter who deals with me and may need it, and who is as dear to his affection as yours is to you. When I purchased those flies from you, it was your reiterated assurance of their reliability which chiefly induced me to take them, but now I perceive that your language had no real value and was given in the spirit of a huckster. I trust, sir, that this incident will be of use in your future transactions; and for your present comfort I may assure you that your flies were found to be efficient before they were dispensed."

Haswell acknowledged the justice of the rebuke and said that never before had he been properly impressed with the responsibility attached to the wholesale drug business.

INCREASE IN THE NUMBER OF DRUGS

Until about twenty-five years ago the list of drugs in the Pharmacopeia represented those which were chiefly employed by the physician. At that time it was possible for the pharmacist to have a good oversight of the drugs and preparations which were employed. I can even recall when the Shakers sold directly to individual pharmacists many of the indigenous drugs that were used. While the means for the identification of drugs and chemicals were meager as given in the Pharmacopeia at that time, yet the professional pharmacist by his experience and training was enabled to judge quite well regarding the quality of drugs, his judgment depending much on their appearance, odor and taste. At that time many pharmacists handled the crude drugs described in the Pharmacopeia, and after grinding them themselves made nearly all of the pharmacopeial preparations, as these were all used in sufficient quantity to make it worth while.

Since that time drug-stores have been multiplied, pharmaceutic manufacturing houses have been established in great numbers, large chemical houses have been developed and the number of remedial agents has increased until it is safe to say that the articles in the Pharmacopeia represent but a small part of the substances actually used by the medical profession. While these changes have gone on in pharmacy we must recognize that they have reflected at the same time the changes in the practice of medicine. Such pressure has been brought to bear on physicians by the interests directly concerned that instead of their using pharmacopeial drugs and preparations we find them prescribing extensively the newer synthetics, the active principles and special preparations of manufacturers. The result of all this has been to add to the shelves of the pharmacist a host of remedies which are likely to be required at any time.

Beginning with the use of the standard fluidextract of ergot manufactured by Dr. Squibb, which was extensively designated in the prescriptions of physicians, we have seen this specialization developed and extended until to-day the pharmacist is compelled to carry a line of official preparations made by quite a number of manufacturers. While it is true that the competition among manufacturers and the development of definite standards in the Pharmacopeia have caused the production of a line of assayed drugs and preparations which in some cases at least are superior to and more uniform than those manufactured a few years ago, yet even these preparations may deteriorate or their properties change, in some instances, depending on how long they have been kept in the stock of the manufacturer or jobber as well as on the druggist's shelf. This places a great responsibility on the retail pharmacist, as he must have exact information regarding the value of drugs and preparations at the time they are dispensed. I think it can safely be said that the professional pharmacist usually exercises a great deal of care in selecting drugs and chemicals of good quality and in the making of galenicals which will be found to be efficient by the physician. Furthermore, even with those preparations which he purchases from a manufacturer, he will usually in one way or another make sufficient tests to satisfy himself that they are true to the label, so that there probably never has been a time when the professional pharmacist was more alert and more desirous of working with the physician than at the present. At this point I wish to refer to an article by Mr. Henry C. Blair[3] which, it seems to me, is well worthy of perusal. It is a practical exposition of what a professional pharmacist is capable of doing, and as the article was prepared essentially in the interest of professional pharmacy and was published in a pharmaceutic journal it will stimulate the pharmacists of the United States to endeavor to attain an even higher efficiency in the professional part of their calling. My object in mentioning this paper here is to show to physicians that there are among pharmacists those who give serious thought to the question of the purity and reliability of the medicines which they dispense.

It is probably true that there are more pharmacists in business than are necessary to supply the drugs and medicines required by the public; still the number of strictly reliable, conscientious or so-called professional pharmacists probably does not exceed the demand, and by a little inquiry physicians should have no difficulty in determining their location and thus be enabled to irect their patients to them. But of course no business lliance should exist between physicians and pharmacists n such cases. In this way the mere traders, whether oing a small or a big business, would in time become ifferentiated from the class of true pharmacists, even hough they did call themselves druggists; and the two rofessions would be mutually protected to a greater egree than probably obtains at present. While some hysicians might hesitate in a matter of this kind, the uestion is too important to be neglected, and we hould not wait until there is a separation by pharmacy aws of the true apothecary or professional pharmacist rom the mere vender of drugs. But laws or no laws, he most reliable pharmacist will always be the one who as the ability and conscientious scruples to take the nitiative himself in keeping his stock up to standard.

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[3] Blair, H. C.: The Manufacture of Galenicals by the Retail Pharmacist—Its Possibilities and Limitations, Jour. Am. Pharm. Assn., 1912, i, 17.

Until recently, we may say, and this is particularly pparent if we turn over the pages of a book like that of ragendorff's[4] with the thousands of remedies there ecorded, our principal object in the study of medicinal ubstances seems largely to have been to collect in one lace all the remedies that have been used, thus seeming o indicate that we were afraid of losing something that night prove ultimately useful to mankind. This period s contemporaneous in the United States with the time vhen the great compilations or dispensatories were opular, these being useful to the pharmacist and suggestive to the physician. Furthermore, our knowledge f drugs, apart from certain tests for identity, has conisted largely of unconfirmed statements regarding heir value, so that we may say that the most useless hings, like the pebbles, have been too frequently olished, while our knowledge of the most valuable rugs, like the uncut diamonds, remains bedimmed. Vith the exception of a comparatively few of the egetable drugs our knowledge regarding their active rinciples and specific action is more or less indefinite, o say the least, and hence they are for the most part vithout quantitative standards, even of purity.

Owing to the fact that there are many factors which ause a variation in the constituents of drugs, such as or example those which modify the character and quanity of the constituents depending on how and when the rugs are gathered and how they are cured or dried and ubsequently handled, it becomes exceedingly difficult for he pharmacists to furnish a uniform article from time o time, particularly in cases in which there are no standrds for the active remedial constituents. The difficulies of the pharmacist, dealing as he does with galenicals ontaining the constituents of living plants, are in a neasure comparable to the difficulties of the physician vho finds his patient a living organism with individual ariations that preclude his determining with absoute precision the amount or character of response with ny given quantity of drug. But as the medical proession is directing its attention as never before to a cientific study of the action of drugs, so the members f the pharmaceutic profession are advancing and ttempting to provide drugs and preparations with a lefinite quantity of active principle.

FACTORS IN THE IMPROVEMENT OF DRUGS

To give assurance of the progress that is being made may mention some of the factors which are conributing to an improvement in the quality of drugs.

Legislation.—One of the most important of these is he enactment and enforcement of national and state laws relating to drugs and medicines. This beneficial influence has been going on ever since Congress, in 1848, passed the law requiring all imported drugs and medicinal preparations to be inspected before passing the custom-house. In the address of Professor Procter[2] already referred to he calls attention to the fact that at that time at the port of New York alone something like 100,000 pounds of spurious, adulterated and deteriorated drugs were annually rejected and screened out of the market which but for this law would have been distributed throughout the United States. I have not seen the figures showing the amount of spurious and adulterated drugs which were refused admission into the United States since the passage of the Food and Drugs Act of 1906, but I am sure that it was quite large, as the standards adopted were not only those of the U. S. Pharmacopeia and the Association of Official Agricultural Chemists, but those representing the most recent researches in pharmaceutic chemistry and pharmacognosy. To what an extent we have progressed may be seen from the picture that Professor Procter has given us of the conditions that prevailed fifty years ago.

> The power of Congress is limited to the custom-house when it presents us foreign products in good condition. Once beyond the examiner, they are open to the mercy of American ingenuity; the skill which evidences itself in the production of *genuine* French brandies, wines and perfumes is not slow to enter the domain of medicines, and by the aid of modern alchemy, transmute the bitterness of willow bark, and the glossy fiber of the cotton boll into veritable quinin of Pelletier and Caventou. Legislation to meet this evil in its home aspect, must originate and be carried into effect by the authorities of each state; adulterating medicines must be made a felony, punishable by statute, just as any other crime against the welfare of the public health. But amid the diversified interests striving for ascendency at our legislative centers, such wholesome sanitary measures have little chance for a hearing; for while even the reported approach of a pestilence or epidemic will send forth stringent mandates crippling commerce in their unsparing application of the laws of quarantine, the perennial, ever-present evils that we have pictured flourish and extend, unheeded by the fathers of the state.

Since the time to which Professor Procter referred there has been the realization of what seemed to the apothecary of fifty years ago an iridescent dream. The Food and Drugs Act of June 30, 1906, gave us for the first time a national control over the interstate as well as foreign commerce in drugs. During the last five years the act has been enforced to such an extent that Dr. Wiley[5] in his report for 1911 says of the conditions in the New York market: "Continued improvement in the crude drugs is shown. Only a small number of instances of entire substitution of foreign or inferior drugs is reported." There has also been a wholesome influence exerted in improving the quality of domestic drugs. The beneficial effect of the national Food and Drugs Act, supplemented as it is by the drug laws of the several states which have been framed after the national act, can hardly be appreciated except by those who actually handle drugs. While of course there will continue to be a certain amount of admixture or even substitution in foreign as well as domestic drugs, this being due in a measure to the lack of professional knowledge and responsibility of those who collect drugs, yet the whole commerce is being controlled by a strict inspection either at the custom-house or of the goods sold by the large drug dealers. With the seizures that have been made of a number of consignments of domestic drugs on the ground of their being misbranded or adulterated or both, I have no doubt that the large drug-dealers have brought sufficient pressure to bear on the collectors of crude drugs that we may feel that the time is not far distant when the subject of the collection of medicinal plants, at least in the United States, will be under the control of properly licensed persons. The collectors of medicinal plants should have just as much information, and if anything greater specialized information, concerning crude drugs than is expected of the dealer in crude drugs or retail pharmacist. Why shall the question of the quality of drugs be put to the retail pharmacist as a conundrum for his solution when the collector has the key to the problem? In practical metallurgy who would think of extracting thousands of tons of ore from a mine, roasting and refining it and ascertaining only in the matte or pure metal that the ore to begin with was of low grade? That this has been a common experience with regard to drugs is shown by the numerous analyses which have been published, but this condition has been greatly improved as shown by the fact that during the past year drugs of a higher grade and greater uniformity are to be found on the market.

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[4] Dragendorff, George: Die Heilpflanzen, 1898.

[5] Wiley, H. W.: Report of the Chemist for 1911. From Annual Reports of the U. S. Department of Agriculture.

I might add at this time that there are other encouraging signs which show us that not only is the whole commerce of drugs being brought under the surveillance of trained and scientific men in pharmacy and those who appreciate their responsibilities in this work, but also even the growing plants yielding our drugs are being brought more and more under scientific observation and control. The intelligent harvester collecting fresh drugs at the proper season may not only collect drugs that are pure and unadulterated, but also collect those that contain the maximum quantity of active constituents. This interest in the growing of medicinal plants will be found an important factor in improving the quality of vegetable drugs. While the chemical manufacturer, by improved laboratory methods, can furnish us with pure chemicals, it is only by the proper study of medicinal plants in the field that we shall ultimately secure the highest possible improvement in the quality of vegetable drugs. What has been done with plants yielding cinchona, coca, opium, zingiber, Tinnevelly senna, caryophyllus and to some extent with the plants yielding digitalis, belladonna and hyoscyamus is likely to be followed with a large number of other valuable drugs in the near future.

Interest in Pharmaceutic Research.—Another factor which is affecting the quality of commercial drugs is the fact that they are being studied more intelligently than heretofore. Until recently, with few exceptions, the scientific study of drugs has been more or less superficial. At the present time greater efforts are being put forth in the study of the active principles. These studies are furthermore being supplemented by the investigations of trained pharmacologists. The result of these investigations must influence not only the practice of pharmacy, but also the practice of medicine. The empiricism of the past is being replaced with the truth of science. The researches of Power and Salway[6] (for instance) in failing to find any constituents in the seeds of the pumpkin that possess tenifugal properties, must influence not only the use of this substance by physicians, but the retention of this article by the Pharmacopeia. The numerous studies on the biochemical essay of digitalis and its preparations which have been published during the past few years and the many investigations which are still going on will shortly enable the pharmacist to supply quite uniform preparations of this important drug. Many illustrations could be given to show that our knowledge of the constituents of drugs is becoming more and more exact, and with this extension of knowledge of the active constituents we are more and more enabled to prepare galenicals which shall represent the true properties of the drug. Furthermore, this knowledge is enabling us to differentiate more clearly those drugs possessing positive medicinal action from those which are slightly efficient or altogether worthless, and by elimination of the latter to reduce the number of drugs. The sooner we can cast all positively useless drugs into the realm of the obsolete the better it will be for all concerned, except, of course, those who are desirous of adding to the number of salable commodities. These investigations, regarding the physical and chemical nature of drugs, form the basis of Pharmacopeia revision, and as the United States Pharmacopeia is the legal standard, it is at once apparent how these two factors, legislation and pharmaceutic research, are contributing most effectively to an improvement and greater uniformity in the quality of drugs of the Pharmacopeia.

Higher Standards of Education.—A third factor making for progress in pharmacy is the higher efficiency on the part of retail pharmacists themselves. This is due to the fact that in some states a newly licensed pharmacist must show that he has had a course of instruction in a recognized college of pharmacy. There has also been a marked improvement in the curriculum of the colleges of pharmacy, so that the graduate has been pretty broadly trained and is usually quite competent to practice his profession. Furthermore, by reason of the increase in preliminary educational requirements, men and women are coming into pharmacy who are better trained and enabled to pursue their studies and take up their responsibilities with credit to their profession and satisfaction to the physician.

Not only is it true that the professional requirements are being advanced, but even the attitude of the wholesale druggists is such to-day as to convince me that they are realizing their great obligations and responsibilities as purveyors of drugs and medicines. Mr. C. Mahlon Kline,[7] in an account of the recent meeting of the National Wholesale Druggists' Association, says:

> The wholesale dealers of ten years ago were not, nor did they have to be, familiar with the professional side of pharmacy. This condition is not true to-day. The wholesaler has been compelled to assume responsibilities as to the quality of the drugs and medicines he handles, and this has driven him to interest himself in the study of drug substances; therefore, discussions having to deal with problems, standards scientific methods of production or handling, are now heard with the greatest interest, and the purely commercial side has been forced to recede somewhat from its former preeminent position.

We know that there is a growing disposition on the part of manufacturing houses to employ competent analysts to examine drugs before they are further distributed or made into preparations. With the better output of drugs by the dealer in crude drugs and the manufacturer, and the enforcement of the national and state laws, the labors of the retail pharmacist are considerably lightened, but no one realizes better than he that he must nevertheless be alert in checking the findings of the government analyst and manufacturing houses if reliability is to be ensured in all cases.

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[6] Power, F. B. and Salway, A. H.: Jour. Am. Chem. Soc., 1910, xxxii, 346.

[7] Kline, C. M.: Am. Jour. Pharm., 1912, lxxxiv, 33.

Cooperation.—There is still another important factor contributing to the ideal practice that the professional pharmacist ever has before him and that the physician should insist on his living up to, and this is the disposition for mutual cooperation between the members of the two professions. Whatever may have been the grounds for the pessimistic attitude of physicians a decade or so ago toward the pharmaceutic calling, I firmly believe that the radical changes that have been going on in pharmacy during the past few years give cause for a healthy optimism, that is, an optimism based on a belief in real progress and an earnest desire on the part of pharmacists to render the best service in their power. This does not mean that physicians shall cease to be critical, but that we shall state our criticisms with candor and fairness in joint meetings where they can be discussed and measures for improvements suggested. And here let me say that to my mind nothing augurs more for the mutual progress of therapeutics and pharmaceutical practice than those agencies which promote the coming together of the members of the two callings for discussion of the properties of drugs and their preparations as exemplified in this Section and the work of the Council on Pharmacy and Chemistry of the American Medical Association, as well as in the "get together meetings" of the local medical organizations with the various local pharmaceutic associations. In other words, if we are to make true progress we cannot well afford to be entirely independent. The words of the late Dr. Musser,[8] an honored ex-president of this Association, in a brief address which he delivered before the members of the Philadelphia College of Pharmacy, still ring in our ears and have done an incalculable amount of good in stimulating us to attain a higher goal in the practice of pharmacy. He said:

> I plead, therefore, that you make the calling of pharmacy not a profession, but a science, and that you insist that its conduct must be on the highest scientific plane to the end that those who are its devotees may be counted on, in season and out of season, as men having no code and no regulation, breathing only the spirit of doing unto others as you would be done by.

SUMMARY

In summarizing the points that I have attempted to make in this paper, I may say that the professional pharmacist recognizes his obligations to the medical profession and the dependence which the physician has on him in the dispensing of pure drugs. Furthermore, in spite of their difficulties, there have been professional pharmacists who have consistently tried to handle only pure drugs and to dispense preparations which the physician would find to be efficient.

While it is true that the apothecary is dependent in some measure on the ability and integrity of the large dealer from whom he purchases his supplies, yet he attempts to check in a measure the articles distributed by the manufacturer, recognizing that he stands between the manufacturer and the patient.

Furthermore, there are fortunately a number of factors which are making it easier for the pharmacist to purchase pure drugs and dispense good preparations. These are the enactment and enforcement of drug laws, the greater interest in pharmaceutic research, the higher standards of education in pharmacy and the cooperation between physicians and pharmacists.

Finally, I may say that while the pharmacist is a purveyor of articles that sell at so much per pound or so much per ounce, the ethical standards which guide him in his practice must be as stringent and binding as those which guide the physician in his practice. And while physicians may differ as to diagnosis and as to the relative value of medicines, and while every patient reacts more or less variously toward different medicines and toward the same dose of the same medicine, the standards set for the pharmacist must be those of uniformity and efficiency. The one constant in the equation must be the uniform quality of the drug. This is the position we are endeavoring to live up to in our teaching and in our practice, and we desire every possible cooperation on the part of physicians in advancing and maintaining this standard. While we sometimes feel that the medical profession has not sufficiently understood the task that we have set out to perform, yet we trust that the physician will appreciate that the pharmacist realizes his responsibility and recognizes the importance of fostering the integrity of their mutual relations if the best results in the interests of the public health are to be achieved.

ABSTRACT OF DISCUSSION

DR. HENRY BEATES, Philadelphia: The existence of pharmacy is conditioned on the demand of the clinician for his armamentarium. The clinician can no more prepare the "materia medica" he uses in prescribing than can the surgeon manufacture the instruments he needs for his work. Years ago I used myself as a physiologic dog, with five tinctures obtained from standard pharmacists. Of tinctures of aconite root, I could take 5-minim doses repeated two or three times at twenty-minute intervals, before I obtained the slightest physiologic action. Of another I could take one-half a teaspoonful every half hour for four doses, which I did with great fear and trembling, even after carefully testing its potency. Nux vomica was taken in from 10-minim to 20-minim doses and pushed to a teaspoonful dose. This could be repeated hourly for three or four consecutive doses before physiologic results were obtained. Two years later the remains of these tinctures were again experimented with on myself, and I found deterioration in digitalis of about 67 per cent., i. e., about two-thirds greater doses than at first taken were necessary to secure recognizable effects. What does all this mean? We must realize and publish to the profession that deterioration takes place month by month and can be demonstrated with approximately arithmetically correct rates. The drugs differ in the rate but all deteriorate like a magnificent building; the longer it stands the more it decays. It is the business of the profession to take cognizance of this fact, and at once demand proper investigation and acquire a reliable knowledge of the potency of drugs at the time prescribed. I was in a drug-store recently when the pharmacist inquired of an agent the price of digitalis leaves. The reply was from 40 cents to $1.20 a pound. How many of our prescriptions are compounded from the 40-cent truck? I think the one great trouble of pharmacy is that the drug-store of to-day is a cigar-shop, a confectionery; indeed, all sorts of things enter into the traffic, even libraries. I believe that measures should be taken to familiarize the public, not with the false statement that drugs are useless, and that sunlight, fresh air and food constitute the great panaceas, but with the fact that reliable medicines properly prescribed and used constitute the greatest known means for the relief and cure of human ills. Let the people recognize that physicians when prescribing the drug necessary to meet conditions must have pure drugs compounded. That that is the *sine qua non* on which therapeutic success depends. This the profession seems not to comprehend.

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[8] Musser, J. H.: Am. Jour. Pharm., 1905, lxxvii, 60.

Dr. F. E. Stewart, Philadelphia: Dr. Beates has spoken of legislation. I think it would be well to throw our influence in favor of the important bills now before Congress. Any person except a physician or pharmacist can practice medicine or pharmacy in this country without license. All one has to do is to set up as drug manufacturer and practice at wholesale. When the representatives of the medical and pharmaceutical professions go to Washington to secure proper legislation, we find the representation of this class of manufacturers there to defeat us. Now if we could get the American Medical Association and the American Pharmaceutical Association to unite in formulating proper medical and pharmacal laws and present them to Congress, we might accomplish something. The bills now before Congress should receive consideration by both professions.

THE QUALITY OF DRUGS ON THE MARKET *

L. F. KEBLER, M.D.
WASHINGTON, D. C.

In all the large sea and lake ports throughout the United States there are now working laboratories. Boston, New York, Philadelphia, Savannah, New Orleans, Galveston, San Francisco, Portland, Seattle, Chicago, Detroit and Buffalo are thus equipped, and there are also laboratories in a number of the inland cities. The entire United States have been divided into sections, each one of which is supervised by some laboratory.

A large part of the work on drugs is performed in New York and Washington. The laboratories in these two cities devote a considerable portion of their energies to this line of work.

I desire at the outset to divide drugs into three great classes: (1) chemicals, (2) crude drugs and (3) prepared mixtures, such as pills, tablets, galenicals, etc.

CHEMICALS

Imported chemicals and those manufactured in the United States are on the whole of satisfactory quality. It is rare for a consignment of chemicals to be held up. Some chemicals, it is true, at times contain small amounts of associated alkaloidal contamination which are not specifically excluded by present standards. For example, samples of morphin sulphate show the presence of codein compounds which are not excluded by the test of the Pharmacopeia. A few chemicals, such as cream of tartar, citric acid, tartaric acid, etc., are contaminated with lead. The latter contamination may assume serious proportions, particularly if the commodities are used in the manufacture of food products.

As a result of competition it is undoubtedly true that manufacturers seldom place on the market commodities of a higher degree of purity than the minimum prescribed standard. Fortunately, however, there are a few exceptions. For example, menthol is usually made of a grade just passing the lowest requirements by the test set by the Pharmacopeia; but menthol of a higher grade is available which can readily be prepared by recrystallizing the usual commodity available on the market. Crystals prepared in this way are as pure, sweet, clean and white as any one can call for. There appears therefore to be no excuse for the inferior grade of menthol. It is self-evident that a higher grade of menthol costs a little more than the lower grades. In some instances in which the chemical is made of a high degree of purity the containers subsequently used in handling tend to cause deterioration. For example, it is highly improper to place a fine quality of caffein or potassium iodid in a wooden or pasteboard box. The conditions that these chemicals may meet in various sections of the United States are such as ultimately to damage the product. The retailer frequently demands an inferior package because of the lower initial cost of a few cents, but this is false economy and works to the detriment of the ultimate consumer. It is most unwise economy on the part of the trade to demand or ask for packages which are not suited for the chemical.

CRUDE DRUGS

Crude drugs are commodities which cause the greatest amount of disturbances. In order to illustrate some of the various points that have arisen, I desire to call attention to actual cases. When the law became effective, it was thought by some that this class of drugs, irrespective of grade or quality, would be permitted entry without restrictions. How this erroneous idea ever became current no one appears to know. Considerable determined opposition was made in many quarters to a restriction being placed on the importation of inferior crude drugs, and this has not yet died out.

Belladonna leaves and roots were among the first to receive consideration. For a time it seemed as though it would be impossible to permit the importation of any belladonna roots and leaves because of the large and extensive adulterations practiced. The belladonna roots were commonly adulterated with poke-root and the belladonna leaves with poke-leaves. It seemed at times that the collectors gathered the roots and leaves of these two plants indiscriminately and then accidentally, incidentally or designedly mixed them. The market at one time was so much disturbed that importers and dealers complained bitterly because we did not permit entry of these drugs. One firm ultimately requested the privilege of picking over and garbling the consignment; this was found to be such a tremendous task, and the results were so unsatisfactory that the request was not renewed. The quality of belladonna under these conditions improved decidedly. Little difficulty has been experienced in the past two years. Samples collected from interstate shipments have been found of good quality.

With sarsaparilla root a peculiar practice was in vogue at the time the laboratory work was begun. The roots were cut off and the rhizomes (stubs) shipped to the United States and used in preparing medicines recognized by the Pharmacopeia and in making semi-official and other sarsaparilla preparations. Such rhizomes in powdered form cannot be recognized safely without the use of a microscope. The manufacturers protested against the exclusion of this "nubbin sarsaparilla," holding that it was just as good as the part recognized by the Pharmacopeia. Some preparations containing this material or extracts of it are still on the market, but its importation has been prohibited.

It has been a common practice to offer mixtures of buchu leaves with large quantities of twigs, stems and leaves, collected indiscriminately. We have not seen our way clear to prohibit or forbid importations without any stems whatever. Some foreign material of this nature is always present. We are working on a 10 per cent. basis, that is, not permitting more than 10 per cent. of stems and foreign material. It is hoped that the time will come when it will be possible to stop even this

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* Read in the Symposium on Drug Standards in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

practice. What has been said of buchu leaves holds for other leaves to a greater or less extent.

Cubeb berries are largely contaminated with twigs, stems and worthless berries. There is no excuse for such cubeb berries being permitted entry. We are now requiring the minimum amount of twigs, stems, worthless berries, etc. If they are offered otherwise the importer is privileged either to reship or to clean them. Under these restrictions it is believed that the cubeb berries marketed will soon be in a very satisfactory condition. In the past importers have been permitted to bring in inferior buchu leaves, cubeb berries, etc., provided they were marked in accordance with the proviso in Section 7 of the law; for example, "buchu leaves with stems," "cubeb berries with stems," etc. It was soon found that this practice tended to demoralize the trade, placed the work of the government on a false basis, and above all made available a class of drugs which might be of great detriment to the public health. The proviso of Section 7 is unfortunate in many respects. In the first place, the standard is clearly set forth in the first part of the section, and then the proviso is inserted knocking down the standard. This proviso not only works injury to the wholesaler, manufacturer and retailer, but may do incalculable harm to the physician and unfortunate sick. As an example, for working injury to the drug trade, a commodity permitted entry under the name "cubeb berries and stems" will serve. The importer would mark bales at the port and elsewhere, "cubeb berries and stems," but as soon as the material is released at the dock that mark is entirely forgotten, either intentionally, accidentally or designedly. A druggist in Illinois ordering cubeb berries would receive not the drug of the Pharmacopeia, but the cubeb berries and stems which had demanded entry in New York as such but were not now marked cubeb berries and stems. He would be deceived. When these goods were subsequently purchased by inspectors and found wanting, the persons making the sale when given a hearing would say: "I bought the commodity as cubeb berries. The goods must have been permitted entry into the United States and I had good reason to believe that they were of proper quality." When informed that cubeb berries of the character under consideration were permitted entry as "cubeb berries and stems," he replied that the stems feature apparently had been lost in the course of business somewhere along the line.

I need not call the attention of the members of this section to the great harm that might come to both the medical man and the consumer as the result of using inferior, deteriorated or adulterated drugs. In the face of the disadvantage to which some of the trade is placed by the proviso in Section 7, some dealers appeared before the congressional committee, pleading that this proviso be retained. It is hoped that the medical profession will exert its influence in eliminating or modifying this proviso so as to make it possible for the physician to secure drugs of unquestioned quality and purity. Steps have been taken to prohibit the importation of drugs which might work to the detriment of the public health, but there is no portion of the law which will minimize or restrict the operation of this proviso in drugs manufactured and dealt with solely within the borders of the United States.

Henbane leaves have given us a large amount of trouble. The quality coming in now is much superior to what it was, but is still not of the character desired. There are some excellent henbane leaves coming in. There is little difficulty in getting first-class goods of character and quality, if the price is forthcoming. We see some of the best drugs imported any one could possibly ask for. I had a talk with one of the importers and he told me that they were bringing in some of the finest drugs they had ever seen, but we had been laboring with that firm about two years before they were converted to first-class drugs.

Copaiba is another drug for which the test is far from satisfactory. The copaiba situation is due to lack of information as to actual source or composition and any test that may be set must be arbitrary and may be absolutely worthless in time of need. We have tried out the Pharmacopeial test thoroughly. With some products the test works well, but another kind of copaiba, apparently genuine so far as we can establish, upset the whole thing. The only way to solve the problem is to study the entire matter from A to Z, beginning with the source of production and ending with the consumption. What is true of copaiba holds with a large number of other drugs. We are taking the matter up in Washington with a view to establishing standard specimens of plant drugs in the National Museum and otherwise; but progress is exceedingly slow.

Digitalis is a drug with which we have done considerable work, but it is hoped more will be done in the near future. Digitalis leaves of good quality are available, but I desire to call attention to a scheme in connection with that drug for permitting its entry. "Digitalis Natural Madagascar" was offered. With the qualifying "Natural Madagascar" the importer asserted that he was complying with Section 7 of the act. As a matter of fact, "Natural Madagascar" means nothing to any one. It was an inferior drug and not permitted entry.

Asafetida has given us many wearisome hours and they are still at hand. For example, when we began work with asafetida, some very good material was available. In time the quality seemed to deteriorate and it went down and became worse until we met consignments which contained only 6 per cent. of alcohol-soluble material, the rest being stones and similar worthless material. Then there was trouble in Persia. Importers and manufacturers contended that it was impossible to procure good asafetida on account of the war. The standard was reduced to 35 per cent. of alcohol-soluble material and permitted entry with conditions as to use in manufacture. Every importation permitted entry was required to be marked and an affidavit given that it would be used only in the manufacture of certain commodities, and that a proportionately large quantity would be used in the manufacture of official products. The alcohol-soluble matter is now up to 50 per cent. again, and in all probability the standard will have to be raised. Now, there are foreign resins added to bring up the alcohol-soluble material. To what extent we shall be successful in combating this evil, I do not know.

Goldenseal is high-priced and the incentive to adulteration is extremely great. It was practiced for a while by admixture with olive-pits. The contention was also made that this drug and others could be reduced to the minimum standard by the addition of olive-pits and what not, but such a contention has not as yet been sustained by the courts.

In view of the situation obtaining relative to crude drugs, it can readily be seen that with the operation of the proviso in Section 7 it is extremely difficult to eradicate adulteration of various forms. Nevertheless, experience clearly shows that the quality of the drugs imported and of those shipped in interstate commerce has greatly improved.

PREPARED MIXTURES

Under the heading of "prepared mixtures" are classed all forms of medication in the manufacture of which one or more drugs have been used; for example, strychnin pills, Blaud's mass, hypodermic tablets, etc. It is self-evident that these preparations will partake of the nature and character of the drugs available; but in many instances when the preparations are standardized, the quality of the finished preparations is better than that of the crude drug. A considerable number of tablets and pills offered to the trade and to the medical profession direct have been examined and found wanting in certain respects. For example, nitroglycerin tablets have in a majority of cases been found deficient in the nitroglycerin content declared. This is also true of strychnin tablets, morphin tablets and other commodities of this type. The greatest shortcoming appears to prevail in the agents sold direct to the physician. In a number of instances the preparations examined from physicians' supply houses have been found wanting. Investigation shows that these commodities are manufactured largely by rule of thumb. Little checking obtains in their manufacture and generally no analyst is employed.

The manufacturers of these commodities, on being advised of the shortcomings, with rare exception have taken steps to make improvements by employing properly qualified men to supervise the manufacturing process, make necessary analyses and control the finished products generally.

In conclusion it may be said that since the laboratory work was begun there has been marked improvement in the quality of chemicals, crude drugs and mixtures prepared from the drugs which I have named; but there is room for further improvement.

DRUG PLANT CULTIVATION*

R. H. TRUE, Ph.D.

WASHINGTON, D. C.

The questions which I wish to consider at this time concern primarily the quality of drug plants, though the economic side cannot be ignored, as a sound economic basis must be obtained before the production of a drug is possible. In other words, although we may try to separate the question of quality from price, production will not be possible unless the cash balance is on the right side of the account.

The conditions under which wild drugs are collected from the woods and the fields lead to considerable waste. Typical of this class is goldenseal, a drug which has a genuine value and a great market demand, and is subject to the variable conditions of other wild drugs. This plant grows over a large area and is collected by people who are more or less well informed on botany. It is collected at the time when it is readily recognizable. As a result there comes on the market under the name of "goldenseal" an article which is collected at various seasons of the year, dried with various degrees of thoroughness and stored under various conditions of moisture. Although a considerable variation in quality might be expected, this seems to be the case less conspicuously with goldenseal than with a drug which has an active principle readily deteriorated by bad handling, as, for example, digitalis.

Digitalis has not been but is more and more tending to be collected extensively in the wild condition. The plant grows wild on the western coast in great abundance, and having learned of its value as a drug the people have begun to gather it. Digitalis is subject to considerable variation, being, perhaps, as sensitive a drug as there is on the market. I think that if all of the facts were known the variation in different specimens of digitalis would be found less a matter of active principle in the plants themselves than the active principle left after the processes of picking, curing, storing and manufacture. In digitalis there is apparently an unstable mother substance which breaks down in various ways under various methods of curing, and is therefore subject to deterioration from bad handling, from being stored in too moist a condition or from being kept under such conditions as will interfere in other ways with the chemical integrity of the product.

By cultivating drugs, instead of collecting them wild, control over the product may be gained. The material collected wild is not subject to any considerable control until after it reaches some central point. It is collected in the mountains perhaps of the Carolinas by a man and his family who drive in a covered wagon, carrying a stove and food. The plants are dried out during intervals of fair weather, separated into lots of like nature, and bartered at some general store, say, for household necessities. From here the lot goes to some drug center in the mountains, perhaps to Hendersonville, Asheville or another of the many central points. From here it goes into the hands of the wholesale crude drug dealers of Baltimore, New York and others of the large distributing centers. It is easy to see how through such a devious history as this a sensitive drug has a good chance to undergo deterioration.

Under cultivation the whole situation from the start would assume an entirely different aspect. To begin with, the seed would be selected. This selection, in order to be most useful, should follow careful investigations to discover the forms having the desired amount of active principle and giving a satisfactory yield. The benefits of cultivation would be lost largely unless a scientific investigation of the product from point to point were carried out.

The value of the work of the plant-breeder in raising the quality of the product can hardly be overestimated. I would illustrate this by referring to belladonna, with which we have been working in the Department of Agriculture for the last three years. The sources of the lack of uniformity in belladonna have been a subject of special attention. We found, on studying a patch of belladonna planted on the experimental farms at Arlington outside of Washington, that belladonna, on a patch of ground having a uniform soil and subject to the influence of the same atmospheric conditions, was variable in its activity, some plants yielding leaves of half pharmacopeial strength and other samples showing three times that amount of alkaloid. This showed that variation in the patch was not caused by conditions of soil and atmosphere. Since the nicotin content in tobacco can be considerably increased by supplying highly nitrogenous fertilizers, it was thought that we might be able likewise to increase the low yield of alkaloid in belladonna by supplying fertilizers of this character. Experimental plantings treated in this way gave unsatisfactory results not capable of interpretation. Some samples were rich and some poor in alkaloid. Two years ago 150 plants were set out in uniform soil and each individual plant was assayed. This gave us what we hope is the solution of the belladonna problem. It appeared that there are plants rich in alkaloids naturally, some poor naturally. Therefore in those samples which showed low assay in the former test we probably happened to gather leaves from low-yielding plants; the samples which showed an unusually rich assay happened to come from plants with high alkaloidal content. This gives us the basis for hope that we may be able eventually to bring cultivated belladonna up to a high uniform standard of efficiency. Belladonna seems to offer just such a situation as did the sugar-beet prior to the time that scientific efforts toward improvement were begun. It must be recognized that chemical variation takes place in these plants as well as form and size variation, and that we can apply the principles of breeding and selection to the improvement of plant drugs. Indeed, there is ground for hope that it may ultimately be practicable within limits to fix the alkaloidal content of belladonna at the desired point and to secure this result uniformly.

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* Read in the Symposium on Drug-Standards in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

The key to the situation lies in the recognition of the fact that the problem is one of hereditary tendency and one capable of regulation through scientific effort. This work looks in many other directions, but even to indicate these possibilities would take me longer than my time will allow. I have mentioned belladonna somewhat fully because it indicates the line along which we expect progress to lie.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. KEBLER AND TRUE

Prof. Joseph P. Remington, Philadelphia: I have been looking forward for many years to the time when such valuable drugs as belladonna, hyoscyamus, digitalis and others can be scientifically cultivated. That has been done with other plants and I think if we work long enough at it and have Professor True and a number of other workers experimentally growing plants we shall succeed. A few days ago at Minneapolis at the University of Minnesota I saw the work that is being done with thousands of plants. The experiments bearing on development, involving selection, fertilizing, rapidity of growth, etc., mean much hard work. It is going to take a long time to reach valuable results. Therefore I think this Section ought to give to Professor True every possible encouragement in endeavoring to secure uniformity of production of active principles in these valuable medicinal drugs.

Dr. C. B. Lowe, Philadelphia: I know that poke-root is found in belladonna as an adulterant. I thought it was added after reaching this country. If it is done in Europe, I think the poke-root must be exported from the United States for the purpose of adulteration, as the drug has not been naturalized to any extent in Europe.

Dr. Torald Sollmann, Cleveland: Our experience with cinchona has proved that this can be done.

Mr. Otto Raubenheimer, Brooklyn: The problem of cultivation has been of interest not only in the United States but also in foreign countries. I would call attention to the studies of Allen in England, of Tschirsch, Tunmann and Hertwig in Switzerland, of Thoms in Germany, and others. In connection with this subject, especially regarding digitalis, I might perhaps also point out that the wild-growing digitalis leaves in the Black Forest in Germany are considered much more active than the cultivated leaves. Greater precautions ought to be taken as to the drying and storing of digitalis leaves and in the same way with other drugs. The requirements of the foreign pharmacopeias, especially as to digitalis leaves, are such that the dried leaves have to be stored over lime, which absorbs the moisture, thereby preventing the destruction of the glucosids. While it is true that not many chemicals are at present adulterated, I have come across two instances, namely, borax adulterated with 50 per cent. of sodium bicarbonate, the soda being much cheaper, and one of potassium nitrate, a barrel of which I obtained which had been adulterated with about the same amount of sodium bicarbonate. The United States Pharmacopeia could be more definite regarding the keeping, the storing or the preserving of vegetable drugs. A little more attention undoubtedly will be paid to that in the coming revision and also to such important statements as, for instance, that colocynth, before being powdered for medicinal preparation, should have the seeds removed. I believe such statements should go into a separate rubric or in heavy type so that they can be readily noticed by manufacturers and druggists, because they are overlooked in a great many instances and thus lead to legal difficulties.

MULTIPLE SCLEROSIS*

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CHICAGO

The literature of multiple sclerosis is so full of contradictions that it makes unsatisfactory reading. The purpose of this paper is to suggest a possible cause for the differences of opinion between European and American clinicians as to the frequency of the disease. It has been pronounced in Europe to be one of the commonest of the organic diseases of the nervous system, and in America one of the rarest. Clinicians in the same vicinity differ widely in their opinions as to its frequency. Since geographic and ethnologic differences are not adequate to account for these differences of opinion, there must be some disagreement among the authorities in regard to terms used and primary definitions.

The following three cases are reported by way of introduction, to show how quite dissimilar troubles may be clinically classified as multiple sclerosis. The first is a typical case with a marked neuropathic heredity; the second is less clear both etiologically and clinically; the third is a pure case of cerebrospinal syphilis with a remote resemblance merely to multiple sclerosis.

REPORT OF CASES

Case 1.—The patient, W. A., aged 32, seen in consultation with Dr. A. B. Spach, in 1904, had been married ten years and was the father of two healthy, well-developed girls. His wife had never been ill or had any miscarriages. Family history revealed that the paternal grandparents were first cousins; that a paternal uncle and aunt, as well as the patient's own father, were all congenital deaf-mutes, and that the patient's mother became a deaf-mute after an attack of scarlet fever in infancy.

History.—The patient himself was weakly as a child, though later he considered himself well and strong until marriage; and that he was always far less vigorous than his twin brother. In childhood he had measles, mumps, whooping-cough and scarlet fever without sequelæ. Syphilis and gonorrhea were denied. Masturbation was practiced slightly for a short time. He smoked tobacco moderately, and never used any liquors.

Eight years prior to my seeing him his trouble began. There was a sudden attack of numbness in the left hand. This appeared later on in the left foot. He noticed that he dragged somewhat the left foot. During this attack, and long afterward, the patient said he stuttered considerably. Six or seven months later he saw double (diplopia), and his eyes twitched laterally (nystagmus). So unexpectedly did this attack come on that the patient could not assign any apparent cause for it. The trouble remained one-sided (hemiplegic) and he was able to go back to his grocery business. Then followed an interval of comparatively good health without symptoms of any sort.

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* Because of lack of space this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

Three years after this first apoplectiform seizure, a second occurred. This also was one-sided, but was not so marked as the first attack. The general symptomatology was about the same. There was numbness, paresis and dragging of the foot. From the patient's description he seems to have had at this time a slight intentional tremor. He said his "hands jerked when he went to use them." His speech, he declared, was very little affected, if at all. He experienced no headache, no pains or other sensory manifestations beyond the numbness; no bladder disturbance.

A third, and somewhat similar, apoplectiform attack occurred about a year before I saw him. It came on suddenly one night during a storm while he was at work. There was partial paralysis with stiffness in both legs. There was a distinct intentional tremor and a foot-clonus when he rested the foot on the toes. His speech was affected, his wife volunteering the information that "he talked as if his mouth were full of mush and as if he had to jerk his words out." His sight was affected, but just how he could not tell. He simply noticed that he could not read so well as he used to. There was some pain in the left eye; also some pain appeared in the thumb of the left hand.

Examination.—The patient's gait was shown to be decidedly ataxic and spastic. He had difficulty in getting started and he had to depend on a cane to keep from falling. The muscular movements were paretic or merely weak. The knee-jerks were exaggerated and a Babinski phenomenon, with ankle-clonus, could be elicited easily. The characteristic intentional tremor was in the hands. The grasp of the hands was weakened. A muscular tremor, fibrillary in character, appeared on faradic stimulation. A slight lateral nystagmus was observed in both eyes. The pupils were similar and responded satisfactorily to light and accommodation. The disks were slightly pallid on the temporal side. Vision was apparently unaffected, except for the occasional diplopia. The speech was typically scanning and jerky.

There were no distinct objective sensory manifestations; no electrical changes; no muscular atrophies.

Mentally the patient was mildly torpid. He complained of poor memory. According to his wife he was subject to intense melancholy, alternating with an irresponsible, hysteroid state.

Diagnosis.—The diagnosis of multiple sclerosis was made without any hesitancy in this case, as the history and symptomatology were all but typical. The special interest in the case lies in its etiology, a marked family neuropathy or degeneracy being obvious.

The following case is reported as in all probability one of genuine sclerosis, but with a clinical picture so atypical in many respects as to admit of an honest doubt in regard to the diagnosis:

Case 2.—The patient, Mrs. A., aged 30, referred to me by Dr. C. A. Leenheer, was an American, housekeeper, married six years, with two perfectly developed and healthy children aged respectively five and two years. The patient's husband, living for the last two years in Australia, is a perfectly healthy man so far as she knows. The patient had a miscarriage, from cause unknown, in the interval between the births of the above-mentioned children. Menstruation began at 12 years of age and has always been regular, painless and of normal flow. Temperamentally she is optimistic and she has had the advantages of a grammar-school education.

Her family history was not particularly noteworthy; the father is living at the age of 61 without apparent disease, but being freely addicted to the use of alcohol and tobacco; the mother died at 55 with Bright's disease and complications, but no known pelvic disorder. One brother was living and healthy. Four other brothers, two of whom were twins, died in infancy from causes unknown to the patient. So far as known all other near relatives were in perfect health.

History.—The patient had no alcoholic or drug habits and denied, on careful questioning, ever having seen any of the outward signs of syphilis. In infancy she had measles and chicken-pox only; no convulsions of any sort. There was a history of purulent discharge from the left ear for about a week, three years before; and of severe headache, off and on, ever since she was 22 years of age. In the beginning these headaches were very severe, occipital and nuchal in location, sometimes frontal, and appeared and disappeared suddenly. The patient's description of them resembled that of ordinary migraine. Under treatment she remained free from headache a whole year. Then it returned, on and off for several months, finally to go away for good. For the last two years she has been practically free from headache. Sometimes, recently, she had a feeling of fulness in the head or of pressure or crawling beneath the skull at the vertex. Rarely there was a slight and temporary headache associated with a soreness down the back of the neck. Her real, present trouble she dated from two years before during the puerperium following the birth of her last child. It consisted of a typical nystagmus, or twitching of both eyes, on extreme lateral tension, voluntarily or involuntarily produced. The oscillations of the eyeballs were marked and typical along the horizontal plane. They could also be detected slightly in the vertical plane. In the front position the eyes appeared stationary, but when the fundi were viewed through the ophthalmoscope in this position a fine tremor was noticeable in the retinal vessels. At times, the patient said, the twitching of the eyes had been better, then again worse. Generally there had been a slight improvement, the twitching not being so pronounced as it used to be. Diplopia and severe vertigo accompany, as we would naturally expect, this nystagmus. With the onset of the eye trouble, the patient's gait became unsteady and wobbling, like that of a drunken person. There was so much incoordination and disturbance of vision that often when the patient attempted to sit on a chair, she would miscalculate and fall to the floor. The same thing happened frequently when she attempted to place anything on the table. All of this she herself attributed solely to her eye trouble. Neither she nor her friends ever noticed any change in her voice or manner of speaking. She did not remember having ever had any tremor, paretic or paralytic manifestations in the arms or hands. She fancied that her hand-writing had changed a little; that it was a little more unsteady, and that she tired easily. This again she attributed to her eye disorder. She stumbled and fell, she said, though she was much steadier now than she used to be. She did not recall having ever had any sudden giving way of her limbs, letting her down abruptly on the ground. At times her legs felt exceedingly heavy and quickly tired on exertion. There was nothing in the history that suggested an apoplectiform or epileptiform attack. The cutaneous sensations had all remained intact, and up to the present there had been no paresthetic sensations or other subjective phenomena such as numbness. The sight had been poor in the right eye for many years, following some slight traumatism to that eye, the history of which is not very clear. Hearing, taste and smell have all remained normal.

There had never been any disturbance of the bladder or rectal functions.

The patient declared that she perspired more than she ought to, especially under the arms, and that she flushed under the least excitement.

Her sleep at night was sound and satisfactory. She was not much of a dreamer, but such dreams as did occur at rare intervals were usually of a disagreeable, depressing character.

Her general mentality had remained about normal, though she thought that she was more easily irritated than she used to be. She denied all manifestations of hysterical character at any time. She became angry easily, though she was usually hilarious and laughed continually at the embarrassments which her trouble caused her. All her symptoms, and especially the vertigo, became worse during menstruation. In fact, the vertigo then was simply intolerable. It was objective in character; that is, the patient herself seemed stationary while the outside world was whirling about her. It ceased, though not always, when she shut her eyes. It was always made worse by movement or change of attitude, and especially when she first got up in the morning. It was always more severe when she lay on her left than when she lay on her right side. She had noticed lately that when walking she tended to turn or sway to the left. At times there was a slight, involuntary twitching in the left leg. Her weight had diminished from 139 to 121 pounds.

Examination.—Direct examination of the patient revealed no abnormal manifestations in connection with the heart, lungs, blood-vessels and alimentary tract. The pulse, temperature and respirations were normal. Examination of the blood and urine proved negative (Leenheer). No deformities or signs of trauma were seen in the patient's body. Her gait was the typical drunken, wobbling, cerebellar gait. The ataxia was pronounced and was of the cerebellar type. There was very little, if any, distinct incoordination of movement. The patient could strike promptly and accurately with her toe a mark on the wall. There was no objective loss of muscular power and no asynergy, though she complained of tiring easily on exertion. Her attitude when sitting or standing was natural. There was a slight movement of uncertainty when standing but hardly a typical static ataxia. By none of the several usual methods could an "intention," or other form of tremor, be elicited. The knee-jerks were highly exaggerated. The Achilles tendon reflex was normal. There was no ankle-clonus, nor could the Babinski, Gordon or Oppenheim phenomena be provoked. The abdominal reflexes were totally absent. The pupils were equal and normal in size and responded more promptly to light stimulation than to accommodation. There were no abnormal movements in the muscles of the face and tongue. There was no scanning of the speech, but at times there was apparently a very slight involuntary hesitancy. The patient was not aware of this herself, but it was observed by several of us. The recital of "Peter Piper picked a peck of pickled peppers" was without fault. No tremor of the lips could be detected. Occasionally she said that she had a sort of tight or crowded feeling in her throat, the description of which brought to mind the picture of a globus hystericus. On examination the laryngeal and pharyngeal movements were all found to be normal. Careful and frequent examination elicited no abnormal cutaneous sensations in connection with touch, pain or temperature. No tender spots could be found in the occipital or other region of the head on percussion.

The cranial nerve functions were all found to be intact.

The following ophthalmologic and otologic reports were made by Dr. Leenheer:

Vision: R. E. 15/100 ⊂ — 2 cyl. axis 180 = 15/15 — 2
L. E. 15/40 ⊂ — 1.00 cyl. axis 180 = 15/15 — 3

Jaeger 0.5 with glasses.

Lids, normal; conjunctiva, normal; cornea, clear; iris, reacted to light and accommodation, both same size; lens, clear; fundus, blood-vessels of normal size; papillæ distinct and not choked; tension, normal; muscles, normal in all directions; no muscle imbalance; fields, interlacing, overlapping of colors; nystagmus, horizontal type; increased when muscles were put on tension laterally, either right or left.

Three years previously the patient had running ear (left); ran about a week. She never had had any trouble since. Hearing: right ear: whisper, 20 feet; watch, 2½ feet; C ″ : 40 air conduction, 22 bone conduction: Galton, high and low tones heard; left ear: whisper, 15 feet; watch, 2½ feet; C ″ : 42 air conduction, 23 bone conduction; Galton, high and low tones heard; drums, both slightly retracted, otherwise normal.

Two Wassermann tests were made by Dr. A. W. Stillians, both proving to be negative.

Von Pirquet tuberculin test was negative. Lumbar puncture was not done. Lately the patient had complained of a feeling of stiffness in both legs, especially on starting to walk.

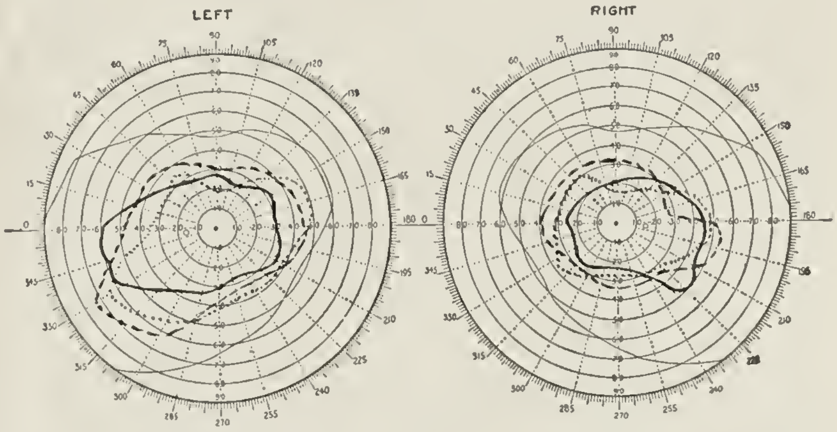
Diagnosis.—Multiple sclerosis following puerperal infection in a patient with a slight neuropathic heredity.

The following case, referred to me by Dr. F. M. Keefe of Clinton, Iowa, for diagnosis, illustrates fairly well a type of cases which show a clinical resemblance to multiple sclerosis but which many of us would consider as having only a clinical resemblance and in no way to be classed as a case of multiple sclerosis. Indeed, after a tentative diagnosis of multiple sclerosis had been made, a further examination of the case convinced me that it was merely a case of nervous syphilis with a disseminated lesion. The progress of the disease and results of treatment, as lately reported to me by Dr. Keefe, have proved that it was a case of cerebrospinal syphilis.

Case 3.—The patient, T. M., aged 34 years, had been married eight years, with four children aged, respectively, 7, 5 and 3, the last being twins. Wife and children have always been healthy. Wife has never miscarried.

History.—In childhood the patient had measles, mumps, ague; no diphtheria, scarlet fever, typhoid fever, pneumonia or rheumatism. He said he never had a headache in his life; that his bowels had always been regular; that his appetite was poor; that he had never vomited or felt like vomiting.

He presented himself for examination on account of his disturbed micturition. He found it hard to start the flow of urine, though he had not the slightest difficulty in stopping it. Often there was an imperative demand for movement of the bowels. He had to hasten to stool, else he would lose control of the rectal function. Indeed, he had several times been embarrassed with involuntary evacuation. He first experienced this bladder and bowel trouble about four months prior to presenting himself for examination. He had used alcohol and tobacco in moderation, so he said. His sexual power remained intact, but on close questioning he admitted that his desire was not so keen as it used to be and that intercourse seemed to him "to lack vitality." Two attacks of gonorrhea, the last one nine years before, were admitted. Syphilis was strenuously denied. He described buboes that he had nine years before on the left side but which disappeared after a three weeks' course of treatment; did not recall ever having had a hunterian sore, skin eruption or mucous patches. Admitted that his hair had been falling out of late.



Perimeter chart in the case of Mrs. A. Dotted line, green; solid line, red; dash line, blue.

About eight months before presenting himself for examination, he was seized with a sharp, aching pain in the lower part of the spine. This lasted acutely for about a week. It then seemed to pass up the spine and to extend into both arms as far as about the middle of the biceps. About five months later he noticed a similar pain in the legs. He described it as a kind of aching, tired feeling, more or less constant. In the trunk "a pain moves around and shoots across the ribs, like the pain when one is short of breath." Occasionally these pains had been sharp and cutting. At times they seemed to be in the stomach. Indeed the pains as described were not unlike tabetic pains and forcibly awakened a suspicion of tabes dorsalis.

Examination.—With the beginning of the spinal pains (that is, about eight months before examination), he had double vision or diplopia. He took a course of treatment to overcome this, but without avail. He was still strabismic. The trouble was wholly in the right eye. At first it turned inward; then under treatment it resumed for a time its normal position; but in a month or two it turned outward, where it had since remained in spite of all treatment. The left eye had never been affected. Dr. Charlton of Clinton, Iowa, examined the eyes and reported as follows: Fundus clear, vessels normal, with disk pale. Pupils bombic with very little reaction to light or accommodation. Right pupil medium, left pupil larger. Muscles for distance and near normal. Fields both normal. Vision, right and left, 6/24, with inability to read large types at 15 inches. Under homatropin and cocain vision equaled 6/24; with + 1 vision 6/6. Next day accepted + 1 which gave vision 6/6 + J. I. Recently he has had a reaction with right eye turning out and up. Vision reduced, etc.

With the first appearance of the above-described pains he said his gait was crooked. He wobbled because he felt weak in the legs. This staggering disappeared after he had been in the hospital for some weeks. He declared that he never had any difficulty in getting round in a dark room; nor did he ever stumble while going up and down stairs. He could stand over a basin while at his morning ablutions without swaying or falling. He refers to a distinct numb feeling in the ulnar region of the left hand and arm as high up as the middle of the forearm. There was no numbness in the right arm or in the feet or legs. On examination a moderate Romberg was observed, the static ataxia being emphasized by the Oppenheim maneuver. The knee-jerks were highly exaggerated, especially on the left side. An ankle-clonus could be obtained on both sides; also the Babinski toe phenomenon. The Gordon and Oppenheim phenomena could not be elicited. The Achilles tendon reflex was somewhat heightened. The reflexes in the left arm could not be obtained; those in the right arm were slightly diminished. The patient's gait was distinctly incoordinated. He could not walk a chalk line. There was no incoordination of movement in the arms, though there was a slight tremor of a feebly "intention" character. The handwriting was smooth and firm, and exhibited none of the characteristic tremor of general paresis. And yet it was stiff and hard, suggesting a strong effort to avoid unsteadiness. No words or letters were omitted when he wrote a long sentence from dictation. The tongue was protruded normally and was devoid of tremor. There was the slightest difficulty, a sort of hesitancy, in the speech, especially when the attempt was made to say "Peter Piper picked a peck of pickled peppers," etc. Distinct scanning of the speech could not be detected. There was decided ptosis on the left side. The left eyeball moved easily toward the outer canthus but not inwardly beyond the middle line. The left internal rectus was paralyzed. In the right eye there was a very noticeable nystagmoid movement in the lateral direction. Both pupils were moderately dilated and immovable to light and accommodation.

The dynamometer registered 60 for the right hand and 80 for the left. The patient declared he had lost 30 pounds in the last few weeks.

Unfortunately none of the blood-tests could be obtained in this case.

Diagnosis.—At first a tentative diagnosis of syphilitic disseminated sclerosis was made, which later on was changed to simple syphilis of the central nervous system.

PATHOLOGY

Statistics based on clinical phenomena alone are worse than useless in indicating the frequency of multiple sclerosis. The symptoms of the disease are not uniformly distinctive. In the experience of the most able diagnosticians errors of diagnosis, as shown by autopsy, are still far too common. Indeed, the frequency of multiple sclerosis will never be determined until we possess a more accurate definition of its pathology and pathogenesis than we now have. No two investigators seem to agree on what constitutes exactly the physical basis, or the pathophysiology, of the malady. According to each one's preconceived notion of what is primary or secondary in the disease process will his list of cases be long or short. This is the first and most impressive inference one is forced to draw from the voluminous literature of the pathology of disseminated sclerosis.

The crux of the whole matter is, of course, the plaque or sclerotic patch. This is fairly distinctive and, if some agreement could be reached as to its origin and essential constitution, our conception of the pathology of the disease would be sufficiently definite to base statistics on as to the frequency of it. To say that these plaques are irregularly distributed in every part of the central nervous system, including the optic nerves (Buzzard, Uhthoff, Velter, and others), the cranial nerve roots, the cauda equina and even the peripheral nerves according to Strahhuber, is to adopt the time-honored phraseology of the text-books. As a matter of fact, nearly every one of these well-worn assertions has been contradicted, and if admitted to be true they are far from giving us the real, desirable knowledge. More to the point would it be to account for any peculiarities that these sclerotic patches may have, their presence or absence in any other disease, and the special character of the disease process which brings them into existence. This information the literature is deficient in. Theories and notions supply the want of actual knowledge.

I believe most of the more recent pathologists do not consider these patches as in any way limited solely to multiple sclerosis; and yet after a careful study of their writings one cannot help imbibing the idea that they are always able to distinguish the patches of multiple sclerosis from similar patches in other diseases. Spielmeyer, for instance, says that "the histologic pictures of the plaques in general paresis and multiple sclerosis are similar"; and then he proceeds to point out various slight differences whereby they may be distinguished one from the other. The case that he reports is diagnosed, on these differences between the patches, as one of general paresis and not multiple sclerosis.

In the discussion of their case of "syphilitic multiple sclerosis," Spiller and Woods declare that the sclerotic patches in this class of cases resemble the degeneration of multiple sclerosis. These authors say that in rare instances syphilis may provoke a clinical picture that cannot be distinguished from that of typical multiple sclerosis, not by the formation of sclerotic patches but by the ordinary arteritis and meningitis of syphilitic infections. Syphilitic patches are not sharply defined from the surrounding normal tissue; but neither are the patches of multiple sclerosis in some cases. In the syphilitic form of multiple sclerosis there is a round-cell proliferation of the pia mater and a thickening of the blood-vessels. In some areas thickened vessels with perivascular sclerosis are to be found without the formation of plaques. The plaques, however, may be present in different areas of the cord. Occasionally there may be observed a slight neuroglial proliferation, without thickening of the vessels, resembling in no way true plaque formation but being in the nature of a slight diffuse secondary degeneration. In syphilis secondary degeneration more frequently occurs; but this is not wholly unknown in multiple sclerosis. Even in the syphilitic patches, preservation of the nerve-fibers, the cardinal fact in the pathology of multiple sclerosis, is sometimes noted. The clinical confusion of cerebrospinal syphilis with multiple sclerosis is far from being an unheard-of thing. In both a disseminated lesion provokes a markedly similar symptomatology and in rare cases the lesions of both diseases may be associated. But I think it will be admitted now that the pathology of both diseases is *not* the same. Syphilitic patches can be distinguished from multiple sclerotic plaques. Even the gross vascular and meningitic changes that so often seem to be alike in both diseases are not wholly established yet as primary, rather than mere secondary, factors in multiple sclerosis.

"The chief trait of the inflammatory process of this disease," to quote Cornil and Ranvier, "is that in damaging the axis-cylinders, it does not destroy them for the most part or compromise in the least the nutrition of those portions of the fibers situated outside of the nodules. This, however, is not an absolute rule and in certain cases the axis-cylinders are actually destroyed. This was clearly pointed out by Babinski and has been verified by a large number of observers. On the other hand, it must be remarked that the persistence of the altered and demyelinized axis-cylinders at one point of their course, though more pronounced in multiple sclerosis than in any other disease process, is not characteristic of the disease. One may observe a similar condition of affairs in ordinary myelitis, in compression myelitis and in transverse neuritis of the roots." This opinion is concurred in by Marinesco and Minea, who used the methods of Bielchowsky and Cajal. All of these investigators found that where the sclerosis involved the gray matter the nerve-cells were equally spared within the sclerotic areas and showed relatively slight alterations (Thoma). They were very irregular in outline, generally swollen, with the position of the neurofibrils somewhat changed. A curious phenomenon noted by Popoff, Marinesco, Minea and others, and one also much debated, is the apparent multiplication of the fibers in the sclerotic areas. The possibility of this is admitted by many authors, among whom are Huber, Schmaus and Strahhuber. It is denied, however, by Cornil and Ranvier, Bielchowsky, Borst and others, and the error shown to be in mistaking the older degenerated fibers and neuroglial elements for new fibers.

The pathogenesis of multiple sclerosis is still a battleground for conflicting opinions. At one point the contest is waged about the inflammatory or degenerative nature of the malady; at another as to whether the interstitial or parenchymatous elements are primarily at fault. In either case there is a difference of conception of the disease, involving questions of etiology, prognosis, and treatment; and until these differences are harmonized there will continue to be the widest sort of discrepancies in the statistics as to the relative frequency of the disease. Adamkiewicz, Redlich, Thomas, Strümpell and others maintain that the beginning of the pathologic process should be looked for in a primary alteration of the neurons or nobler elements. This is the opinion also of Risien-Russel, Tredgold, and Bramwell.

According to E. Muller, Strümpell, Ziegler and Schmaus multiple sclerosis is essentially a primary, neuroglial degeneration. Leyden, Goldscheider and Oppenheim teach that the disease is merely a sequel of acute myelitis or encephalitis circumscripta. Cornil and Ranvier also favor this view. Flatau and Koelichen declare that most of the recent investigators favor the inflammatory theory, and in their article refer to Ribbert, Cramer, Bikeles, Goldscheider, Balint and others. The inflammatory theory is strenuously opposed by Muller and Taylor. Strümpell particularly says that the case which he examined with Redlich was in all probability one of acute disseminated myelitis but certainly not one of multiple sclerosis. Cramer saw a combination of multiple sclerosis and disseminated myelitis in a girl of 19 who had had measles and who died two years later with paraplegia. As Spiller and Camp have recorded, it is exceedingly difficult to determine the relation of multiple sclerosis to multiple myelitis. Here is the crux, however, of the whole matter. If disseminated encephalomyelitis is the antecedent of multiple sclerosis, or, in other words, if multiple sclerosis is nothing but a disseminated inflammatory process, we shall be at a loss to answer a good many questions that at once obtrude themselves. The hereditary and familial types of multiple sclerosis, rare as they are, will have to be explained. Some rational accounting for the relative frequency of disseminated myelitis as compared with typical multiple sclerosis will have to be forthcoming. The frequency of multiple sclerosis after some forms of infection and its rarity after others, in conjunction with the fact that disseminated myelitic conditions occur after practically all forms of infection, will need an explanation. And, finally, the peculiar symptomatology of multiple sclerosis whereby we identify the disease definitely *intra vitam*, while that same symptomalogy does not hold so well in disseminated myelitis, must be given some serious consideration. In a word, if pathologically we are going to identify multiple sclerosis with disseminated encephalomyelitis, we must hasten to bring about a more close identification of the two maladies in regard to their etiology and symptomatology. Because these and other questions are still unanswered, many of the later authorities are adopting the view that there are two diseases, as pathologic processes, masking under the name multiple sclerosis. Erb, Gowers and Rosolimo regarded both processes, interstitial and parenchymatous, as primary and parallel in multiple sclerosis, thus lining up the malady as a form of chronic myelitis. But others have gone further than these and have promulgated the view, which is the one to which I incline myself, that there is a degenerative, familial multiple sclerosis without inflammation, which is rare, and an inflammatory form which is more common. This is the view of Ziegler who, according to Adami and Nichols, recognized two varieties, secondary multiple sclerosis which results from a previous focal degeneration or inflammation, and primary multiple sclerosis due to a pathologic hyperplasia of the glia, akin to what occurs in syringomyelia and attributable in all probability to some error in development; "the latter type affects chiefly the posterior columns and the neighborhood of the ventricles and is characterized by a peculiarily dense overgrowth of the glial substance, in which may be found scattered nerve-fibers that present little or no degeneration." In the same strain Collins writes in the "American Text-Book of Pathology." The two cases I have reported illustrate, I believe, most clearly both varieties of the disease.

My own private and hospital records have led me to draw the conclusion that multiple sclerosis is a comparatively rare disease. I have been limiting the diagnosis to the typical Charcot type, in which I have found some marked neuropathy in the ancestry, and when the disease happened to follow an infectious outbreak I have regarded the latter as rather an augmentatory cause and not a primary one. My list of cases would have been very much larger had I included all of the cases that were diagnosed as disseminated encephalitis, myelitis, or encephalomyelitis, and in which the symptoms were definite enough to indicate a disseminated lesion but not a typical Charcot multiple sclerosis. It seems to me highly desirable, in the present pathogenetic status of the disease, to distinguish the disseminated inflammations from the disseminated (abiotrophic) scleroses.

31 North State Street.

A CASE OF MULTIPLE CEREBROSPINAL SCLEROSIS, PRESENTING UNUSUAL SYMPTOMS SUGGESTING PARESIS

CLINICAL AND PATHOLOGIC FINDINGS *

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The following case is of more than usual interest because of its history, the rather unusual mental symptoms and the pathologic findings.

The patient, J. D., a white man, aged 20, first came under my observation on Sept. 30, 1909.

Family History.—When the patient was first brought to my office, I recalled the fact that many years ago I had attended his father for an initial lesion. Disappearing from observation, the latter returned some ten years later suffering from locomotor ataxia. In the meantime he had married and had had one child, the object of our present study. The father died at 42 of bronchopneumonia. The patient's mother is living and apparently well. There were no other children and no miscarriages.

Personal History.—The mother states that the patient had had no other illness save that of measles at 5 years of age. Five or six years ago he was struck on the head with a baseball bat. The blow, however, did not produce unconsciousness and did not require any medical or surgical care. The patient attended school, at which he made average progress, until he was 15 years of age. He then entered an accident insurance office and apparently did his work well. He continued in average health until the onset of the present trouble.

Present Illness.—In April, 1907, the patient suffered from an attack of headache accompanied by vomiting. He was ill for about three weeks. He usually vomited several times a day and the vomiting bore no relation to the taking of food. The headache was referred to the frontal region. It was then noticed by his mother that the patient dragged his left leg and that his left arm was weak. He was admitted to the Hahnemann Hospital. Here he remained four weeks and was discharged much improved. In February, 1908, the right arm and leg became weak. He was again sent to the Hahnemann Hospital and subsequently to the Episcopal Hospital, after which he was again much better. In the early part of 1908, both eyelids dropped but this cleared up again in a few weeks. His mother further stated that in the intervals of his two attacks the patient had been awkward and unsteady on his feet; that at times he complained of seeing double and also of ringing in his ears. She also said that his statements became uncertain, that his mind became impaired and that there was a very marked loss of memory. He was constantly smiling, laughing and behaving foolishly and he did not talk plainly as before.

Present Condition.—The station with eyes closed presented a markedly increased sway. The gait, both with the eyes closed and open, was very ataxic and spastic, the patient walking with his legs widely separated. He was unable to maintain his balance on either foot alone. The grip of the right hand was about one-half of normal; the left hand was decidedly weaker than the right. The movements of the upper extremities were also ataxic. There was a slight fine intention tremor of both hands. The tongue was protruded in the median line and also revealed a fine tremor. Tremor was also noted in the lips. The angles of the mouth were retracted equally well. The right knee-jerk was plus; the left, double plus. There was a slight disappearing ankle-clonus on the left side; none on the right. A slight Babinski reaction was obtained on the left side; none on the right. Sensation appeared to be normal everywhere. There was no involvement of the sphincters. The pupils were equal and reacted promptly to light and accommodation. There was nystagmus on extreme rotation to the right but not on rotation to the left. Examination of the other special senses was negative. During the examination, statements of the patient's mother as to the mental condition were abundantly confirmed. The patient's appearance and manner strongly suggested a dementia præcox. His statements were difficult to follow, were at times confused and his speech was very indistinct. It did not suggest a scanning speech but rather the speech of a paretic. He was buoyant and happy, laughed much, denied that he felt sick and declared he was "fine dandy."

The patient was admitted to the Jefferson Hospital Oct. 1, 1909. His eyes were examined by Dr. LeFevre who reported as follows: "Oct. 18, 1909.—The patient has a primary double optic atrophy of not very long standing, the right eye being a little more advanced than the left. There is no contraction of the arteries and the visual acuity is not much disturbed. The ocular movements are jerky and there is nystagmus in the extremes. The patient has a divergent squint (latent) of about 15 per cent., but no palsy. The right pupil is normal; the left is slightly larger, irregular and reacts sluggishly to light." These symptoms were repeatedly confirmed by subsequent examinations.

An examination of the urine revealed a faint trace of albumin but it was otherwise negative. An examination of the blood revealed hemoglobin, 82 per cent; red blood-cells, 5,260,000; color index, 0.78+; leukocytes, 7,400; polynuclears, 71 per cent. and lymphocytes, 29 per cent. A Noguchi test resulted negatively. I did not at the time have the opportunity of having a straight Wassermann made.

Course of Disease.—Subsequently the patient's condition gradually grew worse. He soon became unable to stand, became bed-ridden, had recurrence of vomiting at times and also of diplopia. Incoordination became more pronounced on the left side. The Babinski sign remained faint on the left side but made its appearance also on the right. The light reaction gradually became impaired on both sides, more markedly on the left. Gradually also the patient became weaker, incontinence of urine and, at times, of the bowels made its appearance. Throughout he continued in a condition of euphoria; when questioned he always replied that he was "fine dandy." The patient remained at the Jefferson Hospital until Feb. 8, 1910, when he was transferred to the Insane Department of the Philadelphia Hospital. Here the mental symptoms previously noted were confirmed. His statements were incorrect, varied and uncertain; he was buoyant and happy; his speech was a trifle thick; at one time it was noted as scanning; at times his words were unintelligible. The facial lines were still preserved though the nasolabial fold on the right side was a little deeper than that on the left. There was no ptosis. The nystagmus previously observed was not noted at this examination. The tongue presented a fine tremor. The left pupil was slightly larger than the right; both were slightly dilated. Neither of the pupils reacted to light but they reacted promptly to accommodation. All of the deep and superficial reflexes were increased. There was a persistent ankle-clonus of the right side and a spurious one on the left. A typical Babinski could not be elicited on either side.

A diagnosis of paresis was made. The patient subsequently developed a gastritis and also a nephritis of which he died March 4, 1910.

Necropsy.—Only the brain and spinal cord were removed. The brain weighed 1,250 gm., and beyond an increased amount of fluid in the dura and fulness of the vessels, nothing abnormal was noted on gross inspection.

Microscopic examination of the brain and of the cord disclosed the fact that the patient had not suffered from paresis but from multiple cerebrospinal sclerosis. The areas of sclerosis were scattered through all parts of the nervous system. They were in many instances exceedingly large, in others very small. They were widely distributed, no part of the central nervous system escaping. Naturally, because of the mental symptoms present, the condition of the cerebrum was especially studied. Large areas of sclerosis were noted scattered throughout the white matter and basal ganglia, but everywhere there were observed large numbers of small areas of sclerosis which were immediately subcortical and cortical. They existed in large numbers in the frontal lobes, the precentral and postcentral convolutions, the temporal lobes, the cuneus and the mesial surface. Judging from their appearance also many of these areas were relatively old and of long standing. It would seem to be exceedingly probable that the mental condition of the patient was distinctly referable to this subcortical and cortical involvement.

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

The fact that in the present case the mental symptoms were pronounced from the outset, that they consisted of a rather pronounced mental loss, a dementia, together with a decidedly expansive mental state, suggested the diagnosis of a paresis. The tremor of the lips, tongue and hands, which was a fine tremor, not the coarse atactic tremor so frequently seen in multiple cerebrospinal sclerosis, the two attacks of hemiplegia which suggested the apoplectiform attacks of an early stage of paresis, the fugacious character of some of the symptoms, the inconstant character of the nystagmus, the inequality and irregularity of the pupils, the fact that the light reaction became impaired in one pupil relatively early while the reaction to accommodation persisted—all these facts tended to confirm or were in harmony with the idea that the patient was suffering from paresis.

On one occasion only did the suspicion of a multiple sclerosis cross my mind, but only to be rejected. Furthermore, I could not banish from my mind the fact that the father of the patient had been under my care for a primary specific lesion and I not unnaturally inferred that I had before me a case of juvenile paresis.

That the mental symptoms of multiple cerebrospinal sclerosis may simulate paresis is of course well known. Thus, Petroff[1] collected fourteen cases from the literature, though six of these he apparently regarded as genuine mixed forms of multiple cerebrospinal sclerosis and paresis. The case reported by himself was that of a man aged 47 who denied syphilis. After a severe trauma, this patient suffered from transitory speech disturbances and passing states of confusion. Two or three years later the following conditions were noted: intention tremor, scanning speech, spastic paralysis of the extremities, incontinence of the urine, mental dulness and, at times, confusion; later, also, slight nystagmus. In the ensuing year short, marked excitements and depressions, irregular febrile phenomena and, finally, well-developed ideas of grandeur made their appearance, as did also tremor of the mouth and tongue; the speech became tremulous. The pupils remained equal and reacted promptly.

Again, von Bechterew[2] describes a case in which numerous areas of sclerosis, varying in size, were found, both in the white and gray substance. Very many areas were found in the cortex. He expresses the opinion that the lesion of the cortex must undoubtedly be looked on as the cause for the mental symptoms, such as apathy, diminution of the intelligence and imperative laughter. Besides there are cases of disseminated sclerosis in which the motor phenomena of the multiple sclerosis are accompanied by the psychic changes usually characteristic of paresis. He also speaks of mixed forms in which the pathologic changes of both paresis and multiple sclerosis were present.

Raymond and Touchard[3] have placed on record an interesting case of multiple sclerosis beginning with mental symptoms simulating general paralysis. In the first phase of the case there gradually appeared in a young man, aged 26, disturbance of memory, of intelligence and of character, accompanied by somatic symptoms characterized by palsies and passing sensations of formication, by tremor of the upper extremities, by stammering and impediment of speech. Epileptiform crises also occurred. These symptoms led to the diagnosis of paresis. In a second stage the mental symptoms completely receded while the somatic symptoms became more marked and better defined, presenting then the clinical picture of an undoubted multiple sclerosis.

Seiffer[4] made an interesting study of the psychic disorders occurring in multiple sclerosis in Ziehen's clinic. He found more or less pronounced mental disturbances in nine out of ten patients. He came to the conclusion that a fundamental qualitative difference between the dementia of multiple sclerosis and other forms of dementia did not exist. The differentiating factor is to be sought in the accompanying symptoms, the morbidly exalted state, euphoria or frequent sudden emotional changes. These emotional changes, Seiffer thinks, do not stand in any relation to the usually mild degree of dementia which is in contrast to the emotional anomalies in dementia paralytica. In one case there was a history of an attack of hallucinatory confusion which Seiffer regarded as dependent on the multiple sclerosis, though this mental disturbance completely disappeared. Another of his cases is interesting because of the appearance of paranoid ideas. The mental disturbances appear to bear, according to Seiffer, some relation to the initial localization of the sclerotic process. Cases which especially present spinal symptoms present few or no psychic symptoms; cerebral, cerebrospinal and bulbar cases on the other hand more frequently present psychic symptoms.

According to Seiffer, Redlich and Economo[5] and Marburg,[6] the mental disturbances of insular sclerosis are probably in relation to the involvement of the cortex and in the case here presented the findings are in keeping with this explanation. Sometimes paresis, at times dementia præcox, at others paranoia or manic-depressive affections are simulated. Spiller and Camp[7] it may be recalled have reported suicide.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. METTLER AND DERCUM

DR. C. R. BALL, St. Paul, Minn.: I wish to report a case of multiple sclerosis in a woman, aged 30, who had been married seven years and who last January gave birth to a healthy baby. This was her first pregnancy. The disease had evidently begun two years ago, but had recently, since her confinement, become a little worse. The supposition of the attending physician was that her condition was due to nervous syphilis although there was no history of syphilis. Prior to my examination she had been treated with mercurial inunctions daily for thirty days without benefit. At the time I saw her she was markedly spastic in the lower extremities. She had a double Babinski reflex and some disturbance of the bladder function. The pupils were equal and reacted to both light and accommodation. She was a little bit emotional. There was not a true nystagmus but there were nystagmatory movements; there was also just a suggestion of an intentional tremor. During the past two months she has had considerable diminution in her power of vision, more in the left eye than the right, and also paralysis of the external ocular muscles. The question to decide here was whether this condition was due to multiple sclerosis or to cerebrospinal syphilis, or general paresis. After taking the history and making the examination I confess that I was unable to make a differential diagnosis. So I made a Wassermann test of the patient's blood, a spinal puncture, a Nonne globulin reaction, counted the lymphocytes and made a Wassermann test of the spinal fluid according to Hauptmann's method. The globulin reaction was strongly positive. The lymphocytes were 128/3, which would make about forty-two lymphocytes to a cubic millimeter, which shows an enormous increase, as from six to nine is normal. Two Wassermann tests in the blood were absolutely negative; the Wassermann in the spinal fluid by the original method, using 0.2 c.c., and by Hauptmann's method using 0.8 and 1 c.c., was also negative. So of these four reactions, two of them, the increased globulin and the increased lymphocytosis, were very much in favor of a syphilitic condition. But the negative Wassermann test with the large quantities of spinal fluid was the determining differentiating factor which enabled me to put this case definitely in a class of multiple sclerosis.

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[1] Petroff: Inaug. Dissert., Berlin, 1901; abstr. in the Jahresb. f. Neurol. u. Psychiat., 1901, v, 331.

[2] Von Bechterew: Neurol. Centralbl., 1902, xxi, 285.

[3] Raymond and Touchard: Rev. Neurol., 1909, xvii, 224.

[4] Seiffer: Arch. f. Psychiat., 1905, xl, 252.

[5] Redlich and Economo: Jahrb. f. Psychiat., 1909, xxx, 315.

[6] Marburg: Handbuch der Neurologie, vol. ii, Specielle Neurologie, i, p. 911.

[7] Spiller and Camp: Jour. Nerv. and Ment. Dis., 1907, p. 660.

I think that these four reactions are of especial value in multiple sclerosis. Hauptmann calls attention to the fact that the original Wassermann test in the spinal fluid is not of very great value, but that by the use of larger quantities of fluid it becomes an absolute means of differentiating between the two conditions.

Dr. J. T. Fisher, Los Angeles: We all know how common these cases of multiple sclerosis are in the clinics at Vienna. We come home with the impression that it is a fairly common disorder, but we have to change that point of view, because we find that in the clinics at the Boston City Hospital, as well as those in Los Angeles, the disease is quite uncommon. In my own clinic I have difficulty in finding more than two or three cases to show the students each year.

The first case Dr. Mettler described was typical, but the second I should hesitate to class as a case of sclerosis *en plaque*. It certainly has some of the ear-marks of latent brain abscess. One point in regard to the diagnosis which I did not hear mentioned was the pallor of the temporal side of the optic disk, which we have almost invariably found in cases which we were sure were multiple sclerosis. The patients who come to us in young and middle life, showing spastic symptoms together with this ocular finding, and perhaps an intention tremor, I think we are bound to regard as being suggestive of multiple sclerosis. There is no doubt but that the disorder is very much rarer in this country than on the continent.

Dr. J. H. Lloyd, Philadelphia: The abolition of the reflexes and the presence of the Argyll Robertson pupil seem in accordance with the diagnosis of a syphilitic origin. I have seen cases of acute cerebrospinal syphilis which were very hard to differentiate from multiple sclerosis. They sometimes also very closely simulate general paresis.

Dr. F. X. Dercum, Philadelphia: To me multiple cerebrospinal sclerosis has always been a great mystery. It impresses me as a most strange affection, for one reason, because the symptoms shift so remarkably. The French case which I cited presented all of the initial signs of a paresis, and yet when the full picture of cerebrospinal symptoms develop, the mental condition is apparently normal again. We all know how fugacious may be the eye palsies and hemiplegias that occur in multiple cerebrospinal disease. Marburg favors the idea that the affection is caused by some toxin of endogenous origin which attacks the neurilemma, the myelin and last of all the axis cylinder; and yet when we look at a recent plaque, we find that the amount of nuclear infiltration in the affected area is very slight, but in the older plaques we find a dense nuclear infiltration. It seems very strange how a lesion of that kind can give rise to palsies, mental phenomena and other symptoms fugacious in character. I sometimes think that possibly the situation is similar to that of other diseases which are rare in this country and common in Vienna, as for instance, tetany; and the question arises after all, are we justified in excluding among the possible causes some obscure infection?

ILEUS CONSIDERED EXPERIMENTALLY *

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AND
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DETROIT

The term "ileus" literally means a twist, but by usage it has come to mean any condition in which the onward flow of intestinal contents is impeded. Such conditions can be classified into two varieties: First, mechanical ileus, which includes all kinks and twists in the bowel, adhesions constricting the lumen, strangulations by internal and external hernia and any other like physical conditions; second, the adynamic ileus, which simply means a paralysis of a smaller or larger part of the musculature of the bowel. In the former, the cause is evident; in the latter it is undetermined. Just what should cause a paralysis of the bowel we do not know absolutely. The clinical picture, however, with its classical symptoms of pain, vomiting, meteorism and coprostasis is, in each condition, identical. A differentiation between the two is, at least for our present purpose, not necessary. We do not intend to discuss the etiology of this condition but wish to confine ourselves to the cause of death when an uncomplicated case of ileus occurs. Our deductions shall not be from observations made at the bedside. They shall rather be derived from experiments mad on dogs, rabbits and guinea-pigs.

About four years ago, while experimenting on intestinal obstruction in dogs to determine whether the anatomic site of the obstruction played a definite part i the time required to produce death, we were somewhat surprised to see that some of the dogs died without apparent signs of peritonitis. Later, at necropsy, w observed this same condition in several cases of post operative ileus. The interesting question was and i to-day, What is the direct cause of death in these cases A review of the literature on this subject soon reveale a great variety of opinions. This fact alone proves tha the question is an open one.

What, then, is the cause of death in ileus uncompli cated by peritonitis? Is it an auto-intoxication, due t an absorption of toxins from decomposing intestina contents? Is it a bacteriemia or a septicemia? Is i due to a reduced blood-pressure, an exhaustion or a col lapse, brought about by the enormous loss of fluids fro the blood- and lymph-system by the increasing intestina transudation, in turn causing an anemia or a devitali zation of important centers in the brain? Or is it a refle phenomenon due to an irritation of the sympatheti nervous system?

The prevailing impression in regard to the cause o death in ileus is that it is a toxic condition originatin from the absorption of bacteria and their poisons o from the absorption of some altered physiologic secre tions of the pancreas, liver and intestinal mucosa. I this is so, it ought to be possible in some manner t demonstrate such poisons. With this idea in mind we began a series of experiments.[1]

The first question to determine was how to produc an experimental ileus. This was done under ethe anesthesia in two ways: First, by ligating the bowe with string and then with broad tape; second, by usin mechanical appliances to pinch the walls of th bowel together. Each of these methods failed, for if th bowel was clamped or tied tight enough to cause complete obstruction, a pressure necrosis would result with perforation and a subsequent peritonitis; if the compression on the bowel was made just short of causing a pressure necrosis the mucous membrane at that point would retract and as a result there would be no complete obstruction. A narrowing of the lumen of the intestine causing a stricture that would barely admit a small lead-pencil will not impede the flow of intestinal contents in a dog, at least not sufficiently to cause any obstructive symptoms. Failing with simple ligation, etc., the bowel at the point to be obstructed was cut through and blind ends were made by sewing the edges together. These were inverted and in order not to destroy the continuity of the bowel, as well as to prevent leakage, the blind ends were again approximated by a row of Lambert sutures. This method was very satisfactory, as by means of it we could cause the death of the animal without an accompanying peritonitis. (Cultures taken from different parts of the peritoneal cavity were always negative.) Occasionally, an animal would, even with this method, die with an accompanying peritonitis, but such were not included in the experiments to be reported.

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* Presented before the Michigan State Medical Society in Se tember, 1911, and read before the Wayne County Medical Societ in April, 1912.

[1] Experimental work on animals was done under ether ane thesia; transfusions under local anesthesia.

The selected point for the artificial obstruction was in the duodenum about 6 or 8 inches distant from the pylorus or about 2 inches distant from the opening of the bile and pancreatic ducts. Such a high point was selected first, because the amount of intestinal transudation must necessarily be less the higher the obstruction, and second, on account of the fact of the lessened danger of peritonitis.

Even with the high obstruction, the intestinal transudation was profuse, as was proved by the repeated vomiting and by the large amount of fluid found post mortem in the dilated stomach.

After obstructing the bowel in this manner, the time in which death occurred in uncomplicated cases was somewhat variable. The dogs lived from forty to 108 hours, the average being about sixty-nine hours. For about forty hours after obstruction was produced the animal would move about. The clinical syndrome in each case was typical. There would be vomiting and after forty-eight hours the animal would lie down most of the time. Muscular tremors localized in certain groups of muscles would appear. A certain muscular stiffness could also be noticed in some cases. The animals would remain between a semicomatose condition and death for two, three and even four days. The overfilled stomach would often partly empty itself, not so much by an act of vomiting on the part of the dog, but more properly speaking by an overflowing.

The temperature of the "ileus dog" was not characteristic. There would be a slight rise during the first and second days following the artificial obstruction, after which it would return to normal and quickly become subnormal. The temperatures taken were all rectal. The normal temperature of a dog is 100 to 101 F. It would rise to about 102 and 103 F. and on the third and fourth days, or just before death, it would not register over 92 F. The pulse was always accelerated somewhat. The pulse-rate ranged from 100 on the first day to 120 and 130 on the third and fourth days.

In a series of five dogs complete blood examinations were made before operation and twice daily after operation. We thought that some definite change in the blood-picture might be noticed but on finding this quite constant, not characteristic and not different from what is observed in other conditions, we abandoned these entirely. There would be a slight leukocytosis at first, then a gradual fall to normal and subnormal.

With this method of producing ileus in dogs established and with a fair idea of the clinical picture this condition assumes in these animals, we next endeavored to demonstrate that some toxic substance, bacterial or otherwise, is the direct cause of death. In this, we will say at the outset, we entirely failed.

FIRST SERIES OF EXPERIMENTS: INJECTION OF DUODENAL AND STOMACH SECRETIONS

The duodenal and stomach secretions, that is, the secretions above the point of obstruction, were tested as regards their toxicity. For this purpose guinea-pigs were used. The secretions were filtered first through porcelain filters. Cultures taken from the final porcelain filtrate still showed the presence of bacilli and cocci. Half of the filtrate of the secretion of each dog was then sterilized by heat at 100 C. for from thirty to fifty minutes. The other half was used without sterilization; 1.5 c.c. of the sterilized and 1.5 c.c. of the unsterilized filtrate were then injected subcutaneously into guinea-pigs. At the point of the injection of the unsterilized filtrate sloughs developed but in no instance did the guinea-pigs show any evidence of poisoning. For three or four days after the injection the guinea-pigs seemed lively and normal. In all ten dogs and twenty guinea-pigs were used.

The amount injected, 1.5 c.c. is a small amount, but 1.5 c.c. for a guinea-pig would, weight for weight, be equivalent to about 360 c.c. (about 12 ounces) for a man weighing 150 pounds. Besides guinea-pigs, one dog, weighing 7 pounds, was used. The intestinal contents were filtered through filter paper, and with the filtrate as a diluent a 4 per cent. tricresol solution was made; 40 c.c. of this solution were then injected subcutaneously. (This amount, for a dog weighing 7 pounds, is equivalent to about 35 c.c. for a guinea-pig and 850 c.c. or about 28 ounces for a man weighing 150 pounds.) This solution, if at all toxic, certainly ought to show its toxicity in some form or other when injected into animals in such large proportions.

SECOND SERIES OF EXPERIMENTS: INJECTION OF SERUM

If the dogs died of toxemia the toxic material, whatever it might be, must be circulating in the blood-stream in order to cause its fatal effects. Whatever is in the stomach or bowel is, so to speak, outside of the body. For this reason the toxicity of the serum of the ileus dogs was tested. The first dogs were allowed to die, but, as after death it was very difficult to withdraw a sufficient amount of blood from which to separate out the serum, the dogs used later were allowed to live forty-eight hours (at which time their symptoms seemed most severe) and then bled to death.

Cultures were made from the blood, serum and peritoneum of all these animals, and in each case in which the peritoneum showed an absence of bacteria the blood and serum gave the same negative result. When peritonitis was present (which animals were not used) bacteria resembling the colon bacillus and *Staphylococcus albus* could also be demonstrated in the cultures taken from the blood of these animals. Such positive results were not, however, constant. The serum of ten dogs was injected into twenty-five guinea-pigs subcutaneously and peritoneally. From 1.5 c.c. to 3 c.c. were used. Whether the intraperitoneal or subcutaneous injection was used seemed to make little difference. The guinea-pigs that received 3 c.c. died; about half of those that received 2 c.c. died and the others remained well and lively; only one of those that received 1.5 c.c. died. In the process of the clotting of blood, the leukocytes, as is well known, are squeezed on and certain enzymes are forced out of their protoplasm. It was thought that the enzymes might have some neutralizing effect on the toxins circulating in the serum, if any such there are. For this reason the blood was prevented from clotting by allowing it to run, while bleeding, directly into a 1 per cent. solution of sodium citrate. Equal parts of blood and sodium citrate solution were used. The mixture was then centrifuged. Of this mixture of sodium citrate and serum, 4 c.c. were injected into six guinea-pigs. (Serum from three different dogs was used.)

This mixture had about the same effect as did the plain serum. One guinea-pig died; the five remaining continued lively and well. The pigs were observed for about five days and then released.

What was the cause of the varied outcome of these injections of "ileus serum?" Is dog-serum a foreign proteid for guinea-pigs and does the injection of such foreign proteids cause anaphylaxis? If it does, normal dog-serum ought to have the same effect and this, we learned later, is precisely what normal dog-serum will do. Testing normal dog-serum on guinea-pigs we found that over 2 c.c. will invariably kill; that 2 c.c. and even 1.5 c.c. kill sometimes. This is exactly what the serum from the "ileus dogs" had been doing.

Instead of guinea-pigs, small dogs were now used. Of course, the amount of the corresponding injection had to be increased. The equivalents of 2 to 4 c.c. to a guinea-pig weighing 300 gm. were injected. One dog weighing 7 pounds received 40 c.c.; one dog weighing 10 pounds received 50 c.c. and another weighing 14 pounds received 40 c.c.. As far as could be observed these injections of serum from ileus dogs into normal dogs had absolutely no effect. In like manner two rabbits were used with a negative result.

If in ileus there is an absorption of toxins, where are these toxins? Toxins, in order to have a deleterious effect on the body, must reach the central nervous system, at least the respiratory and circulatory centers; and how can they reach these centers if they are not brought into contact with them by the serum of the blood? Can they be contained in the corpuscular elements of the blood? If so the introduction of a large amount of a supposed toxic blood *en masse* into a normal animal ought to produce some symptoms in the normal animal corresponding to those it produced in the abnormal animal from which it was taken. This again we were unable to demonstrate in a third series of experiments.

TABLE 1.—RESULTS IN EXPERIMENTAL DIRECT BLOOD TRANSFUSION

Weight of Dog Before Transfusion, Lb.	Weight of Dog After Transfusion, Lb.	Amount Gained After 50 c.c. or 2 oz. Blood Withdrawn, Oz.	Amount in c.c. of Ileus Blood Normal Dog Received
17	17½	10	300
15	16	18	540
15	16	18	540
13	13¾	14	420
10	10¼	6	180
11	11½	10	300
15	16	18	540
Total..96	101	94	2820
Ave...13.7	14.4	13.4	402.8

THIRD SERIES OF EXPERIMENTS: DIRECT TRANSFUSION OF BLOOD

The carotid artery of an ileus dog was exposed forty-eight hours after the onset of the ileus. The jugular vein of a normal dog was next exposed and 50 c.c. or 2½ ounces of blood were withdrawn. A cannula was then connected from the carotid artery of the ileus dog to the jugular vein of the normal dog and the former bled to death into the latter. The normal dog was carefully weighed immediately before and immediately after each transfusion, for by this method alone we were able to judge just how much "ileus blood" it received. This procedure was repeated seven times. In the first three cases both dogs were anesthetized with ether, but the ether anesthesia, in itself a toxemia, caused vomiting and stupor and therefore interfered with correct deductions. Local anesthesia was then used, and in every case after the transfusion was completed the dog would jump up, be as lively as before and continue in the same state, absolutely normal. The amount of blood the normal dog received varied somewhat. As will be seen from the accompanying table, the average weight of the recipient dog was 13.5 pounds and the average amount of ileus blood he received was 13.4 ounces.

The largest amount was 540 c.c. (18 ounces) and the smallest was 180 c.c. (6 ounces). The normal amount of blood in a dog weighing 13.5 pounds (the average weight of the recipient dog) is about 15.4 ounces. By volume, therefore, the amount of ileus blood (402.6 c.c. —13.3 ounces) the recipient dog received was 2 ounces less than the normal amount of blood contained in that dog.

If the ileus blood which the normal dog received contained some toxic substance surely the reception of such a large amount ought to cause symptoms similar to those observed in the ileus dog. Such was not the case. There was not even vomiting and the dog soon after apparently ate a hearty meal. It might be interesting to observe that the average amount of blood the dog received in the transfusion would, in a man weighing 150 pounds be equivalent to 4½ quarts.

After reviewing these experimental facts can we still hold that death in ileus is due to a toxemia? We have been unable to demonstrate bacteria in the blood, and likewise by injecting the duodenal and stomach contents, by injecting the serum, and, lastly, by direct transfusion of blood, we have also been unable to prove the presence of bacteria or any other toxic substance. Besides this, absorption from the bowel in ileus is considerably diminished. Braun[1] has proved this very conclusively by injections of solutions of strychnin sulphate into the proximal portion of the bowel. He concludes that absorption of the strychnin is less rapid than normal even from the onset of ileus. (He bases his deduction on the intervals between the injections and the appearance of convulsions and death.) In some cases the progressive diminution in absorption is so great, the consequent absorption of strychnin so slow, that the injection of more than a toxic dose of strychnin will not cause convulsions and death. In other words, in spite of the excessive dose of strychnin the animals expire as usual from the induced ileus and not from strychnin poisoning. From these experiments he concludes that in ileus the absorption from the bowel is lessened in all cases and in some stages of the disease is entirely absent.

If an ileus death is not due to toxemia, to what is it due?

A striking thing that was noticed in the animals that died of an experimental ileus is the loss in weight (Table 2).

The dogs lived from forty to 108 hours, an average of sixty-seven hours and during that time the weight lost was from 1 to 5½ pounds, the average being a little over 3 pounds. Some of the dogs had a full stomach at the time of the operation, and if we deduct the weight of the vomitus during the first two hours after the operation, that is, the amount of food débris contained in the stomach at the time of the operation, the average amount of weight lost would be 2 pounds.

For animals weighing on an average of 20 pounds (that is, the average weight of the animal two hours after the onset of ileus), the loss of 2 pounds is quite considerable. It is a loss of about one-tenth of the whole body-weight. This in a man weighing 150 pounds would be the equivalent to a loss of fifteen pounds and that in the short space of two or three days. This loss of weight must be attributed principally to a loss of body fluids that have been discharged through the bile-passages and pancreatic ducts and that have otherwise transuded through the intestinal mucosa, and have been expelled as vomitus.

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[1] Braun: Ztschr. f. Chir., 1908, xcvi, 544.

When we consider that the proportion of blood to the other elements of the body is, weight for weight, about one-fourteenth, and that the loss in ileus animals is about one-tenth, all due to the loss of fluids, then we can readily understand how this must have a detrimental effect on all the body functions. It must certainly have an enormous effect on the blood-pressure.

We have not conducted any experiments on the blood-pressure of dogs dying from ileus, but Braun[1] showed very conclusively by a long series of experiments that the death of dogs that died from ileus without a peritonitis differed in no way from that of those that were bled to death slowly. Besides the blood-pressure, which in each case was similar, the general clinical picture, he asserted, except for the vomiting in ileus animals, was also similar. Accordingly, the disordered functionating power of the bowel, with its direct depleting effect on the abdominal blood-vessels and consequently on the whole vascular and lymph-system, causing a steady sinking blood-pressure, and a necessary consequent disturbance in the cerebral circulation, most evident in the circulation of the vital centers, can be looked on as one of the prime factors of the direct cause of death in ileus.

TABLE 2.—AMOUNT OF WEIGHT LOST IN THE COURSE OF AN ILEUS DEATH

Time in Which Death Occurred.	Weight Before Operation.		Weight 2 Hours After Operation.		Weight 24 Hours After Operation.		Weight 48 Hours After Operation.		Weight 72 Hours After Operation.		Weight 96 Hours After Operation.	Weight 108 Hrs. After Operation.	Weight at Death.	
Hours.	Lb.	Oz.	Lb.	Oz.	Lb.	Oz.	Lb.	Oz.	Lb.	Oz.	Lb.	Lb.	Lb.	Oz.
75	26	4	25	8	25		24		21	8	*	*	21	8
108	25		22	12	21	8	21	8	21		19	19	19	
72	15		15		15		14		13		*	*	13	
48	21		20		19		17	8	*		*	*	17	8
48	11		11		11		10	8	*		*	*	10	8
60	14	8	13	8	..	..	12		*		*	*	12	
72	15	4	15		14	8	13		12		*	*	12	
40	44	8	41	4	..	..	38	12	*		*	*	38	12
72	21		21		.	..	20		19		*	*	19	
72	22		21		..	..	20		19	8	*	*	19	8
72	20		19		..	..	17		16	8	*	*	16	8
Total ..739	235	8	225	..	..	..	208	6	..	..	..	..	199	4
Av. 67	21	2	20	1	..	..	18	15	..	..	..	..	18	1

* Dead.

Besides this loss of fluids, the sympathetic nervous system must play an important part. If a severe blow on the solar plexus can occasion death, is it not probable that such grave changes as are caused by ileus in the abdominal viscera, the organs directly supplied by the sympathetic or solar plexus, may set up similar reflexes with a similar fatal result? Of course, concerning the sympathetic nervous system little is known definitely and absolute proof of the effect of ileus on this system is wanting. That such a hypothesis may be correct we will not deny. That a toxemia, however, is the cause of death in ileus is in the face of the experiments above enumerated hardly tenable.

Interesting as it is to know exactly on what factors death depends, such knowledge is at the same time practical. If we look on the disturbed functionating power of the bowel and the failing circulation that results therefrom as the source of the whole clinical picture of ileus, then our efforts must be directed toward these factors. Rational treatment must therefore, first, subdue the distention, which is continually increasing, and at the same time increasing the paralysis of the bowel, and, secondly, it must replace the lost fluid in the vessels. The former condition, the distention, can often be relieved by stomach lavage and enemas, but surely by enterostomy.

An enterostomy lessens intra-abdominal pressure almost instantly. The distention by the gradual accumulation of gas, at first only slight, is the factor which has induced the disturbance in the abdominal blood-vessels; it is also the cause of the transudation of fluids through the intestinal mucosa, the loss of which fluid is in part responsible for the critical condition of the patient. This is overcome in practically an instant and with it the irritation in the paralyzed intestine is allayed and the further influx of blood to the abdominal vessels prevented. The latter condition, the exsanguination that has taken place, can be restored by the free administration of saline solution intravenously, subcutaneously or by the rectum. This is the most stable method of raising blood-pressure. To raise blood-pressure by other medications, such as epinephrin, etc., is of little benefit. They are all too evanescent.

SUMMARY.

1. Death in ileus, as far as we can determine, is not due to a toxemia, i. e., it is due neither to the absorption of bacteria or their toxins, nor to the absorption of some altered physiologic secretion.

2. A depletion of the vascular and lymph-system, causing a grave disturbance in the circulation, especially in the cerebral circulation, is a prime factor in the causation of death.

3. A pathologic change in the sympathetic nervous system, a loss of sympathetic control, is probably contributory.

4. Treatment must, first of all, relieve distention and, secondly, refill the depleted vessels.

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Cancer Not Necessarily a Disease of Advanced Age.—One is apt to associate the occurrence of cancer always with advanced age, and to think that only people of advanced or middle age are likely to be the subjects of carcinoma. But cancer of the cervix is relatively common in comparatively young people. For instance, it is not uncommon at the age of 30, and we even find a certain number of cases—and I have seen a few—in which it occurs under 30 years of age.—Arthur H. N. Lewers in *Clin. Jour.*

SOME COMMON TYPES OF HYPOSECRETION OF THE THYROID

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It is the object of this paper to present a few types of what I consider hypothyroidism, or symptoms of subthyroid secretion. Many of these conditions are not recognized, and patients suffering from disturbed physiology of this gland drift from physician to physician, and are improved only after the diagnosis has been made and the proper treatment inaugurated. Unquestionably, many of these patients are psychopathic and may improve by mental treatment. The thyroid gland is peculiarly susceptible to mental stimulation and to mental depression, and anything that quiets mental excitation will diminish a hyperthyroid secretion of the gland, and anything that removes mental depression will increase a subnormal secretion of the gland.

Some instances of disturbed secretion of the thyroid, a few of which I shall relate, look like pure hysteria, or that disturbed nervous state which we call neurotic, but for the pathology of which we are still searching. Therefore, many will ascribe the favorable results obtained by treatment of the thyroid as simple instances of mental impression.

The physiologic activities which a normal thyroid is expected to furnish may be summed up as follows: It is a necessary stimulant to growth in childhood, both bodily and mentally; it is always a stimulant to mental activity and to proper cerebration; it takes active part in the deposition and distribution of fat; it takes an unknown but important part in nitrogen metabolism, and many times it is an active opponent to nitrogen poisoning; without its activity proper genital development is impossible, and the secretion of the genital organs is imperfect. It takes an active part in the function of menstruation and in the development of the fetus in pregnancy. During the repeated periods of menstruation and during pregnancy it normally furnishes an extra amount of secretion. If it does not do so, the menstrual function is imperfect, the woman during pregnancy is abnormal, and parturition is likely to develop eclampsia and the child is likely to be born a cretin.

The thyroid gland, while present in the young infant, reaches its full development only at puberty, and after 45 begins slowly but progressively to furnish a diminished secretion; the gland gradually atrophies in old age. This atrophy or diminished secretion seems to allow an increased connective tissue development in various parts of the body, notably in many organs; in other words, its atrophy allows sclerosis, and its early atrophy or early insufficiency causes early sclerosis.

The gland has a good deal to do with the condition of the blood. This, however, is not well understood. At times, too much of its secretion causes hemorrhage. At other times, an insufficiency of its secretion allows or causes hemorrhage. This difference in action is perhaps due to the facts that too much secretion dilates the blood-vessels (the gland furnishes a secretion which is a vasodilator), which may allow or cause hemorrhages from mucous membranes, as from the nose or from the uterus, and that subsecretion must sometimes allow a condition of the blood to occur which is not dissimilar to that of hemophilia or to that condition which occurs in patients with hemorrhagic diathesis; in other words, a very aplastic condition of the blood, perhaps a diminished calcium content. It seems, at times, to have something to do with stimulating or encouraging the production of red blood-corpuscles, as in the condition of chlorosis it is not properly functioning.

When it is considered how little secretion the thyroid furnishes per hour or per day, and that this secretion is picked up by the blood as it passes through the normal thyroid, it is not surprising, when there is an enlarged thyroid from normal hypertrophy, such as occurs in Graves' disease, and especially when the blood-vessels are dilated as seen in many such cases, that the blood, acquiring so much more thyroid secretion in a given time, must of necessity produce the intoxication that we see in this disease. An enlarged thyroid with large, dilated vessels, has been estimated to allow the whole blood of the body to pass through the gland at least once an hour. When it is remembered that thyroid feeding may produce prostration and dangerous symptoms, it is easily understood why, in Graves' disease, the blood thus loaded with thyroid secretion causes such serious and sometimes dire symptoms.

As above stated, various mental conditions stimulate or depress the thyroid. This is true of some functions, foods and drugs which act on the thyroid. The stimulants to thyroid secretion are great sorrow, great joy and nervous tension; sexual excitement, genital disturbances, especially uterine, and pregnancy; cerebral stimulants, such as coffee, tea and alcohol; and such drugs as arsenic, iodids, phosphorus, salicylic acid, pilocarpin and, of course, thyroid extract. The idiosyncrasy of some patients to iodids I believe to be due to an extra susceptibility of the thyroid. Depressants to thyroid secretion are: quiet, seclusion and absolute rest; absence of all sexual excitement and all genital irritation; a milk or milk and cereal diet; lime, perhaps in almost any form but especially as the glycerophosphate; most hypnotics, especially bromids and chloral; opium as a quieter of all glandular activity, possibly by quieting the mental activity and stupefying it; and ergot.

I can only express once more my hope that the physiologic chemists will soon be able to differentiate the various elements of activity of the thyroid gland Histologically, the thyroid may be perfectly normal, and yet it may be furnishing a secretion that is disturbed i. e., the relation of the different elements to each other is abnormal, and yet, as a whole, the gland will be neither oversecreting nor undersecreting. Such a differentiation would explain the varying symptoms caused by subsecretion and would account for the fact tha such symptoms are not improved when the whole gland is fed.

When the very active part that the thyroid gland takes in the life of the female is recognized, it is not to be wondered at that thyroid instability so frequently occurs in women, and that the normal activity of the gland is so often increased at times when it should no be increased, or, on the other hand, that, having been so many times normally hypersecreting during the woman's life and so many times not returning quickly to normal when such hypersecretion is not needed, the gland becomes overworked and finally hypofunctionates This thyroid instability, at times hypersecreting, a others hyposecreting, can account, as no other one etiologic factor can, for the so-called neurotic women who have at one time an asthma, at another time an urticaria, then an eczema, then a diarrhea, then perhaps joint pains, then unexplainable vomiting, then headaches, then tachycardia; each condition when presen urgently calls for treatment, while improvement is followed by another abnormal condition.

As I propose to offer a few clinical histories of patients who have hyposecretion of the thyroid, I will first present a list of the conditions for which I think subsecretion of the thyroid may be responsible. These are: cretinism, slow growth in children, some types of eczema, some forms of asthma, infantile obesity, chlorosis, amenorrhea, some digestive disturbances, some forms of epilepsy, some forms of gout, depressant hysteria, sometimes the vomiting of pregnancy, some forms of eclampsia, some forms of melancholia, adiposis dolorosa, lipomatosis, myxedema, senility and perhaps Raynaud's disease.

The following case shows the improvement caused by the feeding of thyroid to a defective child:

Case 1.—*History.*—The patient, a girl, was first seen when she was 3 years old. She was the mother's first child, and though not a cretin, was fat, rather large for her age, very backward about talking, and did not walk until she was 2½ years old. She had four teeth when she was 5 months old, and twenty when 18 months old. She was cross-eyed and pot-bellied, a large eater, and the bowels tended to be loose. She did not tell when she desired to urinate, and could not control the bladder. Adenoids had been removed, but the patient drooled a great deal, and could say but two or three words, and there had been no improvement in this line for three months. She was very nervous and did not sleep well; cried a great deal; and would not play by herself. There was no history of any sickness; she never had had any eruptions or a convulsion. The father and mother were both perfectly well. Physical examination was negative, except as above stated.

Treatment and Course.—The patient was given 1 grain of thyroid substance twice a day for some time, and then once a day for many months. In two months there was marked improvement; she slept well, cried less and grew taller; the abdomen became normal and the disposition improved; she told when she desired to urinate and began to talk more. When first seen she walked incoordinately; this also improved, and in two months the patient fell but very infrequently. In about two years she began kindergarten work and continuously improved in all lines.

I had this child under observation for about three years. The mother of this child, aged about 30, became pregnant two years ago, and lest she should give birth to another child who had subthyroid secretion, I gave her 3 grains of thyroid a day during the last three months of her pregnancy. She gave birth to a male child which weighed 14½ pounds and was fine and perfect in every way.

The types of eczema which are improved by thyroid treatment are those which occur in babyhood and childhood around the orifices of the body and as fissures in the skin. The dry scaly eczemas and the itchings of old age are also benefited by thyroid. Patients with dry skin, with or without powdery desquamation, in all grades up to real ichthyosis, lasting often a lifetime, show improvement after thyroid. The following two cases show the value of thyroid in these conditions:

Case 2.—*History.*—The patient, a young unmarried woman aged 26, was first seen four years ago. Her skin, especially of the hands, abdomen and legs, since childhood had always been rough, harsh and almost like a mild ichthyosis. The epidermis peeled off in clouds and showers of dust every time she removed her clothing. She had never perspired normally, and was always very cold in winter.

Treatment and Course.—After a month or two of thyroid treatment the skin became softer; the patient said that the epidermic scaling was less than it had been since she could remember. The following winter she felt the cold less than she ever had. Her general health also improved. She was given thyroid on an average of 2.5 grains a day, sometimes more and sometimes less, for a year.

Case 3.—The patient, a man aged 61, had had more or less general eczema for two years. He suffered terribly from burning sensations and from itching, and always felt the cold greatly. He had received all kinds of treatments. He was put on thyroid, and almost immediately there was less itching; the skin felt better and he did not feel the cold, and in a month there was great improvement. He was then not seen for several months, when the same symptoms were beginning to return. He was put on thyroid treatment and again improved.

Sometimes the etiologic factor in asthma is, as all know, very difficult to determine. Without enumerating the many causes, suffice it to say that occasionally a disturbed thyroid secretion is the cause, and that the securing of an increase in the secretion of the thyroid cures the patient. The following is an example:

Case 4.—*History.*—The patient, a married woman aged 42, had suffered from a cough, off and on, for eight years; for the last two months before I saw her she had had it steadily. She raised both mucus and pus, but never any blood. The menstruation was regular, but had been scanty for a year. She never had had any severe illness. She had had six children; the youngest was 3 years of age. The family history was negative. She was wheezing with a typical asthmatic condition, and had great dyspnea on the least exertion. She had had a bad asthma attack six months before, the first one she had ever had. She had lost 20 pounds within a short period. The present attack of asthma had lasted two weeks. The sputum was negative as to tubercle bacilli. The thyroid was small. The diagnosis was asthma due to impaired thyroid secretion.

Treatment and Course.—To activate the thyroid the patient was given 3 grains of sodium iodid three times a day; she began to improve immediately; the asthma and cough disappeared and she gained 2 pounds in four days. The iodid was then reduced to twice a day, and in another week she had gained 6 pounds, and was feeling well in every way. The iodid was then reduced to 3 grains once a day, and in a week she considered herself cured. The successful action of this small dose of iodid was as an activator of the thyroid gland.

The next case shows an interesting story of various subthyroid disturbances.

Case 5.—*History.*—The patient, an unmarried woman aged 40, came to me complaining of abdominal distention, which she had had for three years, and which had become worse during the last six months. All kinds of diagnoses had been made of various intestinal indigestions, disturbed circulation, etc., for which she had been treated. The bowels moved three times a day; this had been a habit for years, and she did not call it a diarrhea. Menstruation was regular. She had some palpitation and some little dyspnea, and at times she thought she had an asthma; she could not sleep well at night on account of it. She had had a slight cough for a good many years, frequently raising mucopus; she was subject to hayfever and asthma in the summer. She felt weak all the time, and said that her feet and legs occasionally swelled at night. She had lost weight. The pulse was slow, down to 54. The lungs were asthmatic; heart normal; abdomen negative, except that it was tympanitic. The urine was negative. Diagnosis, hyposecretion of the thyroid.

Treatment and Course.—The principal treatment was thyroid, at first 5 grains a day, then 2½ grains a day, then 2½ grains every other day; ten days from the time she started the treatment the patient stated that she had not been as well in every respect for three years.

The following case is interesting as showing a combination of asthma and eczema.

Case 6.—*History.*—The patient, a girl aged 6, was subject to recurrent colds, with asthma. She had somewhat enlarged tonsils, was pale, a poor eater, and had a more or less constant peculiar skin eruption; it was not eczema and not itch, although the first appearance looked like scabies. The child never perspired. The diagnosis was insufficient thyroid secretion.

Treatment and Course.—The patient was given 1 grain of thyroid a day for some weeks. Very soon the eruption and asthma disappeared and the child improved and became well. I did not see her again for one and one-half years, when she again had an asthma. At this time I gave her 3 grains of sodium iodid three times a day to activate the thyroid gland. She did not improve. The asthma was no better. I gave her 1.5 grains of thyroid once a day, and the asthma quickly disappeared. I did not see her again for two more years, when she had the same recurrence of asthma. Thinking that she was old enough now for the iodid to stimulate the thyroid, I gave her 3 grains of iodid three times a day. This acted as I expected, and the asthma quickly disappeared.

Amenorrhea is very successfully treated with thyroid; chlorosis will often improve as rapidly with thyroid as with iron or arsenic. In fact I know of no emmenagogue which acts as well as thyroid. Whether in large doses it could cause abortion, I do not know, but certainly in delayed menstruation in young girls and in amenorrhea at almost any age, especially if there are other symptoms of insufficient thyroid secretion, as putting on of weight or drying of the skin, thyroid is almost a specific.

It is rarely recognized that a number of digestive disturbances can be due to insufficient thyroid secretion. It is recognized, however, that hypersecretion of the thyroid can cause such disturbances. These disturbances are mostly diarrheas. The exact reason that insufficient thyroid secretion causes indigestion, and especially intestinal indigestion, is at present difficult to understand. The following is a very interesting instance of the successful use of thyroid:

Case 7.—*History.*—The patient, a boy aged 8, was brought to me two years ago with the history that three and one-half years before he had had an acute intestinal attack of some kind with which he was seriously ill for months. Since that time, off and on, at intervals, he had had these intestinal upsets, with bad diarrhea, and at this time frequent involuntary movements. He also at these times had albuminuria. There was a peculiar pigmentation on the hands and neck and a little on the face; also there were some leukodermic spots on different parts of the body, especially the neck and hands. He had also some of this dark pigmentation on his thighs and lower abdomen. All sorts of diagnoses had been made and all sorts of treatments had been instituted, all more or less unsuccessfully, although sometimes these diarrheal attacks seemed to become better under some treatment, only to recur again. The heart, lungs, abdomen and urine were negative. A few of the cervical glands were palpable.

Treatment and Course.—The patient was given thyroid, and electric treatment to the imperfect anal sphincter. The sphincter soon became competent, and the boy improved in every way; the diarrheal attacks entirely disappeared, and after having been for years on a rigid diet, he was now allowed all kinds of assorted food. The pigmentations and leukodermic spots gradually disappeared, and the patient became well. The thyroid treatment in small doses was continued for some months and then stopped, and in April, 1911, a year after I had first seen him, the patient began to have a little trouble again in the way of diarrhea, followed by constipation; also there were some abdominal pains, and puffing and swelling in different parts of the body, especially under the eyes. He had little irregular temperature attacks; sometimes palpitation of the heart. He was again given thyroid, and again he improved, and the pigmentations, which had more or less returned again, faded. The boy, with slight disturbances, is constantly improving, growing and doing finely. The last time I saw him was in December, 1911.

If epileptic attacks occur at the menstrual periods, or at regular four or five-week intervals during amenorrhea, or develop at the menopause, disturbance of the thyroid is often the active or exciting cause, and the disturbance is generally a subsecretion. The reason that thyroid has been used unsuccessfully so many times in epilepsy is that the cases have not been properly selected. When thyroid is properly administered in the above-described class of cases, many times improvement and sometimes absolute cures take place, and any treatment that is successful without the use of enormous doses of bromids is certainly good treatment. The following is a case of great interest to me:

Case 8.—*History.*—The patient, a girl aged 17, first came to me in April, 1904, with the history that from July, 1903, she had had peculiar sleeping attacks in which she would be almost in a comatose condition for two or three days. These attacks kept increasing in frequency, averaging at first once a month and now twice a month. In the last attack or two she had shown some stiffening, but had never had any convulsive movements, although she had made slight noises and had a little frothy mucus appear at the mouth. In the last attack she slept but twelve hours. After these sleeping attacks she could not hear for several days, and could not see well for two or three days, at times being almost blind; she did not recognize her family for several days. She lost her voice for nearly a week, and during these days did not recognize her own clothing, jewelry, etc. In some of these sleeping periods she did not appear even to breathe; she took no nourishment and no liquid, and at times passed no urine for from two to three days. Menstruation began when the patient was 14 and was slightly irregular, generally occurred every five weeks, and lasted four or five days. The sleeping attacks had generally occurred just before the period. Physical examination was negative in every respect, except that there was a slightly movable right kidney, and the thyroid gland seemed enlarged, though evidently subsecreting. A diagnosis of epilepsy and catalepsy was made, and the fact that these attacks occurred just before the menstrual period and were worse if the period was delayed, gave the indication for treatment, viz., to hurry menstruation and to antagonize whatever toxins might be in the blood at that time. Thyroid is an antitoxin, probably, of protein poisons.

Treatment and Course.—The patient was given thyroid from April, 1904, and she never had another one of the sleeping attacks. In June, she had a typical slight epileptic attack. In January, 1905, she was still doing finely, but had had two attacks of losing herself for from two to ten minutes after slight injuries; in other words, *petit mal* attacks. In May, 1905, having stopped the thyroid for some months, she again had several epileptic attacks in one day, followed by a prolonged sleep. Thyroid again stopped this. She married in August, 1905, and was not seen from that time until November, 1910, during which time she had had no recurrence of fits or sleeping attacks, but she now complained of hot flashes, fainting periods and some irregular swellings. She was again given thyroid, with small doses of iodid, and I have not seen her since, but I feel sure that she would have come to me had there been any recurrence of the trouble.

Case 9.—Five years ago the mother of this patient, aged at that time 44, had an attack of what was called rheumatism, and was sick for a number of weeks in a New York hospital. The rheumatism was located in the legs, and there were peculiar hemorrhagic spots all over both legs. She also, while in the hospital, had recurrent bleedings from the kidneys. She had been given the usual treatments, but receiving no relief, she came to me, hardly able to travel. Knowing the history of the daughter and the tendency of thyroid disturbances to run in families, I decided to give her thyroid. The bleeding ceased within two days, and the petechiæ rapidly disappeared, as well as the rheumatic symptoms, and a number of years after there had been no recurrence.

The exact relation of thyroid secretion to the normal plastic condition of the blood is not known. Ordinarily, feeding thyroid will stimulate bleeding possibly by causing a dilatation of the blood-vessels, particularly of the uterus and nose, but instances not infrequently occur when the feeding of thyroid in hemophilia stops the bleeding. An interesting instance of its action was in an overweight woman at the menopause who, in spite of all the ordinary treatments, including calcium, epinephrin, ergot, atropin, digitalis, etc., etc., bled profusely from the nose, gums, ears, stomach, intestines and bladder; the urine passed seemed almost pure blood. The woman was nearly exsanguinated. This was four or five years ago, and rabbit- or horse-serum injections were not tried. From the history of having put on a good deal of weight and of sleepiness, I advised the administration of thyroid. The patient was given large doses of thyroid, and in twenty-four hours the bleeding ceased and did not recur until a week later, when, the thyroid having been stopped for two days, there was a slight recurrence. On the readministration of the thyroid, the bleeding again ceased.

Subsecretion of the thyroid can cause mental depression to all intensities, from simple apathy and indifference through depressant hysteria to actual melancholia. Administration of thyroid to such patients always causes improvement. Activation of the thyroid with small doses of iodid in cases of mild subsecretion of the thyroid causes cerebral stimulation and satisfactory improvement. The obverse of this is well known, viz., that the administration of either thyroid or iodid in Graves' disease will always increase the disturbance.

The most frequent of all hypothyroidism instances are those associated with added weight. These symptoms grade from the simple putting on of flesh after 40, especially in women after the menopause, to adiposis dolorosa, lipomatosis and myxedema. The symptoms of typical hypothyroidism are scanty or absent menstruation, fat deposits on the breasts, upper arms, at the clavicles, hips, and upper part of the thighs, and, at times, the abdominal apron which may hang over the pubis. Other associated symptoms are drowsiness, slow pulse, dry skin, puffiness of parts of the body at various times and, perhaps, slow mentality. Instances of this type of patient are so frequent that it is hardly necessary to present clinical histories. Other symptoms of subthyroid secretion are puffing under the eyes and of the hands and feet, without kidney or cardiac lesion. This puffiness is not a real edema and may occur asymmetrically or symmetrically and at irregular times of the day; it is often worse in the morning. The skin is likely to be dry in these cases. Sometimes a glycosuria is due to insufficient thyroid secretion, as it may also occur in hypersecretion.

The following case is unique:

Case 10.—*History.*—The patient, a young girl, aged 16, was seen by me in consultation in 1905. The family history was negative. The patient had had convulsions when she was teething; was backward in school; began to menstruate when she was 14, but had not menstruated during the last year. She had attacks of fever, which had begun about a year before at the time the menstruation ceased. They lasted about nine days, to recur again in about three weeks. At the onset she had chills, headache, loss of appetite, pain in the abdomen, loose bowels and insomnia. She had been treated for typhoid fever, for intestinal tuberculosis, malarial fever and hysteria. During these fever attacks the temperature went above 103, the pulse sometimes up to 130, and the respirations up to about 30. A diagnosis had also been made, on account of enlarged glands in the neck and enlarged spleen, of Hodgkin's disease, and the patient had been given repeatedly long-continued doses of Fowler's solution.

Examination.—It was during one of her fever attacks that I saw her. The glands of both sides of the neck, and also in the axillæ and groins, were somewhat enlarged; the pupils reacted slowly; the conjunctival reflexes were present; the heart and lungs were negative; the spleen was enlarged almost to the umbilical line and tender on palpation; the liver was apparently normal in size; the ovaries were not tender; the knee-jerks were exaggerated. The urine and the blood were negative. Just preceding one of these attacks of fever the mother said that the girl was listless, but still restless, and she (the mother) would know that a fever attack was about to begin. With this history and the repeated improvements and the continued recurrences it was impossible to make a definite diagnosis. On the other hand, the very fact of the periodicity and of occurrence about the time of the expected periods and that there was amenorrhea suggested the possibility that if the patient menstruated regularly, she would not have these attacks of what was apparently a toxemia.

Treatment and Course.—The patient was given 5 grains of thyroid twice a day. In ten days she began to menstruate and was feeling well. The next month she menstruated again. Under thyroid medication, given intermittently, she menstruated every month until April, 1906, when she ceased to menstruate. Then in May, when I saw her again in consultation, she again had a temperature of 102; abdomen was tense; spleen was enlarged; glands of the neck tender. She was given thyroid, and in a few days began to improve. In a few days the spleen and the glands were less tender and smaller, the temperature disappeared, and she became apparently well, and menstruated normally in June. This was in 1906. Her physician tells me that she was well until July, 1907, when, following a tonsillitis, the spleen again became enlarged and she had slight recurrence of the above symptoms. She was given thyroid, and in two or three days was again normal. She was well when last heard from, in March, 1911.

Lest I seem to advise the frequent and careless use of thyroid, please let me urge that, when it is needed, but small doses be used, as it is potent for harm. When given to patients who should not receive it, it will make their symptoms worse, and sometimes but a little of it will push a wavering thyroid gland to hypersecretion and Graves' disease.

It should be added to the list of poisons, and the laity should not be able to obtain it without a physician's prescription. Though much of the thyroid substance on the market is not active, a little coincidentally administered iodin, as an iodid, will render it active.

252 York Street.

Cancer Not Necessarily Painful.—The symptom which more preeminently characterizes the early stages of cancer of the cervix is bleeding, bleeding between the periods, or some discharge containing blood in between the periods. At that time there is no pain whatever in cases of cervical cancer. Remember that, because the public mind associates pain with cancer, and the patient is apt to think because she has no pain that therefore, no matter what the trouble is, it is not likely to be cancer. But there is no more dangerous fallacy. For a long period, in fact, as long as the disease remains limited to the cervix itself, the patient has no pain at all. It is not until the disease begins to spread beyond the limits of the cervix that you begin to find the patient has pain. So do not be misled. Any unexplained bleeding, any bleeding, occurring between the periods—if we take a patient during menstrual life, or still more definitely, any bleeding occurring after a definite menopause has been established—is extremely suggestive of cancer.—Arthur H. N. Lewers in *Clin. Jour.*

THE IMPORTANCE OF CAREFUL INVESTIGATION BEFORE REMOVING OR DESTROYING ORGANS

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Many complex problems of importance to the welfare of the patient present themselves to the physician and they are usually of such nature that he must face them, assume a definite responsibility in the matter and be guided by his best judgment. In the management of the so-called self-limited diseases, such as typhoid fever and the exanthemas, the physician realizes that a large percentage of patients make a fairly good recovery, if properly nursed, without his resorting to radical measures. But too frequently the question arises as to when surgical interference involving the destruction, removal or permanent impairment of function of any important organ of the body is justified. The problem may involve the removal of an eye, the amputation of an arm or leg, the extirpation of a kidney or the interpretation of a group of atypical signs or symptoms; in these cases the responsibility is well defined, but regarding the measures for relief there may be some question.

It is important to consider well the relative value of an organ or member to the individual before resorting to radical surgical methods; some persons get along very well with one arm or with one eye and may even continue to be self-supporting and able to maintain those dependent on their efforts, while another individual's occupation is of such character that his very existence may depend on as small a matter as the preservation of the thumb and forefinger of his right hand. Not only do the various organs have a different relative value to individuals following the various lines of industrial pursuits, but different physicians seem to estimate their value and usefulness from altogether varying points of view. Thus an oculist may not attach much importance to the loss of an eye, or a surgeon may conclude that one kidney can as well perform the kidney function as can two and either oculist or surgeon may, with little or no investigation as to the possibilities or advisability of the proposed surgical procedure, remove a very important organ, when if the matter had been carefully inquired into it might have been determined that some other less destructive process offered the same chance of a cure as did the radical operation. Operations making a change of vocation necessary or otherwise altering and interfering with an individual's daily routine, which perhaps has taken years to establish, are most impressive to the general practitioner because he sees the pitiful efforts of adjustment to meet the new requirements and it is he who is called on to assist in such attempts. He views the whole matter from the standpoint which forever teaches him the importance of knowing positively that the proposed operative procedure is justified; that it will actually correct a condition and restore function; and that it is the only means that will bring about relief. Especially is this true when the organ in question is the only one that will perform a function, or is one of the paired organs whose fellow may at some subsequent time become diseased and fail properly to meet the increased demands made on it by reason of the loss of an organ.

We encounter from time to time a group of symptomatic disorders—e. g., neuralgia, vertigo, and headache—that are often confused with the real organic diseases. The incorrect interpretation of these symptomatic conditions may lead to the removal of an organ whose loss will permanently cripple the individual as a member of society or as a producer, without actually benefiting the patient. Such a case came under my observation recently, the points of which I think are worthy of mention.

The patient was a merchant, aged 70. The family history was negative, as was the personal history previous to the present condition. The health of the patient was good up to January, 1907, at which time he had an attack of pneumonia. During his convalescence, about the first week in February, while sitting in a chair by the fireside he collapsed and fell to the floor. He retained consciousness, understood his surroundings and could speak, but his left arm was weak and the left side of his face was paretic. It was necessary to carry him to his bed. Thirty minutes after his collapse he developed a severe pain in the left eyeball. He continued bedfast and helpless for two months; the pain in the eye became worse and spread to the distribution of the supra-orbital nerve. One year later, in February, 1908, after trying all sorts of treatment to relieve the pain, he had this sound, seeing eye enucleated. For about three weeks the pain was not so severe, but after this time the infra-orbital branch of the fifth nerve became involved and the pain again became unbearable.

In July, 1911, he was referred to me. He complained of pain in the distribution in the supra-orbital and infra-orbital nerves. His general health was bad; his blood-pressure was about 245 as indicated by the Faught apparatus, and a systolic murmur could be distinctly heard at the apex of the heart. After a few weeks of observation and symptomatic treatment, during which his blood-pressure decreased and his general health improved, we decided that the best thing to do was to extirpate the offending nerves which was accordingly done, under local anesthesia, by Dr. Howard Hill. We had no difficulty in doing the work thoroughly because the orbit was empty and furnished ready access to regions usually reached with considerable difficulty. The removal of the supra-orbital and infra-orbital nerves entirely relieved the patient except for a few burning areas on the side of his nose and edge of the lip. One year after operation the patient called for examination. His general health was fair; at times he has sharp shooting pains on the left side of his nose and lip. The area supplied by the removed nerves is anesthetic to the pin-prick though the pressure sense has been retained. Heat and cold tests are interpreted by the patient as pressure in areas formerly supplied by the supra-orbital and infra-orbital nerves.

It is not clear to me what took place in February, 1907, at the time the patient collapsed. I am inclined to think, however—considering his age, the arteriosclerosis as evidenced by high blood-pressure, systolic murmur and hardness of the peripheral arteries—that he had a vascular lesion involving some of the small branches of the internal carotid artery which supplies the gasserian ganglion. The sudden onset of pain in the eye and the later involvement of the other branches of the fifth nerve seem to make this conclusion logical. Just what the indication was for the removal of a sound eye in this case I cannot understand. It would be just as reasonable to remove a testicle because of the severe pain at times found in this organ in kidney disease, or to amputate the hand to rid the patient of the peripheral evidence of angina pectoris. That I am justified in making this conclusion must be evident from the relief obtained by the extirpation of the supra-orbital and infra-orbital nerves, which could have been done without destroying a competent important organ.

30 East Thirty-Fifth Street.

New and Nonofficial Remedies

The following additional articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Their acceptance has been based largely on evidence supplied by the manufacturer or his agent and in part on investigation made by or under the direction of the Council. Criticisms and corrections are asked for to aid in the revision of the matter before publication in the book "New and Nonofficial Remedies."

The Council desires physicians to understand that the acceptance of an article does not necessarily mean a recommendation, but that, so far as known, it complies with the rules adopted by the Council.

W. A. Puckner, Secretary.

CASOID DIABETIC FLOUR.—Casoid Diabetic Flour is a mixture of the albuminoids of wheat (gluten) and of milk (casein), having approximately the following composition: Proteins, 84.5; fat, 1.4; mineral matter, 2.5; cellular fiber, etc., 0.7; water, 10.8.

The milk albuminoids (casein) are obtained from milk by the usual precipitation process, the wheat albuminoids are obtained by washing wheat flour and the two are then mixed.

The preparation is white, flaky, free from odor and has very little taste.

Actions and Uses.—It is employed in cases in which carbohydrates are contra-indicated, such as diabetes, amylaceous dyspepsia, etc.

The nutritive value of 500 gm. of casoid diabetic flour corresponds to 1798.48 calories, of which 1753.48 are due to protein and 65 to fat. The same quantity of milk represents 360 calories, of which 84 are due to protein and 177.6 to fat.

Manufactured by Callard, Stewart & Watt, Ltd., London, England. (Thos. Leeming & Co., New York). No United States patent. U. S. trademark No. 238,836.

PARATOPHAN.—Paratophan is methyl-atophan, 6-methyl-2-phenyl-quinoline-4-carboxylic acid, $CH_3.C_9H_4N.C_6H_5.COOH$, $6:2:4 = C_{17}H_{13}O_2N$.

6-methyl-2-phenyl-quinoline-4-carboxylic acid was described by Doebner and Giesecke in 1887 (*Annalen der Chemie*, Liebig, Vol. 242, p. 296) who prepared it by warming together pyroracemic acid, benzaldehyde and p-toluidin in alcoholic solution.

Paratophan is a yellow crystalline powder melting at 228°, soluble in alcohol, ether, chloroform and alkalies, but insoluble in water. It has a slightly bitter taste and a faint odor.

If paratophan be dissolved in concentrated sulphuric acid a light yellow solution results, which yields a light yellow precipitate on the addition of bromine water.

If ferric chlorid solution be added to an alcoholic solution of paratophan, a brown color is produced.

If paratophan be heated above its melting point carbon dioxid is liberated and methyl-phenyl-quinoline, $CH_3.C_9H_5N.C_6H_5$, melting at 68°, is produced.

Actions and Uses.—See Atophan (New and Nonofficial Remedies, Journal A. M. A., March 2, 1912, p. 633).

Dosage.—The same as Atophan.

Manufactured by Chemische Fabrik auf Actien—Vorm. E. Schering, Berlin, Germany (Schering & Glatz, New York). No U. S. patent or trademark.

Paratophan Tablets.—Each tablet contains 0.5 Gm. (7½ grains) paratophan.

Therapeutics

DISTURBANCES OF THE HEART

(Continued from page 1543)

ACUTE PERICARDITIS

As this inflammation is generally secondary to some other condition, its treatment cannot be positively outlined. Also, it is often a terminal condition, and in such instances the results of treatment are of necessity *nil*. The most frequent terminal cause is nephritis; other terminal causes are pulmonary tuberculosis, adjacent abscesses, cancer or other growth.

The most frequent infectious cause is rheumatism; other infectious causes are cerebrospinal fever, typhoid fever, acute miliary tuberculosis, pneumonia and sepsis. Accidental causes are traumatism and an adjacent inflammation of the pleura.

The result of an inflammation of the pericardium may be a fibrous exudate, or an exudate which is both serous and fibrous, or one in which pus is present in considerable amount.

The onset of pericarditis may be more or less acute, or it may commence insidiously. For this reason, during severe illness, and especially in those diseases which are known to have pericarditis often as a sequence, frequent examination of the heart should be made as a routine procedure.

In acute pericarditis absolute mental as well as physical rest is essential. Even if the patient does not appear to be seriously ill and has not much fever, he should not be allowed to have visitors, to discuss business matters or to carry on any conversation, however little exciting. Anything that increases his heart-beat increases the irritation of the inflamed surfaces of the pericardium. He should not be allowed to sit up, either to eat or to attend to the calls of Nature. These rules are imperative, and when they are followed the pain is less, the heart beats less rapidly, is less hampered by pressure from whatever exudate may be present, and the adhesions which are likely to form will be less in amount and less serious for the future work of the heart.

If there is pain or much aching in the cardiac region, it tends to disappear with the exudate, if such is to occur, in the same way as the pain of pleurisy. If there is much exudate, the pressure on the heart of course increases, the cardiac dulness enlarges, dyspnea occurs and even perhaps later cyanosis. As the exudate accumulates the patient must lie higher and higher in order that the fluid may gravitate to the lowest part of the sac and give the heart the greatest ability to work. Reflex pains may occur from disturbances of the pneumogastric nerve, or from the weight and pressure of the enlarged and heavy pericardium. Reflex vomiting may be a troublesome and distressing symptom.

Acute pericarditis occurring in rheumatism, in acute infections and from simple injuries tends to recovery. In dry pericarditis with serious adhesions, or if adhesions occur as a sequence of acute pericarditis, the future prognosis is bad, as myocarditis may develop and sudden death or acute dilatation may occur. As above stated, if pericarditis develops during the progress of chronic disease, such as interstitial nephritis, or during sepsis, or from abscesses or growths in the region of the pericardium, the prognosis is bad.

The treatment, of course, depends largely on the cause of the pericarditis, as, if the cause is one of those just enumerated in which the prognosis is dire, any treatment directed toward the pericardial inflammation is almost useless. The pericarditis under these conditions will be more or less benefited, if at all affected, by the treatment directed toward the cause.

The indications for treatment in all other instances are:

1. To attempt to abort the inflammation.
2. To stop the pain.
3. To limit, if possible, the amount of exudate, and to diminish the exudate already present.
4. To diminish the rapidity of the heart and to strengthen it.

1. Abortive Treatment.—For many years bloodletting was considered of the greatest importance in the early treatment of this disease; but owing to the fact that, except from traumatism, pericarditis rarely occurs except as a sequela of acute disease after the patient has been sick a long time, or as a terminal condition in a patient who has long been chronically diseased and therefore has already lost more or less strength, venesection has been nearly abandoned. Leeches may be used over the region of the pericardium, and cups are sometimes used. Dry cupping is more frequently used. These measures sometimes seem to reduce the inflammation, and certainly often relieve pain, but the most valuable local treatment is cold, which may be applied either in the form of an ice-bag or by a small coil through which ice-water is caused to flow by siphonage. Cold may be applied more or less continuously, depending on the sensations of the patient. The bag or ice-cap must not be overfilled and must not be heavy, as the patient often cannot stand pressure over the pericardium. Sometimes the relief from pain and the diminution of the number of the heart-beats is marked, and from this reason alone the cardiac inflammation may be inhibited. If cold applications are not tolerated by the patient (and they often are not in children) warm applications may be used, such as flaxseed poultices, or cloths wrung out of hot water and covered with oil-silk, and the pain will often be relieved thus. While hot applications would not tend to abort the inflammation, they probably do not tend to promote it.

A diminished diet, of small amount at a time, and such purging as the patient's strength will allow are essential in attempting to curtail the seriousness or amount of this inflammation.

Just what can be done locally or generally to combat the inflammation actively must depend on the cause. When the inflammation occurs as a complication of acute rheumatism, it has been suggested that salicylates, which do not inhibit rheumatism and may be depressant to the heart, should be stopped if they are being administered; but if the salicylates are apparently improving the inflammation in the joints, pericarditis would not contra-indicate their continued use. Except in large doses, salicylates probably do not depress the heart. In pericarditis it is perhaps well always to administer an alkali in some form unless otherwise contra-indicated, whether the cause is rheumatism or not. A diminished alkalinity of the blood would always increase the likelihood of an augmented amount of pericardial or endocardial inflammation. The blood must be kept strongly alkaline. It is possible that one of the reasons why pericarditis or endocarditis occurs so frequently in serious prolonged fevers is that the patient has not eaten enough cereals or other carbohydrates, and the system has become more or less endangered by acidosis. In other words, carbohydrate starvation is inexcusable with our present understanding of the danger from acidemia and even from a diminished amount of alkalies in the blood.

The causes of pericarditis being so varied, any antitoxin treatment or any vaccine treatment could be indicated only if the cause of the inflammation rendered the serum or vaccine advisable.

2. *Stopping the Pain.*—Nowhere else in the body should pain be so speedily combated as when it occurs in the region of the heart. Morphin, with or without atropin, as deemed best, should be administered hypodermatically in the amount and with the frequency necessary to stop the pain and quiet the restlessness. As above stated, the frequent need for morphin may be prevented by use of the ice-bag. Morphin might even be considered an abortive treatment, as nothing tends so much to inhibit this inflammation as the quietude of the heart caused by the absence of pain, the production of sleep and the prevention of restlessness, muscle twitching and muscle movements. In other words, the more quiet the patient is, the more quiet is the heart.

If for any reason morphin is contra-indicated, and if pain is not a symptom, the patient's nerves may be quieted and rest may be given by sodium bromid, or by veronal-sodium, the dose of the former being 2 gm. (30 grains) two or three times in twenty-four hours, according to its action and the necessity for it, and the dose of the latter 0.2 gm. (3 grains) once in six hours, if deemed necessary.

Especially if there are cerebral symptoms, as typically presented in cerebrospinal meningitis, and especially if the arterial tension is low, the subcutaneous administration of an aseptic ergot will quiet the central nervous system, increase the blood-pressure, quiet the heart and prolong the action of a single dose of morphin. It is the best plan to administer ergot deep into the muscles, with the deltoid as the place of choice. If the skin is properly cleansed, the syringe clean and the preparation of the drug aseptic, no inflammation or abscess will ever occur. If there is any painful swelling a wet alcohol dressing to the part will soon relieve it. The frequency with which ergot should be so administered depends on the results and the indications. Once in twelve hours for several doses is generally the best method for its use.

3. *The Exudate.*—When a fluid exudate into the pericardium has occurred from inflammation — that is, when it is not an exudate from disturbed kidneys or circulation — it will continue to increase to some extent in spite of any treatment. Just how much this exudate may be prevented by the use of small blisters over or around the heart, and just how much watery stools and diuresis may prevent the advance of the exudate is difficult to determine. Small blisters, properly applied, have many times seemed to be the determining factor in stopping the increase in the fluid, or to have been the starting cause of the resorption of the exudate.

The amount of purging that should be caused by saline cathartics such as sodium sulphate (Glauber salt), potassium and sodium tartrate (Rochelle salt), or the official compound jalap powder cannot be declared dogmatically. Saline purging should be governed by the character of the circulation. If the heart is strong, the pulse not weak, and the blood-pressure good, nothing is more valuable in the above condition. Portal depletion is of great advantage, especially if the amount of liquid ingested is kept as low as possible, so that the blood-vessels may become thirsty and thus tend to absorb an exudate wherever they find it. Much harm has been done, however, and death has been caused by saline purgatives in endeavoring to relieve edemas from a failing heart or to prevent a uremia from kidney inflammation. The depression following such purging is often serious. If the circulation is weak, dependence should be placed on purgation by some of the simple vegetable cathartics or a small dose of calomel. While it is advisable to give a saline in concentrated solution, it should not be so strong as to cause vomiting. With our better understanding of magnesium absorption and the depressant effect of magnesium on the nervous system, magnesium salts should not be used in serious conditions.

Diuretics often do not act well when most needed. The simplest diuretic is potassium citrate, given in wintergreen or peppermint water, in doses of 2 gm. (30 grains), three or four times in twenty-four hours. One or more of the vegetable, non-irritant diuretics may be tried if preferred. If the sickness preceding the pericarditis was not a long fever, and the heart muscle is considered in good condition, digitalis in small doses may be the best possible diuretic. Incidentally it will slow the heart, if there is not much elevation of temperature, and will give some cardiac rest.

Although the patient's diet should be limited in bulk, and especially in amount of liquids, good nutrition should soon be given. Systemic weakness certainly tends to increase the exudate; systemic strength aids in absorption of the exudate.

Iron is early indicated, and nothing is better than 5 drops of the tincture of chlorid of iron in a little lemonade or orangeade, administered once in eight hours.

If the exudate tends to decrease, it perhaps may be hastened by the local application of tincture of iodin over the cardiac region. Also the administration of small doses of an iodid, as 0.3 gm. (5 grains) of sodium iodid, given in plenty of water three times a day, is useful. An iodid circulating in the blood seems to aid absorption. It has long been believed that iodin in the blood tends to promote absorption of thickened, left-over material from exudates, and to prevent the formation of strong fibrous adhesions. Until our knowledge is more exact in this matter, it is advisable to use iodid as suggested. If the above-named dose is not tolerated, less should be given.

If in spite of all the therapeutic measures suggested, the fluid increases and the pericardium becomes more distended and the heart's action more labored, paracentesis must be done. The point where the aspirating needle should be inserted into the pericardium depends somewhat on the conditions in each individual case. It is often best to insert an exploratory needle first. This will determine the fluidity and character of the exudate. If pus is found, a more radical surgical procedure than simple paracentesis must be done immediately. The point of puncture for aspiration most frequently chosen is in the fourth or fifth intercostal space, about an inch to the left of the sternal margin. Paracentesis is also often done in the region of the normal apex-beat. The position of the patient is determined by his dyspnea; he should lie in the position most comfortable for him. The fluid should be withdrawn slowly and the pulse carefully watched. The withdrawal of a small amount of fluid may later seem to be the starting cause of resorption of the rest of the fluid. On the other hand, it may often be not of more value than the simple removal of the immediate pressure, the fluid may again accumulate, and more radical surgery must be performed.

4. To Strengthen the Heart.—Most of the methods of meeting this indication have already been stated, namely, absolute rest; absolute quiet; the use of the bed-pan; any movement that must be made should be deliberate; the nurse and other attendants must be quiet; necessary conversation must be brief, and every method must be used to quiet and prevent the heart's action from becoming rapid. The food taken should be small in amount and non-stimulating; that is, no tea or coffee should be given, and nothing too hot or too cold. Movements of the bowels should be caused with the least possible general disturbance. If the patient does not sleep, he must be made to sleep. The whole body and the nervous system must have periods of rest. If the heart is very weak, small doses of morphin may be used. If the heart is not weak, bromids or chloral may be given. If the blood-pressure is high, such hypnotics will lower it, or if the heart is strong and the condition does not contra-indicate it, aconite may be used in small doses, for a day or two, unless the fever is high and it seems advisable to use one of the coal-tar antipyretics, which will of themselves reduce the blood-tension and the heart activity.

As above stated, pain must not be allowed. Sometimes, when there is thought not to be myocardial degeneration, or the heart has not been injured by prolonged fever, digitalis in small doses may slow the heart and act for good.

Convalescence.—The convalescence should be prolonged as in any other cardiac inflammation. The patient should be given more and more nourishing food, and the iron tonic may be changed to a capsule containing 0.05 gm. of quinin and 0.05 gm. of reduced iron, three times a day.

It is a question as to when patients convalescent from pericarditis should be permitted exercise. It has been thought that gentle movements and possibly exercise, sooner than theoretically justified, might cause the heart to beat a little more actively and possibly prevent the formation of tight adhesions between the two layers of the pericardium. Whether such activity of the heart will prevent adhesions is something that has not been determined.

The small doses of sodium iodid, perhaps 0.2 gm. (3 grains) two or three times a day, should be continued for some time. Iodid in this dosage does no harm and may do a great deal of good.

ADHERENT PERICARDITIS

Following dry pericarditis or pericarditis with an exudate, especially when the exudate is fibrinous in character, the fibrous substance which is not absorbed or resorbed may develop into connective tissue, and the two pericardial surfaces become permanently grown together, causing the so-called adherent pericarditis. These adhesions between the two surfaces of the pericardium may be general throughout the entire pericardial sac, or they may be limited to some one or more parts of the pericardium. Perhaps one of the most frequent points of adhesion is the anterior part of the pericardium, while the apex is the part most likely to be free even when other parts of the pericardium have grown together. This freedom of the apex is probably due to the constant and more extensive motion of the apical portion of the heart, and is the reason that it has been suggested, as referred to under acute pericarditis, that, other conditions not contra-indicating, the patient may be allowed to move about a little during convalescence to cause the heart to beat more actively. Sometimes the surfaces of the pericardium are not closely adherent to each other, but bands of adhesion stretch from one surface to the other.

After adhesions have taken place between the two layers of the pericardium the action of the heart is impaired, serious interference with the cardiac action may develop, and sudden death may occur. If the heart is given all the rest possible during the acute phase of the disease, there will be less likelihood of the surfaces becoming so irritated that adhesions readily form. Anything that permits complete absorption and resorption of the exudate will tend to prevent these hampering adhesions. If the adhesions are such as to cause irregular heart, recurrent pain and the danger of sudden death, surgical help has been suggested. This surgical procedure is to remove a portion of the ribs, perhaps of the third, fourth and fifth, to allow the heart more freedom of action to compensate for the impairment of its activity from the adhesions. Such an operation was first suggested by Brauer of Heidelberg in 1902.

The question of the best method of producing anesthesia in this condition of the heart is a serious one. A patient might die during the anesthesia; but he might also die at any time from cardiac spasm. Probably chloroform, administered by a skilled anesthetist, would be the safest anesthetic for this operation. In certain instances, in adults, perhaps local anesthesia would be sufficient. Pain reflexes, however, would be as serious as would the chloroform anesthesia.

Such an operation would be indicated when the apex is fixed so that there is a constant sensation of hugging of the heart at the fourth and fifth ribs, with paroxysms of pain and cardiac weakness.

(To be continued)

Two Great Difficulties.—There are two things which it is very hard to get men to do; it is very difficult to get a lazy man to work, but it is still harder to keep an energetic man quiet.—Sir Lauder Brunton in *Clin. Jour.*

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[*For other information see second page following reading matter*]

SATURDAY, NOVEMBER 2, 1912

HENRI POINCARE'

The recent death of Henri Poincaré has been the occasion of a number of biographic articles, the most important of which is undoubtedly that which appeared in the *Revue des Deux Mondes,* Sept. 15, 1912. Not only was Poincaré probably the greatest mathematical genius of our time, but he was besides a great physicist, astronomer and philosopher. Between the careful study of Poincaré made some years ago by Dr. Toulouse, and Poincaré's revelation with regard to the working of his own mind as he analyzed its processes and reflected on the methods by which he secured results, we have probably more intimate data with regard to Poincaré's mental characteristics than with regard to those of any other man of genius that ever lived.

Of his genius there could be no possible doubt, hailed as it was not only by the French, but also by the Germans, the English and the Americans. He added an important chapter to mathematics by his discovery and development of the Fuchsian functions, which simplified marvelously the solution of all curves and all linear differential equations that could be expressed in algebraic coefficients. Humbert of the French Academy of Sciences declared that Poincaré had in this provided "the keys of the algebraic world." In astronomy he deduced by mathematics that the rings of Saturn must be composed of small separate bodies — an agglomeration, as it were, in circular form of a series of planets. This mathematical deduction was afterward demonstrated physically by means of the spectroscope. This mathematical discovery on Saturn has been compared to the discovery of Neptune by pure mathematics. It was as a philosopher, however, that Poincaré was best known by the general public, and in this field some of his suggestions are considered as among the most valuable that had been made in centuries. Men have compared him in mathematics to Newton, in philosophy to Descartes.

The question how so great a mind works is extremely interesting. Poincaré has told the story of how he reached his great discovery of the Fuchsian functions. It was not reached all at once but by several steps. The first and most important development came to him one evening when, contrary to his custom, having taken a cup of black coffee at dinner, he could not sleep and the idea of this new mathematical mode took form little by little under these unusual circumstances. The problems which were involved came clearly before his mind and seemed too difficult for solution; so gradually he put them away and succeeded in falling asleep. The successive steps of the solution came to him subsequently not as the result of deliberate study of the problems, but long afterward and under most diverse circumstances, at moments when he was not thinking about them. They came to him as flashes of light, almost inspirations, as it were — once when he was just about to put his foot on the step of an omnibus, again when he was crossing a boulevard, a third time in the midst of a geologic excursion with some friends when the conversation was about ordinary subjects and had no relation at all to mathematics.

Ordinarily mathematics at least is supposed to be eminently intellectual and its developments are connected by the most rigid logic. It might be expected, then, that it would be only in the midst of deep thinking, even absorption of mind in mathematical subjects, that great new ideas would come; but Poincaré believed that it was a subconscious mind that solved the problems. His explanation of this, which resembles that so often heard with regard to the inspiration of the poet or the musician, is that certain thoughts are passing through the unconscious mind all the time and that, as in day-dreaming, we are never without groups of thoughts. Whenever one of these thoughts proves to be a particularly beautiful or strikingly novel conception of some kind it attracts the attention of the conscious mind and then is retained. According to Poincaré's experience, then, like poetry and music, the sciences, including mathematics, owe their development not to the rational conscious mind so much as to the unconscious and involuntary faculties. There would seem to be a tireless force in man, a part of him and yet not a part of him, working, thinking, developing, which brings to the conscious entity, man, his best thoughts and discoveries.

Poincaré, for all his genius, was a sane and simple father of a family; he himself taught his four children to read, often took part in their sports and found his favorite relaxation in the family life. Moments of abstraction in deep thinking he had, but they did not interfere with pleasant friendly intercourse or disturb his interests in the practical every-day life around him. It will add to the value of the study of Poincaré's mind made by himself to know that Dr. Toulouse after most careful investigations on a number of occasions by himself and a series of collaborators, including tests, measurements, investigation of reflexes, physical and mental, found him to be perfectly normal from the psychophysiologic point of view, with faculties perfectly harmonious and in complete equilibrium. The failure to find in the great scientist the slightest trace of a neurotic condition of any kind, flatly contradicts, in this instance at least, the theory of an intimate relation between genius and insanity.

TRANSMISSION OF POLIOMYELITIS BY THE STABLE-FLY (STOMOXYS CALCITRANS)

In a recent editorial[1] we referred to the announcement of Prof. M. J. Rosenau that he had apparently succeeded in transmitting poliomyelitis from monkey to monkey through the agency of the biting stable-fly (*Stomoxys calcitrans*), and stated that more complete reports from Rosenau might fully establish the correctness of his preliminary announcement. Confirmation of Rosenau's work has just appeared in an article by Anderson and Frost.[2] These authors report that they were able to transmit poliomyelitis to monkeys through the agency of the *Stomoxys* and to transmit the infection to a fresh monkey with the emulsion of the cord of one of the animals infected by the flies.

In the experiments of Anderson and Frost three monkeys were exposed daily to the bites of several hundred of the *Stomoxys,* which at the same time were allowed daily to bite two monkeys inoculated intracerebrally with poliomyelitis. All three monkeys developed typical symptoms of poliomyelitis on the seventh, eighth and ninth days, respectively, from the date of their first exposure to the bites of the flies. Histologic examination of the spinal cord from one of these monkeys showed typical well-marked lesions of poliomyelitis consisting of perivascular round-celled infiltration, foci of dense infiltration of the gray matter in the anterior horn, and destruction of some of the motor neurons. Histologic examination of the cords of the other two monkeys had not been completed at the time of the report, but the opinion was expressed that, on the clinical evidence, they died of poliomyelitis.

In order to confirm the diagnosis of poliomyelitis in these monkeys 1 c.c. of an emulsion of the cord from one of them was injected intracerebrally into a healthy rhesus monkey. This animal recovered promptly from the operation and remained apparently well until the morning of the third day, when a partial paralysis of the right fore leg was noted. The next day the animal became completely paralyzed and died late in the evening of that day. At autopsy no anatomic cause of death was noted, all the organs being apparently normal. On section, the spinal cord appeared edematous and the gray matter congested, showing minute hemorrhages. The site of inoculation appeared normal and cultures made from the site remained sterile. Histologic examination of the cord showed lesions characteristic of poliomyelitis, such as intense congestion and perivascular infiltration, foci of round-celled infiltration here and there in the gray matter, destruction of the cells of the anterior cornu, and small hemorrhages in the anterior and posterior cornu. From this it will be seen that these investigators were able to transmit the infection of poliomyelitis by intracerebral inoculation of the spinal cord of a monkey which had died of poliomyelitis contracted through the agency of *Stomoxys calcitrans.*

One point of especial interest in the results reported by Anderson and Frost is the period elapsing between the first exposure of flies to the infected animal and the development of the disease in healthy animals, the shortest period being seven days, which is shorter than that found by Rosenau in his experiments. These results, in confirmation of those announced by Rosenau in Washington, would seem to demonstrate conclusively that poliomyelitis may be transmitted to monkeys through the agency of the *Stomoxys calcitrans.* It remains, of course, for further work to determine whether this is the usual or the only method of transmission in nature. This early confirmation, while too late to be of great value in attempts to control the disease in the United States this year, will undoubtedly result in efforts by health authorities in localities where poliomyelitis has prevailed, to eliminate the stable-fly and to prevent its access to any persons suspected of having poliomyelitis.

The biology of the *Stomoxys* has not been so well studied as has that of the house-fly, and this side of the poliomyelitis question will undoubtedly receive from entomologists the attention which it deserves.

URINE STATISTICS

Statistical data derived from analysis of the urine have come into distinct prominence in recent years. The routine determination of a number of excretory products has been made a familiar procedure in many laboratories by the introduction of improved and simplified methods for the estimation of specific constituents of the urine, notably the methods of Folin in this country. Thus there has accumulated an enormous collection of detailed reports on the composition of the urine under widely varying conditions of diet and in the most diverse pathologic cases. To evaluate these appropriately and to interpret their real significance it becomes necessary to learn the standards — to ascertain the values which represent the normal product of the kidney under known or controllable conditions.

A few years ago it was customary to express some of these features in ratios or percentages. In this way much discussion centered around an alleged normal urea-uric acid ratio. Percentage statistics likewise were furnished in profusion; and the clinician who was earlier insistent on having the data of the analyst expressed in grains per ounce now satisfied himself with parts per hundred. These frequently misleading figures relating to the concentration of the urine were often then, and are occasionally now, allowed to overshadow the really important finding of the total output of the kidneys per day. In most cases we are, after all, primarily concerned with the total work of the excretory organs. It is not the percentage of urea or uric acid or sugar that ordinarily interests the clinician-investigator, but rather the sum-total of the output in the day's excretion. Three per cent. of sugar in a large volume may obviously mean a far greater loss than 6 per cent. in a small output. Yet it is surprising to note how little the uncertain significance of percentage analyses of small samples is appreciated by many medical men.

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[1] Recent Work on Poliomyelitis—the Biting Fly as an Intermediary, THE JOURNAL A. M. A., Oct. 12, 1912, p. 1380.

[2] Anderson, John F., and Frost, Wade H.: Transmission of Poliomyelitis by the Stable-Fly (Stomoxys Calcitrans), Public Health Reports, Oct. 25, 1912, p. 1733.

Added interest has been lent to the careful collection of detailed urinary statistics by the growing knowledge of the unlike history of the various nitrogenous products excreted by the kidneys. So long as urea, uric acid and creatinin were supposed to represent various stages of completeness in the oxidative destruction of protein in the body, the relative proportions of the products might well be assumed to give some hint as to the degree or completeness of oxidation in metabolism. We now know, however, that each of these nitrogenous excretory substances has its own story in the nutritive processes. Uric acid is associated with the metabolism of the purins and nucleoproteins and represents an end-product in a distinct series of transformations. Creatinin has a history independent of the other nitrogenous waste products, and we are taught at present to associate it with the endogenous metabolism of the individual. Urea ordinarily furnishes the index to the normal metabolism of simple proteins, particularly the food proteins. Ammonia is related to the condition of acidosis — the balance of acids and bases. Hippuric acid excretion is evoked by special features in the dietary. In this ensemble there are, accordingly, many contributory factors, each expressing itself in some individual way and each of specific import.

At the present stage of our knowledge it has become imperative to have a revision of our "normals" and a new series of data derived by the modern methods with a due appreciation of the intricate rôle of the diet in determining the interrelations of the different urinary constituents. Long and Gephart[1] have reported a series of complete analyses of the urine of a considerable number of men on a controlled diet, qualitatively the same and quantitatively nearly so for all members of the group. Broadly speaking, the most striking feature of the figures published is the general correspondence of the analyses for the different subjects. This in itself speaks for the uniformity of the metabolic processes in all persons under given conditions of observation. Idiosyncrasy does not creep into the chemical transformations of the body as it so often appears to do in other functions so as to afford a verbal cloak for our real ignorance. On the other hand, one is impressed also by Long and Gephart's statistics with the fixed individuality of the metabolic processes in some respects. Thus the creatinin output is shown anew, in confirmation of much evidence in the past, to be independent of the excretion of total nitrogen — that is, of the exogenous or food metabolism. Per kilogram of body weight the creatinin output ranges from 21 to 28 mg. despite the conditions of work or rest and wide variations of protein intake. The significance and value of the so-called rest nitrogen is left as vague as heretofore.

Not until an abundance of such normal data is available for comparison can generalizations regarding the perversions attributable to disease be safely ventured. Gathering statistics is a laborious and uninviting task; but science reaps the benefit often at most unexpected moments.

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[1] Long, J. H., and Gephart, F.: Some Analyses of Urine Composites, Jour. Am. Chem. Soc., 1912, xxxiv, 1229.

HEALTH ORGANIZATION IN THE VARIOUS STATES

There is no more effective way of bringing about intelligent and uniform health legislation in the various states and of stimulating states lagging behind in sanitary work than to show in concrete form existing conditions and what has already been accomplished. This has been done by the United States Public Health Service in a bulletin just issued.[1] In this bulletin is presented a full sketch of the machinery provided by state laws for the protection of health.

The ground has been covered in considerable detail. An analysis of the laws precedes the text of the statutes themselves. A historical review is given of early sanitary legislation in the United States, from the medical practice acts passed in Virginia in 1639, in Massachusetts in 1649 and in New York and New Jersey in 1665 down to the passage of the Massachusetts law of 1797 establishing boards of health for towns. The dates of organization of boards of health or health offices in the more important cities are given. Baltimore and Philadelphia led other cities in this respect being prompted in their action by the yellow fever epidemic of 1793.

The creation of state boards of health is next considered, and Massachusetts is found to have been the first to organize such a board, although previous to this (1869) quarantine boards had been in existence in Porto Rico since 1768, in Hawaii since 1851 and in Louisiana since 1855. Idaho was the last state to organize a board of health. The bulletin takes up the organization of state health authorities, and shows the existing resemblances and dissimilarities in the several states as to appointment, composition, number and qualifications of personnel, term of office, meetings, compensation and title. Not the least striking part is that setting forth the appropriations at the disposal of each board for the discharge of its duties. In no state can it be said that appropriations are so large as they should be for the best interests of the community, and in by far the greater number, available funds are barely sufficient to cover the most elementary needs. There are at least ten states (Nebraska, Iowa, Delaware, Arizona, North Dakota, South Dakota, Wyoming, West Virginia, Arkansas and New Mexico) which grant less than $10,000 to their health authorities for the preservation of the health of the people, and out of this must be paid all salaries and other expenditures.

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[1] Kerr, J. W., and Moll, A. A.: Organization, Powers and Duties of Health Authorities, Public Health Bulletin 54.

The powers and duties of the state boards are next reviewed, showing the extent to which legislation has vested in them authority for the control of communicable diseases, the collection of vital statistics, the protection of water-supplies, the abatement of nuisances, the sanitation of buildings, schools, railroads, factories and mines, and the licensing of persons desiring to practice medicine, nursing, midwifery, plumbing, barbering, etc. The functions of the boards are considered under various aspects, an attempt being made to classify them into investigative, executive or administrative, advisory, educational, quasi-judicial and quasi-legislative. The relation of national, state and local health authorities is commented on, showing how closely interwoven their interests are, and how far the laws have gone toward providing for cooperation not only between state and local health officials, but also between those of the separate states and between state and federal health officials.

The organization of local boards is studied, consideration being given under separate headings to county, township and city boards. We find in some states provisions for the establishment of county boards of health, but none for the appointment of county health officers. In a number of other states there is no provision for the obligatory appointment of either county or township health officers; and there are a number of states without general provision for the organization of city boards of health or the compulsory appointment of city health officers. The existing statutory requirements for the payment of health officers are noted, and there are so few states in which a fairly adequate compensation is provided that their names form a roll of honor. The discussion closes with a brief analysis of the health organization of cities having populations of more than 100,000 inhabitants.

The fact that the scope of legislation depends largely on the construction placed on it by the courts is recognized by the insertion in the bulletin of abstracts from judicial decisions bearing on the interpretation of public health laws. The text of the state laws relative to health organizations is given in full in the appendix. A note, however, explains that laws dealing in detail with specific subjects such as communicable diseases, nuisances, water-supply, etc., have been omitted, it being intended to publish them in separate volumes. This bulletin is one that must inevitably be of value to all interested in public health work, and copies of it should be placed in the hands of members of legislatures in states where sanitary questions come up for consideration.

THE ETHNICS OF INFECTION

A hitherto unknown race of men—"white Eskimos"—has been discovered by Dr. Vilhjalmur Stefansson in the Coronation Gulf territory of Victoria Land, British Columbia.[1] Several fanciful theories of their origin have been offered; Dr. Stefansson's own theory is that this new race consists of descendants of a Norse colony in Greenland, supposed to have been totally destroyed by hostile Eskimos long ago. A remnant, according to Dr. Stefansson's hypothesis, escaped westward and mingled with the Eskimos of Victoria Land. The characteristics of the new race differ from those of any hitherto known people of the Arctic regions and the occasional appearance among them of blue eyes and light hair renders the theory of Scandinavian descent probable. The moral status of the new race is said to be high.

According to newspaper report Dr. Stefansson says: "Whenever a new people is discovered, commercial interests want to know if any money is to be made and what are the mining and fur-trading possibilities. A few people want to know what the prospects are for saving souls. Nobody seems to take any thought about saving bodies." Missionaries, actuated of course by the loftiest motives, with much sacrifice, will bring the new people knowledge of religion; and traders of all sorts, with motives not so conspicuously altruistic, will bring them gunpowder and alcohol, and not only the traders but the missionaries also, in spite of the occasional medical missionary on the staff, will bring them new and deadly infections. If history repeats itself, the result will very likely be the extinction of this really fine people by disease and alcoholism, aided perhaps by famine following on the extermination of the caribou by firearms. The history of exploration and conquest is full of parallel instances.

John Guille Millais,[2] the son of the great painter, says of the Newfoundland Micmacs that "consumption and the traders' rum are playing havoc with this fine race." Dr. Grenfell has observed that epidemic diseases have up to recent years been practically unknown along the Labrador coast. The infections which the natives have contracted have been introduced mostly from regions to the south. One little Labrador settlement was for the first time visited by typhoid fever; Grenfell, when he arrived on his healing mission, found eighty frozen bodies of those who had speedily and most miserably succumbed to it. Tuberculosis, diphtheria and the exanthems are much more fatal among the Labradoreans than among us.

Dana[3] wrote in 1835: "It has been said that the greatest curse to each of the South Sea Islands was the first man who discovered it; and every one who knows anything about the history of our commerce in those parts knows how much truth there is in this; and that the white men, with their vices, have brought in diseases before unknown to the islanders, which are now sweeping off the native population of the Sandwich Islands at the rate of one-fortieth of the entire population annually."

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[1] Outlook, Oct. 5, 1912, p. 239.

[2] Millais, J. G.: Newfoundland and Its Untrodden Ways, Longmans, Green & Co., 1907.

[3] Dana, R. H., Jr.: Two Years Before the Mast.

Measles is an exanthem comparatively innocuous in civilization, but deadly to primitive peoples unaccustomed to it. Dr. Stefansson says that it has killed 50 per cent. of the Eskimos in Canada and Alaska in the last fifty years. It was entirely unknown in the Fiji Islands until introduced by whites in 1875. Thereupon in a single epidemic 40,000 of 150,000 Fijians, men, women and children, the aged and the young alike, died most pitiably of measles. How often, since the Spaniards following Columbus came in touch with the Caribbeans (whose name alone is left) has benevolent assimilation spelled pitiless extermination! The negro in his native Ethiopia knew nothing of consumption, syphilis, alcoholism or cocainism until his white brother came to bestow on him the blessings of civilization. Now tuberculosis is proving fatal to large numbers of the negro race in the United States. The same dreary story obtains regarding the American Indians whenever and wherever our people have come among them, with our tubercle bacillus and our fire-water; for the Indians are dying of tuberculosis in greater numbers than the negroes and in far greater numbers than the whites.[4]

Thus racial susceptibility to bacterial disease should give pause to those who contemplate the "regeneration" of peoples too gratuitously assumed to be barbarian and inferior, and whose departures from civilized standards are conditioned largely by environment. The "perpetual quarantine" urged by Dr. Stefansson for the white Eskimos seems reasonable and humane. He says: "The only really intelligent management of the Eskimo in the world is in Greenland. Here Denmark has a perpetual quarantine, and as a result the population is on the increase. Nobody is allowed to land in Greenland unless he is thoroughly inspected. Such an arrangement is perfectly feasible for the protection of the Coronation Gulf Eskimos."

THE CAUSE OF THE CAMMIDGE REACTION IN URINE

Several years ago Cammidge described a comparatively simple laboratory procedure which leads to the occasional demonstration of crystalline osazones when the phenylhydrazin test is applied in a special way to urines presumably free from glucose. The precise method to be employed, including the preliminary heating of the urine with hydrochloric acid, has been somewhat modified from time to time and can now be found in up-to-date text-books on clinical diagnosis. The statistics gained by Cammidge in his application of the test led him to conclude that it was frequently correlated with the existence of pancreatic disease; and he was fortunate in being able to command exceptional clinical facilities for the study of this alleged relation.

The undeniable importance of discovering suitable specific tests for pancreatic involvement has long been apparent. Consequently Cammidge's findings speedily awakened interest and led to an investigation of their validity in numerous clinical laboratories. Already there exists a voluminous literature on the Cammidge reaction as a test for pancreatic disease. The conclusions are decidedly conflicting. Some investigators have noted the appearance of the osazones under the most diversified conditions without any suspicion of disturbance of pancreatic functions. They accordingly deny any specificity to the reaction in relation to the pancreas at least. Others again, insisting on a careful observance of the technic specially advised by Cammidge, have tended to substantiate his conclusions. An unbiased review of the situation, however, cannot fail to awaken a skeptical attitude in regard to the significance of the Cammidge test and to place it at best in the category of corroborative evidence.

Equally diverse have been the suggestions as to the nature of the chemical compound immediately responsible for the reaction in the urine. Conjugated glycuronates, pentoses and sucrose, each known to be excreted at times, have been most prominent among the suggestions. One would naturally expect, if Cammidge's test is referable to a definite and constant pathologic factor, to find a uniform cause for the reaction; otherwise its specific validity must inevitably be looked on with suspicion. Professor C. Neuberg of Berlin — an acknowledged expert in this field — has just reported his investigation of the nature of the osazone deposits obtained from a series of urines which gave the Cammidge test. In five of them a glycuronic acid derivative was detected; in one case, the outcome was due to pentose; in another, a hexose was presumably present.[1] This evident lack of uniformity in the mother substance of the Cammidge crystals must tend more than ever to impair any confidence in the diagnostic usefulness of the test, at least until far more definite evidence and clear substantiation has been furnished.

Current Comment

EFFICIENCY ON A PERCENTAGE BASIS

Laws which provide for the health and comfort of employees in the industries, protect them from occupational disease and injuries and compensate them when injured, would seem to impose greater burdens of expense on employers at the outset, so that the latter will be increasingly particular in regard to the health and efficiency of the men and women whom they employ. Indeed, railways and many other industries now require that the prospective employee undergo a physical examination before being employed. The percentage method of rating the efficiency of employees in regard to both physical condition and amount of work performed will no doubt be a development of this state of affairs. At the recent Congress on Hygiene and Demography, C. W. Stiles exhibited two hookworm patients to illustrate the effect of this disease in retarding mental and physical development, and its influence on the efficiency of the individual as a working member of society, rating the individual on a percentage basis and estimating his mental development by the Binet-Simon test. One of these patients was brought to Washington in a condition which was estimated to be 14 per cent. of par. Under treatment he became 54 per cent. within six weeks and at the time he was presented was estimated to be 98 per cent. of normal. The other patient, though 15 years old, by the Binet-Simon test graded only 9½ years and was in the third grade in school. At the time of exhibition he was estimated to be 32 per cent. of par. The percentages in these cases, of course, refer only to physical development and condition, but in the industries could be applied seemingly with most satisfactory results in rating employees as to physical condition and working efficiency, and along with other cost-keeping methods employed in modern factories the plan would seem at once to recommend itself for adoption. It is conceivable that it might even become the basis of computation of pay. It might also be employed in recording the results of the medical inspection of school children. We do not know of any instance in which the system is now employed.

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[4] Eighth Ann. Rep. Bureau of Census, Mortality Statistics of 1907

[1] Neuberg, C.: Ueber die Substanzen die am Zustandekommen der sogenannten Cammidgeschen Reaktion beteiligt sind, Biochem. Ztschr., 1912, xlii, 505.

THE LAXATIVE ACTION OF SULPHUR

It is only in comparatively recent years that any serious attention has been paid to the mode of action of the numerous aperients, laxatives and purgatives which enter so largely into every-day use either through the prescription of the physician or as supposedly indispensable household remedies. Introduced in an age of pure empiricism, these drugs have been tested by their results, without consideration of how and why an evacuation of the bowel is brought about by them. The development of physiologic technic and its application to the study of the movements of the alimentary tract and the secretion therein contained have chiefly been responsible for an awakened interest in the pharmacology of a group of drugs of universal importance. The disclosures of such investigations have been particularly interesting in revealing a degree of specificity of behavior on the part of the various representatives that was scarcely anticipated. The saline laxatives incite secretion or retard absorption. The vegetable cathartics affect the most diverse structures of the bowel. Some stimulate the musculature of the upper region; some direct their effective influence on the lower intestine; some act through the intermediation of a nervous mechanism and others directly on the local musculature. The more precise information now available or continually accumulating in respect to these specialized responses cannot fail to encourage a more discriminating selection of laxative drugs. Sulphur is one of the substances which early entered into the list of efficient laxatives. It has figured as a component of various mixtures which have enjoyed the popularity of "family use" and won a place in early medical history, although its use has of late declined to the point where the present generation rarely hears of it in this connection. The probable mode in which sulphur functions as a laxative has been explained by Heffter.[1] Some of the element becomes converted into hydrogen sulphid in the large intestine, and probably in some measure in the upper intestine as well. This derivative provokes the discharge of the fecal masses. Frankl[2] has asserted that the sulphur becomes oxidized in the bowel to sulphur dioxid, which in turn creates a hyperemia and increased peristalsis through its irritation of the intestinal mucosa; but experimental researches of Taegen[3] have clearly shown that this view is untenable. The formation of hydrogen sulphid in the intestine after the ingestion of sulphur remains a demonstrated fact.

THE TABOO ON MODERATE DRINKING

The use of alcohol is receiving some hard knocks these days. A prominent railway system, not content with the general rule heretofore in force on railways forbidding employees to drink while on duty, now forbids employees to indulge at all in drinking out of employment hours, or in any other conduct which will impair their health or make them less alert and less capable while on duty. The owner of one of the nation's pets — a prominent baseball team — announced that moderation in drinking is not sufficient; the players on his team must leave alcohol entirely alone and abandon cigarets. The justification for such rules may be found not only in the difficulty of being moderate in indulgence, but also in the cumulative and after-effects of dissipation. The world is moving; the old fetich of "personal liberty" at whatever cost of danger to the public at large seems to be losing its power. The time may come when every man to whom the life and safety of others are entrusted may be expected or even required to be as abstemious as the ball-players and railway employees just mentioned.

RESPONSIBILITY IN SURGICAL PROCEDURES

In reporting a case of the seemingly useless removal of an eye on account of pain involving some branches of the fifth nerve, Castelaw calls attention in this issue to the responsibility of the physician in advising the removal of important members or organs. Not only is it important to make a correct diagnosis before adopting surgical measures and to know positively that the proposed operative procedure will correct the condition and bring about relief, but also it is important to consider the relative value of a member or organ to the patient in question before resorting to surgical methods. Some persons may fare comfortably with one arm or with one eye while others will be greatly handicapped in following their usual occupations by the loss of even a thumb or forefinger; in all instances these things must be taken into consideration, and good judgment and conservative measures employed; otherwise attempts at such measures would be obviously futile. It is especially important to be conservative when an operation would involve a change in the patient's occupation, for distressful conditions may arise from such changes, as every practitioner knows. Operations entailing serious consequences are often undertaken for the relief of symptomatic conditions which on more careful study might have been relieved by other means; likewise in instances of injury, members are removed which, under a better understanding of the regenerative powers of Nature, aided by skilful plastic surgery, might have been saved. Conservatism, good judgment and a correct diagnosis should be the guiding principles in such instances in order that the usefulness and earning power of the patient may not be impaired.

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[1] Heffter, A.: Arch. f. exper. Path. u. Pharmakol., 1904, li, 175.

[2] Frankl, T.: Arch. f. exper. Path. u. Pharmakol., 1911, lxv, 308.

[3] Taegen, H.: Arch. f. exper. Path. u. Pharmakol., 1912, lxxix, 263.

Medical News

DISTRICT OF COLUMBIA

New Building for Physicians.—The new Reeside building at 1225 New York Avenue is the first building in Washington to be constructed for the use of professional men. The building is to be five stories in height, will have from three to five suites of offices on each floor, and will be ready for occupancy January 1.

Work of Tuberculosis Hospital.—During the fiscal year ended June 30, 461 patients were treated at the Tuberculosis Hospital of the District of Columbia. The average daily number was 94 as compared with 81 during the year previous. During the year, 169 white and 149 colored male patients and 58 white and 85 colored female patients were treated.

ILLINOIS

New Officers.—Western Illinois District Medical Society at Jacksonville, October 26: president, Dr. H. W. Chapman, White Hall.

Epidemic Disease.—Milk infected with typhoid germs, it is alleged, is responsible for the epidemic in Evanston, where eleven children using milk from one dairy became ill within a period of ten days.——The public schools of Mount Vernon were closed October 23 on account of diphtheria and scarlet fever. Theaters and churches and public places were also closed to children under sixteen years of age.

Supreme Court Upholds State Board.—At the session of the Illinois Supreme Court in Springfield, October 26, Sections 9 and 10 of the medical practice act, which provide additional penalties for second offenses in the case of persons convicted of practicing medicine without a license, were sustained. In an opinion given in the case of Mrs. J. Dunn, fined $200 in the Municipal Court for treating cancer without a license, the constitutionality of the law was attacked on the ground that it was a general act giving special privileges to the State Board of Health, but this the Supreme Court denies.

Personal.—Dr. John Ewing, Tuscola, who was operated on for appendicitis about three weeks ago is convalescent and has returned home.——Dr. Olga Bridgman, physician at the state training school for girls, Geneva, has been transferred to the Lincoln state school and colony and has been succeeded by Dr. Clara Dunn who has been transferred from the Chicago State Hospital.——Dr. D. D. Kirby, Canton, has returned from Europe.

Chicago

Jewish Charity Ball.—The eighth annual charity ball of the Jewish Consumptives' Relief Society of Chicago, held in the First Infantry Armory, October 7, netted $20,000 to the working funds of the organization.

Guthrie Boulder to be Moved.—The boulder on the lake front in Grant Park, brought to Chicago six years ago by the late Ossian Guthrie as a memorial to Samuel Guthrie of chloroform-discovery fame, is to be moved to Washington Park.

New Children's Hospital.—The women's board of the Children's Southside Dispensary is taking steps for the erection of a children's hospital for the use of patients living south of Thirty-Ninth Street. Dr. Robert A. Black is at the head of the medical staff.

Personal.—Dr. and Mrs. Rudolph W. Holmes have returned from Europe.——Dr. and Mrs. Harry Spencer Brown sailed for Europe, August 21.——The Italian colony of Chicago gave a banquet October 27, in honor of the fiftieth birthday anniversary of Dr. Camillo Volini, chief of the medical staff of the Columbus Extension Hospital.——Dr. T. A. Woodruff, who has been very ill with pneumonia, is reported slightly better.——Dr. Carl von Noorden, of the medical faculty of the University of Vienna, visited Chicago, October 26-27.

Retrenchment in Health Department.—Health Commissioner George B. Young has planned a practical method of retrenchment for his entire department. He has issued orders calling for lay-offs without pay, ranging from three days for field nurses, five days for supervising nurses and office secretaries and stenographers, seven days for the commissioner himself, assistant commissioner, secretary and bureau heads, and fifteen days for food inspectors.

INDIANA

Hospital Contract Awarded.—The trustees of the Indiana University have awarded the contract for the Robert Long Hospital to the Bedford Stone Construction Company for $161,000.

New Officers.—Eleventh District Medical Association: president, Dr. Charles H. Good, Huntington; secretary-treasurer, Dr. James L. Gilbert, Logansport.——Logansport Association for the Study and Prevention of Tuberculosis: president, Dr. Clark Rogers.

State Colony for Insane.—The governor has informed the superintendent of the Indiana Eastern Hospital for the Insane, Richmond, that an appropriation of $75,000 has been authorized for the purchase of land for a colony for insane and that the funds will be available early next spring.

Hospital for Feeble-Minded.—A new hospital building for the feeble-minded is to be erected at Fort Wayne at an expense of $75,000. This makes the tenth building to be erected for this institution and completes the original plan which has involved an investment by the state of nearly one million dollars.

Hospital for Insane Criminals.—The Indiana Hospital for Insane Criminals, Michigan City, was opened for occupancy October 19. The building is modern throughout and its equipment is up to date. Persons who become insane while serving sentences in the Indiana State Prison and Reformatory will be treated in this institution and also such persons as are committed to it by authority of the court, to remain until discharged on recovery. Dr. Paul E. Bowers is physician in charge of the institution.

IOWA

Renders Leper Bill to Michigan.—The secretary of the State Board of Health has made a formal demand on the state of Michigan for $800, the expense connected with the detention and care of Herman Hirschfield, the leper of Bay City, at Centerville.

Personal.—Dr. J. C. Powers, Hampton, is reported to be seriously ill with septicemia.——Dr. J. Rudis-Jicinsky, Cedar Rapids, has returned from abroad.——Dr. William D. Runyon, Clarinda, has been elected assistant superintendent of the Iowa State Sanatorium, Oakdale.——Dr. William Van Werden, Des Moines, has sailed for Europe.——Dr. J. C. Bickley, Waterloo, has gone abroad.

New Officers.—Southwest Iowa Medical Association at Creston, October 18: president, Dr. T. W. Bennett, Lenox; secretary-treasurer, Dr. Enos Mitchell, Osceola (reelected).——Eighth annual meeting of the Second District Medical Society at Davenport, October 8: president, Dr. George E. Decker; secretary-treasurer, Dr. John V Littig, both of Davenport.——Linn County Medical Association at Cedar Rapids, October 2: president, Dr. W. J. Morrison; secretary, Dr. C. L. Heald, both of Cedar Rapids.

University Alumni Meet.—The annual meeting and clinic of the Iowa University College of Medicine Alumni Association was held in Iowa City, October 22 and 23 and the following officers were elected: president, Dr. Charles J. Saunders, Fort Dodge; secretary, Dr. Clarence Van Epps, Iowa City. At the banquet the president responded to the toast on the New College of Medicine, emphasizing the following needs of the college: extension of State Board of Health bacteriologic laboratories; new wing for hospital; home for crippled and deformed children; nurses' home and psychopathic department. The new wing of the hospital recently erected at a cost of $100,000 was opened for inspection. The association presented to the university an oil painting of Dr. Elmer F. Clapp, Iowa City. The presentation address was made by Dr. Abraham J. Hobson, Hampton. Dr. George A. Smith, Clinton, presented a portrait of the late Dr. P. J. Farnsworth, Clinton. The portraits were accepted on behalf of the university by President John G. Bowman.

KANSAS

Hospital Notes.—Wesley Hospital, a Methodist Episcopal institution in Wichita, was opened to the public October 15, with a reception to the laity and to the profession. Dr. E. T. Ebright is chief of staff.——The physicians of Pittsburg are endeavoring to make arrangements for the erection of a new hospital for Crawford County to cost $50,000.

Personal.—Dr. Aaron Schuyler, Salina, is reported to be seriously ill.——Dr. F. P. Chillengworth, Hadam, Conn., has been appointed assistant professor of physiology in the University of Kansas.——Dr. J. A. Davis, Kansas City, fractured his right wrist while attempting to crank his automobile, September 20.——Dr. G. R. Dean, McPherson, was assaulted, September 24, but not seriously injured.

KENTUCKY

New Officers.—Tri-County Medical Society (Warren, Simpson and Logan) at Shakertown was entertained by the Logan County Medical Society. The election resulted: president, Dr. J. L. Neel, Drake; secretary-treasurer, Dr. John H. Blackburn, Bowling Green.

Will Study Hookworm and Pellagra at State Hospitals.—Two experts, under the direction of the State Board of Health and at the expense of the Kentucky branch of the Rockefeller Foundation Fund, have begun examination of the patients of the Eastern Kentucky Hospital for the Insane, for hookworm and also to trace any relation which pellagra may have to that disease.

Tuberculosis Commission.—The State Tuberculosis Commission plans to encourage the building of sanatoriums by counties to assist in the propaganda for better sanitation and hygiene, and to supervise a crusade against tuberculosis. In this the commission will cooperate with the State Board of Health, and a joint meeting of the two boards will be held in Louisville in November.

Births and Deaths.—The State Board of Health announces that during 1911, 60,732 births were reported, not including 2,390 still-births, and 30,583 deaths. Of the latter, 12,443 occurred from preventable diseases, the chief cause being from tuberculosis which caused 5,181 deaths, diarrhea of infants, 1,124; pneumonia, 2,530; typhoid, 1,035; meningitis, 630; diphtheria, 545; influenza, 477; measles, 394; whooping cough, 324; puerperal septicemia, 161, and scarlet fever, 72.

Changes in Hospital Appointments.—The State Board of Control has made several appointments and reappointments to state hospitals. Dr. S. L. Helm, Lexington, has been appointed first assistant at the Eastern State Hospital, Dr. W. E. Render has been transferred from the Western State Hospital to the Eastern State Hospital, Dr. Minnie C. Dunlap, Lexington, has been reappointed third assistant at the Eastern State Hospital. Dr. F. L. Peddicord, Burlington, succeeds Dr. T. J. Grice, Lakeland, as first assistant at the Central State Hospital and Dr. A. J. Davidson, Lakeland, has been appointed third assistant at the institution.——Dr. Roy F. Robinson, Hopkinsville, has been appointed second assistant and Dr. Eurey G. Davis, Russellville, third assistant at the Western State Hospital. All these appointments are for a term of four years, beginning December 1.

MAINE

Personal.—Dr. George S. Bliss, West Pownal, has been appointed superintendent of the Indiana School for the Feeble-minded, Fort Wayne.——Dr. H. E. Milliken, Portland, has started for Europe.——Dr. James D. Clement, Belfast, will soon open an office in Portland.——Dr. Adam P. Leighton, Jr., Portland, will open in December a private maternity hospital with accommodation for twenty patients.

MARYLAND

Personal.—Dr. William I. Buppert, Harrisonville, is under treatment at the University Hospital, Baltimore, for a sprained knee.——Dr. William L. Lewis, Kensington, has been elected vice-president of the Kensington Citizens' Association.

Baltimore

Personal.—Dr. C. G. Jung, Zurich, Switzerland, visited Baltimore October 24 and was the guest of Dr. Trigant Burrow.——The home of the late Dr. John G. Hollyday was destroyed by fire, October 23.

Dinner to Dr. Winslow.—The Faculty of Physic of the University of Maryland gave a dinner to Prof. John Randolph Winslow at the University Hospital, October 22, on the occasion of his sixtieth birthday anniversary. Dr. John C. Hemmeter acted as toastmaster.

Beriberi Clinic.—A clinic on beriberi was given at the University Hospital, October 1. Ten patients were exhibited, taken from the bark *Daylight* which reached Baltimore recently from Bombay after a voyage of six months. This is the first clinic on beriberi held in Baltimore and, it is believed, the first clinic of its kind to be held in the United States.

Sex Hygiene Exhibit.—A sex hygiene exhibit was held last week at the hall of the Medical and Chirurgical Faculty of Maryland. Lectures were given each evening and among the speakers were Dr. O. Edward Janney and Donald R. Hooker. The exhibits illustrate the three phases of the subject, eugenics and heredity, social disease, and methods and material for sex instruction.

Anti-Noise Committee.—At the annual meeting of the Baltimore City Medical Society, October 18, an Anti-Noise Committee was appointed consisting of Drs. William T. Watson, Henry Lee Smith and John Staige Davis. The duty of the committee is to draw up and have passed a city ordinance prohibiting unnecessary street noise and making homes and hospitals more comfortable for sleeping.

Bazaar for Widows' and Orphans' Home.—The managers of the Home for Widows and Orphans of Physicians, which has been in successful operation for some time, will hold a bazaar in the Howard Street Armory, November 24-25. The institution is dependent for its maintenance entirely on subscriptions and entertainments. The home owns a three-and-one-half-story building. Mrs. Eugene F. Cordell is president of the board.

Medicine as an Aid in the Evangelization of China.—Believing that increased medical efficiency would help in the evangelization of China, a strong appeal has been made before the Women's Foreign Missionary Society of the Methodist Episcopal Church which met in Baltimore last week. They intend to found a medical school for women in Peking. Dr. Li Bi Cu, a woman physician in China, who is in charge of the hospital at Ngu Cheng, was one of the speakers.

Physician Secured Damages.—In the case of Dr. Henry Charles Ohle, who sued the Maryland Casualty Company for $20,000 damages alleging that on October 7, 1909, he operated on a patient and thereby became infected, resulting in total blindness, the court decided in his favor allowing him damages of $7,500. Dr. Ohle held an accident policy in the company by which he was entitled to $5,000 in the event of blindness and a weekly payment of $25 a week for a certain period.

Howard Kelly and the Vice Crusade.—Dr. Howard Kelly gave a dinner on October 18 to 200 students. Mr. Bonaparte was toastmaster. Dr. Kelly discussed medical men as public servants and spoke on the general relations of the medical profession to the public and to politics as compared with those of previous generations. During the following week he addressed the Methodist clergymen of the city, the Men's Club of Grace Protestant Episcopal Church, and a neighborhood meeting at Westminster Presbyterian Church on the vice crusade. On October 15 he addressed the Association of Jewish Women on "Social Conditions and Obligation of Society Women to Take Part in Social Work."

MICHIGAN

Affiliation of Societies.—At the meeting of the Montcalm County Medical Society in Greenville recently, it was decided to affiliate with the Ionia County Medical Society and merge the two into the Ionia-Montcalm County Medical Society.

Leper No Longer Quarantined.—Herman Hirschfield, who has been in quarantine for leprosy at his home in Bay City, Mich., for several months is no longer held by the local health authorities and the quarantine card has been removed from his house.

New Hospitals for Kalamazoo.—Contracts have been awarded for plans for three new hospitals to be built by the state, namely, a tuberculosis sanatorium, a detention hospital and an isolation hospital.——A location has been found for the clinic and dispensary to be established by the Kalamazoo Antituberculosis Society.

New Officers.—Detroit Academy of Medicine, October 8: president, Dr. Andrew P. Biddle; secretary-treasurer, Dr. Ray Connor.——Ottawa County Medical Society at Holland, October 9: president, Dr. J. H. Peppler, Byron Center (reelected); secretary, Dr. H. J. Poppen, Holland.——Tuscola

County Medical Society at Carr, October 14: president, Dr. J. H. MacKenzie, Reese; secretary-treasurer, Dr. W. C. Garvin, Millington (reelected).

MINNESOTA

New Officers.—Minnesota Academy of Ophthalmology and Otolaryngology: president, Dr. Frank C. Todd, Minneapolis; secretary-treasurer, Dr. Louis Allan Nelson, St. Paul.

Many Indians Consumptives.—Dr. L. Clark, of the U. S. P. H. Service, has found that more than 70 per cent. of the Indians at Pelican Point are afflicted with tuberculosis.

Hospital for the Criminal Insane.—The State Board of Control is considering plans for the conversion of the old Stillwater penitentiary into a hospital for the criminal insane.

Advisory Medical Commission.—A commission of five physicians of Minneapolis has been placed at the call of the judges of the municipal court by the Hennepin County Medical Society.

Appropriation for Medical Inspections.—The Board of Tax Levy of Minneapolis, on September 24, tentatively allowed an appropriation of $25,000 for the extension of medical inspection in the public schools of the city.

Legislation for Hospital on Reservation.—The acting Commissioner of Indian Affairs will include in the annual estimates at the December session of congress an item calling for the appropriation of $100,000 for the construction of a hospital on the White Earth Indian Reservation.

Appropriation for Health Work.—Health Commissioner Lankester of St. Paul has submitted estimates for his department for the coming year. He asks $102,684.86 of which $12,290 is for the health department proper, $25,755 for quarantine, $29,710 for garbage collection, $19,039.86 for public baths, $8,740 for dairies, $2,500 for the removal of dead animals and $2,160 for smoke and hotel inspectors.

MISSOURI

St. Louis

Addition to Medical School.—St. Louis University is building an addition to its medical school. The new building is three stories in height and will accommodate offices, library and also laboratories for animal experimentation, and will cost about $10,000.

Faculty Appointments.—The following appointments have recently been made in the St. Louis School of Medicine: Dr. John Zahorsky, professor of children's diseases; Dr. Paul M. Carrington, U. S. P. H. Service, professor of hygiene; Dr. Joseph Grindon, professor of dermatology; Dr. George Ives, assistant professor of bacteriology.

Hospital Cornerstone Laid.—The cornerstone of the Barnes Memorial Hospital at Kingshighway and Euclid Avenue was laid with impressive ceremonies by Bishop R. E. Hendrick of the Methodist Episcopal Church, South, October 11. The institution will be erected at a cost of about one million dollars and has an endowment fund of a like amount. Arrangements have been made to affiliate the hospital with the medical department of Washington University.

NEW YORK

Personal.—Dr. John G. Miller, Lancaster, who was operated on for the removal of gall-stones, October 19, is reported convalescent.——Dr. Louis Faust has been reelected a member of the board of managers of the Schenectady Hospital Association.

Yonkers Opens Tuberculosis Hospital.—The new Municipal Tuberculosis Hospital in the Nepera Park section of Yonkers has been formally opened. The building is on a five-acre site given by Alexander Smith Cochran. Forty patients have already applied for admission.

New Officers.—Sixth annual meeting of the Sixth District Branch of the Medical Society of the State of New York at Binghamton, October 15: president, Dr. Luzerne Colville, Ithaca; secretary-treasurer, Dr. R. Paul Higgins, Cortland.——First District Branch of the Medical Society of the State of New York at Poughkeepsie, N. Y., October 4: president, Dr. John Calhoun Otis, Poughkeepsie; secretary, Dr. Charles Ellery Denison, New York City.

Birth-Rate in the State.—The *Bulletin of the State Department of Health* for August shows that there were 11,525 births in the city of New York, that urban births outside of New York City numbered 4,274, while the rural localities which are credited with a population of 2,331,688 report but 3,421 births. The number of deaths in the cities outside of New York City was 2,766, while in rural localities the number was 2,702. The gain of births over deaths in New York City was 5,781, while for the rest of the state it was only 2,227.

Hospital News.—The former home of the late Henry H. Cook, Bath, was formally opened as a hospital, October 7.——The Olean General Hospital property has been sold to A. F. Miller of that city for $7,600.——The Board of Health of Watertown has asked an appropriation of $1,000 for the maintenance of the summer tuberculosis camp and winter tuberculosis hospital.——At a special meeting of the stockholders of the Physicians' Hospital, Schenectady, the proposition of changing the management of the hospital from that of a private stock corporation to that of a charitable organization was considered.——At a meeting of the stockholders of the Physicians' Hospital, Schenectady, October 18, it was decided to dissolve the corporation.——The Mountain Sanatorium, Binghamton, was reopened for the reception of patients, October 23, after having been closed for twenty days. It is probable that after January 21 the sanatorium will be under the direct supervision of the commissioner of health.——As a mark of respect to the memory of the late Governor Flower, the name of that portion of the St. Lawrence State Hospital buildings, Ogdensburg, known as "Group Three," has been changed by the board of managers to the "Roswell P. Flower Group." The board of managers has also changed the name of the infirmary to the "William Pryor Letchworth Group" in honor of the chairman of the commission, who did so much to have Ogdensburg selected as the site for the hospital.

New York City

Personal.—Dr. Ira S. Wile has been appointed a member of the Board of Education.——Dr Simon Flexner of the Rockefeller Institute has sailed for Europe.——Dr. Albert M. Mehrenlender, Brooklyn, was decoyed to a lonely neighborhood on a fictitious sick call and severely beaten and robbed.

Free Clinic for Fordham.—The New York State Board of Charities has granted the Fordham University School of Medicine permission to open a free clinic in the new building which is almost completed. Students will thus be enabled to make practical observations in their own institution as well as in the other city hospitals.

Oysters Must Show Clean Bill of Health.—Health Commissioner Lederle has announced that dealers selling oysters fattened in fresh water must show conclusively that the freshening beds are not polluted, if they are to retain their permits. The public is warned that the gray and relatively smaller oysters that are tonged in salt water are the only ones above suspicion.

Conference for Study of Exceptional Children.—The third annual conference of the National Association for the Study and Education of Exceptional Children was held at the College of the City of New York on October 30 and 31 and November 1. Among the general topics discussed were the "Exceptionally Bright Child," "The Retarded Child," and "Rational Human Eugenics."

Weather Blamed for Increased Infant Mortality.—According to the Babies' Welfare Association there were 273 deaths of infants under 1 year of age for the week ended October 19 as compared with 256 for the corresponding week of 1911. This increase was mainly due to diarrheal diseases and is attributed to the changeable weather during the first two weeks of the month.

Board of Education Providing for Defective Children.—At the last meeting of the Board of Education a resolution was passed amending the by-laws so that provision is made for the appointment of two additional physicians for the examination of mentally defective children, an assistant inspector of ungraded classes and a social worker to visit the parents of children of this class. The ultimate object of the Board of Education is to separate the subnormal from the normal children and this can only be done by comparing them.

Hospitals Cannot Have Waterfront.—The dock commissioner has refused the request of the city hospitals for waterfront space where their patients could enjoy fresh air and sunshine because he thinks this would be detrimental to the city and its commercial interests. Dr. John Brannan, president of the Board of Trustees of Bellevue and the Allied Hospitals, tells the commissioner that this commercial loss means every year a benefit to from 40,000 to 50,000 persons. Last year the number of patients in the city hospitals increased by 8 per cent. and this year the increase will be still greater.

Harvey and Other Lectures.—The third Harvey lecture will be given November 9 at 8:15 p. m. at the New York Academy of Medicine, by Professor Joseph Erlanger of Washington University, St. Louis, on "The Localization of Impulse Initiation and Conduction in the Heart."——Dr. L. Duncan Bulkley will give a fourteenth series of clinical lectures on diseases of the skin at the New York Skin and Cancer Hospital on Wednesday afternoons from Oct. 30 to Dec. 18, 1912, at 4:15 o'clock. They will be free to all.——Dr. Frederick Bierhoff will give clinical lectures on genito-urinary and venereal diseases at the Westside German Dispensary, 328 West Forty-Second Street, on Monday evenings, at 8:30, beginning November 4 and continuing about three months. These lectures will be free to the medical profession and to advanced students in medicine.

To Aid Feeble-Minded.—A movement has been started by the Department of Public Charities to centralize the examination records and care of defectives who may under the present system come under the observation of half a dozen or more city departments and societies. The work at present will be under the Bureau of Dependent Adults, but it is hoped later to establish a separate bureau. Each applicant will receive a careful examination and his history will be investigated in order to determine whether he has inherited the deficiency or whether the occupations of the mother and father could have exposed him to poison which could have been an etiologic factor in the causation of the mental condition. The examination will also determine whether the applicant is a danger to the community. For the success of the bureau all other agencies and social workers interested in the care of defectives are requested to refer any mental defectives who come to their attention to this bureau. In this way the department can arrange for the early admission of the applicant to a proper institution and will be able to demonstrate the need of more facilities for the segregation of these cases to prevent the increase of this class. It is also contended that the bureau will be able to show the United States authorities just how many foreign born feeble-minded persons there are in the city and whether the condition existed prior to arrival in the United States. Dr. Max G. Schlapp will be in charge of this work.

PENNSYLVANIA

Inspecting State Dairy Farms.—Veterinary inspectors, under the direction of Dr. C. H. Marshall, state veterinarian, are making an inspection of all dairy farms in Pennsylvania, which last spring were found to be a menace to the public health. On October 21, Dr. Marshall reported that a large number of the 3,400 dirty dairy farms found in the last inspection tour in this state have gone out of business. Those still in a filthy condition have been quarantined, and the quarantine will not be raised until the dairies have been made sanitary.

Contagious Diseases.—More than twelve cases of typhoid are now under quarantine in Lewistown. These are all in the vicinity of the Logan Street schools, which have been closed. ——Up to October 24 157 cases of typhoid had been reported to the State Health Department from Troy. About sixty nurses are on duty, volunteers having come from Williamsport, Elmira and Towanda. The temporary hospital is filled and if more cases develp another hospital will have to be established.——The effects of the small-pox epidemic at Carbondale are still traceable, as there have been outbreaks in two nearby communities in the past few days. Two cases were reported from South Canaan October 25, and there are three cases at Peckville.

Personal.—Dr. Elizabeth W. Ellison, Northumberland, has been appointed medical inspector of the normal schools of Wisconsin.——Dr. Isaac I. Parsons, formerly resident physician of the Devon Hospital, has become assistant physician at the Media Hospital.——Dr. Wilmont Ayres, Millersburg, has been obliged to move to Bedford Springs on account of ill health.——E. R. Walters, director of the health and charities department of Pittsburgh, has recovered from his small-pox attack and resumed his duties.——Dr. David R. Beaver, Conshohocken, was run down by an automobile in that city, October 18 and sustained painful injuries.——Dr. Guy A. Gerberich is ill with typhoid in Lebanon.——Dr. W. W. Richardson, for twelve years resident physician at the State Hospital for the Insane, Norristown, has resigned and will open a private sanatorium in Pittsburgh. He has been succeeded by Dr. C. R. McKinnis.——Dr. F. L. Knox, Claysville, was painfully injured by the overturning of his automobile, near Coon Island.

School Inspection.—During the week beginning October 21, officers of the state department of health made a complete sanitary inspection of more than 5,000 schoolhouses in the state, in the 656 townships that do not have medical inspection. Dr. Samuel G. Dixon, commissioner of health, desires a detailed report on the sanitary condition at schools in every second-class township in the state. The condition of the rooms and halls must be noted; the method of cleaning given; the amount of lighting space in proportion to the floor area computed as well as the number of cubic feet of air space per pupil; method of heating, whether steam, hot water or stove, and location of the apparatus; disposal of the sewage; location and condition of outbuildings; water supply, if from a well, its location and the possibilities of contamination of surface drainage; if from a municipal supply, whether from within the building on the grounds and the possible sources of contamination; and the care of water in the school room.

Philadelphia

Hospital News.—The Jewish Sanatorium for Consumptives is now free from all encumbrances. Mrs. Caroline Levy has donated $2,000 in memory of her husband for the erection of a shack for men.

Beriberi.—Three cases of beriberi were discovered October 12 by the inspector of the state quarantine board on the steamer *Venetia* from Cienfugos, Cuba, at Marcus Hook, October 12. All three were Chinese and members of the crew.

To Provide Site for Dispensaries.—In order to provide a site for future dispensaries, the Pennsylvania Hospital has purchased the southwest corner of Ninth and Spruce streets, improved with a three-story house, for a consideration of $16,000.

Rats for Health Department.—Appeals for rats, dead or alive, have again been made by the Health Department. Dr. Joseph F. Neff, director, explains that the rats are needed by the department for bacteriologic examination in the Health Bureau's work to prevent the bubonic plague finding lodgment in the city.

Crippled Children to Benefit.—The Advisory Committee on Municipal Charities is formulating plans to benefit the defective and indigent children in the city of Philadelphia. The sub-committee on crippled children to begin its work must make a census of the crippled children in the city of Philadelphia. It is, therefore, sending to physicians, hospitals and charitable organizations blanks to be filled out with the names of crippled children of which they may be conversant, with the hope that these blanks will be returned promptly. This appeal for interest and prompt action is made to enable the committee to make its report before November 20.

SOUTH CAROLINA

Additions to City Hospital.—The directors of the City Hospital decided to build an addition for negroes; $1,500 has been raised and the building will be ready in about thirty days.

Colored Physicians Organize.—Colored physicians of Charleston, October 9, made arrangements for the organization of the Charleston County Medical Association. Dr. J. M. Thompson was elected temporary chairman and Dr. M. M. Edwards temporary secretary.

TENNESSEE

New Officers.—At the eleventh annual meeting of the East Tennessee Medical Association, in Johnson City, October 11: president, Dr. H. M. Cass, Morristown; secretary-treasurer, Dr. H. P. Larimore, Chattanooga (reelected). The midyear meeting is to be held in Lenoir City and the next annual meeting in Greenville.

Personal.—Dr. and Mrs. William Likely Simpson, Memphis have returned after a year abroad.——Dr. J. Charles Wilson, Rockwood, was kicked by a horse, October 5, and sustained a compound fracture of the leg below the knee.——Dr. A. B. Thach has been appointed medical inspector of Nashville.——Dr. Alexander Erskine, Memphis, celebrated his eightieth birthday anniversary, September 26.

VERMONT

Personal.—Dr. Lauder, Brattleboro, has been appointed a member of the hospital staff of the Mount Pleasant (Iowa) State Hospital.——Drs. George M. Sabin and G. E. Latour have been appointed medical inspectors of the schools of Burlington.

New Officers.—Washington County Medical Society in Barre: president, Dr. C. J. Rumrill, Randolph; secretary-treasurer, Dr. E. A. Colton, Montpelier.——Rutland County Medical and Surgical Society at Lake Bomaseen, near Rutland: president, Dr. E. L. Clark, Castleton; secretary-treasurer, Dr. William Stickney, Rutland.

Secretary of State Board Retires.—Dr. Henry D. Holton, Brattleboro, secretary and executive officer of the State Board of Health for twelve years, has resigned, to take effect December 1, and Dr. C. F. Dalton, Burlington, at present connected with the State Laboratory of Hygiene, will succeed him. Dr. Holton, while president of the Vermont Medical Society in 1873, suggested in his annual address the necessity of a state board of health, and a committee was appointed to take the matter up with the legislature. After thirteen years of work the bill was finally passed, creating the board. Dr. Holton was appointed a member of the board in 1896, and four years later was made its secretary.

VIRGINIA

New Officers.—Roanoke Academy of Medicine, October 7: president, Dr. I. E. Huff; secretary, Dr. J. C. Hurst.

Health Staff Named.—Health Commissioner Schenck of Norfolk has reappointed Dr. A. P. Panill assistant health commissioner and chief of sanitation, and Dr. C. J. Andrews, assistant health commissioner, and Drs. George T. Myers, J. C. Sleet and C. D. J. MacDonald, city physicians.

New Officers for State Society.—At the forty-third annual meeting of the Medical Society of Virginia held in Norfolk, October 22-24, the following officers were elected: president, Dr. Southgate Leigh, Norfolk; vice-presidents, Drs. H. S. MacLean, Richmond, and McM. M. Pearson, Bristol; secretary, Dr. Paulus Irving, Farmville (reelected); and treasurer, Dr. Mark W. Peyser, Richmond. Lynchburg was chosen as the next place of meeting.

Personal.—Dr. J. B. Catlett, Staunton, who was operated on October 5 for appendicitis, is reported convalescent.——Dr. C. W. Fowlkes has resigned as assistant surgeon for the Pocahontas Consolidated Collieries Company, Boissevain, and has been succeeded by Dr. Charles E. Daniels.——Dr. Alexander G. Brown, Richmond, who has been critically ill, is reported improving.——Dr. A. B. Tucker, Berryville, who has been ill with rheumatism, has recovered and will resume practice November 1.——Dr. Allen W. Freeman, Richmond, who was operated on for appendicitis, has recovered and returned to Richmond.——Dr. W. M. Tunstall, Lovingston, was thrown from his horse in a runaway accident, October 17, sustaining a concussion of the brain, and is under treatment at the University Hospital, Charlottesville.

GENERAL AND FOREIGN

New Officers.—International Association of Medical Museums: president, Dr. A. S. Warthin, Ann Arbor, Mich.; secretary, Dr. Maude E. Abbott, McGill University, Montreal, Que.

Railway Surgeons to Meet.—The New York and New England Association of Railway Surgeons will hold its twenty-second annual session at the Hotel Astor, New York City, November 13, under the presidency of Dr. Walter Lathrop, Hazleton, Pa.

Latin-American Medical Congress.—The fifth Latin-American (sixth Pan-American) congress is to be held at Lima, Peru, in August, 1913. Special reports will be presented on diseases peculiar to the country, Peruvian verruga, typhus, uta and mountain sickness, local scientists being busily at work collecting new data on these subjects.

Wants Permanent Hygiene Exhibit.—Dr. Rupert Blue, surgeon-general of the U. S. P. H. Service, is making plans to establish a museum or permanent exhibit on sanitation and hygiene. It is one of the duties of the Public Health Service to disseminate knowledge of sanitation and hygiene, and he believes that this can be greatly promoted by such a permanent exhibit.

Public Drinking-Cup Prohibited.—An order promulgated October 19 by the United States Public Health Service prohibits the use of the public drinking-cup on rail or water common carriers engaged in interstate commerce. All water used for drinking purposes on trains and vessels on interstate runs must be certified as to purity and water containers must be scalded with steam at least once a week.

Death of Professor Segond.—The cable brings news of the death from uremia of Prof. Paul Segond of Paris, aged 61. He has been professor of surgery at the University of Paris since 1883 and long surgeon in chief at the Salpêtrière. He has published a number of works on surgical questions connected with the urogenital apparatus, esophagus, etc., including one in 1888 on removal of the ovaries in treatment of uterine fibromas.

New Mississippi Valley Officers.—At the thirty-eighth annual meeting of the Mississippi Valley Medical Association, held at the Hotel Sherman, Chicago, October 22-24, the following officers were elected: president, Dr. Albert E. Sterne, Indianapolis; vice-presidents, Drs. D'Orsay Hecht, Chicago, and Hugh Cabot, Boston; secretary, Dr. Henry Enos Tuley, Louisville (reelected), and treasurer, Dr. S. C. Stanton, Chicago (reelected). New Orleans was selected as the place of the meeting for 1913.

Personal.—Acting Assistant Surgeon W. F. James, U. S. P. H. Service, stationed at Honolulu, was commended in a letter October 17 by the Secretary of the Treasury for "humanitarian and unselfish action" in rescuing a Japanese woman from drowning in shark-infested waters near Honolulu, September 23.——Dr. Robert A. Backmann, U. S. N., who has been stationed at the Naval Hospital at Newport, R. I., will sail October 23 to take special study in France.——Dr. and Mrs. John Mason Little, Jr., St. Anthony, N. F., of the Labrador Medical Mission, returned on the mission schooner, *George B. Cluett*, October 15.

Red Cross Stamps Ready.—The Red Cross Christmas Seals are now on the market and show a new design. The committee on the prevention of tuberculosis has adopted the same motto as last year: "Every seal bought is a bullet in the fight against tuberculosis" and will take up the campaign for the sale of the stamps. The headquarters for the sale of the stamps is 1 Madison Avenue, New York. Booths for the sale of the stamps will soon be erected in all the large department stores and postoffices. The amount realized from the sale of the stamps has steadily increased from $135,000 in 1908 to $320,000 in 1911.

Tuberculosis Sunday.—Following the plan inaugurated several years ago, Sunday, October 27, was observed as Tuberculosis Sunday in the churches all over the country. The National Association for the Study and Prevention of Tuberculosis had prepared and sent to the churches an outline which might be followed by the pastors of the churches in their sermons on that day. This outline presented the important points for the education of the public in the manner in which tuberculosis should be treated and the measures to be followed for its prevention. Much stress was laid on the viciousness of the almost innumerable nostrums for tuberculosis. The reaching of a large proportion of the population of the whole country in one day with instruction and knowledge of this disease cannot help but prove of immense value in its eradication.

LONDON LETTER

(From Our Regular Correspondent)

London, Oct. 12, 1912.

The Falling Birth-Rate

The continuously falling birth-rate in this country is exciting more discussion in the churches than anywhere else. At the annual church congress held by the members of the Anglican Church, Mr. W. C. Whetham, F.R.S., urged that the religious motive should be invoked to stay what he termed "the plague of empty cradles." Broadly speaking, he said that the deficiency of children was most marked among the thrifty skilled artisans and in the upper and professional classes. The predominant cause appeared to be voluntary limitation, for there was no evidence of decline in the natural fertility of the race. The average number of births maintained almost its normal level in families of Roman Catholic faith (which discountenances artificial restriction). There was an actual rise of 3 per cent. in the Irish birth-rate. It was not, however, the duty of either religion or science to urge on mankind unlimited reproduction, regardless of quality. When it was clear that children would be useless and degraded specimens of humanity, society should not tolerate their production.

The Lowest Birth-Rate on Record in Scotland

The decline of the English birth-rate is exactly paralleled in Scotland. The fifty-sixth annual report of the Registrar-General for 1910 has just been issued. The most noteworthy features are the lowness of the birth-rate, marriage-rate, death-rate and infant mortality. The births numbered 124,059, 4,610 less than in 1909 and 6,398 less than the average of the preceding five years and 7,368 less than the average of the preceding ten years. This is the smallest number of births registered since 1890. It amounts to 26.19 per thousand and is 1.14 below the preceding year, 1.87 less than the average of the preceding five years, 2.54 less than the average of the preceding ten years and is the lowest rate on record. The marriage-rate was 6.52 per thousand, which though 0.12 more than that of the previous year, is lower than any rate recorded since 1888. The death-rate for the year was 15.26, which is 0.59 less than that of the previous year, 1.08 less than the average of the preceding five years and 1.67 less than the average of the preceding ten years. The infant mortality was 108.3 per thousand children born, which, though 0.6 above that of the previous year, is unusually low. The death-rates from all forms of tuberculosis continue to decrease and are the lowest recorded.

Artificial Milk Produced from Soya Beans

An artificial milk manufactured from soya beans, which is said to contain all the elements of the best cow's milk and can be used for the same purposes, was shown to a gathering of scientists in London. The artificial milk is said to be more digestible than ordinary milk and its cream more nourishing. It can be used for all cooking purposes and good cheese can be made from it, but it will not produce butter. As it is germfree it will keep longer than cow's milk. The discovery is the work of three Germans who spent three years in perfecting it. The process of manufacture is simple and always produces the same result. It is not touched by hand or exposed to atmospheric influence until it is poured into bottles for delivery. The milk can be sold at 3 pence a quart (6 cents), which is 2 cents cheaper than the cost of London milk, and the cheese at 3 pence a pound.

PARIS LETTER

(From Our Regular Correspondent)

Paris, Oct. 11, 1912.

The Fight Against Cancer

The Société médicale de Reims has issued an appeal to druggists and to midwives to wage a systematic war against cancer. The appeal explains that applications of remedies cannot stop the spreading of cancer and that these remedies ought to be forbidden as illusory and dangerous. The necessity of early operation is emphasized. Druggists, midwives and nurses should make this plain to cancer patients and should describe the fatal consequences if the disease is allowed to develop. Midwives, who are often the first to be consulted by patients with cancer of the breast or uterus, are urged to send the patients to a physician for immediate examination, and to advise this in all cases of loss of blood outside the regular monthly periods or after the menopause. Druggists are asked to refuse to treat wounds and all lesions which do not cicatrize, but spread and bleed.

International Conference for the Standardization of Analyses of Foodstuffs

In June, 1910, an international conference was held in Paris to promote the standardization of analytic methods, which had been recommended for twenty years by the Congress of Applied Chemistry, held successively at Rome, Paris, London and Berlin (The Journal, July 23, 1910, p. 325). This conference, in which representatives of seventeen countries took part, recognized the impossibility of establishing absolute uniformity in analytic methods. The advance in the science would soon make the analytic processes standardized by the conference out of date; but the members of the conference of 1910 were of one mind in believing that while different countries should be permitted to adopt and use their own methods for expressing the results of chemical analyses, it was of the utmost importance that a way should be found for translating these results into a common system of notation which might serve as an international language among chemists of the different countries. Therefore the conference of 1910 formulated a plan which has now been submitted to a second conference for adoption. This conference met October 7 at Paris by invitation of the French government. Whatever standards are adopted by the conference will be enforced in the countries which are represented in the conference. The French government hopes soon to introduce these standards in the government laboratories. The conference also will discuss and approve a plan for the creation of a permanent international board such as exists at Rome for agriculture, at Berne for the mail and telegraph, and at Paris for weights and measures. This international board will study all the official methods of analyzing foodstuffs in order to establish a means for reducing the results into common terms.

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, Oct. 12, 1912.

Personal

October 9, Professor Loebker, for many years the president of the Deutscher Aerztevereinsbund, died at the age of 58. He has conducted its affairs with great skill; especially in the serious conflicts which have repeatedly occurred on the one hand between the Krankenkassen and physicians, and on the other between the government and the German medical profession, he has been able by his marked shrewdness and energy to protect the interests of the German medical profession and to solve in a manner favorable to our profession the questions arising in the conflicts. In his opening addresses at the annual Aerztetage he was able to represent with a fine intelligence the spirit of German physicians. In 1877 Loebker became assistant at the anatomic institute of Greifswald, and in 1879 assistant in the surgical clinic. In 1889 he became director of the great miners' hospital at Bochum, where, as the result of his extensive scientific and practical knowledge, he carried on his work with exceptional success. His scientific work dealt chiefly with surgical affections of the bones and hookworm disease of miners. His work, entitled "Chirurgische Operationslehre" was published in several editions; further, he was a collaborator in several compilations. For the betterment of conditions of the profession, he acted also as president of the Westphalian Medical Chamber (*Aerztekammer*) and during the last two years as chairman of the executive committee of the organized Prussian Medical Chambers.

Medical and Charitable Institutions of Germany

There are in Germany at present, with a population of about sixty-one millions, 9,054 medical and charitable institutions, with 735,579 beds, namely: 3,258 general hospitals, 351 army and marine hospitals, 62 hospitals for miners, 365 asylums for the insane, idiots and epileptics, 381 tuberculosis sanatoria, 195 sanatoria for nervous diseases, 260 water cure sanatoria, 258 children's hospitals and homes, 149 lying-in and infant homes, 141 rescue, training and correction houses, 37 vacation colonies, 141 orphan homes, 225 sanatoria for internal diseases, 351 hospitals for surgical diseases, 333 clinics for women, 261 hospitals for eye diseases, 120 hospitals for the ear, nose and throat diseases, 78 special hospitals for skin and venereal diseases, 104 institutions for orthopedic and gymnastic treatment, 58 sanatoria for alcohol and drug addicts, 44 homes and sanatoria for the crippled, 48 institutions for the blind, 92 institutions for the deaf and dumb, 269 sanatoria for convalescents, 250 infirmaries, 932 homes and hospitals for the aged, 86 Krankenpensions and 89 various health resorts.

There are also 591 other health resorts, namely: 57 with mineral baths with cold and hot springs, simple or containing carbonic acid, 22 with alkaline springs, 95 salt springs and brine baths, 11 bitter springs, 45 with iron and chalybeate baths, 34 sulphur and 76 peat baths, 7 mud baths and 4 sand baths.

Life and Theory of a Principle that is Neither Material nor Physical

The old theory of vitalism which asserted the existence in the animal organism of a peculiar vital force that governed the body independently of physical and chemical laws and constituted the basis for the regular course of the vital functions, reappeared a few years ago under the form of neo-vitalism and has secured a considerable following. This theory of a soul or psychic factor is accepted not only by psychologists, but also by physicians, in spite of the fact that at an earlier period it was sharply attacked, particularly by Du Bois-Reymond, who devoted to it two of his well-known and spirited works. This theory has found a defender in the person of the professor of philosophy at Münster, Dr. Becher, who read an address on this subject at the meeting of scientists held this year in that city. In his address "Leben und Beseelung," which he delivered before the first general session, he opposed to the "mechanism" theory—the materialistic philosophy which teaches that all living organisms are peculiar physico-chemical machines—the psycho-vitalistic theory, according to which the soul is the life principle and leaves the body at death. Even the mechanist view arises from very old prescientific conceptions. The identification of the soul with the breath was the first step in materialism which led to the idea of biologic mechanism. So far as psychic processes are concerned, the intelligent holder of this theory cannot deny them. But as they cannot be fitted into the chain of physical causation, he must assume that they run parallel to the chain of physical causes in the brain. As opposed to this parallelism, Becher tried to justify the idea of a mutual action between body and psyche. In his opinion it is entirely permissible to assume psychic factors—factors which are neither material nor physical—in addition to the physico-chemical. The psychic factors, to be sure, must be conceived of as purely natural. With this conception neither the principle of natural causation nor that of conservation of energy will be violated, for it is a pure assumption that psychic and psycho-vital processes must from their very nature introduce an element of irregularity. The exactness of physics and chemistry seems, however, unattainable in biology if we admit psychic factors which cannot be measured.

PSYCHIC FACTORS IN ANIMALS AND PLANTS

Objection is made to the assumption of psychic factors in the lower animals and plants. Becher remarks that to be sure they have not been demonstrated in them, but neither are the ether and the atoms directly demonstrable, but can only be logically deduced. The continuity in the succession of organic beings favors the conception of general possession of psychic properties (*allgemeine Beseelung*). The psychic properties in man are connected with the cerebral cortex or at any rate with nervous organs. Whether this is true of all psychic factors in man and animals is quite questionable. The view is constantly gaining ground that the function of memory is general in living matter. Memory is of fundamental importance for the learning of purposive movements. The memory fixes successful movements while excluding disturbing irritations; these movements can be immediately repeated when the stimulus is renewed. Thus a purposive movement arises by a process of selection from all sorts of purposeless tentative movements. English scientists particularly have produced proof of the wide-spread extent of this trial method in the animal kingdom. Its nature is that a stimulus excites at first all sorts of reactions until by chance a proper one is found which removes a disturbing irritant. If memory exists, the animal learns from this experience. If the stimulus is repeated the appropriate movement finally follows immediately without resort to other purposeless trial movements. Thus psychovitalism furnishes an explanation of the most varied purposive actions in animated nature.

It has been objected to the mechanism theory that it fails to explain the entirety of purposeful arrangements in nature, although many special cases might be explained by Darwin's law of natural selection. Psychovitalism need not deny the explanation of purposive action by natural selection; the latter might retain its significance for passive adaptations. It is not to be taken as a dogma that all organic adaptations shall be explained in the same way whether it be according to the selection theory of Darwin or by the psychic method of Lamarck. Radical hypotheses meet the greatest difficulties in view of the many-sided and manifold organic adaptations. In concluding, Becher called attention to the fact that the explanation of purposive actions by tentative reactions and retention by memory of the ones best adapted for the purpose in view does not exclude the mechanism theory. Even the actions depending on testing and learning are produced in a purely physical nervous medium according to the parallelistic theory. The old psycho-vitalist view of body and soul seems to him a hypothesis worthy of attention, although only as a hypothesis, needing definition and confirmation.

Marriages

Charles A. Sparrow, M.D., Worcester, Mass., to Miss Marguerite E. Bowen, of New Bedford, Mass., at Mattapoisett, Mass., October 12.

Selden Sylvester Cowell, M.D., Huntsdale, Pa., to Kathryn Rebecca Sherk, M.D., of Camden, N. J., October 9.

Thomas Jefferson Glasscock, M.D., Hannaford, N. Dak., to Miss Sadie T. Sabre of Valley City, N. Dak., October 16.

William Lloyd Sheep, M.D., M. C., U. S. Army, to Miss Zaida Carroll Gannaway, at Lynchburg, Va., October 16.

Herbert Markell Goddard, M.D., Philadelphia, to Miss Janet W. Waddell of Wilkes-Barre, Pa., October 16.

William Harrison Weirich, M.D., Jacksonville, Ill., to Miss Virginia Walker of Waterloo, Ia., recently.

Orestes Augustine Brownson, M.D., Dubuque, Ia., to Miss Marie Angell Gates of Chicago, October 21.

John S. Montgomery, M.D., to Miss Elizabeth Calfee, both of Milan, Mo., at Green City, Mo., October 5.

Clyde Leigh Appleby, M.D., to Miss Edna Frances Bragunier, both of Peabody, Kan., October 17.

Francis Patrick McCarthy, M.D., Boston, to Miss Emily Truesdell, in Louisville, Ky., October 16.

Samuel F. Zahn, M.D., Philadelphia, to Miss Jennie M. Harrison of Ardmore, Pa., October 16.

Mason David Bryant, M.D., to Miss Alice Mary Hill, both of Lowell, Mass., October 16.

Deaths

Edwin R. Dibrell, M.D. University of Arkansas, Little Rock, 1882; University of Pennsylvania, Philadelphia, 1883; one of the most prominent practitioners of Arkansas and president of the Arkansas Medical Society; died at his home in Little Rock, October 20, from malignant disease, aged 54. Dr. Dibrell was a son of Dr. James A. Dibrell one of the pioneer physicians of Arkansas; he graduated with honors at the university and began practice in Mississippi, but after two years returned to Little Rock. He was a member of the American Medical Association; for 27 years professor of the practice of medicine in his alma mater; one of the founders of the Roots Memorial Hospital, the first city hospital of Little Rock, and visiting physician to the City Hospital. He was appointed a member of the State Board of Charities by Governor Donaghey and was instrumental in securing the appointment of Dr. Greene as superintendent of the State Hospital for Nervous Disease, Little Rock. Dr. Dibrell was a man of high integrity; a thorough and painstaking physician; a staunch upholder of the ethics of the profession; a beloved physician and an ideal friend.

Wooster Parker Giddings, M.D. Harvard Medical School, 1871; for several terms president of the Maine Medical Association, and vice-president of the Harvard Medical School Alumni Association; died at his home in Gardiner, October 16, from pneumonia, aged 72. After Dr. Giddings' graduation he practiced in Waltham, Mass., and later in Boston, where he was local surgeon to the Boston and Albany Railroad and a member of the Boston School Committee. In 1878 he removed to Gardiner where he soon gained a state-wide reputation as a surgeon. He was at one time a member of the Gardiner School Board, consulting surgeon to the city hospital, Augusta, and for seven years a member of the local board of United States pension examining surgeons.

Thomas D. Bradfield, M.D. Detroit Medical College, 1869; an honorary member of the Grand Rapids Academy of Medicine; a member of the consulting board of the Union Benevolent Association and Butterworth hospitals, Grand Rapids, Mich.; for several years president of the board of health and board of education; at one time health officer; consulting surgeon to the Soldiers' Home Hospital and for two terms a member of the state legislature from Keweenaw County; died at his home, October 13, aged 59.

Samuel Charles Emley, M.D. Rush Medical College, 1902; a member of the American Medical Association; associate professor of pathology and bacteriology in the University of Kansas; who gave up teaching in 1909 to take charge of the Kansas state anti-tuberculosis campaign; and who was operated on for abdominal disease at Rochester, Minn., August 10; died at his home in Kansas City, Kan., October 15, aged 37.

Samuel S. Birdsall, M.D. Bellevue Hospital Medical College, 1865; a member of the American Medical Association; a surgeon of volunteers during the Civil War; a prominent and highly-respected citizen of Susquehanna, Pa.; who was given a handsome loving cup by the board of trade of that place last year in appreciation of his work as a citizen; died at his home, October 12, from arteriosclerosis, aged 70.

James S. Ferguson, M.D. Medical College of Ohio, Cincinnati, 1861; surgeon of U. S. Volunteers during the Civil War; for forty-six years a practitioner of Camden, O.; for more than thirty years president of the Camden Building and Loan Association, and for several years vice-president of the First National Bank of Camden; died at his home, October 2, from senile debility, aged 77.

Hamblin B. Maben, M.D. Albany (N. Y.) Medical College, 1857; a surgeon of volunteers during the Civil War; formerly a member of the board of education and a trustee of the village of Ilion, N. Y.; expresident of the Kingston Physicians Association and Albany Medical College Alumni Association; died at his home in Kingston, N. Y., October 15, from acute gastritis, aged 79.

Alice Lillibridge, M.D. Women's Medical College of Pennsylvania, Philadelphia, 1900; a member of the American Medical Association and prominent in the propaganda on health and hygiene of women; died in the Dr. Reed Burns Private Hospital, Scranton, Pa., October 14, from heart disease, aged 43.

Macauley Arthur, M.D. Rush Medical College, 1877; a member of the Kentucky State Medical Association, and of the local board of the United States pension examiners; died at his home in Middlesboro, September 8, aged 62.

Benjamin Ropes Symonds, M.D. Harvard Medical School, 1883; a member of the Massachusetts Medical Society; city physician of Salem and a member of the Board of Health; a member of the surgical staff of the Salem Hospital; for several years assistant surgeon and surgeon of the Second Corps of Cadets, M. V. M.; died at his home in Salem, October 15, aged 55.

William Harmon Buchtel, M.D. Chicago Medical College, 1866; a member of the American Medical Association and the Western Gynecological Society; a pioneer practitioner of Denver and a medical officer of volunteers during the Civil War; at one time surgeon-general of Colorado; was found dead in his office in Denver, October 15, from cerebral hemorrhage, aged 67.

Joseph William Day, M.D. Graffenberg Institute, Dadeville, Ala., 1857; Tulane University, New Orleans, 1884; a member of the American Medical Association; of Homer, La.; died in Shreveport, La., October 12, from senile debility, aged 78. The Claiborne Parish Medical Association attended the funeral in a body and physicians of Homer acted as pallbearers.

Thomas Joseph Bennett Dillon, M.D. Royal College of Physicians and Surgeons, Dublin, Ireland, 1884; of Boston; a member of the national executive committee of the United Irish League; died in the Massachusetts General Hospital, October 16, while being anesthetized for an operation for malignant disease of the throat, aged 50.

Arthur Ricketson, M.D. Harvard Medical School, 1860; a member of the Massachusetts Medical Society; acting assistant surgeon in the Navy during the Civil War; one of the oldest residents of New Bedford, Mass.; died at his home in that city, October 14, from cerebral hemorrhage, aged 77.

Levi Edwin Holmes, M.D. Bellevue Hospital Medical College, 1866; a pioneer practitioner of Helena, Mont.; surgeon in the Army during the Civil War and until 1869; grand master of the Odd Fellows of Montana; died suddenly at a hotel in Missoula, October 15, from angina pectoris, aged 71.

Jean I. Mackay Glidden, M.D. Hahnemann Medical College, Chicago, 1886; of Mount Carroll, Ill.; died in the Globe Hospital, Freeport, October 14, aged 52, from the effects of burns suffered last May at her office in Mount Carroll the result of the explosion of a pot of paint.

Henry Chavanne, M.D. Jefferson Medical College, 1887; a member of the Medical Society of New Jersey; for many years secretary-treasurer of the Salem County Medical Society, and president of the board of health of Salem; died at his home, October 16, aged 65.

E. Holden Lansing, M.D. Physio-Eclectic Medical College, Cincinnati, 1872; formerly of Lewiston, Me., but for the last nine years retired and living on a farm in Oxford County; died in the Central Maine General Hospital, Lewiston, October 3, aged about 70.

Wilbur Solomon Rudy, M.D. Ohio Medical University, Columbus, 1897; a graduate in both dentistry and medicine; died in his office in Lima, Ohio., October 18, from the effects of phenol, believed to have been self-administered with suicidal intent, aged 46.

Oliver Morse, M.D. Louisville (Ky.) Medical College, 1875; a member of the State Medical Association of Texas and the Northwest Texas Medical Association; for four years physician of Parker County; died recently at his home, in Weatherford.

William Henry George, M.D. University of Michigan, Ann Arbor, 1869; one of the earliest settlers of Canton, Kan., and later a practitioner of McPherson; died in the McPherson Hospital, October 19, after an operation for appendicitis, aged 67.

James Warren Stipp, M.D. Bellevue Hospital Medical College, 1878; of Berkeley, Cal.; at one time local surgeon for the Southern Pacific System at El Paso, Tex.; died in the Roosevelt Hospital, Berkeley, October 14, from nephritis, aged 57.

Engelbrecht Nelson, M.D. College of Physicians and Surgeons, Chicago, 1901; a member of the American Medical Association; of South Chicago; died in the South Chicago Hospital, October 15, from carcinoma of the liver and mediastinum, aged 46.

Joseph C. Edgar, M.D. College of Physicians and Surgeons, Baltimore, 1881; a member of the American Medical Association; formerly of Holstein, Ia.; died at his home in Pomona, Cal., October 8, from cerebral hemorrhage, aged 65.

Thomas Francis Riley, M.D. Drake University, Des Moines, Ia., 1890; formerly city physician of Des Moines and of Polk County; died at his home in Waterloo, Ia., October 14, from disease of the lungs and kidneys, aged 47.

John E. Link, M.D. Chicago Medical College, 1865; surgeon of U. S. Volunteers during the Civil War; at one time a member of the faculty of an Indianapolis medical college; for several years local surgeon at Terre Haute for the Vandalia Railroad; died at his home in West Terre Haute, October 13, aged 73.

Bradley Wakeman Yielding, M.D. Medico-Chirurgical College, Philadelphia, 1899; of Meshoppen, Pa.; was crushed to death under his automobile, October 11, on the road between Meshoppen and Laceyville, aged 45.

Thomas Croswell Gower, M.D. Medical College of Georgia, Augusta, 1867; a member of the Medical Association of Georgia; died at his home in Gainesville, October 4, from cerebral hemorrhage, aged 71.

Thomas Spaulding, M.D. Eclectic Medical Institute, Cincinnati, 1870; formerly of Terre Haute, Ind.; a member of the legislature from Vigo County in 1894; died at his home in Los Angeles, Cal., recently.

Sidney Davis, M.D. University of Pennsylvania, Philadelphia, 1877; a member of the Medical Society of the State of Pennsylvania; died at his home in Milton, October 17, from heart disease, aged 60.

Anthony Wayne Johnson, Jr., M.D. Vanderbilt University, Nashville, Tenn., 1879; for several years a practitioner and orange grower of Arcadia, Fla.; died in Nashville, Tenn., October 15, aged 72.

John Darragh, M.D. Eclectic Medical Institute, Cincinnati, 1895; for more than twenty years a practitioner of Cincinnati; died at his home, October 14, from cerebral hemorrhage, aged 57.

Charles S. Spitler, M.D. Medical College of Ohio, Cincinnati, 1892; a member of the Indiana State Medical Association; died at his home in Mooreland, October 16, from nephritis, aged 45.

William F. Burg, M.D. Hahnemann Medical College, Chicago, 1881; for twenty years a practitioner of Denver; died in St. Anthony's Hospital, in that city, October 10, aged 52.

Louis Henry Duwelius, M.D. Miami Medical College, Cincinnati, 1888; of Briscoe, Mo.; who was operated on for appendicitis, September 26; died at his home, October 7, aged 54.

Robert Flint Smick, M.D. Cooper Medical College, San Francisco, 1906; of Roseburg, Ore.; was drowned while fishing in the Umpqua River, near Roseburg, October 15, aged 32.

Hiram D. Hattery, M.D. Miami Medical College, Cincinnati, 1874; for many years a member of the city council of Logansport, Ind.; died at his home, October 15, aged 65.

Oscar Leedom, M.D. University of Pennsylvania, Philadelphia, 1872; was found dead at his home in Plymouth Meeting, October 14, from cardiac dropsy, aged about 60.

Noble Benjamin Dean, M.D. University of the Victoria College, Coburg, Ont., 1860; a veteran of the Civil War; died at his home in Brighton, Ont., recently, aged 71.

Charles M. Cook, M.D. Louisville Medical College, 1893; a member of the State Medical Association of Texas; died at his home in Greenville, September 17, aged 53.

Walter Lee Ritter, M.D. Eclectic Medical Institute, Cincinnati, 1912; died at the home of his parents in Jersey Shore, Pa., October 10, from typhoid, aged 27.

Orville W. Hobbs, M.D. Medical College of Indiana, Indianapolis, 1881; died at his home in Dunreith, Ind., October 2, from cerebral hemorrhage, aged 64.

William Henry Macdonald, M.D. Harvard Medical School, 1862; of Antigonishe, N. S.; died recently in the Homewood Sanatorium, Guelph, Ont., aged 77.

Ned Mae Jeter, M.D. University of Maryland, Baltimore, 1887; died suddenly at his home in Millington, Md., October 15, from heart disease, aged 50.

Theodore P. Knapp, M.D. Hahnemann Medical College, Philadelphia, 1854; died at his home in Union, N. Y., September 25, from senile debility, aged 79.

Hugh Alexander Stewart, M.D. Trinity Medical College, Toronto, Ont., 1889; died recently at his home in Portage la Prairie, Man., aged 49.

Thomas Anderson, M.D. Chicago Homeopathic Medical College, 1878; died at his home, in Watertown, Mass., September 18, aged 75.

J. H. Jordan, M.D. Meharry Medical College, Nashville, Tenn., 1896; died at his home in Newnan, Ga., September 18.

William Manson, M.D. Rush Medical College, 1864; died at his home near Burlington, Kan., October 13.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

INCOMPATIBILITY OF SODIUM ACID PHOSPHATE AND HEXAMETHYLENAMIN

A writer in the *Pharmaceutical Journal and Pharmacist* (London) Oct. 12, 1912, p. 478, calls attention to incompatibility between sodium acid phosphate and hexamethylenamin, which was discovered through the complaints of a customer who had the following prescription of a London physician filled at an Isle of Wight pharmacy:

℞ Sodii acidi phosphatis.................... ℥iss
Urotropin [hexamethylenaminæ] .... ʒi
Aquam ....ad ℥xii

One ounce to be added to one pint of water and taken during the day.

The customer said that the mixture was different from what he had in London because it turned cloudy when added to water. This was easily explained as the water which he was now using was hard, containing a large proportion of calcium carbonate in solution, the cloudiness being due to a precipitate of calcium phosphate. The prescription was dispensed on several later occasions; sometimes the customer complained that the taste varied and that there was a lack of acidity. To determine if the trouble was in the sodium acid phosphate, three samples from different wholesale houses were tested for the amount of free acid present. The samples were practically identical, 0.2 gm. requiring for complete neutralization 12 c.c. of tenth-normal solution of sodium hydroxid. As the trouble was not found here, attempts were made to find whether the hexamethylenamin was decomposed by interaction with the free acid of the sodium acid phosphate. This hypothesis was confirmed.

It appears that hexamethylenamin, on being added to a warm solution of sodium acid phosphate, is completely decomposed into formaldehyd and ammonium phosphate, the sodium acid phosphate being also neutralized to a considerable extent. The same reaction takes place more slowly in the cold. Therefore the therapeutic effect of the two drugs is practically lost, as far as a solvent for urinary calculi is concerned. There is risk to the patient also, as no good results could follow from taking this combination, and valuable time would be wasted.

Association News

THE MINNEAPOLIS SESSION

A Preliminary Statement on Arrangements

Readers of The Journal will recall the fact that Minneapolis is to be the meeting-place and the University of Minnesota is to be the especial host of the American Medical Association in June, 1913.

The audience-halls and lecture-rooms of twenty-one university buildings will be at the service of the sections. Daily lunches are to be served on the campus, so that it will be unnecessary for members to seek their downtown hotels at the noon recess.

The University Armory will make an ideal place for registration offices, post-office and the Commercial Exhibits; the new medical building, now in process of equipment, will provide ample and admirable quarters for the Scientific Exhibit.

The hotels of Minneapolis and St. Paul, which will be found adequate for the entertainment of the members of the Association, will be reinforced by a number of fraternity houses and, if necessary, by private residences in the immediate neighborhood of the university.

Arrangements for hotel accommodations are in the hands of a committee of which Dr. S. Marx White, 424 Walnut Street, is chairman; members expecting to attend the meeting cannot send in their reservations too soon to suit the committee or to serve their own interests.

Minneapolis expects to play the host to the American Medical Association to the best of its ability and to the full measure of its well-known hospitality.

Richard Olding Beard, Minneapolis,
Chairman, Committee on Publicity and Press.

Correspondence

Nostrums and the Medical Profession—A Criticism from a Layman

To the Editor:—Permit me to call to your attention a disheartening instance of the average medical practitioner's *laissez-faire* attitude toward the "patent-medicine" evil. A year ago the *Wisconsin State Journal* of Madison, Wis., was purchased by Mr. Richard Lloyd Jones, who, on assuming control, decided to rid the publication of all fraudulent advertising, beginning with the fake medicines. At his request I listed those nostrums which, under a moderate interpretation of fair dealing with the public, I thought should be excluded. These he threw out, declaring his intention of keeping the paper free, in the future, from such matter.

What was my surprise, on visiting Madison recently, to find in the pages of the *Journal* several typically quack advertisements, including that of Duffy's Malt Whisky. Naturally I asked Mr. Jones the reason for his apparent backsliding.

"No backsliding at all," said he, "I accepted that advertisement on professional medical advice."

"Then you'd best change your physician," I suggested.

"Not one physician alone, but four, all of them well-known practitioners of this state, had the proof of that ad. referred to them by me together with several other advertisements about which I was doubtful. They said that there was no reason why I should not accept the business."

He then gave me the names of the physicians, who are all men of good standing in their communities.

"I was reluctant," he continued, "to accept the Duffy copy, because the *Journal* doesn't take liquor advertising. But my advisers assured me that it was a good and sound medicinal whisky [!] and that it was sold as a medicine only, and never over the bar [!!], so I accepted it."

On the same kind of authority he had admitted to his columns "Nurito," a rheumatism "cure," the self-exploitation (somewhat edited down by Mr. Jones) of an itinerant quack named Turbin, and some minor "cures."

Duffy's Malt Whisky he at once ordered out of the paper when I told him that elsewhere it was advertised to cure consumption. The others will go as soon as their brief contracts are out.

"But how is a newspaper publisher to know," demanded Mr. Jones, "what is reputable and what is not in the medical line, if he cannot rely on the opinion of regular physicians?"

That query I pass on to the medical profession at large. How is a layman, doing his honest best, to keep straight in these matters when those who should be his best advisers are either too careless or too ignorant to help?

Samuel Hopkins Adams, Auburn, N. Y.

[Comment.—How, indeed! It is no excuse for members of the medical profession to plead either carelessness or ignorance in matters of this sort. It is our business to be informed on matters that so closely concern the public health. Do the physicians who thus stand sponsor for Duffy's Malt Whisky really believe that it is a "sure remedy" for "cholera, malaria and sunstroke?" Do they believe that this stuff actually "builds up the nerve tissues, tones up the heart, gives power to the brain, strength and elasticity to the muscles and richness to the blood?" In face of the fact that the modern, rational treatment of tuberculosis deprecates the use of alcohol, would these physicians assure their patients that Duffy's Malt Whisky is "wonderfully effective" in this disease? Yet some of the latest advertisements of the Duffy fraud make all these assertions! A high-grade whisky has but a limited place in therapeutics; Duffy's Malt Whisky has none. Mr. Adams' query is pertinent. How *are* publishers of magazines and how is the general public to get information about frauds like Duffy's Malt Whisky except through the medical profession?—Ed.]

Home for Widows and Orphans of Physicians

To the Editor:—It will be of interest to many members of the Association to learn that this home has been opened and is now in operation. It was founded Dec. 16, 1909, and the board of managers was organized on December 28. Jan. 11, 1912, we purchased a handsome residence at 1615 Bolton Street, 20 by 132 feet, in the best residence section of the city. We believe that it is the first institution of the sort ever founded, which seems strange, as we have found that there are many such persons needing succor and shelter. We think it ought to meet with favor with the profession at large because it admits without entrance or other fee the destitute widow and orphans of any reputable physician.

Such an undertaking involves great responsibility and expense, but we have persevered in our purpose through all our vicissitudes and now at last we begin to see the early fruition of our hopes.

The charity is dependent for maintenance on the subscriptions of our friends and we hope that many who read this will become annual subscribers. A sufficient number of such subscriptions would provide a permanent fund for maintenance and would lighten very much our burden. As soon as possible we shall begin a permanent endowment fund.

I urge that it is the duty of the profession to provide for its needy ones and we offer an opportunity for them to do this. The poorhouse stares many in the face; we are trying to save them from such humiliation and disgrace.

Mrs. Eugene F. Cordell, President,
257 West Hoffman Street, Baltimore.

Queries and Minor Notes

Anonymous Communications will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SHOULD A BULLET BE REMOVED?

To the Editor:—Please inform me why the physicians attending Colonel Roosevelt thought it advisable to leave the bullet undisturbed. In my opinion, since the bullet is a foreign body, which may travel and cause destructive changes, and since in this instance the bullet is so superficially located that it is easily accessible, I think that it would have been best to remove it.

M. A. Bernstein, M.D., Kenosha, Wis.

Answer.—An idea once fixed in the human mind is exceedingly difficult to eradicate and often descends from generation to generation long after the fallacy underlying the idea has been exposed. That all bullet-wounds should be probed and the bullet removed as soon as possible is one of these erroneous ideas. This idea seems to be fixed not only in the layman's mind, but unfortunately also in the minds of many physicians, notwithstanding the fact that ever since the Franco-Prussian war surgery has diligently taught that bullet-wounds should not be probed and that bullets after they are once lodged are harmless. Not only is probing useless; it may be actually dangerous. It is a common belief that a bullet imbedded in the soft parts is a dangerous thing and likely to cause trouble, but this is not the case. When a bullet is once lodged its power for evil is lost, except in a very small percentage of cases in which the bullet is lodged against the spinal cord, the brain or some equally important or delicate organ. The location of a bullet, therefore, is seldom of immediate importance, but it is very necessary to know what damage has been done by the bullet in transit.

A bullet-wound of the abdomen, which has not injured the intestine, a large blood-vessel or an important organ, is of little consequence, regardless of where the bullet may have lodged; but should the bullet have injured the intestine, so as to permit the escape of the intestinal contents into the peritoneal cavity, death is almost certain unless the patient be saved by a timely operation, even though the bullet may have escaped from the body.

A probe cannot give one the information desired but may cause much damage by introducing infection into the wound, by distributing it over a wider area or by reopening injured blood-vessels, etc., all of which, taken with the fact that it is almost always impossible to locate the bullet with the probe anyway, has long since placed a ban on the use of a probe in bullet-wounds. If it is desired to know the location of a bullet that has lodged in the body it can be readily determined by the use of the *x*-ray.

As already remarked, a bullet that has lodged is usually harmless and soon becomes encysted in almost any tissue of the body unless infection is carried in with the bullet, in which case suppuration will occur; an abscess from this cause should be treated just as an abscess from any other cause plus the removal of the foreign body. Fortunately, bullets do not, as a rule, carry in infection. Hence, it is unnecessary to pay any attention to them for the time being; in fact, it is better to let them alone until it is determined whether or not there is infection. Much tissue in the track of the bullet has been devitalized and complete rest should be given the part until this has been taken care of, and any meddling with it only increases the chances of infection. After the dangers of infection have passed, if the bullet is in an accessible location, it may be removed or not. It then becomes purely an operation of election.

Bullets do not travel in the soft parts and do not cause destructive changes, other than those due to infection which have been mentioned.

INCOMPATIBILITY OF MERCURY AND IODIDS

To the Editor:—My attention has just been called to this clipping: "Yvert cautions strongly against prescribing an ointment of yellow oxid of mercury or of calomel to be applied to the eyes of patients who are taking iodids in any form. He claims that the iodid acts on the mercury compound producing mercurous iodid, which in the presence of an excess of iodin decomposes into free mercury and the extremely caustic mercuric iodid." I do not know what it is from. I have never observed any deleterious influence from prescribing in this way, and am using mercuric iodid. Please tell me about it?

David W. Wells, M.D., Boston.

Answer.—The incompatibility of potassium iodid given internally with local applications of mercury has long been known. The explanation is that in the case of calomel, mercurous chlorid is decomposed and mercuric iodid enters into solution. In case of application to the eye, an irritant salt of mercury is thus dissolved in the tears. In case of the yellow mercuric oxid the action is similar, mercuric iodid being formed and dissolved in the tears.

We do not understand what our correspondent means by saying that he is using mercuric iodid. Of course, the internal use of mercuric iodid in ordinary doses need produce no irritation; in the case referred to in the clipping it is the local formation of an unknown but excessive quantity of mercuric iodid which causes the irritation.

THE AVERAGE PHYSICIAN'S INCOME

To the Editor:—Please answer these questions in The Journal: 1. I am told by one who ought to know (a lawyer) that if a physician is legally qualified to practice medicine and surgery in any one state he can practice in any other state in the union without further examinations by virtue of the interstate commerce law. Is this the case?

2. I understand from authentic statistics that the average physician's income is $700 per year.

3. I also notice that in the advertisements of practices for sale in The Journal the amount of practice stated runs from $2,500 to $12,000 per year. Now, can you explain why it happens that only those physicians who have practices of from three to eighteen times the average practice ($700) wish to sell their practices? In all lines of business with which I am familiar the man who has a good thing does not care to sell. Are physicians so different from ordinary mortals that they do not want good things, or are the statements of the amount of their practices simply exaggerated?

A Subscriber.

Answer.—1. No.

2. There are no authentic statistics relating to the average physician's income, because it is practically impossible to secure the information. The average practitioner's income is certainly much higher than $700 a year.

3. The advertisements in The Journal come from such a large number of physicians that the chances for exceptional practices to be advertised are good. Conditions and circumstances frequently make it essential for a physician to dispose of a good paying practice. It will be noticed that advertisers sometimes say "Going to travel for a year," or "Compelled to leave by ill health," or "Good reasons for selling." The reasons

for leaving usually can be verified by the prospective purchaser on inquiry. Unless the income from a practice is above the average, the advertiser will hardly want to mention it in the advertisement. It would be amusing to read an advertisement offering to sell a practice with an income of $50 a month. When a physician has to leave a practice that pays only a small income, he is not likely to try to sell it at all. No doubt some advertisers exaggerate; but it would be very unpleasant to have a purchaser feel that the practice had been sold under false representations, and trouble might follow for the seller.

It is the endeavor of The Journal to insert only reliable advertisements; many are refused outright, and every week the advertising department has to tone down some advertisement and to write to the advertisers refusing to print it in the form in which it is submitted. It is a manifest impossibility, however, to investigate every one of the enormous number of classified advertisements published in The Journal. A classified advertisement is primarily intended to give notice concerning an opportunity and to enable prospective seller and purchaser to come together. Certainly no sensible man would purchase a practice until he has given the proposition personal attention, or has had some disinterested friend do so.

ACETYLSALICYLIC ACID AND ASPIRIN

To the Editor:—I wish to inquire whether aspirin is identical with acid acetylsalicylic, von Heyden, supplied by A. C. Smith, Windsor, Ont. A. A. Ransom, M.D., Layton, N. J.

Answer.—Examinations reported in German pharmaceutical journals from time to time show that acetylsalicylic acid manufactured by reliable firms is of good quality and equal in every way to that sold under the proprietary name "aspirin." Acetylsalicylic acid is a definite chemical and when pure is the same, no matter who manufactures it. As the Fabrik von Heyden is an old, well-known firm, several of whose products are admitted to New and Nonofficial Remedies, the preparation referred to by our correspondent, if genuine, should be satisfactory. We say "if genuine," because the advertisement of A. C. Smith is not calculated to inspire confidence, since he appears to reside in Canada although he does business and claims to keep his supply in the United States.

There is another point, however, which must be considered in this connection. Because of the too great readiness with which patents are granted in the United States, and because of the construction of our patent law it has been possible for the Farbenfabriken of Elberfeld Co., which controls the trademark on the word "aspirin," to obtain in the United States a patent on acetylsalicylic acid, so as to secure a complete monopoly in this country.

Here are two interesting facts: 1. Acetylsalicylic acid was described in chemical literature many years before this patent was issued and therefore was presumably not patentable. 2. A patent on it has been allowed in no other country. Notwithstanding these facts, not only was a patent issued by our patent-office, but also it has been declared valid by at least two circuit courts. (It has never been passed on by a higher court, but it should be.) Here then we have a foreign firm given the sole right to sell this substance in the United States, under the name either of "aspirin" or of "acetylsalicylic acid," although it has not obtained and cannot obtain such an exclusive right in its own country.

While the injustice to American citizens is apparent, we advise for the present against having anything to do with any brand other than that of the Farbenfabriken of Elberfeld Co. It is our duty to respect the decrees of our courts, even though in this case the decision is unfortunate and works an injustice. It is much to be regretted that the law in this country sanctions and protects a monopoly on a product of acknowledged value in the treatment of human ailments, and which is common property in the country in which it is made; still this is no reason why the law should be violated.

LUNG-GERMINE

To the Editor:—I have a patient who insists on taking Lung-Germine, manufactured at Jackson, Mich. I thought I saw an analysis in The Journal, but have no back numbers. Perhaps you published a pamphlet on it. I enclose 6 cents in stamps. Any information you can give me will be appreciated.

C. C. Collins, M.D., Roachdale, Ind.

Answer.—Lung-Germine is a consumption cure fraud which was exposed in The Journal, Aug. 6, 1910, p. 517. It is essentially a mixture of sulphuric acid, wine fortified by alcohol, and water. The matter has been reprinted in pamphlet form (price 4 cents). It also appears as one of the articles in a larger pamphlet, "Consumption Cure Fakes" (price 6 cents), as well as in the book "Nostrums and Quackery" (price $1).

KENNEN SIE DIE WITZELSUCHT?

To the Editor:—I am puzzled over the word *Witzelsucht*, used by Drs. Atwood and Taylor in their article on "A Case of Traumatic Psychosis," etc., published in The Journal, Oct. 19, 1912, p. 1448. I fail to find this in my German dictionary. M. T. H.

Answer.—*Witzelsucht* is a tendency to tell stories with little wit or point, to make puns and laugh at them oneself. This term is well known to psychiatrists and is often used because we seem to have no brief equivalent in English to express this peculiar change in character liable to follow injury of the frontal lobe. Now that the term is explained our correspondent and others will doubtless recognize a tendency to *Witzelsucht* in various persons.

Medical Economics

This Department Embodies the Subjects of Post-graduate Work, Contract Practice, Legislation, Medical Defense, and Other Medicolegal and Economic Questions of Interest to Physicians

CONFERENCE OF STATE SECRETARIES

One of the most important meetings since the reorganization of the American Medical Association at St. Paul, in 1901, was the Conference of the Secretaries of State Societies, called by the Committee on Uniform Regulation of Membership at the Association headquarters, Chicago, October 23 and 24. This committee was appointed in 1908, in accordance with a recommendation made in the Secretary's report for that year. At the Atlantic City session, last June, the committee summarized its reports for the last four years, and recommended that a conference of state secretaries be authorized to consider the entire question of membership conditions in the county, state and national organizations. This recommendation was referred to the Board of Trustees and a conference between the committee and the state secretaries was authorized by the Board of Trustees, to be held at the same time as the October meeting of the board. Appropriations were made for paying the expenses of all state secretaries who attended the meeting. The conference was called to order at 10:30 a. m., Wednesday, October 23, at the Association building in Chicago, by Dr. Thomas McDavitt, secretary of the Minnesota State Medical Association and chairman of the Committee on Uniform Regulation of Membership.

THE ATTENDANCE

Thirty-eight states were represented, the roll showing the following in attendance:

Dr. W. W. Watkins, Phoenix, Ariz.
Dr. C. P. Meriwether, Little Rock, Ark.
Dr. Philip Mills Jones, San Francisco, Cal.
Dr. G. W. K. Forrest, Wilmington, Del.
Dr. W. C. Lyle, Augusta, Ga.
Dr. E. E. Maxey, Boise, Ida.
Dr. E. W. Weis, Ottawa, Ill.
Dr. Charles N. Combs, Terre Haute, Ind.
Dr. J. W. Osborn, Des Moines, Iowa.
Dr. L. R. DeBuys, New Orleans, La.
Dr. W. B. Moulton, Portland, Maine.
Dr. W. S. Gardner, Baltimore, Md.
Dr. H. D. Arnold, Boston, Mass.
Dr. Wilfrid Haughey, Battle Creek, Mich.
Dr. Thomas McDavitt, St. Paul, Minn.
Dr. E. F. Howard, Vicksburg, Miss.
Dr. E. J. Goodwin, St. Louis, Mo.
Dr. H. D. Kistler, Butte, Mont.
Dr. Joseph M. Aikin, Omaha, Neb.
Dr. Martin A. Robison, Reno, Nev.
Dr. D. E. Sullivan, Concord, N. H.
Dr. Thomas N. Gray, East Orange, N. J.
Dr. R. E. McBride, Las Cruces, N. Mex.
Dr. John Ferrell, Raleigh, N. C.
Dr. H. J. Rowe, Casselton, N Dak.
Dr. J. H. J. Upham, Columbus, Ohio.
Dr. Claude A. Thompson, Muskogee, Okla.
Dr. M. B. Marcellus, Portland, Ore.
Dr. C. L. Stevens, Athens, Pa.
Dr. J. Perkins, Providence, R. I.
Dr. Edgar A. Hines, Seneca, S. C.
Dr. Perry Bromberg, Nashville, Tenn.
Dr. H. Taylor, Fort Worth, Tex.
Dr. W. B. Ewing, Salt Lake City, Utah.
Dr. C. H. Beecher, Burlington, Vt.
Dr. Grant Calhoun, Seattle, Wash.
Dr. Charles S. Sheldon, Madison, Wis.
Dr. W. H. Roberts, Sheridan, Wyo.

No representatives were sent from Alabama, Colorado, Connecticut, District of Columbia, Florida, Kansas, Kentucky, New York, South Dakota, Virginia and West Virginia. No effort was made to secure the attendance of the secretaries of the Hawaiian Territorial Medical Society, Medical Association of the Isthmian Canal Zone or the Philippine Islands Medical Society, as these secretaries were too far removed from the place of meeting to make it possible for them to attend.

THE PROGRAM

The following program was carried out:

1. Call to order, Dr. Thomas McDavitt.
2. History and Development of Membership in the American Medical Association and Its Component Parts, Dr. F. R. Green.
3. Some of the Difficulties of the Present Situation, Dr. A. R. Craig.
4. Remedies Proposed by the Committee, Dr. Thomas McDavitt.

DISCUSSION

A general discussion of membership regulation was conducted under the following heads:

1. Fiscal Year. Should the fiscal year coincide with the calendar year? Should the fiscal year be the same in all county and state societies?
2. Should membership expire automatically at the end of the calendar year, and a new roster for each county and state society be made with the beginning of each year?
3. When should membership reports from county secretaries to state secretaries be due?
4. Should the dues of new members, joining after the first of the year, be prorated for the remainder of the year?
5. Should an admission fee be required in addition to the annual dues?
6. Should uniform application blanks, receipt blanks, and membership and transfer cards be adopted?
7. Should constituent state associations hold charters from the American Medical Association?
8. Should a uniform plan for the transfer of members be adopted?

In addition to the above Dr. George H. Simmons, editor and general manager, discussed the question of membership in the American Medical Association, and the changes in name proposed by the Board of Trustees.

REPORT OF THE COMMITTEE ON RECOMMENDATIONS

After two days' discussion it was evident that the secretaries present were agreed as to the advisability of a uniform fiscal year for all parts of the organization, to coincide with the calendar year, and that they favored the expiration of membership at the end of each year and a complete revision of the membership rolls at the beginning of each year. The committee on recommendations, consisting of Dr. E. J. Goodwin, Missouri State Medical Association; Dr. Wilfrid Haughey, Michigan State Medical Society; Dr. Perry Bromberg, Tennessee State Medical Association; Dr. William S. Gardner, Medical and Chirurgical Faculty of Maryland, and Dr. F. R. Green, secretary of the committee and of the Council on Health and Public Instruction, brought in a report recommending the adoption of provisions on these two points, and that all other points be deferred for further consideration. The report of the committee follows:

The Committee on Recommendations herewith submits the following report:

1. We recommend that this conference endorse the plan of having the fiscal year coincide with the calendar year in all parts of the organization. We further recommend that secretaries of all state associations which have not already adopted this provision bring this matter to the attention of their associations and recommend its adoption.
2. We recommend that constituent state associations adopt provisions making dues in component societies payable on January 1 of each year, and requiring county secretaries to report to state secretaries all members in good standing, together with their per capita assessment for the current year not later than March 31. State societies desiring to do so may provide a shorter period.
3. The recommendation regarding the third question under discussion is covered by our recommendation of the second.
4. Regarding the prorating of dues, we recommend that this be made optional with each component society.
5. Regarding an admission fee for membership we recommend that this be made optional with component societies.
6. While the committee recognizes, as a general principle, that a uniform system of blanks for county and state societies is desirable, as soon as practicable, we recommend further consideration of this question at a later conference.
7. We recommend that the House of Delegates of the American Medical Association be asked to consider the advisability of issuing charters to constituent state associations.
8. We recognize the desirability and advantage of a uniform method of transfer, but this system cannot be established until there has been developed a greater uniformity in other details of organization. We therefore recommend that this question be made the subject of discussion at a future conference.
9. The committee recognizes the value of this conference to the state association secretaries, and to the purpose of organization; it therefore recommends that future conferences of this character be held.

The report of the committee was unanimously adopted by a rising vote. It was also moved and carried that the secretary be requested to send copies of the report to each state secretary and to each state journal, and that the proceedings of the conference, as published in the *Bulletin*, be furnished to each state secretary desiring them, in sufficient quantities to send one to each member of the state association. After a vote of thanks to the Board of Trustees for making this conference possible by the appropriation, the conference adjourned.

Society Proceedings

COMING MEETINGS

American Physiological Society, Cleveland, Dec. 26-28.
Clinical Cong. of Surgeons of North America, New York, Nov. 11-16.
Southern Medical Association, Jacksonville, Fla., Nov. 12-14.
Southern Surg. and Gynec. Assn., Old Point Comfort, Va., Dec. 17-19.
Western Surgical and Gynec. Assn., Cincinnati, Dec. 20-21.

INDIANA STATE MEDICAL ASSOCIATION

Annual Meeting, held at Indianapolis, Oct. 10-11, 1912

The President, Dr. W. F. Howat, Hammond, in the Chair

Officers Elected

A list of the newly elected officers was published in The Journal, October 26, p. 1551.

Diagnosis of Indigestion

Dr. Jewett V. Reed, Indianapolis: Chronic indigestion is the result of a serious underlying condition, which should be determined, for otherwise justice cannot be done the patient. If the cause cannot be definitely ascertained as being one amenable to medical treatment, the best interests of the patient lie in a timely exploratory incision.

DISCUSSION

Dr. F. B. Wynn, Indianapolis: The dominant note of the paper is that there should be in cases having indigestion, gastric or intestinal, a thoroughness of diagnostic investigation. I do not like the classification of the essayist. It makes a medical group and a surgical group, and that tends to the very thing we do not want to do—getting the surgical men on one side and the medical on the other. That is not right; we want to get closer together. The necessity is for closer union between the medical men and the surgeons.

Dr. A. B. Graham, Indianapolis: Indigestion is a symptom, not a disease, and it is necessary for us to determine whether it is a primary or secondary condition, whether it is organic or anatomic, and whether it is purely functional or neurotic in character. A paper of this kind should stimulate us to better work as diagnosticians, and with a better conception of the etiology we will be able to apply an accurate and rational treatment to the disease.

Dr. W. H. Wathen, Louisville: This question is of equal interest to physician and surgeon. With a broader conception of what dyspepsia is and its correct treatment, there can be no difference between the physician and the surgeon. There is no longer any reason why the physician should base his conclusions in diagnosis on theory, as he sometimes did in the past; he can base them on the results of clinical observations.

Dr. George W. McCaskey, Ft. Wayne: The most important thing for us to do when we are confronted by a case of indigestion is to determine, not whether the case is medical or surgical, but whether it is intragastric or extragastric. We do not spend half enough time in getting the history of each individual case. If you will take a clue and follow it back you will frequently make a correct provisional diagnosis before you have finished the anamnesis.

Dr. J. R. Eastman, Indianapolis: I want to call attention to the importance of distinguishing between these conditions in the abdomen which are surgical and those which are medical, which give rise practically always to some symptom-complex. I do not think Dr. Reed intended to convey the impression that he would operate on an abdomen the same as he would split open a watermelon; that is not the position of surgeons. But I do believe that many patients drift along who would be much better off if submitted to a properly made exploratory operation, which exploratory operation need not add to the gravity of the condition.

Treatment of Pulmonary Tuberculosis with Artificial Pneumothorax

Dr. W. A. Gekler, Rockville: It is very difficult with any of the means we have at our command to bring about healing of a cavity that has attained any considerable size. By compression of the lung we can often bring the walls of the cavity in apposition, and thus bring about complete and permanent healing. Just as we often put tuberculous joints in plaster casts to prevent movement and permit a scar to be formed, so do we put the lung in a cast of gas with the same end in view. The question at once arises whether the patients stay cured, or whether the disease will continue to make progress when the lung is allowed to expand. I can only relate what I myself have seen, and say that in those cases in which a satisfactory collapse was obtained the permanent results, even in far advanced cases, are often as good as we obtain with incipient cases treated by non-surgical methods—in other words, clinical cure. As a rule, we find adhesions sufficient to prevent satisfactory collapse of the lungs in about 25 per cent. of the cases in which we attempt to operate. We have, then, another weapon to use in our fight against tuberculosis, and while its use must of necessity be limited, it nevertheless can be employed in saving lives that are now hopelessly lost.

DISCUSSION

Dr. Charles B. Emerson, Indianapolis: I doubt if anything in medicine promises any more for a large number of cases than this treatment for advanced cases of pulmonary tuberculosis. We expect great things for this operation. It promises splendid things for the patient.

Dr. Theodore Potter, Indianapolis: The thing you will meet in attempting to carry out this treatment is that there are so many cases in which there are adhesions that interfere with a thoroughgoing compression of the lung. While this treatment is old here as well as elsewhere, yet the things that mark the present scientific attempt to carry it out are: an attempt to regulate and record the pressure, to record the conditions in the chest by the use of the x-ray, and the intervention of surgery in the attempt to lessen the obstructions and to increase the number of cases in which they can secure a thoroughgoing compression of the lung.

Tuberculosis in Children

Dr. T. Victor Keene, Indianapolis: Excepting only the problem of nutrition, the problem of tuberculosis is the most important one of childhood. The old idea that tuberculosis in the child is largely a matter of local disease of the joints or glands, is thoroughly discredited. Tuberculosis in children, as in the adult, is more often of the pulmonary type. The most confusing symptom in a child is that it rarely involves either apex. The common location for the lesion is at about the nipples or slightly below and to the outside of them. The evidence all seems to indicate rather forcibly that the condition in the majority of these cases is really primarily a pulmonary one, with secondary localization in some gland or joint.

Tuberculin Treatment

Dr. Theodore Potter, Indianapolis: Tuberculin is not of itself a curative or protective agent against tuberculosis. It is an agent which tends to stimulate the body to produce its own protection. It is an antibody generator, which makes demand on the body to react in the formation of antibodies. Our chief reliance in the treatment of tuberculosis is still the hygienic-dietetic plan, together with medicinal and surgical measures as rationally indicated. To these we may now add the tuberculin treatment, with a reasonable assurance of thereby increasing the prospect of recovery and the promise of enduring benefit.

Home Treatment of Tuberculosis

Dr. W. T. S. Dodds, Indianapolis: Our duty as physicians in treating tuberculosis is, first, to preach a new religion—the salvation of the child from infectious and preventable diseases; second, to demand a suitable place for advanced consumptives to be cared for until they die; third, to demand better medical supervision in the schools; fourth, to teach that the state is interested in and should be responsible for the protection of children living in tuberculous homes; fifth, to insist that children be taught the value of the laws governing health before they become victims of disease.

DISCUSSION

Dr. Thomas Beasley, Danville: I wish to emphasize the fact that a great many of the cases of tuberculosis in children follow the infectious diseases of childhood. We should have a state law requiring inspection of school children, and competent physicians as inspectors.

Dr. W. S. Tomlin, Indianapolis: The site on which you can put your finger in tuberculous infection is by no means the point of entrance of that infection, and the man who in examining these cases follows routine methods will fall into greater and greater error.

Dr. A. C. Kimberlin, Indianapolis: The psychologic management of these cases is important. The condition of the family and their financial resources is just as essential in the management of a case as to make a correct diagnosis. You cannot forget that mother with her children, or that husband with his limited income. You must offer something encouraging. If you take away their hope and confidence, I do not care what your treatment is, it will be ineffectual. We do not get close enough to these patients with psychologic treatment.

(To be continued)

AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY

Third Annual Meeting Held in Cleveland, Oct. 2-5, 1912.

The President, Dr. Cressy L. Wilbur, Washington, D. C., in the Chair

The officers elected were named in The Journal, October 12, page 1387.

Resolutions

The Association adopted the following resolutions:

Resolved, That the Association for Study and Prevention of Infant Mortality recommend, in addition to birth and mortality statistics, the collection and compilation of marriage, divorce, industrial and all such social statistics as may have a relation to the problem of infant mortality.

Whereas, It has been shown that valuable results have been obtained from the requirement for proper inspection of dairy farms and dairy depots, before granting a permit for the production and distribution of milk, and that the score-card has been of great assistance in recording the observations made at such inspections, therefore be it

Resolved, That the efforts that are being made to secure uniform standards for inspection and uniform methods for recording the results of inspection be approved.

Whereas, Constructive housing legislation is made difficult by the absence of comprehensive information relating to infant morbidity and mortality to bad housing, therefore be it

Resolved, That the association emphasize the necessity of such investigation as will, if possible, reduce to a scientific basis the cost of bad housing in terms of infant morbidity and mortality.

Some Measures Urgently Needed for Prevention of Infant Mortality in the United States

Dr. Cressy L. Wilbur, Washington, D. C.: Measures and activities on which special emphasis should be laid are the complete registration of vital statistics; greater insistence on breast-feeding; better training of physicians for the practice of obstetrics; the enforcement of standard rules for the control of milk, with full publicity with respect to good and bad milk-supplies; the pasteurization of all doubtful milk; the registration, instruction and control of midwives; advisory care of the expectant mother; the work of the visiting nurses and social workers; the exercise of special guardianship by the state over children born out of wedlock; continuation schools of home-making; sex hygiene, and race culture or practical eugenics.

The Legal Importance of Birth Registration

Mr. Elmer W. Ehler, Harrisburg, Pa.: The frequent necessity of legal proof of birth is the best evidence of importance. The legal benefits of birth registration are dual in character: first, in perpetuating evidence safeguarding the civil rights of individuals, second, in assembling information which every state must possess in order to legislate wisely for the needs of its future citizens. The best evidence concerning a birth, as to time, place and parentage, is a written public record made at the time of birth or soon afterward by the person in attendance, or by the parents themselves. The personal interests of the child, helpless in itself, demand such a record and are ample justification for compulsory birth registration. If a state or a nation desires to anticipate the needs of succeeding generations and to legislate with wisdom as to their requirements, it must know how great its future population is to be and from what sources it is to be recruited. The knowledge necessary to direct the lines of progress and to weld the state to society can be gained only through effective registration laws. Such laws are constitutional and the methods of their enforcement well defined. No government can fulfil its obligation of social service to its people which ignores the records of their existence. In the absence of birth registration there is better legal evidence of the citizenship of naturalized foreign-born than of our own native people.

Utilization of Birth Records in the Administration of Bureaus of Child Labor, Infant Hygiene and Similar Agencies

Dr. W. H. Guilfoy, New York: Attempts are made in thousands of cases to obtain employment certificates for children under 14 years of age, but the requirement of authentic proofs of the dates of birth prevents these attempted violations of the law, and many children of the age of 11, 12 or 13 years are rightfully returned to the schoolroom, notwithstanding the tearful protests of parents. The number of searches made by the Department of Health without cost to the applicant for the purpose of obtaining employment amounted to 22,859 in the year 1911 in the Borough of Manhattan; 50.000 searches were made during 1911 in order to enable children to obtain admission to school. One result of the stringent enforcement of the regulation demanding the birth certificate to be produced as evidence of the fact that a child is of school age has been a more ready compliance with the law requiring the registration of births within ten days of their occurrence. Legal procedures have been resorted to against persons who continued to ignore the regulation and within the past two years over 300 physicians have been fined from ten to one hundred dollars, mostly for technical violations of the law.

Mental Deficiency

Dr. H. H. Goddard, Vineland, N. J.: A surprisingly large percentage of people are of such low mentality that they are incapable of living a normal life. They do not have enough judgment or intelligence to do those things that make for happiness and prosperity. Moreover, it is in this group of people that the birth-rate is highest. Furthermore, because these parents are ignorant of how to take care of their children and because the children have inherited the parents' weaknesses, a large percentage die. They are not fit by endowment to survive and therefore Nature takes them away. Man, with his superior intelligence and his highly developed humanity, steps in and says that they must live. We will see to it that they do live. Another fact is that these people of low intelligence transmit that low intelligence to their children and consequently a large percentage of these children, if they live and grow up, will be mentally deficient, will always be a burden on society and more or less a burden to themselves. Therefore when we keep these people alive, we are simply laying up trouble for ourselves and for these same children. If our humanity will not allow us to let these children die as infants, our humanity certainly does not prevent us from insisting that they shall be the last of their race and shall never become parents of more children like themselves. If we shall ever come to the point where sterilization is looked on with favor and resorted to to help solve this problem to the fullest extent possible, it may be that such persons can be sterilized by the operation of vasectomy and then allowed to marry and live their lives in happiness with the certainty that there will be no issue to perpetuate the evil.

(To be continued)

INTERNATIONAL LEAGUE FOR THE STUDY AND PREVENTION OF EPILEPSY

Third Meeting held in Zurich, Switzerland, Sept. 6 and 7, 1912

Numerous neurologists, psychiatrists, and surgeons were present from the United States, Russia, Switzerland, Germany, France, Hungary, Holland, Denmark and Bulgaria. The principal subjects for discussion were "Salt Free Diet in the Treatment of Epilepsy" and "Alcoholic Epilepsy." Dr. A. Ulrich, of Zurich, showed, by tables and by the presentation of patients, the splendid results which were achieved by him by the use of tablets containing sodium bromid 1.0 gm., sodium chlorid 0.1 gm., and aromatic vegetable extracts to render food palatable with a minimum of sodium chlorid.

Professor Donath, of Budapest, gave an interesting historical survey of the development of the dietetic treatment and showed that from ancient Grecian medicine up to the nineteenth century the greatest emphasis was laid on a salt- and protein-poor diet and especially on the milk diet introduced some 200 years ago by Dr. Cheyne in England. The dietetic treatment of the disease was pushed into the background by the introduction of potassium bromid in 1851. Richet and Toulouse, as well as Balint, later happily combined salt-free diet with sodium bromid.

"Alcoholic Epilepsy" was discussed by Professor Tamburini of Rome, Dr. Anfimow of St. Petersburg, Dr. Bratz of Wuhlgarten, M. Forel of Yvorne and Professor Claude of Paris.

Professor Kümmel of Hamburg and Professor Sauerbruch of Zurich discussed the surgical treatment of epilepsy.

Dr. Veit of Wuhlgarten spoke on epileptic "Dämmerzustände;" Dr. Weeks of New Jersey presented number of family trees, and Dr. Muskens of Amsterdam reported on reflex phenomena in both vertebrates and invertebrates, which stand in relation to the epileptic convulsion.

Continuing the discussion of alcoholic epilepsy and of the surgical treatment of the disease, Donath expressed his opinion that in epilepsy an operation may be recommended only when a circumscribed brain lesion, however small, may be demonstrated; he stated further that jacksonian epilepsy may be accompanied from the beginning by complete loss of consciousness, and that only close observation of the convulsive attack with reference to localized motor phenomena will permit its recognition.

Dr. Wyss of Zurich presented a paper on the pharmacologic basis of bromid therapy. Toulouse and Pieron presented their investigations on the causes which lead to frequent seizures. Lastly, Claude spoke on a new line of investigation which concerns itself with the internal secretions.

Dr. D. F. Weeks of Skillman, N. J., was elected president. Members in future will receive the periodical *Epilepsia* free.

The American National Association for the Study of Epilepsy and the Care and Treatment of Epileptics became in its entirety a national committee for the United States and America, while retaining its independent existence. The next meeting will be held in America.

PENNSYLVANIA STATE MEDICAL SOCIETY

Sixty-Second Annual Meeting, held in Scranton, Sept. 23-26, 1912

(Continued from page 1566)

Tuberculin in Tuberculous Adenitis of the Neck

Dr. Americus R. Allen, Carlisle: In cases in which the infection started from the tonsils, adenoids or teeth, improvement from tuberculin treatment has been more marked than in cases in which it was impossible to find the point of infection. In all cases in which the neck glands showed signs of softening or caseous degeneration they were allowed to proceed to the point where they opened spontaneously. When this occurred, the opening was enlarged and the cavity slightly curetted to remove any jelly-like material present. During the past eighteen months I have had forty of these patients under treatment with tuberculin. The rise in temperature varied from one to five degrees and lasted from twenty-four to thirty-six hours, rising less after each successive injection, until finally no rise occurred. The patients, except one in whom the weight remained stationary, showed an increase in weight. When one gland in a chain breaks down others are apt to do so and there is also danger of secondary infection. In the treatment of these cases, before tuberculin injections were begun, various alteratives, together with milk and egg diet, were used and this treatment was continued along with the tuberculin when its use was instituted; but, until the tuberculin was used, no increase in weight or marked improvement was noted. As a result of tuberculin a number of sinuses of the neck healed promptly. The tuberculin used was Koch's old tuberculin, and the initial dose was 2 minims of the serial dilution No. I, increasing 2 minims each injection until serial dilution No. V was reached, at which strength the injections were continued. Injections were given weekly. Tuberculin has a decided curative effect in all cases. Operative removal of these glands is to be deprecated, as the tuberculin treatment is efficacious and much more beneficial.

Dr. George M. Dorrance, Philadelphia: In twenty-four of the seventy-two cases which I have studied I found enlarged tonsils which showed tubercle bacilli when they were removed. All the other patients except three had decayed teeth and in two of these tubercle bacilli were found. I gave up tuberculin treatment a year or so ago because I thought I set up an acute tuberculosis in three patients. They had tuberculosis elsewhere and two of them became rapidly worse, apparently going on to a miliary type. As this had happened with others, I gave up and used roentgenotherapy in the remaining cases of the series all of which cleared up within from eight to twelve weeks, though some of them required a second treatment a few months later. I agree with Dr. Allen that, aside from removing tonsils, surgical work should be eliminated.

Vaccine Therapy in Tuberculous Bone and Joint Disease

Dr. David Silver, Pittsburgh: It is difficult to form a satisfactory estimate of the value of tuberculin in the treatment of tuberculous bone and joint disease. It does not exert any action on the bacilli, but owes its efficacy to the reaction it sets up in the healthy tissues, thus increasing the body resistance in a manner similar to that in which hygienic measures act. Therefore, striking results can hardly be expected. It is difficult to gauge the dose properly; too small a dose is of no value, while one too large may paralyze the immunizing mechanism and possibly light up a latent focus. My own experience is limited to fifty cases, in which the inoculations were given by the clinical method. No definite influence on the mobility of the joints or striking decrease in the duration of the treatment has been observed; but the patients have improved generally and there has been a more rapid increase in weight. The treatment has been stopped in some cases because no improvement was noted, but in none has harm been done. There is sufficient evidence that tuberculin is a remedy of some value in the treatment of tuberculous disease of the bones and joints; just how much value has not been determined and probably will not be until a simple and accurate method of estimating dosage has been obtained. It is decidedly not a remedy for the busy practitioner.

DISCUSSION

Dr. G. G. Davis, Philadelphia: I believe the conclusions of Dr. Silver are just. I have never been enthusiastic over the use of tuberculin, but I am convinced that it is of service in a few cases. In the treatment of tuberculous bone and joint diseases I am of the firm belief that results are absolutely proportionate to the personal skill and attention which these patient's receive. I am convinced that the bulk of the tuberculous cases will progress favorably under the means which Dr. Silver has stated, the ordinary constitutional means, and rest and protection. If that is so, then, if we submit a patient to the vaccine treatment, the tendency is to neglect the other line of treatment.

Dr. Myer Solis-Cohen, Philadelphia: What method did Dr. Silver employ for regulating the dose of tuberculin? I want to mention a method which I have employed in pulmonary tuberculosis as a suggestion for its use in orthopedic tuberculosis. I have found that when the tuberculous patient improves, the proportion of lymphocytes in the blood is increased, and when the patient becomes worse, the proportion is diminished. In giving tuberculin I take the differential leukocytic count, and if the dosage given causes a rise in the percentage of lymphocytes, I consider it the proper dose, but if the proportion of lymphocytes falls, I consider that an excessive dose. The clinical results have borne out this blood-picture.

Dr. David Silver, Pittsburgh: In regard to the method for regulating the dose, we tried to follow one similar to that described by White and Van Norman in which they go by the amount of skin reaction. The method which Dr. Cohen has just given seems to me an excellent one, and I shall certainly try it out and see how it compares with the other.

Acute Osteomyelitis

Dr. John H. Gibbon, Philadelphia: Exposure to cold and slight traumatism may be determining causes of acute osteomyelitis, but the real factor is the lodgment of a pus-producing organism in the marrow of the bone itself. It is here that the infection starts in practically all cases, a fact of great importance in the treatment. The staphylococcus and the streptococcus are the organisms most generally found. When infection occurs, the pus follows the line of least resistance and moves up and down the canal, then out through the epiphyseal line or through one of the foramina. The periosteum finally is destroyed and the pus makes its way into the surrounding tissues. A fatal error in diagnosis is to pronounce the case one of rheumatism. The frequency of this mistake is lamentable. The early diagnosis rests on high temperature, high leukocyte count and possibly delirium, together with localized pain, rigidity, localized tenderness, redness and edema. In the very acute cases in young children the treatment calls for the wisest surgical judgment. If there is localized tenderness and especially edema over the bones, immediate drainage of the medulla should be established without the use of the curet or chisel in the medullary canal. The periosteal blood-supply is cut off in many of these cases, and if the medulla is curetted, the blood-supply from this source is also eliminated and extensive necrosis results. Portions of bone which become necrotic should be removed at a second operation two or three weeks after drainage. The ultimate results are much better if the second operation is not postponed too long.

DISCUSSION

Dr. William L. Estes, South Bethlehem: These acute infections of the bone-marrow have but recently received the attention they deserved. Dr. Gibbon has emphasized a point which cannot be repeated too often, namely, that the medulla is affected in these cases and that no process of cure and no surgical measure has been carried to its legitimate extent until the medullary cavity has been opened and drained. It has been shown by Murphy that if the earlier cases can be recognized, it is simply necessary to remove a tiny collection of pus just as a beginning phlegmon or tenosynovitis is cured by puncturing the exact point and emptying out the pus.

Dr. G. G. Davis, Philadelphia: I believe that it is extremely difficult to recognize these cases and to differentiate them from rheumatism. There is one means of distinguishing them and that is by operating on the patients. No harm will be done by an early operation. It has been shown that the disease begins in the end of the diaphysis, and if one is in doubt as to whether the condition is rheumatic or osteomyelitic, an incision can be made at this point and the bone drilled with a one-eighth-inch drill, making two or three small holes.

The Treatment of Inguinal Hernia in Children

Dr. E. W. Meredith, Pittsburgh: A more or less open funicular process is the essential factor in the etiology of hernia in the young. Closing of the funicular process by ligature imitates the normal obliteration at birth and should be done early in life, with the least possible trauma to surrounding structures. The truss does not obliterate the funicular process and actual cure seldom if ever follows. Its use cannot be favorably recommended when the operative results both immediate and remote are so satisfactory.

DISCUSSION

Dr. Edward B. Hodge, Jr., Philadelphia: I agree with Dr. Meredith as to the success of the simple operation in children so long as the sac is tied high up. My experience is, however, that the separation of the delicate sac adherent to the cord is not always so easy as he implied. I believe that the truss will often cure in children of intelligent parents when carefully watched by the surgeon. In the usual run of hospital patients I advise and practice early operation.

Dr. John H. Gibbon, Philadelphia: I think that the reason we do not obtain better results with the truss is that the truss treatment is entirely neglected by the physician. The patient is told to procure a truss but the physician does not follow up a case to see how well it acts.

(To be continued)

PHILADELPHIA COUNTY MEDICAL SOCIETY

Meeting held Sept. 18, 1912

The President, Dr. L. Jay Hammond, in the Chair

Treatment of Scoliosis

Dr. J. Torrance Rugh: The cure of fixed scoliosis has been accomplished by Dr. E. G. Abbott of Portland, Maine, by pressure applied to the chest in a manner opposite to that previously employed by orthopedists. Abbott was able to produce a typical scoliosis in a subject by flexing the body, making pressure laterally and anteriorly and fixing in a cast, and the same principle is involved in the correction of such a deformity. A patient of mine 12 years of age suffered from a fixed right dorsal scoliosis. Two weeks ago she was placed in the Abbott frame after the proper adjustment of pads and a plaster jacket was applied. Every third or fourth day a pad of felt has been inserted under the cast anteriorly to make continuous pressure, and by her inspiratory efforts the concave side of the ribs has been converted into a convexity, and in another week she will have been entirely overcorrected. This jacket will then be removed, an impression jacket will be applied and removed and another applied like the present one. A celluloid jacket will then be made which will maintain her in the overcorrected position until by the use of exercises she has regained the power to maintain herself in the erect posture which will require about six months. The principal features of the treatment are application of the jacket in the overcorrected position, maintenance of pressure, forced inspiratory efforts and ample room in the jacket for overcorrection.

Vernal Conjunctivitis

Dr. Aaron Brav: Spring catarrh or vernal conjunctivitis bears a close resemblance to hay fever. Like hay fever it appears at a definite period in the summer season and recurs annually. Etiologically, it is probably caused by some germs carried by the summer plants. Three distinct types are recognized: the palpebral, bulbar and corneoscleral. All, however, have a common symptom, intense itching. The palpebral type shows a proliferative enlargement of the conjunctival tissues. There are large flat follicles on the upper conjunctiva. Some are very hard, cartilaginous in consistency and appear like polypoids with small pedicles and can easily be removed with curved scissors. The bulbar type shows itself in a brownish gray discoloration of the bulbar conjunctiva with one or two follicles at the inner upper conjunctival fold. The corneoscleral type appears as a circumcorneal hyperplasia of the corneoscleral junction overlapping the corneal tissue. The chief symptoms are the itching, which is very annoying, and the discharge. The character of this discharge differs from all other conjunctival inflammations. It is not mucopurulent but of a soft gelatinous nature. Patients usually demand relief from the severe itching and I find that a 5 per cent. solution of boroglycerid instilled every three hours is the best way to give the desired relief. Patients are usually free from annoyance during the winter season but the trouble recurs in the coming spring. The condition is often diagnosed as trachoma. It is a self-limited disease having no sequelæ.

Arthritis Deformans

Dr. J. Torrance Rugh: Cases of arthritis deformans are very diverse in their etiology, but usually there is a septic focus in some part of the body which is responsible for the toxins which cause the joint irritations. In the involvement of a single joint, however, especially of the lower extremity, we must not lose sight of the *traumatism of function* as a causative factor. In a case recently seen both knees were involved and the skiagram showed a typical lipping of the articular edges of the joints as seen in arthritis deformans. There was present, however, marked weakness of both feet, with slight malposition and a history of overuse of the feet, for a period of years. Correction of the foot condition entirely relieved the trouble in the knees. This indicates that while the importance of the local focus of infection is not to be minimized, other factors such as traumatism of function must not be neglected.

DISCUSSION

Dr. A. B. Hirsh: As Dr. Rugh has stated, we should never lose sight of the importance of searching for a septic focus in dealing with arthritis deformans. The majority of these cases have their origin in intestinal intoxication, usually in intestinal torpor. In the limited number of cases under treatment in my hands colonic flushing with the Wales tunneled rectal bougie daily for as long as ten days or two weeks has been employed. The patient is then brought to the office and the radiant light used, driving the rays into the tissues. This increases the local blood-supply and intestinal nutrition, bringing about more nearly normal bowel action. Beside minimal use of proteid foods, such cases should also have the application of the static wave current, a large metal plate being used over the upper part of the abdomen, and a moderate spark gap employed. The deformed joints should receive static spark treatment for variable periods of time. Marked improvement is thus obtained.

Dr. Herman B. Allyn: About two years ago I saw a girl 12 years old who had a moderately severe attack of arthritis deformans for a number of months and for the most part of the time was obliged to lie on a cot or in a steamer chair, suffering great pain in the affected joints. After nearly a year of treatment she recovered sufficiently to return to school. Shortly afterward she had an attack of tonsillitis of the pseudomembranous type, due to a pure culture of the *Staphylococcus pyogenes aureus.* Within a short time of the convalescence from the tonsillitis all the joint symptoms returned. The child was given bacterin from the *Staphylococcus pyogenes aureus* and recovered completely and very promptly. While the disease is of obscure etiology, there is a strong tendency to regard it as infectious in origin. I have also used the *Staphylococcus pyogenes aureus* bacterin in two or three other cases with benefit but not with the marked results which characterized the first case.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, November 12. Sec., Dr. F. T. Murphy, Brinkley; Homeopathic, Little Rock, November 12. Sec., Dr. P. C. Williams, Texarkana; Eclectic, Marion Hotel, Little Rock, November 12. Sec., Dr. C. E. Laws, Fort Smith.

CONNECTICUT: Regular, City Hall, New Haven, November 12. Sec., Dr. Charles A. Tuttle, 196 York Street; Homeopathic, Grace Hospital, New Haven, November 12. Sec., Dr. Edwin C. M. Hall, 82 Grand Avenue; Eclectic, New Haven, November 12. Sec., Dr. T. S. Hodge, 19 Main Street, Torrington.

FLORIDA: Regular, Jacksonville, November 11-12. Sec., Dr. J. D. Fernandez.

LOUISIANA: Regular, Tulane University, New Orleans, November 4-6. Sec., Dr. A. B. Brown, 108 Baronne Street; Homeopathic, New Orleans, November 4. Sec., Dr. Edward Harper, 702 Macheca Bldg.

MAINE: City Council Rooms, Portland, November 12-13. Sec., Dr. Frank W. Searle, 776 Congress Street.

MASSACHUSETTS: State House, Boston, November 12-14. Sec., Dr. Edwin B. Harvey, Room 159, State House.

NEBRASKA: State House, Lincoln, November 13-14. Sec., Dr. C. P. Fall, Beatrice.

NEVADA: Carson City, November 4. Sec., Dr. S. L. Lee.

TEXAS: Dallas, November 13-14. Sec., Dr. J. D. Mitchell, Wheat Bldg., Fort Worth.

WEST VIRGINIA: Wheeling, November 11-13. Sec., Dr. H. S. Barbee, Point Pleasant.

Tennessee May Report

Dr. C. A. Abernathy, secretary of the Tennessee State Board of Medical Examiners, reports the written and oral examinations held at Memphis, Nashville and Knoxville, May 1-2, 1912. The number of subjects examined in was 8; total number of questions asked, 64; percentage required to pass, 75. The total number of candidates examined was 390, of whom 313 passed, including 142 non-graduates, and 77 failed, including 52 non-graduates and one osteopath. Of the 77 who failed, 44 were issued temporary licenses, including 33 non-graduates. Ten candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Birmingham Medical College	(1911)	76, 82
College of Physicians and Surgeons, Little Rock, Ark.	(1911)	81
University of Southern California	(1910)	94
Hospital College of Medicine, Atlanta, Ga.	(1911)	79
Northwestern University Medical School	(1910)	83
Hahnemann Medical College and Hospital, Chicago	(1909)	77
Bennett Medical College	(1911)	86
Rush Medical College	(1910)	94
Central College of Phys. and Surg., Indianapolis	(1901)	78
Curtis Physio-Medical College, Indianapolis	(1895)	80
University of Louisville	(1910) 89; (1911) 83, 85; (1912)	75, 77, 80, 81, 83, 84, 86, 86, 87, 89.
Louisville Medical College	(1903)	83
Louisville National Medical College	(1911)	75
Kentucky School of Medicine	(1902)	78
Mississippi Medical College	(1912)	75, 78, 82, 83
Ensworth Medical College, St. Joseph	(1908)	84
Barnes Medical College	(1905) 76.6; (1910)	80
American Medical College	(1912) 84.6,	76
New York University Medical College	(1883)	75
Lincoln Medical College	(1911)	81
Western Reserve University	(1909) 84,	87
Eclectic Medical College, Cincinnati	(1912) 77,	88
University of Pennsylvania	(1910)	88
University of Tennessee	(1904) 76; (1911) 86, 97; (1912)	75, 75, 78, 81, 84, 84, 84, 84, 84, 86, 87, 87, 87, 87, 88, 88, 89, 93.
Memphis Hospital Medical College	(1906) 87; (1909) 75; (1911) 77, 85; (1912)	76, 77.6, 79, 79, 79, 81, 81, 82, 82, 83, 83, 83, 83, 84, 84, 85, 85, 85.1, 87, 87, 87, 87, 87, 88, 89, 89, 89, 89, 89, 90, 91, 91, 93.
Lincoln Memorial University	(1912)	75, 81, 84, 84, 85, 85, 86.1, 87, 88, 88, 91.
Meharry Medical College	(1908) 75; (1910) 77, 78, 79; (1911) 75, 76, 78; (1912)	77, 78, 78, 79, 79, 81, 81, 81, 83, 83, 83, 83, 84, 85, 85, 86, 86, 87, 87, 87, 88, 88, 89, 90, 91.
Vanderbilt University	(1911) 79, 84; (1912)	81, 82, 85, 86, 86, 87, 87, 89, 89, 89, 90, 91, 96.
Chattanooga Medical College	(1905) 75; (1910)	75
University of West Tennessee	(1911) 82; (1912)	80, 84, 87.
College of Physicians and Surgeons, Memphis	(1911) 83,	87
Milwaukee Medical College	(1912)	77, 86, 86, 87.

Non-graduates: The grade of 75 was reached by three candidates; the grade of 76 by two; 77 by one; 78 and 79 by three each; 80 by fifteen; 81 by seven; 82 by five; 83 by ten; 84 by six; 85 by sixteen; 86 by nineteen; 87 by seventeen; 88 by eleven; 88.5 by one; 89 by six; 90 by five; 91 by four; 92 by three; 93 by four and the grade of 95 by one.

FAILED

College	Year Grad.	Per Cent.
University of Alabama	(1891)	74*
Hospital Medical College, Atlanta, Ga.	(1911)	55
Louisville National Medical College	(1911) 24; (1912)	60
University of Louisville	(1912)	71*
Mississippi Medical College	(1911) 62, 64, 72*; (1912)	62
Memphis Hospital Medical College	(1910) 49; (1912)	64
Chattan[illegible]dical College	(1907)	67
Univer[illegible]nessee	(1901) 35; (1911)	73*
Mehari[illegible]al College	(1905) 66; (1907) 59, 70;* (1909) 68; (191[illegible];* (1912) 70.*	
Lincoln Memorial University	(1912) 72,*	72*
University of West Tennessee	(1909) 71;* (1912)	72*

Non-graduates: 0, 0, 18.4, 26.1, 34, 41.7, 46, 57, 62, 64, 64, 65, 66, 67, 67, 67.7, 68, 68, 69.

Non-graduates granted temporary licenses. The grades of 70 and 71 were reached by eight candidates each; the grade of 72 by nine; 73 by six and 74 by two.

*Granted temporary licenses. Note also that 33 non-graduates who failed were granted temporary licenses.

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Georgia College of Eclectic Medicine and Surgery (1911)	(1912)	Georgia
Hospital Medical College, Atlanta, Ga.	(1911)	Georgia
Indiana Medical College	(1906)	Indiana
University of Louisville	(1894)	Kentucky
Johns Hopkins University	(1909)	Georgia
Bellevue Hospital Medical College	(1897)	N. Carolina
University of Pennsylvania	(1909)	Maryland
Memphis Hospital Medical College	(1897)	Mississippi
Chattanooga Medical College	(1905)	Georgia

The following questions were asked:

ANATOMY

1. Name the bones that form the wrist and hand. 2. Name the bones, which, when joined together, form the shoulder-joint. 3. Describe the sternum and give number of bones connecting with it. 4. Name the muscles that flex and extend the arm at elbow-joint. 5. Describe the nasal fossae. 6. What bones enter into the formation of the nasal fossae? 7. Name the articulations of the occipital bone. 8. Give a general classification of bones, and describe each class.

PHYSIOLOGY

1. Define the terms of osmosis; (b) endosmosis; (c) exosmosis. 2. Describe ovulation. 3. How are the different sounds of the heart produced? 4. Name and describe the salivary glands. 5. Describe the act of micturition. 6. What constitutes a reflex act? Give an illustration. 7. How is audition accomplished? 8. Describe the red blood-corpuscles; (b) the white corpuscles; (c) what is phagocytosis?

PATHOLOGY

1. Describe a pathologic condition produced by excessive use of alcohol, other than its effect on the liver and stomach. 2. Describe a pathologic condition produced by tuberculosis, other than the lung. 3. Define torticollis, pleurodynia, hemiplegia, gastritis and gastralgia. 4. Give the pathology of pellagra. 5. Describe the pathology of the tonsils and pharynx in diphtheria. 6. Describe the pathology of the mucous membrane of the large intestines in mucous colitis. 7. Describe the pathology of the large intestines produced by constipation. 8. Give pathology of acute pleuritis.

CHEMISTRY

1. What is the usual composition of urinary calculi? Give the test for recognizing the principal ingredient. 2. What chemical reaction takes place when H_2O_2 is applied to sloughing wounds? 3. Give the chemical action of chlorinated lime in the disinfection of typhoid fever stools. 4. Describe your method of procedure in making a chemical examination of suspected urine. 5. Give an explanation of the formation of ammonia in the urine. 6. Give two chemical tests that you would use in water supposed to be contaminated by sewage. 7. Give the physical and chemical properties of hydrochloric acid. How is nydrochloric acid prepared? 8. Give tests for the purity of chloroform.

MATERIA MEDICA

1. Name four alkaloids of opium, and dose of each. 2. Name three principal salts of potassium and dose of each. 3. Name three medicines which act as galactogogues. 4. Name five drugs containing large quantities of tannic acid. 5. Name three of the most important mineral acids and give dose of each. 6. Name three medicines which produce rashes. 7. What are the effects of digitalis in medicinal doses? 8. What is the adult dose of the following tinctures: belladonna, aconite, valerian, veratrum and hyoscyamus.

SURGERY

1. State in detail how you would perform suprapubic cystotomy for the removal of a stone from the bladder. 2. Name five of the principal complications of gonorrheal urethritis in the male. 3. How would you prepare a patient for an anesthetic and what examination of patient would you make? 4. Give the signs of surgical anesthesia. Complications likely to occur during anesthesia. How would you combat them? 5. What is an aneurysm? Give symptoms and treatment. 6. What is acute osteomyelitis? Give causes, symptoms and treatment. 7. Give in detail the surgical method for the removal of the fluid in a case of ascites. 8. What are the indications for castration? Give in detail the method of operation.

PRACTICE

1. Define chlorosis. In what sex does it most frequently occur? Define leukemia. Name the organs and glands involved in the pathology of leukemia. 2. Define acute peritonitis. Give the causes. Briefly give a treatment, preventive and curative. 3. Define acute enterocolitis. Name the age and predisposing causes which produce this disease. Give treatment, preventive and curative. 4. Define fever, pyrexia. What is an antipyretic? Name some antipyretics you would use in fevers. 5. Define tuberculosis. Name some of the common forms of it. Give briefly a general treatment for pulmonary tuberculosis. 6. Give a clinical picture of an acute attack of appendicitis (typical). Give treatment. 7. Define locomotor ataxia. Name the structures involved in the pathology. Give general symptoms. 8. What is meant by the term, "neurosis"? Is heart palpitation a neurosis or an organic disease? Define tachycardia, brachycardia. What is arteriosclerosis?

OBSTETRIC.

1. Give in detail your management and duties in a case of labor, from its inception until the patient is convalescent. 2. Give the

physiology of fecundation. 3. What is the placen[illegible] From what is it formed? What is its structure and what [illegible]ons? 4. What structures enter into the formation of the [illegible]or? 5. Name five of the most important signs of pregnancy [illegible]tate the dates when they are most available. 6. Describe the various things you would suspect in a case of pregnancy with frequent or continuous hemorrhage. 7. What is your idea of the use of anesthetics in labor; what would you use? Why? What are some of the dangers from their use? 8. Under what conditions may shortening of the round ligament be justifiable? Describe the operation.

Book Notices

ARTERIOSCLEROSIS. Etiology, Pathology, Diagnosis, Prognosis, Prophylaxis and Treatment, with a Special Chapter on Blood-Pressure. By Louis M. Warfield, A.B., M.D., Assistant Superintendent and Resident Physician to Milwaukee County Hospital. With an Introduction by W. S. Thayer, M.D., Professor of Clinical Medicine, Johns Hopkins University. Cloth. Price, $2.50. Pp. 220, with 28 illustrations. St. Louis: C. V. Mosby Company, 1912.

It is a tribute both to the success of the first edition of this work and to the progress of pathologic and clinical science that a new edition is demanded four years after the first. During this time the advances have been so great that the second edition is practically a new book. This is due largely to the increasing use of instruments for measuring blood-pressure in clinical work and the great expansion of our knowledge of the variations of blood-pressure and of the clinical relations of high arterial tension and its associated disease, arteriosclerosis. The chapter on blood-pressure has been wholly rewritten so as to make clear to the physician the technic and the necessity for estimating both systolic and diastolic pressure. In a short introduction, Dr. W. S. Thayer calls attention to the too indiscriminate use of the term "arteriosclerosis," which has become so familiar to the public ear as to serve as a satisfying diagnosis when no more definite explanation of the symptoms can be supplied. With this popular use of the term has gone the tendency for the physician himself to rest satisfied with an incomplete diagnosis covered by this general term without inquiring minutely into the underlying causes and conditions. It is therefore high time that a brief and practical consideration of this condition be furnished to the practicing physician.

In considering the etiology of the disease, emphasis is placed on heredity, high tension and the toxemia which causes it, and on the damage done to the arterial walls by toxemia and infections. As an indication of the incompleteness of our information on this subject we may refer to the uncertain opinions and statements made regarding some of the agents most prominently named as having a causative relation to arteriosclerosis. Alcohol, which was formerly given first place, is now placed in doubt. "Just what rôle tobacco plays is difficult to say. . . . In how far the toxins absorbed from the intestinal tract are responsible for the production of arterial disease, it is not possible to say." These expressions of uncertainty show the incompleteness of our knowledge of arteriosclerosis and the need of further investigation of the influences of modern civilization which have brought this affection into such prominence as to be regarded by the public as a new disease.

The chapter on treatment is very conservative. The vasodilators are not credited with more than a transitory effect and the list of useful drugs is practically limited to the iodids, nitrites and aconite. It is somewhat surprising to find a recommendation of such a nostrum as ammonol in a book of such pretensions.

Caisson Sickness and the Physiology of Work in Compressed Air. By Leonard Hill, M.B., F.R.S. International Medical Monographs. Cloth. Price, $3 net. Pp. 255, with 66 illustrations. New York: Longmans, Green & Co., 1912.

Caisson sickness is a disease created by modern industry, and its symptoms are to a large extent reproducible by experiments. Its study forms the topic out of which the author has made an extremely interesting and instructive book. The first three chapters trace the evolution of diving from the work of the naked diver to the construction of the caisson with provisions for compression and renewal of air and the elaborate construction of locks. The nature of caisson sickness, the physiologic effects of compressed air, nitrogenous metabolism in the caisson, the effects on the blood, etc., are thoroughly discussed. The theory and practice of decompression form the subject of two chapters which are at the same time a treatise on prophylaxis. This is followed by the single chapter on the treatment of the disease, which is essentially recompression.

The book contains some records of valuable experimental work, and is the result of long experience. While it appeals to a comparatively small circle of medical men, it is a valuable contribution to a really important subject. The work is well illustrated with pictures of apparatus, drawings showing the microscopic appearance of the tissues, etc.

The Construction of Dietaries According to the Calorie Values of Foods with Tables and a Scaled Food Map, Specially Prepared. By Joseph Smyth, M.D. Paper. Price, 1 shilling. Pp. 19. Dublin: Alex. Thom & Co., 1912.

The aim of this pamphlet is to give a clear account of the principles of the calorie values of food. The views of Chittenden are fully explained and endorsed by the author. Fisher's method of calculating food values and their diagrammatic representation are explained. The economic relations of food are also considered and a number of tables are given which indicate the composition and food value of various articles of diet. The work seems to be well done, and the pamphlet should be a valuable aid to any one who needs to make calculations, especially in feeding large groups, as in work houses, asylums, etc. An unfortunate typographical error occurs on the first page of the text, by which the word "grain" is substituted for the word "gram." This will, however, occasion no difficulty with intelligent and careful readers.

The Extra Pharmacopeia of Martindale and Westcott. Revised by W. Harrison Martindale, Ph.D., F.C.S., and W. Wynn Westcott, M.B., D.P.H. Two Volumes. Fifteenth Edition. Leather. Price, Volume I, 14 shillings; Volume II, 2 shillings net. London: H. K. Lewis, 1912.

The increase of material has necessitated the publication of the fifteenth edition of the Extra Pharmacopeia in two volumes. Volume I contains a description of chemical and therapeutic properties of those extrapharmacopeial chemicals and drugs which have attracted particular attention in the medical and scientific world, while Volume II comprises analytical work, a large amount of which has been carried out in the laboratory of one of the authors. Volume I still contains about fifty pages more than the entire fourteenth edition and Volume II contains 370 pages. The work has been carefully revised with the excision of obsolete matter.

Compendium of Diseases of the Skin. Based on an Analysis of Thirty Thousand Consecutive Cases with a Therapeutic Formulary. By L. Duncan Bulkley, A.M., M.D., Physician to the New York Skin and Cancer Hospital. Fifth Edition. Cloth. Price, $2 net. Pp. 286. New York: Paul B. Hoeber, 1912.

This is the fifth revised edition of the author's "Manual of Diseases of the Skin," and is based on an analysis of 30,000 consecutive cases as observed in private and public practice. It contains no illustrations or quotations from literature. Rare affections of the skin are not considered. The description of diseases and their diagnosis is clear and to the point. For local treatment such remedies mostly are quoted as have proved successful in the author's practice, and hygienic, dietetic and internal measures are fully considered. The value of the book is increased through the addition of a therapeutic formulary.

Materia Medica and Therapeutics, Including Pharmacy and Pharmacology. By Reynold Webb Wilcox, M.A., M.D., LL.D., Consulting Physician to St. Mark's and to the Nassau Hospitals. Eighth Edition. Cloth. Price, $3 net. Pp. 832. Philadelphia: P. Blakiston's Son & Co., 1912.

By the elimination of duplicate statements and careful condensation of the text, the material which in the seventh edition was published in two volumes is here presented in a single volume. No marked changes appear. The work is divided into two parts, one dealing with materia medica and pharmacy and the other with pharmacology and therapeutics. It is to be hoped that in its present form the work will prove especially satisfactory to the student, who finds it advantageous to possess a single handy volume on this subject.

Medicolegal

Burning of Patient With Hot-Water Bottle in Physician's Private Hospital—After Treatment

(Fawcett vs. Ryder (N. D.), 135 N. W. R. 800)

The Supreme Court of North Dakota affirms a judgment for the plaintiff for $1,800 damages for injuries which the jury said were caused by his coming into contact with a hot-water bag through the defendant's negligence, in the latter's private hospital, after he had operated on him for appendicitis. The court holds that, in an action for negligently placing the plaintiff, a patient of the defendant physician, on or subject to contact with a hot-water bottle, causing injury to the plaintiff by burning, and while the plaintiff was unconscious after an operation on him for appendicitis, the question of negligence was for the jury to determine under all the evidence. The negligent acts of the nurses, his employees in a private hospital run for profit, in connection with the practice of medicine and surgery, by a physician and surgeon as owner and proprietor thereof, render the physician hospital owner liable as a master for acts of servant nurses resulting in injury to a patient who has intrusted himself to the physician for professional treatment and hospital nursing.

On the question of whether the evidence sustained the jury's finding of fact, the court says that it must be remembered that the plaintiff was unconscious when placed in the bed after the operation. As the result of his complaint of pain on his first coming to consciousness, the injury and its cause were simultaneously discovered. The size of the burn and its location were significant. The jury might in reason have concluded from the location of the injury in the middle of the back that the plaintiff had been placed in contact with the bottle carelessly left in the bed. Beyond all question the burn came from the bottle or its contents. As the testimony stood at the close of the plaintiff's case, reasonable men might conclude the water-bottle to have been dangerous to contact with the body, and that it was negligence to leave the same in such a position in the bed that it could come into contact with the insensible patient to his injury. As the defendant personally placed the plaintiff in bed, the jury had evidence on which to have found the negligence to have been the defendant's in not removing the bottle or in suffering it to remain where contact could be had by the plaintiff therewith. On the other hand, if the negligence was that of the nurse who prepared the bed, the authorities would still hold the defendant liable, the employment having been for hire and covering nursing and care after the operation.

Nor should an instruction have been given which would require the jury to find for the defendant if the plaintiff neglected to treat, or if he improperly treated, his injury, even though the jury found the injury was caused by and through the actionable negligence of the defendant. Such is not the law. The cause of action arose as soon as the injuries were received, and the plaintiff's right of recovery was not defeated by any subsequent neglect to cure himself of the injury suffered.

Blow Cause of Pott's Disease

(Texas & Pacific Railway Co. vs. Howell (U. S.) 32 S. C. Rep. 601)

The Supreme Court of the United States affirms a judgment for damages in favor of plaintiff Howell, who was injured while in the company's employ by being struck on the head by a piece of falling timber, and who claimed that the blow caused tuberculosis of the spine. The court says that there was ample evidence that the blow occasioned the development of his disease, although it was not discovered to be the Pott's disease, as it was called, for over a year. It was argued that if such a disease is due to the presence of tuberculosis germs in a man's system before the accident, the company ought not to be required to pay more than it would to a normal man. But the jury were warranted in finding that the disease was the direct result of the injury, as they were required to, by the instructions to them, before holding the company to answer for it.

Neglect of Wounded Employees

(Baptiste vs. Baptist (La.), 58 So. R. 702)

The Supreme Court of Louisiana holds that the master who neglects a wounded employee is liable for the resulting damage, although facts to render one liable were not shown in this case. The court says that there is no question but the master is liable who neglects his employee, immediately after the accident, in failing to send for medical assistance, and in having him taken care of for the time being; but this case was not one of absolute indifference and neglect, while in the case of North Central Railroad Co. vs. State, 29 Md. 420, cited by the plaintiff, there was unpardonable neglect and absolute indifference to the employee, which was the cause of suffering and cruel hardship.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Annals of Surgery, Philadelphia

October, LVI, No. 4, pp. 521-664

1 Tuberculosis of Kidney. T. Rovsing, Copenhagen.
2 *Gas Bacillus Infection, with Special Reference to Treatment. W. C. Cramp, New York.
3 *Mediastinal and Pericardial Infections in Relation to Emergency Abdominal Surgery. F. Cobb, Boston.
4 Transduodenal Choledochotomy for Stone in Ampulla of Vater with Fistulous Communication Between Gall-Bladder and Duodenum. E. M. Williams, Patterson, La.
5 Acute Phlegmonous Inflammation of Large Intestine. C. N. Dowd, New York.
6 Recognition and Treatment of Lesions of Right Iliac Fossa Other Than Appendicitis. C. H. Frazier, Philadelphia.
7 *Sprain-Fracture as Essential to Occurrence of Dislocation. G. G. Ross and L. F. Stewart, Philadelphia.
8 *Treatment of Intracapsular Fractures of Hip. G. G. Davis, Philadelphia.
9 *Treatment of Dislocation of Head of Radius Complicated by Fracture of Ulna. A. P. C. Ashhurst, Philadelphia.
10 *Freeing Fragments Preliminary to Operative Reduction of Fracture of Femur. J. C. A. Gerster, New York.

2. **Gas Bacillus Infection.**—From a study of twenty-five cases by Cramp it appears that when gas infection is once well established, its progress is rapid, destructive and certain to result in death without treatment. It appears also that those cases described as mild are either those in the incipient stage, where the case is discovered early, or those cases superficial to the deep fascia. In fifteen of the twenty-five cases reported from Bellevue and in many of the others, pain out of all proportion to the trauma coming on twelve to thirty-six hours after injury, was the first sign of trouble, and this was soon followed by a sudden rise in temperature. These manifestations seem to be the forerunner of this condition. Pus is seldom present, but any wound resulting from traumatism with a gangrenous appearance, coupled with a sudden rise in temperature and pain, even without the presence of gas in the wound or emphysema in the tissues, should excite suspicion and a smear should be taken immediately.

Its incubation has been variously estimated from twenty-four to forty-eight hours, which period seems, though, to have been reckoned from the time of injury to the time the case was first seen rather than to the time of the first manifestation, and no doubt the incubation is very short, as cases have been reported coming on eight, twelve and sixteen hours, respectively, after injury. It is also apparent that in those cases in which the disease is early recognized its progress is easily controlled by proper treatment.

Prophylaxis is probably the most important aspect of treatment. All wounds on which great force has been exerted, and especially those contaminated by soil and dirt-covered objects should be treated as if infected with gas bacilli. They should be left open where possible and thoroughly irrigated with peroxid. They should be lightly bandaged and where possible even this should be discarded. They should be inspected frequently and frequently irrigated, and never incased in plaster.

On the first sign or symptom of infection, a smear should be taken and examined. The wound should be opened freely if sutured, and if on the extremities, where most of these infections occur, the limb should be placed in a bath or be continuously irrigated. If the condition is extensive, free incisions should be placed and the whole field widely exposed to air. No bandaging which excludes air should be employed, the limb being simply covered by a sheet or suspended in a tent.

3. **Mediastinal and Pericardial Infections.**—Cobb cites a case of a chronic obstructive process in the mediastinum, starting, in all probability, as an infection from the bronchial or mediastinal glands, possibly primary in the peritoneal cavity. This had already caused chronic hyperemia of the liver and marked enlargement, notwithstanding which the boy had felt perfectly well until the slight febrile attack following prolonged immersion in the salt water. Previous to this he had had no dyspnea, no abdominal pain and tenderness, although the liver was passively congested and enlarged on account of the mediastinal obstruction. The symptom complex was caused by the two factors, the acute pericardial infection and the chronic mediastinal obstruction with an enlarged liver. The infection and distention of the pericardium increased the mediastinal obstruction, increased the congestion of the liver, and added an element of perihepatic inflammation. The acute congestion of the liver following the pericardial infection by extreme stretching of its capsule added to the pain which the pericarditis alone would have caused and accounted for the exquisite and wide-spread tenderness.

7. **Sprain-Fracture and Dislocation.**—Clinical observation and animal experiments have convinced Ross and Stewart that practically all, if not all, dislocations are permitted by the primary occurrence of strain of tendons and ligaments, followed by avulsion of tendons, and then sprain-fracture or gross fracture. It is possible that some dislocations are permitted to occur by separation of the fibers of the capsule in place of by sprain-fracture or gross fracture. All dislocations should be skiagraphed and, if evidence of fracture is not found at first, pictures should be taken in many planes. All dislocations should be treated as if fracture had occurred, even in the event of negative skiagram evidence. Some sprain-fractures are too small to be shown by skiagram. Often there is spontaneous reduction of dislocations, and sprain-fracture or gross fracture is the only evidence left that can be detected by the Roentgen-ray. The sites of sprain-fractures or gross fractures provide the foci from which the osteoblasts issue, in those cases showing excessive callus or covering of joint surfaces with osseous tissue; moreover, the softer tissues found in joint cavities within a short time after the occurrence of dislocations are often in some stage of transformation into bony tissue. Sprain-fracture or fractures occurring consistently in experimental dislocations on cadavers mean nothing, since the stage to which degeneration has advanced determines whether the greater tensile strength remains in the tendons and ligaments or not. Whether the force be suddenly or slowly applied, sprain-fracture or fracture precedes the occurrence of practically all, if not all, dislocations.

8. **Intracapsular Fractures of Hip.**—Of all the methods suggested for the treatment of recent fractures of the hip, Davis is most partial to that orginally suggested by Phillips and later by Maxwell and advocated by Ruth of Iowa, many years ago. It consists of the usual longitudinal traction with weights and sand bags or other device to hold the foot vertical, supplemented by lateral traction by a weight over the side of the bed, drawing the upper portion of the thigh out. He has also obtained good results by the use of plaster of Paris, putting the limb up in extreme abduction as advised by Whitman in cases of children. Of these two methods the lateral traction is the one usually easier to apply and carry out.

9. **Dislocation of Head of Radius.**—In recent cases Ashhurst advises to secure reduction of the dislocated radial head, by arthrotomy and capsulorrhaphy, if necessary. When reduction is secured the associated fracture of the ulna almost invariably will fall into good position. If it does not, it may be fixed by suture or plate. In old cases with the ulna united attempt reduction of the dislocation by arthrotomy and retain the radius in place by capsulorrhaphy. If reduction after arthrotomy proves impossible, as it may if the ulna has united in bad position, it is better to excise the head of the radius than to interfere with the ulna, unless the deformity in the ulna is very extreme. In such cases osteotomy of the ulna may be done. In old cases with non-union of the ulna expose the ulnar fracture first, and after freeing the fragments, secure reduction of the dislocation (by arthrotomy if necessary, including capsulorrhaphy); then treat the ulnar fracture as if no dislocation had existed. In cases with musculospiral paralysis, excision of the radial head failed to secure a good result in one case (Zschock), and there is no evidence that reduction and capsulorrhaphy would not have been successful in two others (Albertin, Kammerer) in which excision was done.

10. **Fracture of Femur.**—The aponeurotic insertions of the muscles along the linea aspera can be considered as one structure. It constitutes one of the chief obstacles to the reduction of a femoral fracture. A blind division of this structure (tenotomy), as it lies covered by the ends of the fractured bone, Gerster says, is a foolhardy procedure, because of possible damage to the sciatic nerve or to the femoral vessels, and because of the difficulty of controlling hemorrhage in such a situation. By gradually kinking the limb at the point of fracture, and dividing the soft parts which hinder this attempt, the posterior aspect of both fragments becomes readily accessible. Usually the freeing of both fragments of their soft part attachments (including tendons) for an inch or so suffices; but if not, the linea aspera "tendons" can be exposed as before and a careful tenotomy be done. The procedure is said to be a simple, rapid and safe method for freeing the ends of fragments. It removes a large proportion of the resistance to reduction offered by the soft parts.

Boston Medical and Surgical Journal

October 17, CLXVII, No. 16, pp. 531-566

11 Function of Experimental Method in Course in Pathology. H. T. Karsner, Boston.
12 Practical Points in Treatment of Enlarged Cervical Lymph-Nodes in Children. J. S. Stone, Boston.
13 Midwives in Massachusetts. J. L. Huntington, Boston.
14 Chronic Invagination of Ileum, Secondary to Lipoma of Intestinal Wall. H. W. Goodall, Boston.

Bulletin of American Academy of Medicine, Easton, Pa.

October, XIII, No. 5, pp. 269-376

15 Relation of Immigration to Consumer. F. Kelley, New York.
16 Medical Study of Delinquent Girls. A. W. Tallant, Philadelphia.
17 Immigration Problem of To-Day. W. W. Husband, Washington.
18 Effect of Modern Immigrant on Our Industrial Centers. T. W. Grayson, Pittsburgh.
19 Remediable Conditions in Feeble-Minded and Backward. W. S. Cornell, Philadelphia.
20 *Teaching Hygiene in Public Schools; What Should Be Taught? Physician's View. S. Egbert, Philadelphia.
21 *Idem. P. Hughes, South Bethlehem, Pa.
22 *Teaching of Hygiene; Methods in Vogue. W. S. Steele, Harrisburg, Pa.
23 *How Should Hygiene Be Taught? L. Nusbaum, Philadelphia.
24 *Education for Better Parenthood. T. D. Wood, New York.

20, 21, 22, 23 and 24. Abstracted in The Journal, May 25, pp. 1632 and 1633.

Bulletin of Johns Hopkins Hospital, Baltimore

October, XXIII, No. 260, pp. 289-320

25 *Determination of Equilibrium in Human Body Between Acids and Bases, with Special Reference to Acidosis and Nephropathies. A. W. Sellards, Baltimore.
26 Embryonic Bands and Membrane About Cecum. J. M. Flint, New Haven, Conn.
27 *Reflex Albuminuria; Renal Albuminuria Secondary to Irritation of Urinary Bladder. F. A. Evans, H. M. N. Wynne and G. H. Whipple, Baltimore.

25. **Determination of Equilibrium in Human Body Between Acids and Bases.**—The tolerance of the body toward fixed bases was studied by Sellards by determining the amount of sodium bicarbonate which must be introduced into the body in order to render the urine alkaline. The following results were obtained: In normal individuals the ingestion of 5 grams of sodium bicarbonate is ordinarily sufficient to bring about the excretion of fixed bases in the urine, its reaction becoming alkaline, though in exceptional cases this quantity of bicarbonate is insufficient, 10 grams being necessary. The tolerance to sodium bicarbonate was tested in acidoses produced arti-

ficially, in five cases of diabetes, in an obscure toxemia, accompanied by an increased excretion of ammonia, and in a group of thirteen nephropathies. A slight grade of acidosis, resulting from a carbohydrate-free diet for a period of two to three days produced a small but definite rise in the tolerance to bicarbonate. A similar result was obtained in two cases by the ingestion of small quantities of a mineral acid. In the five patients with diabetes who were tested, the ordinary signs of acidosis were absent. In three of these patients the tolerance was normal; in two, however, it was definitely increased, the urine remaining acid after the administration of 30 grams of sodium bicarbonate. In the toxemic case in which the ammonia excretion was increased there appeared to be a primary disturbance of protein metabolism rather than an acidosis, with a secondary increase in ammonia. The tolerance in this case was normal. In the study of thirteen patients representing several types of nephropathies it was found that four comforming to the general type of a parenchymatous nephritis excreted carbonates readily, behaving in this respect like normal individuals. Consequently the tests on this group do not afford evidence of an acidosis, at least not in the generally accepted sense of the term. One patient with chronic diffuse nephritis also showed a normal tolerance but none of the remaining patients behaved in a normal manner. Two patients continued to excrete an acid urine after the intravenous injection of sodium bicarbonate in quantities of 60 and 130 grams, respectively.

27. **Reflex Albuminuria.**—The authors summarize the results of their experimental work as follows: The causation of a subacute cystitis by means of placing a foreign body in the lumen or wall of the urinary bladder is followed by an albuminuria of varying degree. The greater part of this albumin is derived from the renal secretion, as can be demonstrated by collecting urine from the ureter or from the washed bladder during diuresis. This renal albuminuria occurs in perfectly normal kidneys and may leave no trace of its occurrence in these normal organs, except the presence of hyaline casts and the resulting slight dilatation of the uriniferous tubules. Catheterization of the ureter without bladder irritation will cause no albuminuria. Chemical injury of the bladder mucosa may be associated with a reflex albuminuria, and in this irritated bladder some mechanical trauma (catheterization or irrigation) may be followed by a prompt and marked albuminuria. Further work is needed to determine whether this reflex albuminuria is found in human cases, but there is no reason to suppose these phenomena are limited to the urinary tract of the dog. It seems pretty clear that in these experiments on dogs we are dealing with a true nervous reflex in which stimuli applied to the bladder mucosa react with more or less promptness on the renal epithelium and modify its secretory activity.

California State Journal of Medicine, San Francisco

October, X, No. 10, pp. 399-448

28 Salvarsan in Obstinate Late Syphilitic Lesions of Palms, Soles and Mucous Membranes of Mouth. D. W. Montgomery, San Francisco.
29 Salvarsan in Syphilitic Disease of Nervous System. W. F. Schaller, San Francisco.
30 Twenty-Three Children Treated with Salvarsan. H. H. Yerington, San Francisco.
31 Early Diagnosis of Epidemic Poliomyelitis. R. L. Wilbur, San Francisco.
32 Three Closely Associated Cases of Acute Poliomyelitis. T. M. Williams, Palo Alto.
33 Dream-State of Delirium Tremens and Inadequacy of California Statutes in Not Covering Certain Conditions of Irresponsibility for Crime, Exemplified in Unusual Case. A. W. Hoisholt, Stockton.
34 Chronic Intestinal Stasis. J. Eaves, San Francisco.

Canadian Medical Association Journal

October, II, No. 10, pp. 859-962

35 *Therapeutics of To-Day. A. D. Blackader, Montreal.
36 Diabetes Mellitus. A. J. Hodgson, Waukesha, Wis.
37 Traumatic Arthritis of Knee and Its Effects. S. A. Smith, Liverpool, England.
38 Medicine and English Literature. E. K. Broadus.

35. **Therapeutics of To-Day.**—That physicians attempt to use too many drugs of which their knowledge is not sufficiently exact to enable them to use them rationally and scientifically is Blackader's opinion. Added to the long list of old standard drugs, whose action is often forgotten or disregarded, he says, numberless new drugs, with an unknown or unproven action, have been foisted on the profession, and as a consequence we have to note a distinct tendency in many physicians to lag behind the scientific attainments of the present, and sluggishly to indulge in an imaginative empiricism that ends in nothing. Blackader believes it to be better for the physician's credit and for his patient's well being that his materia medica be limited to a comparatively small list of drugs, whose proven action he knows, rather than that he should roam over a long list of unknown and sometimes untried drugs, and use them in haphazard, complicated prescriptions.

In regard to the use of a few of our pharmacopeial drugs, he endorses some statements made by Osborne. There is no proprietary organic iron that will do more good than one of the inorganic salts of the pharmacopeia. Large doses of iron are not needed. Two or three grains of any non-irritating iron salt will supply more iron to the patient's stomach than his system can metabolize in as many days. The expensive, organic iron preparations, which furnish an enormous profit to manufacturing houses, have the only advantage that they supply the iron in very much smaller doses than the physician is accustomed to order, and, therefore, they appear to agree better. The strongest and one of the most irritating iron preparations is the tincture of iron, but one or two drops in a little syrup of lemon will give all the iron required for physiologic purposes: even a child will scarcely notice that it is taking anything disagreeable. Digestants are rarely needed. Diastase and pancreatin are destroyed by the acid gastric juice. Calcium glycerophosphate may have a definite value, but, if so, it appears to be the only glycerophosphate that has. All the salts of quinin have a value, but cinchonin and cinchonidin are much weaker, and have no advantage. Tasteless quinins have almost no value. Stimulating and sedative expectorant mixtures are apt to disturb the stomach, and often do more harm than good.

In all the salicylic acid preparations before the profession, the action obtained is simply a question of dosage. The proprietary preparations that furnish salicylic acid without its disagreeable effects, are either slowly and imperfectly absorbed or the amount of acid in them is small. If the dose of sodium salicylate were made smaller, the absence of unpleasant symptoms would be the same. In rheumatism, when it is necessary to have a prompt salicylic acid action these preparations either fail or, when pushed, give rise to symptoms similar to those produced by salicylic acid.

The subtleties of chemistry will yet provide the physician with many drugs having specific action against many forms of infection, and careful experiments may reveal more direct and definite methods of employing them. In anticipation of this time there has arisen a laudable effort among synthetic chemists to discover new derivatives from radicles possessing definite therapeutic powers; but it must be remembered that before any such new derivative can be recognized as having a therapeutic value, it must be carefully studied in a pharmacologic laboratory, and the reports presented must be free from secrecy and commercialism. At the present day numberless commercial houses are thrusting on the profession an enormous array of new drugs with new names, catchy and therapeutically suggestive, covering much secrecy and, Blackader adds, much knavery, about their composition. Of these, a few may have some slight value; the majority, unfortunately, have little or none, and some appear to be distinctly harmful. Of the exact action of these drugs for good or evil we have at present little knowledge, except the statements, which are invariably much prejudiced, of the commercial houses introducing them. Many of these so-called new drugs, introduced even by reputable houses, have been shown by analysis to be merely a mixture of old and well-known drugs, or to have a chemical composition differing greatly from the one given. It appears to Blackader, therefore, to be of the utmost importance that physicians should accept all unproved statements very cautiously and should still rely almost entirely on the standard, official preparations of which the exact composition and physiologic action is well known.

Journal of Iowa State Medical Society, Clinton

August, II, No. 2, pp. 89-152

39 Movement for Exact Treatment. G. M. Dock, St. Louis.
40 Undescended Testicle. A. L. Wright, Carroll.
41 Autogenous Vaccines in Treatment of Infectious Disease. H. M. Decker, Davenport.
42 Pseudoleukemia. N. Schilling, New Hampton.
43 Gastro-Intestinal Auto-Intoxication and Its Relation to Diseases of Eye. H. B. Gratiot, Dubuque.
44 Alcoholic Injections for Tri-Facial Neuralgia. F. A. Ely, Des Moines.
45 Uterine Displacements. C. F. Osborne, Hampton.
46 Nose and Throat, an Incubator. T. U. McMannus, Waterloo.
47 Infant-Feeding. C. H. Graening, Waverly.
48 Puerperal Septicemia. J. L. Scripture, Clarkesville.
49 Washington County Hospital. C. A. Boice, Washington.

September, II, No. 3, pp. 153-224

50 *Malignant Tumors of Mesentery; Report of Case. P. E. Sawyer, Sioux City.
51 Salvarsan in Syphilis of Nervous System. F. A. Ely, Des Moines.
52 Prophylaxis and Non-Surgical Treatment of Chronic Arthritides. C. F. Starr, Mason City.
53 Suppurations of Kidney, Reporting Cases. O. J. Fay, Des Moines.
54 Spontaneous Rupture of Internal Carotid Artery Complicating Suppurative Otitis Media and Mastoiditis. L. L. Henninger, Council Bluffs.
55 Joint Complications in Scarlet Fever, with Particular Reference to Purulent Form. E. T. Edgerly, Ottumwa.
56 Epidemic Meningitis. B. S. Barnes, Shenandoah.
57 Ulcers of Stomach and Duodenum, with Outline of Indications for Treatment. A. M. Pond, Dubuque.
58 Lung Abscesses. L. D. Jay, Plainfield.
59 Visual Malfunction; Its Cause and Consequences. P. R. Wood, Marshalltown.
60 Principles in Nasal Surgery in Private Practice. H. G. Langworthy, Dubuque.

October, II, No. 3, pp. 225-296

61 *Molding of Public Opinion Regarding State Care of Epileptics. W. Pfannebecker, Sigourney.
62 Early Diagnosis in Mental Diseases. L. A. Beach, Cherokee.
63 Diagnostic Value of Tuberculin with Respect to Its Various Modes of Application. E. H. Dwelle, Northwood.
64 Etiology and Recognition of Aortic Insufficiency. C. P. Howard, Iowa City.
65 City Milk-Supply. O. P. Thompson, Waterloo.
66 Cholecystitis, with Cholesterin Stone Formation Following Gall-Bladder Drainage. C. S. James and J. W. Shuman, Centerville.
67 Hemolysis. F. S. Leonard, Cascade.
68 Some Abnormalities of Thyroid. B. C. Everall, Waterloo.

50 and 61. Abstracted in The Journal, May 25, pp. 1628 and 1629.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

September, IV, No. 1, pp. 1-95

69 Pulmonary Action of Vanadium, Together with Study of Peripheral Reactions to Metal. D. E. Jackson, St. Louis.
70 *Action of Heart in Anaphylactic Shock in Dog. A. B. Eisenbrey and R. M. Pearce, Philadelphia.
71 Production of Experimental Cephalic Coma. D. E. Jackson, St. Louis.
72 *Absorption of Drugs from Gastric Mucous Membrane; Strychnin Nitrate. A. H. Ryan, Pittsburgh.
73 *Pulmonary Action of Adrenals. D. E. Jackson, St. Louis.
74 Method of Standardizing Pituitary (Infundibular) Extracts. H. H. Dale and P. P. Laidlaw, Herne Hill, London.

70. **Heart in Anaphylactic Shock.**—Myocardiograph records made by Eisenbrey and Pearce show that the functional activity of the heart is not primarily affected by the injection of the "toxic" dose of horse serum in sensitized dogs. The rate and range of contractions remain unchanged even after the general blood-pressure has started on its abrupt fall. Subsequent changes in the character of the myocardiograph tracings are due to the incomplete filling of the right side of the heart consequent on the accumulation of the blood in the larger venous trunks, and particularly those of the splanchnic area. Inspection of the heart shows a marked decrease in the size of the right auricle and ventricle. The right ventricular wall appears flabby and collapsed during diastole but contracts during systole in rate, extent and regularity as it does before the injection. Early in the period of low blood-pressure the heart has been found to be functionally unimpaired when measures are taken to supply a sufficient volume of fluid to the right side of that organ. Later the heart muscle may suffer from anemia. No evidence is at hand to indicate that any possible vasoconstriction of the coronary or pulmonary vessels or action on the heart muscle itself is responsible for the characteristic fall in blood-pressure in anaphylactic shock in the dog. These conclusions are based on experiments on anaphylactic shock in the dog and there is no intention to apply them to the phenomena of the anaphylactic reaction in the cat, rabbit, guinea-pig or any other animal. Incidentally it has been shown that the fall in blood-pressure following the injection of dog's urine or peptone solution into the normal dog is likewise independent of action on the heart.

72. **Absorption of Strychnin from Stomach.**—Ryan found that strychnin nitrate in aqueous and alcoholic solutions is absorbed by the mucous membrane of the Pawlow miniature stomach in greater quantity than is indicated by previous experiments based on other methods. Strychnin nitrate in alcoholic solutions (10 and 20 per cent. alcohol) is not absorbed as readily as in aqueous solution. The first appearance of symptoms indicating the absorption of the drug occurs in about the same time in both classes of solutions. The later symptoms, spasms, could not be induced in a similar period of time with a quantity of the drug in alcoholic solution, which caused spasms when administered in aqueous solution, although the reflexes became greatly increased. Ligation of the pyloric and cardiac extremities of the stomach seems to alter its normal power for absorption.

73. **Pulmonary Action of Adrenals.**—The total results of Jackson's experiments bear out the opinion that in the intact animal one of the functions of the adrenals is to assist by means of their internal secretion in counteracting pathologic processes or products which tend to produce an abnormal broncho-constriction.

Laryngoscope, St. Louis

September, XXII, No. 9, pp. 1077-1156

75 Otitic Indications and Contra-Indications for Salvarsan Treatment of Syphilis. O. Beck, Vienna.
76 Salvarsan in Syphilis of Nose and Throat. F. C. Cobb and A. Post, Boston.
77 Effect of Salvarsan on Ear. C. E. Perkins, New York.
78 Syphilis of Upper Respiratory Tract Treated with Salvarsan. F. W. White, New York.
79 Wassermann Reaction and Salvarsan in Disease of Special Sense-Organs. E. R. Carpenter, El Paso, Tex.
80 Chancre of Tonsil; Report of Case. N. L. Wilson, Elizabeth, N. J.
81 Mastoid Sequestra Containing All Three Semicircular Canals, with Report of Subsequent Labyrinthine Reaction. J. M. Ingersoll, Cleveland.
82 Case of Sinus Thrombosis; Excision of Internal Jugular, with Recovery. C. W. Richardson, Washington, D. C.
83 Four Cases of Fracture of Larynx. W. Downie, Glasgow.
84 Ossification and Subsequent Expulsion of Both Arytenoid Cartilages; Causes Unknown. A. I. Weil, New Orleans.
85 Strictures and Diverticula of Esophagus. G. F. Keiper, Lafayette, Ind.
86 Curious Mishap During Bronchoscopic Examination. R. H. Johnston, Baltimore.
87 Tinnitus and Deafness; New Instrument for Their Relief. T. R. Chambers, Jersey City, N. J.

Medical Record, New York

October 19, LXXXII, No. 16, pp. 691-736

88 Syphilitic Psychoses. F. M. Barnes, Washington, D. C.
89 Surgical Psychoses. J. E. Mears, Philadelphia.
90 Significance and Management of Chronic Discharging Ears. A. Braun, New York.
91 How Department of Agriculture Treats Local Disease; Lesson in Comparative Psychiatry. B. Holmes, Ccicago.
92 Differential Diagnosis of Alcoholic Coma. H. V. Guile, New York.
93 *Case of Extirpation of Bladder for Malignant Disease. F. R. Hagner, Washington, D. C.
94 Celiac Parotitis in Course of Malignant Disease of Liver. D. I. Macht, Baltimore.

93. **Extirpation of Bladder for Malignant Disease.**—A large irregularly shaped tumor with a broad base involved the entire base of the bladder. The size of the base of the tumor was easily seen with a retrograde cystoscope. On December 5, a suprapubic cystotomy was performed under cocain and epinephrin anesthesia. At the time of operation the cystoscopic findings were confirmed, and a suprapubic drain was inserted. The patient was much more comfortable after this operation and his general condition improved. As the patient was in fairly good condition, the gravity of the case was explained to him and he was advised to have double nephrotomy with continuous drainage of the kidneys and subsequent removal of the bladder.

He was operated on December 15, under nitrous oxid and oxygen anesthesia. The operation chosen was Fowler's. After removal of the bladder the vessels were tied and the cavity was packed with sterile gauze, and the abdominal wound was closed, allowing vents for drainage. The patient was severely shocked from the operation, although the loss of blood was very small. Under stimulation and salt solution he rallied and did fairly well for one week; it appeared he was going to recover from the operation. However, he complained bitterly of stinging in the anal region and great tenesmus whenever urine passed; there appeared to be no pain while the urine was collecting in the bowel. Sometimes he would retain his urine one and a half hours. It was a continual fight to get this patient to take his nourishment. He seemed to give up after the operation, making no effort to help in any way. There was no evidence of any abdominal infection and the one symptom he complained of was the pain and tenesmus during the passage of urine out of the rectum. The patient had very little fever, but a rapid pulse and a leukocytosis of 26,000. Unquestionably there was infection of both kidneys. He gradually grew weaker and died two weeks after the operation. No autopsy.

New York Medical Journal

October 19, XCVI, No. 16, pp. 773-824

95 *Treatment of Cancer on Biologic Principles. J. Ewing, New York.
96 Chronic Gonorrhea in Male. V. C. Pedersen, New York.
97 Blonds and Brunettes in Tropics. C. E. Woodruff, San Francisco.
98 Constipation and Anemia. B. Robinson, New York.
99 Diagnosis by Inspection. M. I. Knapp, New York.
100 General Surgical Infection; Use of Mixed Infection Vaccine (Schafer Phylacogen). C. A. Hill, Pittsburgh.
101 *Landmark and Technic for Thyroid Measurement. M. S. Woodbury, Clifton Springs, N. Y.
102 Early Diagnosis of Laryngeal Tuberculosis. W. Lamberson, New York.
103 Refraction With and Without Cycloplegia. N. J. Weill, Pittsburgh.
104 Surgical Treatment of Pest Bubo. C. G. Roehr, Fort Pierce, Fla.

95. **Treatment of Cancer.**—From a general survey of present conditions Ewing concludes that the complexity of the problems seems to bar the hope that a specific treatment of cancer will shortly become of practical importance. Meantime, he says, it may not be amiss to suggest that the combination of several methods, each ineffective alone, may increase the palliative effects and even lead in occasional instances to a virtual cure of inoperable cancer.

101. **Landmark and Technic for Thyroid Measurement.**—To locate the upper pole of the lobe of the normal thyroid gland, first locate the most prominent eminence of the thyroid cartilage (Adam's apple), follow down the median line from 1.5 to 2 cm., to the space between the thyroid and cricoid cartilages; follow the inferior border of the thyroid cartilage laterally, about 1 to 1.5 cm. till the median end of the oblique ridge is felt; follow the oblique ridge upward and backward to its posterior end. Press the finger into the groove just below the oblique ridge and parallel to it. The upper side of the finger will rest against the oblique ridge—the lower side of the finger will come into contact with the upper pole of the thyroid lobe. The landmark, then, is the oblique ridge on the wing of the thyroid cartilage.

While carrying out the above described maneuver, slight extension of the neck, with or without rotation, is desirable. Woodbury usually prefers to have the neck partially rotated (away from the side which is being examined), as in that position the second step in examination follows rather more readily.

With the forefinger (right or left, depending on which side of the patient he stands) pressed firmly against the upper pole, the examiner should rotate the patient's chin (away from the side being examined) until it is as nearly over the opposite shoulder as is possible without undue extension on the sternomastoids; the neck should at the same time be extended, that is, the chin should be tilted up. The patient should be directed to let his head absolutely rest against the assistant's hand or whatever support is provided. If the sternomastoid is still too tense, the assistant should slightly flex the side of the patient's head on the chest, thus bringing the sternomastoid origin and insertion nearer together and so relaxing the muscle. Now, having the head in proper position, the examiner should place the tip of his free forefinger 1 to 1.5 cm. from the median line, just above the suprasternal notch, and should make rather firm pressure. He should then attempt, by pressing downward on the upper pole of the lobe, to bring the lower pole into contact with the lower examining finger. By slight readjustment of the lower finger, this is usually quite readily accomplished. When both poles are clearly felt, the patient should be instructed to swallow; the upper pole ascends beneath the upper examining finger and the lower pole moves out of contact with the lower finger, but is felt again as the lobe descends when the act of swallowing is completed. The assistant then measures the lobe with compasses under the direction of the examiner. For measuring the width of the lobe, Woodbury tries to select a line which is continuous with the lower margin of the isthmus of the gland. This measurement is usually easily made. With the neck moderately extended and rotated about 45 degrees (away from the field of examination), the lobe is rolled under the forefinger and its width measured with the compasses.

Northwest Medicine, Seattle, Wash.

October, IV, No. 10, pp. 293-324

105 Some Phases of Modern Treatment of Tuberculosis. E. A. Pierce, Portland, Ore.
106 One Hundred and Fifty Cases of Open Pulmonary Tuberculosis. R. W. Matson, Portland, Ore.
107 Responsibility of Profession in Campaign Against Tuberculosis Among American Indians. J. N. Alley, Lapwai, Ida.
108 Use of Culture Products in Treatment of Tuberculosis. C. C. Browning, Los Angeles.
109 Diagnostic Value of Presenting Symptoms. C. S. Wilson, Tacoma, Wash.
110 Osteomyelitis. F. J. Fassett, Seattle, Wash.

Surgery, Gynecology and Obstetrics, Chicago

October, XV, No. 4, pp. 365-522

111 *Principles Underlying Surgical Treatment of Gastro-Intestinal Stasis Due to Causes Other Than Strictural or Ulcerative Conditions. R. C. Coffey, Portland, Ore.
112 Intestinal Diverticula: Their Etiology and Pathogenesis. B. F. McGrath, Rochester, Minn.
113 Treatment of Pyelitis. G. L. Hunner, Baltimore.
114 *Paget's Disease of Breast. F. E. McKenty, Montreal.
115 Nephro-Ureterectomy in Tuberculosis of Kidney. S. E. Tracy, Philadelphia.
116 *Uretero-Appendiceal Anastomosis. B. Kennedy, Indianapolis.
117 Clinical Importance of Horseshoe Kidney. D. N. Eisendrath, Chicago.
118 Attempt at Staining Sarcoma with Methyl-Blue in Living Patient (Negative). R. T. Morris, New York.
119 *Experiments in Treatment of Acute Anemia by Blood Transfusion and by Intravenous Saline Infusion. V. C. David and A. H. Curtis, Chicago.
120 *Curative Effect of Normal Animal Serum in Suppurative Processes. E. Gergo, Budapest, Hungary.
121 Cecum from a Surgical Standpoint. R. Russ, San Francisco.
122 Some Facts Not Generally Known Regarding Ephraim McDowell. A. H. Barkley, Lexington, Ky.
123 Pylorectomy by Basting-Stitch Method. H. H. Kerr, Washington, D. C.
124 New and Simple Form of Apparatus for Nitrous Oxid-Oxygen Anesthesia. J. M. Flint, New Haven, Conn.
125 Keloid Formation in Scar After Mastoid Operation. E. Amberg, Detroit.
126 *New Retractor-Drain in Treatment of Small Infected Wounds About Hand. W. C. Cramp, New York.
127 Regurgitation of Fluid from Bladder to Kidney During Ureteral Catheterization. F. R. Hagner, Washington.
128 Technic of Suprapubic Prostatectomy. G. Kolischer, Chicago.
129 *Thymol-Alcohol as Disinfectant of Field of Operation. H. P. Kuhn, Kansas City, Mo.
130 Technic of Tubal Sterilization. L. W. Littig, Davenport, Iowa.

111. **Surgical Treatment of Gastro-Intestinal Stasis.**—It is Coffey's opinion that the large majority of patients with ptosis may be successfully treated and made perfectly comfortable by medical and dietary measures. Surgery should never be considered for the treatment of ptosis *per se*. Gastric or intestinal stasis not relieved by medical and dietary measures constitutes the only excuse for surgery in this class of cases. Given a case of right-sided ptosis with a moderately movable right kidney, painful cecum and appendix, not relieved by medical measures, the proper treatment is removal of the appendix and fixing the ascending colon through a right rectus incision, plus fattening. This will be sufficient to retain the kidney in position. If the right kidney is exceedingly movable, and the symptoms demand surgical relief, the appendix is removed and the colon and kidney both fixed through a posterior incision. A coexisting pericolic membrane may or may not be removed, according to the judgment of the operator at the time. Coffey usually has not removed it. An operation which fixes a floating kidney without fixing the colon at the same time is not a sound surgical procedure. A mobile cecum, with or without the membrane, in which the hepatic flexure remains fixed, is best treated by fixing the cecum and ascending colon to the parietal peritoneum. Mid-line ptosis of long standing not relieved by proper medical treatment is successfully treated by shortening the ligaments of the liver and stomach, suturing the omentum to the abdominal wall,

and expanding the upper abdomen. The results following this method of treating mid-line ptosis with stasis are fully as striking and complete as those produced by a gastro-enterostomy for mechanical obstruction at the pylorus. Sigmoid ptosis, producing severe stasis, can only be treated successfully by short-circuiting or excising. General visceroptosis, the pathognomonic sign of which is a floating left kidney, is not a surgical condition. Such patients may be materially benefited and made very comfortable by wise medical treatment combined with Martin's gymnastic treatment, but they can never be made normal individuals. The only hope for successful surgical treatment of general ptosis must be in the line of a prophylactic or orthopedic operation, which may be made possible in the future by improved diagnostic technic which will enable the doctor to determine the cases of movable colon in the feeble child before the ptosis habit has been formed, in which case the defect may be remedied by fusing the ascending colon to the parietal peritoneum, just as we now repair a congenital hernia or a cleft palate.

114. **Paget's Disease of Breast.**—Operative excision seems in McGrath's opinion to be the only rational and certain means of cure. He says the earlier such operation is undertaken, the better for the patient, as we have no means of knowing how long an interval of time may elapse before epithelioma or carcinoma may arise, or whether such condition may already exist in microscopic form.

116. **Uretero-Appendiceal Anastomosis.**—This plan of utilizing the appendix vermiformis occurred to Kennedy during the course of a radical abdominal operation for carcinoma of the cervix uteri when it developed that a very extensive part of the right ureter was embedded in the carcinomatous infiltrated tissue. Subsequent work on the cadaver and dogs has demonstrated the feasibility of the technic. The great mobility of the appendix vermiformis and its mesentery favors the operative technic admirably, in that the usual range of the tip of the appendix extends into the pelvis, transversely or obliquely across the brim of the pelvis, to the region of the left ureter and upward for a considerable distance, depending on the length of the appendix and its mesentery in the individual. The right ureter may be planted with ease into either the tip or base of the appendix and the transplantation of the left ureter into the appendix, with or without transplantation of the right ureter, in those cases with appendices and mesoappendices of average or fair length, may be accomplished without the production of kinking or undue traction to endanger blood-supply or drainage. As the majority of cases necessitating the transplantation of the ureters will always arise in women, the fact of the superior blood-supply of the appendix in the female lessens the possibility of vascular disturbance, as well as reduces the chance of subsequent infection in the appendix itself. The method has not been tried on the human being.

119. **Treatment of Acute Anemia.**—Infusion of normal salt solution was found by David and Curtis to temporarily resuscitate in acute anemia, but its usefulness is limited to a period of a few hours. It is probable that salt solution alone is capable of saving only an extremely small percentage of patients who would otherwise die from loss of blood. Clinically, it may be used to advantage until preparation for transfusion of blood can be made. Present knowledge does not indicate that the use of either fresh or preserved defibrinated blood is to be recommended. Blood-transfusion is the treatment of choice in severe anemia. The transfused blood is capable of resuscitating from otherwise fatal hemorrhages and physiologically replaces the blood which has been lost.

120. **Effect of Animal Serum in Suppurative Processes.**—Gergö's experience leads him to believe that the treatment of abscesses of the soft parts with normal horse-serum in proper dosage will give the same results and will replace the use of the antiferment-bearing sera. The serum treatment is contraindicated: 1. In unusually large abscesses containing 100 c.c. or more of pus. These abscesses may occasionally heal rapidly but as a rule the prognosis is doubtful. In these cases it is questionable if time, labor or cost is saved and there is the additional danger that the large abscess with a poorly defined outline may rupture into a vital organ. 2. In deeply seated abscesses when the clinical symptoms do not always show the nearest point of outlet. Surgical intervention gives the desired results only when the origin of such abscesses is known. 3. In old or feeble patients with large abscesses, where it is necessary to quickly liberate and remove the pus. Gergö attempted the treatment of suppurative tubercular lymphadenitis, and of acute abscess following bone and joint tuberculosis. In view of the fact that by leaving a few c.c. of horse-serum in the cavity a marked leukocytosis is produced, Gergö irrigated the tuberculous abscesses with horse-serum and filled the cavity with a moderate amount of the sterile fluid. Over one-half of the patients were cured in weeks or months. In some of these cases, however, he was forced to resort to the iodoform-glycerin treatment. Whether this method will be applicable in deep suppurating processes as in meningitis, empyema, purulent peritonitis or suppurating joint cavities, only further experiments will determine. Gergö's experience in these cases has been too limited to give an opinion.

126. **New Retractor-Drain.**—The retractor-drain devised by Cramp is made of a strip of steel a quarter of an inch in width, nickel-plated, and bent into the shape of the Greek letter Upsilon, the ends of the legs projecting at right angles for 1/8 of an inch and curled over at the ends, the steel giving a spring to the drain and also permitting of its easy sterilization. The retractor-drain is made in three sizes (found to be the best working sizes for this particular variety of wound), 1/8 inch, 1/4 inch, and 1/2 inch, based on the distance between the legs. After the pus is evacuated, the drain is inserted by pressing together the ends of the legs, introducing it into the wound and allowing the recoil of the steel to open the lips of the wound. It is removed in the same manner by pressing the legs together. There is no more pain incident to its use than with the other means of drainage, if the proper size drain is employed. There is little danger of displacement of the drain if ordinary precautions are taken, although a piece of silk may be advantageously tied to the bridge of the drain on either side and the ends incorporated in the dressings to obviate this possibility. The drain has been used in many cases with uniformly good results, the patients suffering no inconvenience from its employment, and Cramp has never seen any injury to tissues due to contact of the drain. After the drain is in place, copious amounts of gauze are lightly placed over it and kept moist by saline solution or a mild antiseptic to favor drainage, and this gauze is held in place by a loosely fitting bandage, the whole hand and arm being immobilized by a splint.

129. **Thymol-Alcohol as Disinfectant.**—The authors have modified Hoffmann's technic (5 per cent. solution of thymol in 60 per cent. alcohol) as follows: The patient receives a tub bath the night before the operation. The abdomen or parts are scrubbed with soap and water and dried with a towel. The patient is put to bed with no compress or application of any sort. One hour before the operation, the parts (scrotum and perineum excepted) are wiped over with a gauze sponge saturated with the solution, care being taken, following Hoffmann's instructions, not to use too moist a sponge or to allow the solution to remain in depressions. There occurs at this time a sensation of warmth accompanied with a mild degree of hyperemia. No patient has ever complained of burning or discomfort nor have they had the slightest degree of dermatitis following. After the application has dried, which occurs in a few moments, a large sterile gauze pad is applied and retained with a binder. The second application takes place on the operating table, the same precautions being followed as for the first. The operation begins five minutes after the last application. In emergency cases, they have used the solution immediately after the scrubbing or have used it without preliminary scrubbing with good results. They have found this method efficient in the preparation of the skin in any locality, over abrasions, compound fractures and infections; but it should not be used on the scrotum or the perineum, as it is here as likely to produce a dermatitis as is any alcoholic solution.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

October 5, II, No. 4649, pp. 927-996

1 Ventral Hernia, Traumatic or Incisional. W. H. Battle.
2 Acute Anterior Poliomyelitis. W. H. Trethowan.
3 *Relation of Gastric Secretion to Rheumatoid Arthritis. A. S. Woodwark and R. L. M. Wallis.
4 *Material and Technic of Wire Suture of Bone; Special Reference to Suture of Patella and Advantages of Iron Wire. E. W. H. Groves.
5 Case of Intracranial Tumor. H. Smith.

3. **Rheumatoid Arthritis.**—Evidence of the following definite changes were noted by Woodwark and Wallis in the composition of the gastric secretion in nine cases illustrative of rheumatoid arthritis: (a) A diminution in the amount of free hydrochloric acid, and also the active hydrochloric acid; (b) an excess of mineral chlorids pointing to a process of neutralization; and (c) a comparatively low ratio between the active hydrochloric acid and the mineral chlorids.

4. **Wire Suture of Bone.**—Groves favors iron wire in place of silver or aluminum bronze. He says it is stronger, more pliable, never breaks or kinks. He uses a tin plated wire of a diameter of .08 inch and a breaking strain of 483 pounds.

British Medical Journal, London

October 5, II, No. 2701, pp. 829-912

6 *Differential Diagnosis of Surgical Dyspepsias. A. J. Walton.
7 *Congenital Deformity of Forearm and Its Operative Treatment. H. G. W. Dawson.
8 Influence of Meteorologic Conditions on Development of Trypanosoma Rhodesiense in Glossina Morsitans. A. Kinghorn and W. York.
9 Etiology and Treatment of Miner's Nystagmus. F. J. Brone and J. R. Mackenzie.
10 Aneurysm of Anterior Cusp of Mitral Valve in Staphylococcal Endocarditis. W. Calwell.
11 Case of Ulcerative Endocarditis. A. Houlgrave.
12 *Case of Abnormal Pulse Rhythm. W. Johnstone.
13 Surgical Treatment of Rectal Cancer. H. Cripps.
14 Diagnosis and Treatment of Urinary Tuberculosis. E. H. Fenwick.
15 *Transarticular Method of Operation for Certain Difficult Fractures Near Knee and Elbow. W. S. Handley.
16 *Excision of Pile Area by Simple and Bloodless Method. A. Don.
17 Shape of Kidney in Certain Ureteral Obstructions. R. A. Bickersteth.
18 Excision of Gastric Ulcer. J. F. Dobson.
19 Aneurysm of Second and Third Parts of Left Subclavian Artery in a Woman. G. P. Newbolt.
20 One Thousand Cases of Total Enucleation of Prostate for Radical Cure of Enlargement of That Organ. P. J. Freyer
21 Acute Appendicitis; Plea for Early Operation. H. J. Paterson.
22 Laceration of Large Arteries. G. H. Edington.
23 Surgery of Sacro-Iliac Joint. W. I. de C. Wheeler.
24 Lighting of Operation Tables. F. W. Collinson.

6. **Differential Diagnosis of Surgical Dyspepsias.**—The indications for operative treatment are regarded by Walton to be as follows: 1. Any case in which the symptoms are such that a diagnosis can be made with tolerable certainty. 2. Any case commencing after the age of 35, which is not markedly relieved by a few weeks' adequate medical treatment. 3. Any case in which symptoms have recurred after previous attacks relieved by medical treatment, especially if the symptoms have changed from those typical of a chronic gastric ulcer. 4. Any case in which the stomach shows definite evidence of distention, whether the symptoms are those of ulcer or carcinoma. 5. Any case in which a tumor is present suggesting any of the above conditions. 6. Any case with repeated hemorrhage. Walton lays special stress on the fact that if rapid progress is not made with adequate medical treatment operation should early be resorted to. With our present knowledge it affords the only certain method of diagnosis and cure, and if undertaken early many of the more hopeless complications can be entirely prevented. Also in cases of this nature no operation must be considered complete unless the stomach, duodenum, gall-bladder and appendix have all been examined.

7. **Congenital Deformity of Forearm.**—The deformity in this case consisted of fixation of the forearms in a position of complete pronation with some slight bowing of the radius in its lower third, the convexity of the bow being backward and outward (presuming the limb to be in the correct anatomic position, palms to the front and thumbs out). The condition affected both arms equally, causing very great limitation to the usefulness of the arms and hands. The carpal bones were unusually movable one on the other, and the ligamentous attachments uniting them were very lax, this allowing of a certain amount of rotation of the hand on the forearm, much more than is normally the case, and doubtless due to constant efforts at supination acting on the only part of the limb capable of any rotatory movement. The deformity was not very noticeable when anything was taken in the hands, and no effort at supination was attempted; but if an effort was made to hold anything with the palm turned uppermost, a most awkward exposure of the deformity results, the elbow being pressed firmly to the side, and the hand rotated into an almost spiral attitude. A younger brother was also the subject of the same deformity, both right and left arms being perfectly fixed in the position of pronation, with even more marked bowing of the radius and more laxity of the intercarpal ligaments, and their maternal grandmother also suffered from the same condition, although it was not supposed to be so extreme. The fixation was due to bony union between the radius and ulna extending from the elbow downward along the shafts for about 2½ inches; the two bones were quite free below at the interior radio-ulnar articulation, the space between them being seen quite distinctly on the fluorescent screen, though the bones were very close together and the joint cavity very small. The head of the radius, instead of being the normal mushroom shape, was rounded off and laterally fused with the ulna.

12. **Abdominal Pulse Rhythm.**—A tracing of the pulse of Johnstone's patient taken with Dudgeon's sphygmograph showed a pulse partaking of the nature of a pulsus trigeminus but exhibiting a further abnormality. A long pause occurred after the three systoles and another full systole then occurred, followed by another fairly long pause, this in turn being succeeded by the trigeminal condition again.

15. **Operation for Difficult Fractures Near Knee and Elbow.**—The fractures to which Handley refers, are those of the lower end of the humerus and of the lower end of the femur, and more especially fractures in these situations involving the neighboring joints. The type of such a fracture is the T-shaped fracture described in the text-books. After such an accident, even when the injury is treated by an open operation, the shape of the articular surface of the broken bone is frequently so altered and deformed that the movements of the joint are greatly impaired. In the case of the elbow, despite early passive movements of the joint, a bond of fibrous tissue forms between the intra-articular portion of the line of fracture through the humerus and the contiguous surface of the ulna. Attempts to break down this adhesion may fail or may succeed only in refracturing the humerus, and the joint has to be excised. Handley believes that the present state of surgery justifies a bolder means of obtaining free access to the fracture and to the injured articular surface, so that its fragments can be accurately and precisely adjusted with the aid of vision. The only means available for securing such inspection is the free opening up of the joint into which the fractured bone enters. Such a method of exposing the fracture he distinguishes as transarticular. It consists in laying the joints wide open.

16. **Excision of Pile Area.**—Don's operation consists practically in removing the whole lower 1½-in. of the mucosa with the varicose, or communicating, venous radicles underneath it. This assures the removal of all the dilated veins, and of those that might later become dilated, if the cause continued to operate.

Edinburgh Medical Journal

October, IX, No. 4, pp. 289-384

25 Presence and Prevalence of Tuberculosis in Childhood. R. W. Philip.
26 Dynamic Diagnosis of Pulse. T. F. Christen.
27 Polyorromenitis or Multiple Serositis. E. Matthew.
28 Treatment of Simple Fractures by Massage and Movement. P. Watson.
29 Local Incidence of Cancer in Nairnshire. C. E. Green.
30 Extraction of Cataract in Capsule. F. F. S. Smith.

Quarterly Journal of Medicine, London

July, V, No. 20, pp. 409-524

31 Congenital Atresia of Bile Passages. L. S. Milne.
32 Acidosis Index: Clinical Measure of Quantity of Acetone Bodies Excreted in Urine. T. S. Hart.
33 Epidemic of Gangrenous Dermatitis. F. C. Purser.

34 *Origin of Chronic Ulcer of Stomach in Acute Variety of Disease. C. Bolton.
35 *Research on Combined Mitral and Aortic Disease of Rheumatic Origin; Rheumatic Malignant Endocarditis. F. J. Poynton and A. Paine.
36 *Case of Thomsen's Disease. L. Findlay.
37 Ochronosis Associated with Carboluria. A. P. Beddard and C. M. Plumtre.
38 *Sensitized Vaccine of Besredka. M. H. Gordon.

34. **Origin of Chronic Ulcer of Stomach.**—The main object of this paper is to show how, by the extension of an acute ulcer and the secondary inflammatory thickening which affects the same, and as a necessary consequence of the unhealed condition of the ulcer, a chronic ulcer arises. The funnel shape of an ulcer is not due to the fact that it arises as a result of vascular occlusion; it is merely the result of the mode of spread of the ulcer. The spread occurs in two directions, laterally and in the depth. If lateral extension has occurred rapidly the funnel is a very shallow one, and this shape disappears when the muscular coat is destroyed, the ulcer assuming a flattened form. If extension has occurred chiefly in the depth the funnel shape is well marked and perforation soon occurs, unless there is a well-marked inflammatory reaction and thickening. Digestion of the sides of the ulcer undermines the edges, so that the flat variety acquires a raised and overhanging edge, and the funnel-shaped ulcer is converted into a globular or other irregular shaped cavity. Chronic ulcer probably always arises in this manner, because, so far as we know at present, every initial lesion leading to ulcer is essentially acute and produces in the first instance acute ulcer. According to the nature of this initial lesion there are several different types of acute ulcer. They are all, under suitable circumstances very little understood at present, able to spread and become chronic, but there is undoubtedly one particular type of acute ulcer which most frequently undergoes those changes. Acute ulcer, whatever its origin, tends to heal rapidly and completely within a few weeks, and perhaps there is one type which most commonly does this. Occasionally, without showing any tendency to spread, an acute ulcer may be delayed or arrested in its healing, when thickening occurs and the condition may become chronic. One sex is more liable to be affected by a particular type of acute ulcer than the other. The multiplicity or the reverse of the ulcers, the position in the stomach occupied by them, the sex and age of the patient most affected, the recurrence in the same individual, all vary probably according to the type of acute ulcer. For instance, an ulcer due to an acute infective condition is commonly multiple, more often affects the fundus, may occur at any age, does not recur in the same individual, and usually does not spread or become chronic if the patient survives, although there is evidence to show that it may do so. These are the general principles from which the detailed pathology of chronic ulcer must be worked out, and this can only be done by the systematic classification and study of the various forms of acute ulcer.

35. **Mitral and Aortic Disease of Rheumatic Origin.**—The authors regard rheumatism as a peculiar streptococcal infection. The strong hereditary element in the disease supports the view that the exciting cause possesses some peculiarity by which in these particular tissues it can form the special poisons that make it so definite an affection. They do not believe that rheumatic endocarditis, whatever the infection may be, is always benign and requires an added infection to produce a progressive lesion. The rheumatic form is no exception to the rule that it is a disease which is almost invariably fatal when the signs are well established. They are doubtful of the efficacy of serum or vaccine at present in use, though they would neither dispute the records of such recoveries while such treatment was being employed, nor the advisability of trying any method that holds out the least prospect of success. It is the prophylaxis that is encouraged by their investigations. There must clearly be some peculiar factors at work to produce the progressive endocarditis, and one sometimes finds suggestive evidence in support of this. The cardiac rheumatism may have been neglected, the patient ill-fed, the surroundings unhealthy. Anemia, a prominent feature of some rheumatic attacks, may have persisted, and this in their opinion favors the malignant process. The danger of large unhealthy tonsils in the rheumatic is well established, and this danger can be cautiously dealth with. Above all, they believe that more clinical study is necessary of the course and history of acute rheumatic endocarditis. They believe that a smouldering activity of the rheumatic process is more common than is suspected, and very possibly we may not yet possess the necessary clinical accuracy for ascertaining the limits of this activity. This seems the more likely when it is borne in mind that even a gross and progressive lesion may elude observation until the end is close at hand. There is more hope that we may protect a patient against the development of a known danger than against a mysterious secondary infection which prefers scarred valve tissues and which appears usually without any particular cause or reason. The disappearance of the terms "malignant," "infective," or "pernicious" as applied to endocarditis they regard as a great advantage, and the substitution of the term "active" will answer every purpose, for the physician can judge of the degree of this activity by the well-known signs that may arise. "Active tuberculosis" expresses sufficiently a progressive pulmonary lesion, and we need no term "malignant tuberculosis" to bring home to us the fact that the activity is getting beyond all control. Why then use such a term as "malignant endocarditis," or perpetuate such an unproven conception as a non-infective endocarditis, by the use of the adjective "infective?"

36. **Case of Thomsen's Disease.**—In Findlay's opinion Thomsen's disease is not one primarily or wholly of muscle, but that in all probability the nervous system plays a not insignificant part in the etiology. It has been shown that in voluntary contraction of the abdominal muscles, as in bending, the myotonia develops, whereas during involuntary or reflex action, e. g., defecation, this peculiar contraction of the abdominal muscles is absent. The same difference is seen in the quadriceps femoris and latissimus dorsi contracting voluntarily and involuntarily. Direct stimulation or electrical stimulation of the muscle brings about myotonia, while contraction of the muscle reflexly, or at least while eliciting the knee-jerk, is normal in character. Moreover, the fact that the condition gradually disappears on a repetition of the voluntary movements, and does not do so on a repetition of the direct or electrical stimulation, negatives the idea of some primary muscle change, as do also the fibrillar tremors. And further, the creatin and creatinin metabolism shows that we are not dealing with a degenerate muscle, but with an extra efficient muscle, in short, a hypertrophied muscle, not improperly engendered by excessive work to overcome the spasm. And lastly, the influence of the mental state, further points to the disease being dominated, at least to a certain extent, by the nervous system.

38. **Sensitized Vaccine of Besredka.**—From the experimental evidence, Gordon says, it would seem that the results obtained on animals with the method of Besredka are very encouraging. Besredka regards the main action of sensitized vaccine as being to activate and accelerate the work of the leukocytes. Whatever may be the correct explanation, there can be no doubt that from the laboratory point of view the method forms an advance on previous methods of producing immunity. While its value is undoubtedly greatest in a preventive sense, it appears to have some curative action in animals, a point which suggests that perhaps the method of treatment by sensitized vaccine is worthy of a more extensive trial clinically.

Glasgow Medical Journal

October, LXXVIII, No. 4, pp. 241-319

39 *Cancer of Throat Treated by Radium. J. S. McKendrick and J. H. Teacher.
40 Articular and Muscular Rheumatism. J. Craig.
41 Diagnosis of Chronic Gonococcus Infections. D. Watson.
42 Case of Stricture of Esophagus. J. Morton.

39. **Cancer of Throat Treated by Radium.**—The radium in this case had destroyed all the main pharyngeal growth, and healing of the mucous membrane took place over the whole area occupied by the tumor within two months. Three months later a small portion of tumor had reasserted itself in the soft palate, and, after death, tumor tissue was also found in the neck about the lower border of the field of operations. Death was due to septic infection of the throat which produced sloughing of the large arteries in the neighborhood.

Annales de l'Institut Pasteur, Paris

September, XXVI, No. 9, pp. 657-736

43 Coagulation of the Blood and Genesis of Thrombin. J. Bordet and L. Delange. To be continued.
44 Rat Leprosy. (Lepra murium.) E. Marchoux and F. Sorel.
45 Epizootic Lymphangitis in Algeria. J. Bridré, L. Nègre and G. Trouette.
46 Dog Rabies in Western Africa. (Sur l'existence de la rage canine dans Haut-Sénégal et le Niger.) G. Bouffard.
47 Properties of Desiccated Rabies Virus. D. L. Harris (St. Louis).

Archives des Maladies du Cœur, etc., Paris

September, V, No. 9, pp. 561-624

48 Treatment of Syphilitic Aortitis and Aneurysm of the Aorta. H. Vaquez and C. Laubry.
49 Graphic Registration of Pulsation in the Esophagus. (De l'enregistrement du pouls œsophagien.) E. Cottin.

Journal de Médecine de Bordeaux

September 15, XLII, No. 37, pp. 581-596

50 Technic and Indications for Tonsillectomy. (Hypertrophie des amygdales palatines.) Brindel.

September 22, No. 38, pp. 597-612

51 Deformities from Constriction of Fetus by Cord. (Circulaires du cordon: Main bote. Absence congénitale du radius.) C. Boisse.
52 Colonic Pseudogastralgia. J. Matignon.
53 Experimental Feeding with Polished and Unpolished Rice Shows Complex Nature of Effects of Elements of Foods and Drugs. (Curieux résultats de l'alimentation par le riz complèt et incomplèt.) P. Carles.

Lyon Chirurgical, Lyons

October, VIII, No. 4, pp. 369-460

54 *Technic, Indications and Results of Gastrostomy. L. Bérard and H. Alamartine.
55 *Tumors in Bed of Kidney. (Tumeurs paranéphrétiques.) M. Durand and H. Verrier.
56 *Radiotherapy of Nevus. (Traitement radiothérapique des angiomes.) F. Barjon and P. Japiot.
57 *Intraperitoneal Injection of Oxygen in Treatment of Acute Diffuse Peritonitis. L. Arnaud.
58 Possible Efficiency of Operations on Posterior Spinal Roots for Zona, Mal Perforant or Hyperchlorhydria. R. Leriche.

54. **Gastrostomy.**—Bérard and Alamartine describe the technic and the advantages of gastrostomy in treatment of severe cicatricial stenosis of the esophagus. It permits retrograde dilatation, and in their experience a complete cure was realized in eight cases; four other patients required esophagostomy besides, and in two others the stenosis was congenital—these fifteen patients formed over 50 per cent. of the twenty-four cases of stenosis of the esophagus which they have encountered. The fatalities after gastrostomy are generally due to shock, the intoxication from the anesthetic proving the last straw for these debilitated patients.

55. **Pararenal Tumors.**—In the case described, the first symptoms had been noticed two years before the operation. Daily attacks of pain radiating through the abdomen were most pronounced in the right flank; they were without any connection with the meals, but generally terminated with vomiting. The pains were ascribed to gall-stones and rest in bed abolished them for a time. A large tumor was then palpated in the right side and it was removed with the adherent kidney but the patient succumbed the next day. Chamoff in 1911 found records of seventy-five cases of a solid and thirty of cystic pararenal tumors. The female sex is predominantly affected, and at an earlier age than with cancer. The symptoms are similar to those of a large cancer in the kidney except that the symptoms from compression are more pronounced. Chamoff found thirty-two cases in which an operation was followed by recovery, while sixteen patients died and the tumor recurred in six out of a total of fifty-four cases in which operative treatment was applied. The kidney generally has to be removed with the growth, but nephrectomy was done in some cases on the assumption that the growth was in the kidney, which was a mistake and the organ might have been saved.

56. **Radiotherapy of Nevus.**—Barjon and Japiot have now a record of seventy cases of vascular nevi in which they have applied the Roentgen rays or radium treatment. Their experience is decidedly unfavorable to these measures in treatment of pigmented nevus; prolonged irritation favors malignant degeneration in the pigmented forms, and surgical excision is better for these cases. The flat, wine-colored nevus proved the hardest to cure by any measures, possibly because the children were older. Radium has the greatest effect on these flat nevi, but even this frequently fails. In all forms the younger the patient the better the results. In three adults none of the methods applied gave any results. The best outcome was obtained with prominent vascular nevus, the angioma form. This never failed to yield to radiotherapy. In their sixty-seven cases of this kind, the angioma was on the scalp in four, the fontanel in two, brow in eleven, lids or orbit in eight, cheeks in twelve, limbs in five and trunk in seven, all in children under 3½ years old. In every case the tumor not only disappeared but the organ deformed by it resumed its normal shape and place. The dose was never more than 5 H, using the 5 or 6 B rays and repeating the sittings every three or four weeks. The rays are not filtered at first. Prudence and patience are the main points. Radium and the Roentgen rays seem to give equally good results in this form of nevus.

57. **Treatment of Peritonitis with Oxygen.**—Arnaud has been applying Thiriar's method of flushing the abdominal cavity with oxygen as described in The Journal, March 11, 1911, p. 781. Arnaud did not have conveniences for a continuous current of oxygen, so he merely injected a certain amount at intervals. Even with this the results were excellent, not only on the blood but also in prevention of adhesions. It induces local hyperemia and attracts leukocytes, while it favors peristalsis. The benefit from the measure was particularly evident in the three cases reported. The abdomen must be left open for the tubes to admit and carry off the oxygen; consequently the method should be reserved for the severer cases in which the abdomen is not to be sutured at once.

Lyon Médical, Lyons

September 22, XLIV, No. 38, pp. 461-504

59 *Local Injection of Alcohol or an Anesthetic Effectual in Treatment of Dysphagia with Laryngeal Tuberculosis. M. Lannois and R. Alexandre. Commenced in No. 37.

59. **Anesthesia of the Upper Larynx for Painful Dysphagia.**—Alexandre describes three cases of extremely painful involvement of the larynx in tuberculosis. He injected 0.5 c.c. of 1 per cent. stovain on each side of the larynx with complete relief of the pain, lasting in one case over two months.

Presse Médicale, Paris

September 18, XX, No. 76, pp. 765-772

60 Goiter an Inflammatory Reaction. (Quelle place occupent les goitres dans la pathologie du corps thyroide?) G. Roussy.
61 Direct Injection of Medicated Oil Into Bronchi or Lungs. G. Guisez and G. Stodel.

September 21, No. 77, pp. 773-784

62 The Capillary Network of the Central Pia Mater. F. Baudouin and Mme. J. Tixier.
63 Electrolytic Depilation. W. Dubreuilh.
64 Latent Syphilis in Course of Chronic Cirrhosis and Nephritis. M. Letulle and A. Bergeron.
65 Desiccated Milk. (Le lait sec ou lait en poudre.) G. Schreiber.

September 25, No. 78, pp. 785-792

66 Hemorrhagic Tuberculous Meningitis; Two Cases. L. Rénon, E. Géraudel and C. Richet, Jr.
67 *Simplified Calculation for Urea Index in Kidney Disease. (Le coefficient uréo-sécrétoire des reins.) H. Balavoine and R. Onfray.
68 Nitrogen Metabolism in the Tuberculous. (Les échanges azotés chez les phtisiques.) H. Labbé and G. Vitry.
69 Epidural Injections to Mitigate Labor Pains; Two Cases. M. de Kervily.

September 28, No. 79, pp. 793-800

70 *Climacteric Hemorrhage. (Métrorragies de la ménopause.) E. Forgue and G. Massabuau.
71 *Hyperemic Treatment After Trauma of Joints. (L'hyperhémie active dans les traumatismes articulaires et peri-articulaires.) R. Legras.

October 2, No. 80, pp. 801-808

72 Putrefaction in Intestine with Absence of Bile. (Le paradoxe de l'acholie intestinale.) H. Roger.
73 Artificial Displacement of Testicle to Avoid Military Service. (L'ectopie artificielle du testicule dans la peau de la région inguinale.) M. Guibé.

67. **Urea Index in Kidney Disease.**—Ambard's formula for the urea index was described in The Journal, Sept. 7, 1912, p. 818.

70. **Climacteric Hemorrhage.**—Forgue and Massabuau review the various theories that have been advanced to explain the hemorrhages of puberty and the menopause. The true explana-

tion is to be sought, they say, in exaggerated ovarian functioning. The ovaries frequently show a tendency to microscopic or visible cyst formation with hyperproduction of interstitial cells and hypertrophy of the gland. These changes are almost constant with fibromas in the uterus and climacteric hemorrhages; the hypertrophied gland produces an excess of its hormone and this in turn keeps up the hemorrhagic tendency or an influence predisposing to new growths.

71. **Hyperemic Treatment After Trauma of a Joint.**—Legras expatiates on the various advantages of superheated air as a routine measure in treatment of a simple injury of a joint. It not only soothes the pain, promotes absorption of effusions and blood and repair generally, but it places the parts in the best condition to repel infection.

Revue de Gynécologie, Paris

July, XIX, No. 1, pp. 1-96

74 *Surgical Treatment of Stenosis of Uterine Cervix; 191 Cases. (Les résultats de la stomatoplastie par évidement commissural du col—Pozzi.) A. Pineau.
75 Inguinal Hernia of the Stomach. E. Chambard.

74. **Surgical Treatment of Stenosis of Uterine Cervix.**—Pineau emphasizes the advantages of Pozzi's eminently conservative commissural resection of the cervix in treatment of stenosis. The mucosa both inside and out is respected and the wound heals by primary intention so that there is no danger of deformity from cicatricial retraction. He aims to dilate the external os and cervical passage and keep it open and supple. Pozzi has applied the method in 107 cases. Omitting those lost to sight, Pineau states that over 46 per cent. of eighty women previously sterile have had one or more pregnancies since. Barnsby and Spencer have also extensively applied this technic, so that there is now a total of 191 operations of the kind on record. Pozzi has performed the operation on account of dysmenorrhea in seventy-nine cases, and 86 per cent. of the women were permanently cured. In the forty-three cases of metritis, a cure was realized in over 73 per cent. These experiences over twenty years testify to the value of the method. The details of 129 of the cases are tabulated. The stenosis of the cervix requiring operative treatment is generally accompanied by kinking of the cervix and the lumen is usually plugged with mucus. Dysmenorrhea is not inevitable but it often accompanies the stenosis, and conditions favor localization of gonorrheal and other infections. The results of the operation never prevent delivery later although it may be somewhat retarded. When the uterus is imperfectly developed this operation often starts it to normal development, but this cannot be anticipated with an actual infantile uterus and consequently this condition contra-indicates this operation. (It was mentioned in THE JOURNAL, May 15, 1909, and described Jan. 1, 1910, p. 84.)

Revue de Médecine, Paris

September, XXXII, No. 9, pp. 673-760

76 Hemorrhagic Syndromes Early and Late in Typhoid. A. Robin, N. Fiessinger and M. P. Weil.
77 Septicemia with Friedländer Pneumobacillus. M. Carrieu and J. Anglada.
78 Conflicting Findings with Various Clinical Methods in Vogue for Examination of Effusions and Exudates. W. Janowski.
79 Acute Endocarditis in Typhoid. P. Savy and C. Gardère.
80 *Anaphylaxis Manifested in Neuritis. (Accidents d'anaphylaxie sérique à forme anormale.) P. Thaon.

80. **Nerve Manifestations of Anaphylaxis.**—Thaon reports the case of a man who was injured in his left hand and given an injection of 10 c.c. of tetanus antitoxin under the skin of the abdomen. No local or general reaction followed. Four years later he fell from a bicycle and injured his right hand. He was given another injection of 10 c.c. of tetanus antitoxin. The wound in the hand healed rapidly but around the site of the injection on the abdomen a large red edematous area developed, hot, painless, itching. This disappeared in four or five days. About nine days after the injection the patient suddenly felt an intolerable itching and patches of urticaria appeared all over his body and his face. He became very weak and fainted. The pulse was imperceptible, the skin pale and clammy. For twenty-four hours the urticarial attacks and the heart attacks alternated. On the second day he vomited and had uncontrollable diarrhea. The secretion of urine almost entirely stopped, and when it recommenced the third day there was considerable albuminuria. At the end of the third day he began to improve and in a week was apparently well. But about two weeks later he noticed great weakness in certain movements of his right arm and examination showed a muscular paralysis resulting from a neuritis of branches of the brachial plexus, evidently a result of the serum injection. Richet, Achard and others have demonstrated the accumulation of anaphylactic substance in the nervous centers, and Richet thinks that the duration of anaphylaxis may be almost unlimited.

Revue Médicale de la Suisse Romande, Geneva

August, XXXII, No. 8, pp. 565-612

81 Autoserotherapy of Effusion Consecutive to Artificial or Spontaneous Pneumothorax. R. Burnand.
82 Enlargement of Chest Measure of the Tuberculous Under Influence of Altitude. Técon.
83 Scarlet Fever at Geneva. P. Gautier.

Beiträge zur Klinik der Tuberkulose, Würzburg

XXIV, No. 2, pp. 145-281. Last indexed Sept. 21, p. 973

84 *Roentgen-Ray Examination of Pulmonary Tuberculosis. H. Schut.
85 Modern Methods of Sputum Examination. (Verleichungswert einiger neuerer Methoden der Sputumuntersuchung auf Tuberkelbazillen des Ziehlschen und Muchschen Typus.) R. C. Matson (Portland, Ore.).
86 *The Fever in Tuberculosis. (Moderne Fieberforschung und Tuberkulose-Fieber.) F. Wolff.
87 *Tuberculosis of the Spleen. (Milztuberkulose.) A. Lorey.
88 Orthostatic Albuminuria in the Tuberculous. V. Hinze and M. Sorin.
89 Methylene Blue-Copper Salt Treatment of Tuberculosis. H. Selter. Commenced in No. 1.

84. **Roentgen-Ray Examination of Tuberculous Lungs.**—Schut's article fills fifty pages and is accompanied by twenty-seven skiagrams on heavy paper. He emphasizes that the interpretation of the findings is a more difficult matter than to get a good radiograph and that the stereoscopic method has a number of advantages. He gives the clinical details of the cases. Some of the skiagrams are of patients with pneumonia, pleural effusion or emphysema, and he points out the differential points in the "Roentgen photo" as he calls the skiagram. (The skiagrams are on the same scale as in the "Roentgen-Atlas" with sixty-one plates which formed a large supplementary number of the *Beiträge* in 1910.)

86. **The Fever in Tuberculosis.**—Wolff reiterates that a rise in temperature is not necessarily fever, and that the vasomotor instability in fever is apparently the result not of the fever but of the cause inducing the fever. He warns that an intercurrent infection or even a fall may send up the temperature in the tuberculous; sometimes a patient may not be thriving until a period of high temperature intervenes, after which conditions take a decided turn for the better. The high temperature is by no means the most important symptom of the fever in the tuberculous. He insists that the ordinary cheap themometer is not reliable and that taking the temperature in the mouth, the patient not reclining, has no scientific value. Commenting on the taking-the-temperature mania which prevails to such an extent among the public, he relates the case of a woman who had staid in bed for months, although perfectly well, because she had been told years before during treatment of an apical process that whenever her temperature was 37.5 C. and over she must stay in bed. It was difficult to convince her that there was no reason for her staying in bed, but she has been entirely well during the eight years since. Wolff contends that only the rectal temperature is decisive, and that the temperature should be taken in the rectum occasionally at least. Regular weighing of the tuberculous is more instructive than the temperature curve in many cases; this reveals the other elements of the fever, but here again strictly accurate scales and skill in their use are indispensable to determine the actual importance of the fever. Only a steady decline in febrile patients free from a tendency to doughy fat is serious, indicating severe irritation of the organism. Transient fluctuations in weight are comparatively unimportant. The question is to determine in which cases the high temperature is a sign or accompaniment of severe disturbances in the metabolic processes. When the patient is free from this and from weakness of the heart then the

fever is not malignant, and the patients are better off up and about than in bed, notwithstanding their high temperature, as he shows by a number of case histories cited. He believes in exercise and work, graduated to the individual case, as of supreme importance in tuberculosis, even in some of the febrile cases, selecting them by application of modern views as to the true nature of fever. He hints in conclusion that possibly fever is always present in every case of tuberculosis that is not totally stationary.

87. **Tuberculosis of the Spleen.**—There are a few cases on record similar to the one reported by Lorey in which the spleen seemed to be the primary focus of tuberculosis. The benefit from splenectomy was so great that the measure is justified even when not quite certain as to whether this is the sole focus. The operation may be difficult on account of adhesions, and there is danger of postoperative gastro-intestinal hemorrhage and of thrombosis developing at the point where the splenic vein is ligated. In the case described the tuberculous nature of the spleen affection was an operative surprise. The course of the case since indicates that the liver is probably also involved. If tuberculosis had been suspected, Lorey would have given the patient a course of tuberculin preliminary to the splenectomy; there is a chance that this might benefit a tuberculous spleen as it has been known to benefit tuberculosis of the kidney. Only when all the general measures for tuberculosis have failed should splenectomy be considered.

Berliner klinische Wochenschrift

September 16, XLIX, No. 38, pp. 1781-1828

90 Elimination of Uric Acid with Hypophysis Disease. (Harnsäureausscheidung bei Erkrankungen der Hypophyse.) W. Falta and J. Nowaczynski.
91 Determination of Sugar in the Blood. (Zur Methodik der Blutzuckerbestimmung.) H. Schirokauer.
92 *Diphtheria. (Zur Epidemiologie und Bekämpfung der Diphtherie.) v. Drigalski.
93 Familial Hemolytic Jaundice. (Hämolytischer Icterus.) M. Mosse.
94 *Serous Meningitis in Children. (Meningitis serosa und verwandte Zustände im Kindesalter.) K. Blühdorn.
95 Dietetics in Kidney Disease. (Die gegenwärtige Diätetik der Nierenkranken.) A. Kakowski.
96 Tuberculosis Statistics. J. Ritter.
97 The Heel Bone. (Architektur des Calcaneus unter normalen und pathologischen Verhältnissen.) H. Reiner.

September 23, No. 39, pp. 1829-1872

98 Fate of Carbohydrates. (Umwandlungen und Zerfall der Kohlehydrate.) A. Jolles.
99 *Tuberculosis of the Kidneys. (Zur Tuberkulose der Nieren.) M. Waldschmidt.
100 *Postoperative Peptic Ulcer. (Perforation des postoperativen Ulcus jejuni pepticum ins Colon transversum.) A. W. Pinner.
101 *Insignificant Remote Effects of Removal of Normal Spleen Adherent to Tumor. (Exstirpation der normalen Milz.) Y. Noguchi.
102 *Hyperthyroidism with Tuberculosis. (Basedow-Symptome bei Lungentuberkulose.) H. v. Brandenstein.
103 Serodiagnosis of Tuberculosis. V. Zweig.
104 Polyps in Rectum. (Benigne und maligne Polypen der Flexura sigmoidea und der Ampulla recti.) A. Albu.
105 Dietetic Treatment of Pyelitis in Infants. (Zur "diätetischen" Behandlung der eiterigen Erkrankungen der Harnwege im Säuglingsalter.) H. Nothmann.
106 *Sleep at Will by Electricity. (Neuer dosierbare Wechselstrom—elektrischer Schlaf.) F. Nagelschmidt.

92. **Diphtheria.**—Drigalski relates that at Halle the number of cases of diphtheria has shown a gradual decline in the last five years, from 1302 to 578 cases. Other infectious diseases have rather increased in frequency. In prevention of the spread of diphtheria, great stress is laid on convalescents still harboring the bacilli and they are kept under a certain supervision, and are not allowed to return to school or have anything to do with the traffic in foodstuffs. After recovery each one is examined at least once, school children several times. The final disinfection of the premises follows the certification that no diphtheria bacilli are to be found in the patient's throat. It does little good to give the final disinfection while the patient is still scattering the bacilli. On reexamination of 2,812 children who had had diphtheria, the bacilli were found in 312 on the second examination; in 100, on the third; in seven, the sixth; in one each up to the thirteenth, and in two on the fifteenth examination. Only six of the total 2,812 thus had to be kept out of school for four weeks or longer. Bacilli were found in the healthy persons in the environment in 25 per cent. of the 986 examined, but the germs seem to die off quickly in the healthy throat as none was found in 63.2 per cent. a week later, and all but 6 per cent. were free from them after two and a half weeks. Drigalski states that he has no legal authority to enforce these measures, but the public has complied with them without complaint.

94. **Serous Meningitis.**—Blühdorn has encountered ten cases of serous meningitis in children during the last six months, as he describes in detail. The effusion was in the subarachnoid space in all and the cerebrospinal fluid was limpid and sterile but under high pressure. Lumbar puncture gave great relief in some cases but not in all, and the meningitis passed into a purulent phase in several of the cases. The serous meningitis developed in the course of pneumonia in three, in pertussis in two, while in the five other cases the meningitis seemed the only affection. Only one of the pneumonia children recovered, a boy of 9; one pertussis infant has recovered but seems to be imbecile, and three of the five children with simple serous meningitis have not developed mentally normally since; two are infants, one a boy over 5. The two who recovered were 6 and 35 months old. The whole picture resembled very much that of epidemic cerebrospinal meningitis, especially the consecutive imbecility.

99. **Tuberculosis of the Kidneys.**—Waldschmidt reports the spontaneous healing of a tuberculous process in one kidney in a woman of 46. The case resembles that published by Ekehorn in a woman of 29. At present Waldschmidt's patient seems to be entirely cured of the tuberculous bladder and left kidney affection which had been positively diagnosed nine years before and had caused disturbances for thirteen years. The patient refused an operation and under conservative measures and several courses of treatment at the Wildungen spa the symptoms gradually disappeared. The kidney involved showed no signs of functioning on recent cystoscopic examination, but the bladder was healthy and the patient in fine general condition. Early nephrectomy, however, would have spared her thirteen years of suffering. He has been looking over the necropsy records since 1900 at the hospital (Hamburg-Eppendorff) and found chronic local tuberculosis of the kidneys recorded in 0.049 per cent. of the 40,621 cadavers, but in only one cadaver was there no other tuberculous focus to be found. In eighty-six of the total 119 positive cases both kidneys were tuberculous. No case of spontaneous healing was discovered. He compares these findings with those of 100 operative cases; in only 44 per cent. of these was another focus known, but in several that came to necropsy later, traces of tuberculosis elsewhere were discovered in all but one patient. Necropsy confirmed in nine cases the diagnosis of unilateral renal tuberculosis. In other cases the tuberculous process in one kidney was in an advanced stage but only incipient in the other. He regards this with other evidence as excluding ascending infection of the second kidney from the bladder. But the danger of involvement of the second kidney—by whatever mode it may occur—must be regarded as imminent although there may be years of a deceptive lull. The entire material teaches anew that prompt nephrectomy is the true and the only effectual means to treat tuberculosis of one kidney. When this is impossible for any reason, courses of mineral waters may prove useful.

100. **Postoperative Peptic Ulcer.**—In the case reported by Pinner a gastric ulcer persisted after gastro-enterostomy and numerous peptic ulcers developed in the jejunum. He urges the cooperation of surgeons and internists to ward off such complications after a gastro-enterostomy, possibly by a diet promoting secretion of bile and pancreatic juice, by refraining from coffee, alcohol and tobacco, or all combined.

101. **Effects of Removal of Normal Spleen.**—Noguchi had to remove a normal spleen on account of adhesions to a lipoma, and has kept clinical control since of the man of 42. It took five or six years for the blood-picture to be normal again, as at first the polynuclear neutrophils dropped off considerably, lymphocytes and eosinophils taking their place. Otherwise the loss of the spleen seemed immaterial.

102. **Hyperthyroidism in Tuberculosis.**—Brandenstein states that of seventy men and thirty women with pronounced pulmonary tuberculosis (Hamburg), only 21 per cent. were free from symptoms on the part of the heart. All the patients

were nervous and excitable and such a large proportion exhibited symptoms suggesting hyperthyroidism that a casual coincidence is out of the question. The thyroid was enlarged in many cases in the first stages of tuberculosis. Another feature emphasized is the similarity of the injurious action of tuberculous toxins and the thyroid toxin. A history of diphtheria, syphilis or other infection is often found leading up to exophthalmic goiter, and it seems plausible that tuberculosis might have a similar effect on the thyroid. This would explain the heart and nerve symptoms as due to hyperthyroidism as the tuberculosis progresses. It is even possible that tuberculosis might start the hyperthyroidism and then the tuberculous process might heal while the hyperthyroidism be left installed, like a post-infectious nephritis. The blood-picture which has been assumed to be characteristic of tuberculosis may be merely a sign that the organism has been contending with some infection and has not yet regained its balance.

106. **General Anesthesia by Electricity.**—Nagelschmidt claims that he has modified the alternating electric current in such a way that it affects the central nervous system like Leduc's interrupted current, only more powerfully and under better control. He was thus able to throw dogs and rabbits into a deep sleep and arouse them at will by pushing a button, and the animals were lively afterward. The current could be increased until animation was entirely suspended, both heart action and respiration arrested, and twice the rabbit seemed to be dead, but reapplication of the current revived the animals while the controls left untreated were really dead. The method is not ready for the clinic but already it affords a means for physiologic research under more exact control and dosage than have been possible hitherto. [The lay press has already heralded the method as a "cure for insomnia—electric sleep turned on and off at will," but Nagelschmidt makes no such claims.] The current is transformed by a small device which, it is said, can be screwed on any multostat.

Centralblatt für die Grenzgebiete der Med. und Chir., Jena

XV, No. 6, pp. 515-638. Last indexed Sept. 21, p. 974

107 *Pseudotumor of the Brain. (Pseudotumor cerebri.) R. W. Finkelnburg.
108 *Gastric Sarcoma. (Magensarkom.) O. Hesse.

107. **Pseudotumor of the Brain.**—Finkelnburg analyzes twenty-four articles that have been published on the affection which resembles the clinical picture of a tumor in the brain, and yet it runs an entirely different course. After causing symptoms of pressure on the brain and disturbances suggesting a focus, it subsides spontaneously or under mercury or iodids, and may disappear without leaving a trace or some permanent injury may be installed. The symptoms varied as the cortex, base of the skull, occiput or hemisphere of the brain was involved. He summarizes the cases on record under these headings, and tabulates the details of thirty-one cases which terminated in recovery; blindness was entailed in four cases and there was some atrophy of the optic nerve in seven and left deafness in one. In five cases the patients died immediately after trephining and four after lumbar puncture and three died not operated on. The duration in the fatal cases had been from over three weeks to fifteen months. In the cases with a favorable outcome the duration had been from three weeks to over two years. The affection had long lulls in some cases with entire freedom from all symptoms for years and even decades. Then the whole train of symptoms may develop and last for months or disappear anew without leaving a trace. In one of Higier's cases the first attack of severe brain symptoms and choked disk occurred at the age of 6 and lasted for nine months, when it entirely subsided; after an interval of thirteen years it flared up anew and lasted for ten months. There has been no recurrence during the three years since. No benefit was observed from mercury, iodid or mixed treatment except in a very few cases, and no essential improvement followed lumbar puncture. Treatment must be along the lines for brain tumors in general, as the outcome seems to be the only clinical difference between the true and the false tumor. Especial attention should be paid to warding off optic atrophy.

108. **Sarcoma of the Stomach.**—Hesse sifts the literature on this subject, listing alphabetically 233 authors and devoting fifteen pages to tabulation of the different cases. Only about 1 per cent. of gastric tumors are sarcoma, and a fifth of them develop at the pylorus, a fourth at the greater curvature. The sexes are equally affected; about 25 per cent. of the patients were under 30. The mortality after resection was 31 per cent. Only four cases are known of permanent cures after three to eight years, but on the whole the prognosis is by no means less favorable than cancer, and spontaneous partial retrogression has been known in some cases. Arsenic should be given to promote this, and with inoperable tumors or after resection the Roentgen rays and radium should be applied. In nineteen cases the gastric sarcoma was a metastasis. In eighteen others of the 181 tabulated the diagnosis was probable but not certain.

Correspondenz-Blatt für Schweizer Aerzte, Basel

September 20, XLII, No. 27, pp. 1001-1048

109 Practical Importance of Roentgenoscopy in Gastro-Intestinal Disease. F. de Quervain.
110 Psycho-Analysis. F. Riklin.
111 Diathermy. G. Herzer.

October 1, No. 28, pp. 1049-1096

112 Milky Ascites and Chylothorax. (Chylascites und Chylothorax.) W. Loffler.
113 Cancer of the Bladder; Four Cases. (Zur operativen Behandlung des Blasenkrebses.) Häberlin.

Deutsche medizinische Wochenschrift, Berlin

September 26, XXXVIII, No. 39, pp. 1817-1864

114 *Tinnitus. (Prognose und Behandlung der Ohrgeräusche). K. Wittmaack.
115 Action of Preparations of Mercury on Spirochetes. (Zur Toxikologie und Pharmakologie einiger Quecksilberverbindungen.) J. Abelin.
116 Hemoglobinophil Bacteria. R. Scheller.
117 Occurrence of Dysentery Bacillus in Nature. (Vorkommen von Bakterien der Ruhrgruppe—Typus Y—in der Aussenwelt.) T. Messerschmidt.
118 Serodiagnosis of Syphilis. (Ueber hämolysehemmende Erscheinungen bei luetischen Sera und über die Möglichkeit ihrer Ausnützung für eine Serodiagnostik bei Syphilis.) M Popoff.
119 Operations for Cataract. (Staroperationen.) G. Levinsohn.
120 *Hunger in Infants. (Hunger im Säuglingsalter und Ernährungstechnik.) I. Rosenstern.
121 Ionization in Therapeutics. (Zur Technik der Anionen Behandlung.) P. Steffens.
122 *Suggestion for Improving Metric Notation Prescriptions (Vorschlag zur Verbesserung der Gewichtsbezeichnungen auf Rezepten.) E. Harnack.

114. **Noises in the Ear.**—Wittmaack comments on the necessity for determining the cause of the tinnitus for effectua treatment. It frequently happens that the measures applied especially such as influence the circulation in the internal ear aggravate the tinnitus, and measures directly opposite may prove effectual. When the noise is heard rhythmic with the pulse, the hearing intact, the sound is generally the perception of some arterial murmur at some point in the body. Treatment of the circulatory tinnitus should be primarily addressed to the cardiovascular apparatus or the blood in general. Neurasthenic noises require entirely different measures. He has found it useful to divert the patient's attention by a rushing brook or a loud ticking clock or other mechanical device to overtone the neurasthenic tinnitus. The outlook is bad when these two forms of tinnitus are combined. With organic disease of the ear, sedatives, bromids and valerian may prove useful; they are most effectual in the neurasthenic tinnitus and that due to changes in the nerve terminals. In the latter case potassium iodid, systematic sweats, arsenic or thyroid treatment may have a favorable action. Measures to divert the blood by hot foot-baths and sitz baths or to induce a hyperemic reaction by massage, superheated air, electric measures, etc., sometimes prove effectual symptomatic measures, as also lumbar puncture. In extreme cases operative destruction of the labyrinth may be considered. It should always be borne in mind that a number of factors may cooperate in the tinnitus.

120. **Hunger in Infants.**—Rosenstern writes from Finkelstein's service to warn that modern methods of infant feeding are liable to do harm by letting the child suffer from hunger, when for any reason it does not get its proper proportion of food, either from dropping to sleep at once after it has taken a few swallows, possibly two ounces, or from the infant's

attention being diverted and it stops to play and takes a long time to get the necessary amount. Even when the infant is healthy and digesting well, it is seen to be losing weight, and an immediate increase in the amount of the food is demanded. How to accomplish this is quite a question in institutions; one way is to shorten the intervals between feedings, striving constantly to return as early as possible to the usual five feedings a day. This was always accomplished in the service in two or three weeks or six weeks at latest. Fully 50 per cent. of the infants in the service showed this tendency to insufficient nourishment, for which the child and not the nursing mother was responsible. A further aid in such cases is to give five drops twice a day of pepsin. The mother's milk is drawn after each feeding, when the child has not emptied the breast, and it is fed to the child. The same principles apply to bottle feeding and to children suffering from some transient infection. Restriction of the nourishment still further, as is so frequently done, may have the most serious results when the child is already undernourished. He has found it useful to give a more concentrated food, supplying fluids by rectal injection or subcutaneous infusion in case of diarrhea. Hydrocephalus enhances the difficulty of the more concentrated feeding, but he thinks this is due more to the accompanying spasmophilia inducing direct esophagism. A minor point which he has found worthy of attention is the necessity for letting the child sit up and belch the air it has taken in during nursing. Often when the child has been sitting up and has belched once or twice, it will resume peaceful feeding. In institutions the infants may be set up in the corner of the crib until they have thus expelled the air.

122. **Improved Metric Notation for Prescriptions.**—Harnack would like to have the decimal point absolutely prohibited and the weights given in whole figures and the divisions in common fractions, each figure to be preceded by a capital G (gram) or M (milligram), for example, G 5; M 5; M ½. These two letters differ so widely that they could never be confounded, and he thinks this method would do away with a great deal of uncertainty and danger. He gives some specimen prescriptions to show the advantages of the proposed method. He says that when it is a question of money, on cheques, drafts, receipts, etc., the sum of money is written out as well as given in figures, to prevent possible mistakes, but when it is merely a question of the most priceless possession, health, no one takes the trouble to write out the amount. [Commenting on Harnack's statements the suggestion is made by an eminent American chemist that the decimal system should be retained but the amount should be read as we read money. Just as we write $1.87 and read it one dollar and eighty-seven cents, so we should write 1.025 gm. and read it as one gram and twenty-five milligrams. Writing it out thus would do away with all possibility of error.]

Medizinische Klinik, Berlin

September 22, VIII, No. 38, pp. 1531-1568

123 Juvenile Paralysis. O. Klieneberger.
124 Technic for Taking Temperature in Axilla. (Thermometerhaltung in der Achselhöhle.) W. Kausch.
125 Gastro-Intestinal Hemorrhage as Symptom of Internal Disease. J. Meinertz. Commenced in No. 37. See ab. 145, p. 1582.
126 Small Abdomen Predisposes to Leanness; Large, to Obesity. (Bauchgrösse und Ernährungszustand.) v. Sohlern, Jr.
127 Precipitin Serodiagnosis of Syphilis. (Serodiagnose der Lues mittels der Ausflockung.) H. Schmidt.

September 29, No. 39, pp. 1569-1610

128 Trauma as Factor in Cardiovascular Disease. (Herz- und Gefässkrankheiten und Unfall.) A. Hoffmann.
129 Treatment of Fracture to Retain Function. (Funktionelle Behandlung von Knochenbrüchen.) A. Bum.
130 The Memory. (Das Gedächtnis.) W. Morgenthaler. Commenced in No. 38.
131 Serotherapy in Pneumonia. (Zur intravenösen Anwendung des Römerschen Pneumokokkenserums bei croupöser Pneumonie.) H. Dorendorf.
132 Treatment of Cardiovascular Derangement with Differential Pressure. (Behandlung von Herzschwäche und Kreislaufstörungen mit Unterdruckatmung vermittels der Lungensaugmaske.) E. Kuhn.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

September, XXXVI, No. 3, pp. 271-392

133 *Influence of Age of Mother on Sex of Child. (Einfluss des Alters der Mutter auf das Geschlecht des Kindes.) F. Ahlfeld.
134 Topography of the Umbilicus in Women and Infants. (Zur Topographie des Nabels.) N. Kakuschkin.
135 Legal Aspect of Instrumental Perforation of Uterus by Physician. (Die gerichtsärztliche Beurteilung instrumenteller, durch Aerzte bewirkter Uterusperforationen.) G. Puppe.
136 *Treatment of Uterine Hemorrhage and Hypersecretion at or Near the Menopause. (Zur Behandlung der klimakterischen und präklimakterischen Blutungen und Hypersekretionen.) R. Wanner.
137 Fatal Laceration of the Tentorium in Infants. (Intrakranielle Blutungen infolge Tentoriumzerreissung als Todesursache bei Neugeborenen und Säuglingen.) W. Benthin.
138 Cancerous Degeneration of Uterine Myomas. W. Hertel.
139 Simulated Roentgen-Ray Burn. (Eine hysterische "Röntgenverbrennung.") G. Hirsch.

133. **Influence of Mother's Age on the Sex of the Child.**—Ahlfeld concludes from the study of several thousand cases that the age of the mother has a decided influence on the sex of the child; that primiparæ over 30 show a much larger percentage of boys than younger mothers, and those over 40 a still greater proportion. He advises further study of statistics to settle the question.

136. **Treatment of Bleeding and Hypersecretion at the Climacteric.**—For the bleeding and excessive secretion so common at the menopause Wanner recommends treatment with zinc chlorid. He prepares the patient and anesthetizes as for a major operation, dilates, obtains scrapings of cervix and uterine mucosa for microscopic examination, and checks bleeding with a gauze tampon. He then moistens a strip of sterile gauze with 50 per cent. zinc chlorid solution and after removal of the tampon packs it well up into the fundus of the uterus and around the cervix; after twenty-four hours in bed he removes it and gives a potassium permanganate douche. From the seventh to the tenth day the slough separates and can be removed with dressing forceps. At first he was afraid to use so strong a solution and had some failures on account of not getting complete erosion. There was danger of infection of the residue. Now he has uniform success and says there is no danger in the use of a 50 per cent. solution.

Münchener medizinische Wochenschrift

September 24, LIX, No. 39, pp. 2089-2144

140 Experimental Syphilis of the Eye. J. Igersheimer.
141 *Intracutaneous Tuberculin Reaction as Aid in Test Inoculation of Animals. P. Esch.
142 *Technic for Taking Temperature in Child's Rectum. P. Tachau.
143 Chorea from Inherited Syphilis. G. Flatau.
144 Action of Modified Carbonated Baths on the Heart. (Beeinflussung des Reizleitungssystems des Herzens durch das natürliche Kohlensäurebad mit indirekter Abkühlung.) L. Nenadovics.
145 Tabes Alleged to Be Curable by Antisyphilitic Treatment Kept Up Long Enough. (Günstige Beeinflussung der Tabes dorsalis durch Salvarsan.) Leredde. Commenced in No. 38.
146 Progress in Treatment of Infantile Paralysis. (Fortschritte in der chirurgisch-orthopädischen Behandlung der spinalen und zerebralen Kinderlähmung.) B. Baisch.

141. **Improved Technic for Diagnostic Inoculation of Animals.**—Esch gives minute directions for hastening and rendering more certain the results of experimental inoculation of guinea-pigs from patients suspected of tuberculosis. The suspected fluid is injected into the peritoneum or subcutaneously, or if the fluid is limpid it can be injected into the heart or a vein. He always inoculated two animals and then applied the intracutaneous tuberculin test every three days, beginning nine days after the inoculation. The response to the intradermal test speedily reveals whether the inoculation is giving a positive or negative reaction. If the reaction is positive the animal is killed and examined, as also, if negative, at the end of six weeks.

142. **Rectal Temperature of Children.**—Tachau has been systematically investigating the temperature of children at different depths in the rectum and has found that there is wide divergence between the temperature obtained at a distance of 3, 5, or more cm. from the anus. The difference amounted to 0.1 up to 0.7 degrees C. in his 300 tests on thirty children, and this explains the conflicting findings. The thermometer should always be introduced as deep as possible and always to the same depth.

Virchows Archiv, Berlin

September, CCIX, No. 3, pp. 321-476

147 Anatomic Findings with Gunshot Wounds of the Skull. (Schädelschüsse.) F. Heine. Commenced in No. 2.
148 The Hypophysis Cerebri with Hydrocephalus. (Verhalten des Hirnanhangs bei chronischem Hydrocephalus und Ursprung der Pigmentgranulationen in der Neurohypophyse.) Stumpf.
149 Multiple Endotheliomas of the Blood Capillaries. B. Müller.
150 Parenchymatous Carcinoma of the Liver. V. Mirolubow.

151 Lymphogranulomatosis of the Skin. G. Arndt.
152 Case of Kala-Azar. N. W. Petrow.
153 Emigration of Leukocytes, Especially in Pneumonia. H. Ribbert.
154 Amyloid of the Lung. P. Kschlscho.
155 Rare Deformity of Heart. (Seltene Herzmissbildung bei Situs Inversus abdominis.) W. Knape.

Wiener klinische Wochenschrift, Vienna

September 26, XXV, No. 39, pp. 1437-1472

156 *Melena Neonatorum. L. Unger.
157 *Serodiagnosis of Pregnancy. (Serologische Schwangerschaftsdiagnostik.) R. Franz and A. Jarisch.
158 Physical Measures in Treatment of Emphysema of the Lung. J. v. Beneznr.
159 Roentgenoscopy with Chronic Disease of the Large Intestine. G. Schwartz and Novaselnsky.
160 *Blood-Picture with Goiter. (Blutbild bei Struma and Morbus Basedowi.) J. Hatiegan.

156. **Melena Neonatorum.**—Unger reports nine cases of this grave affection; only one of the infants died notwithstanding the enormous losses of blood. One child recovered without medication; prompt recovery in three cases followed a single injection of 2 c.c. of the mother's serum, while injection of gelatin and gelatin by the mouth and rectum displayed little if any effect. One infant recovered after one injection of 5 c.c. of a 2 per cent. solution of gelatin; another after six such injections in three days, and another after repeated administration of gelatin by every route plus an injection of horse-serum; another recovered after an injection of gelatin and calcium chloratum by the mouth. In the fatal case treatment had been by gelatin and ergot by the mouth.

157. **Serodiagnosis of Pregnancy.**—Franz and Jarisch state that the antitrypsin test is reliable and by far the simplest means to reveal the presence of the protective ferments found in the serum of pregnant women. The trypsin-digesting power of fourteen healthy men and non-pregnant women tested was 0.4 or 0.5, but in twenty-six pregnant women the index was 0.7 up to 0.9 and in eighteen parturients it was 0.8 or 0.9, returning to normal by about the sixteenth day. In nine cases of cancer the index was likewise exceptionally high, reaching 1.4 in a case of chorio-epithelioma. The Abderhalden and Rosenthal technics were both found reliable but the latter is incomparably simpler. (See Abstract 173 in these columns recently, p. 1414.)

160. **The Blood-Picture with Goiter.**—Hatiegan announces that he found in about half his thirty-five cases of simple goiter the lymphocyte blood-picture which has been assumed to be characteristic of exophthalmic goiter.

Zeitschrift für Kinderheilkunde, Berlin

IV, No. 6, pp. 451-564. Last indexed Oct. 5, p. 1333

161 *Diphtheria. E. Seligmann and E. Schloss.
162 *Underfeeding During First Two Weeks. (Bedeutung der Unterernährung in der ersten Lebenzeit.) A. v. Reuss.
163 Origin of Albumin in Infant's Urine. (Herkunft des Harneiweisses bei Albuminurien der Säuglinge.) N. Krasnogorski.
164 Experimental Research on Action of Small Doses of Volatile Fat Acids on Elimination of Nitrogen, Ash and Calcium in the Stools. (Pathogenese der Verdauungsstörungen im Säuglingsalter. VI.) H. Behrdt and K. Bamberg.
165 *Heart-Block. A. F. Hecht.
166 Hereditary Brachydactylia. J. Drey.
167 Negative Experimental Research on Transmission of Morphin to Fetus and Suckling. A. Reiche.

September 10, V, No. 1, pp. 1-84

168 *Water Requirement of Infant. (Wasserbedarf des Säuglings.) L. F. Meyer.
169 Physiologic Motor Restlessness in Ocular and Facial Nerves in the Newly Born. (Eine bes. Form motorischer Reizzustände bei Neugeborenen—sog. Stäupchen.) W. Zipperling.
170 Influence of Calcium on Cartilage in vitro. (Einfluss des Calciums auf die Knorpelquellung.) H. Wolff.
171 Defects in Tympanic Membrane in Children. (Ursachen des Offenbleibens und Vernarbens von Trommelfellücken im Kindesalter.) B. Gomperz.
172 Paralytic Equivalents for Epilepsy in Children. R. Neurath.
173 Experimental Research on Sensitization Against Casein of Cow's Milk. K. Kassowitz.

161. **Epidemiology and Treatment of Diphtheria.**—Seligmann and Schloss describe a series of epidemics in the schools of Berlin showing the importance of isolating bacillus carriers, even though they may have no symptoms of the disease. All children in schools where there are cases of diphtheria should be examined and not be allowed to return to school until throat and nose are free of bacteria. Bacteria may persist for two months but seldom longer than a month in healthy children. Physicians should examine bacteriologically other members of the family in cases of diphtheria. In institutions all infants with coryza should be examined. In infant asylums, they do not advise the giving of prophylactic injections of antitoxin because of the dangers of inducing anaphylaxis. In severe cases they give the antitoxin intravenously and it acts with remarkable rapidity.

162. **Insufficient Nourishment During the First Two Weeks.**—Many infants who are thought to be insufficiently nourished do not need food, but water. If on account of difficulty of nursing on the part of the mother or child there is real need of food, breast milk obtained from another mother is the best. Cow's milk should not be given till the middle of the second week; with sufficient fluid a child will not suffer before that time. The slight fever observed so often in the new-born and frequently called inanition fever, generally disappears spontaneously if water is given freely.

165. **Differential Diagnosis of Functional and Organic Heart Block.**—Hecht describes two cases of heart block, one in the course of diphtheria, where there was doubtless an organic lesion of the bundle of His; the other in the course of measles, and here he maintains the heart block was due solely to vagus stimulation. In the first case atropin did not change the ratio between the auricular and ventricular beat, while in the second the heart block disappeared almost entirely under atropin. In the diphtheria case the heart block persisted after four months, while in the other the normal ratio was restored after three weeks.

168. **Amount of Water Required by an Infant.**—Meyer calls attention to the fact that from 66 to 68 per cent. of the infant's weight is water and that in proportion to weight the infant requires four times as much water as the adult. He carried out a series of experiments on infants under three months of age, giving them a diet of concentrated milk with sufficient caloric value, but insufficient water. He gives tables showing the loss of weight in these cases and the gains when water was added; also tables showing the nitrogen metabolism.

Zentralblatt für Chirurgie, Leipsic

September 28, XXXIX, No. 39, pp. 1321-1360

174 Subphrenic Abscess from Masked Perforation of the Stomach. (Gedeckte Magenperforation.) R. Bartz.

Zentralblatt für Gynäkologie, Leipsic

September 28, XXXVI, No. 39, pp. 1265-1296

175 Advantages of Digital Concentric Compression to Correct Obstetric Indentation of the Skull. (Schädeleinbrüche der Neugeborenen.) O. v. Herff.
176 Operative Treatment of Retroversion and Flexion of the Uterus. (Behandlung der Retroversio-flexio uteri durch Verdoppelung der Ligamenta rotunda.) O. Pankow.
177 *Indications for Operative Treatment of Puerperal Pyemia. W. Benthin.

177. **Indications for Operative Treatment of Puerperal Pyemia.**—Benthin reports two cases of severe puerperal pyemia with the streptococcus viridans or other streptococci in the blood and mixed germs in the vaginal secretions. The clinical picture was grave, with chills and continuous or remittent fever. Both women were very anemic and thrombosis developed. The condition was so serious in both cases that they seemed beyond operative relief and treatment was directed solely to keeping up the women's strength, but both recovered. If an operation had been done, the cases would have been hailed as evidence of the value of surgical measures in such cases.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 19, XXXIII, No. 113, pp. 1177-1184

178 Acute Articular Rheumatism Followed by Chorea and Polyserositis in Boy of 6: Recovery with Chronic Heart Lesion. E. Giovannini.

September 22, No. 114, pp. 1185-1200

179 Localization of Speech Center. (Perche l'emisfero cerebrale sinistro ha il privilegio di presiedere alle funzioni del linguaggio.) T. Silvestri.

September 28, No. 117, pp. 1217-1232

180 *Infantile Diarrhea in Epidemiology of Cholera. (La gastroenterite infantile nella profilassi anticolerica.) M. Gioseffi.

180. **Infantile Diarrhea in Epidemiology of Cholera.**—Gioseffi relates two instances at different places in which the spread of cholera was traced to two infants who had succumbed to what was supposed to be ordinary gastro-enteritis but which proved to be cholera, the germs having been

imported from other towns and the infants in each case being the first to contract the disease. In one case the infant died in the hospital and examination of the other children in the ward revealed cholera germs in a number of others; the entire inmates of the ward and the attendants were at once isolated and further spread of infection in the institution was thus prevented. In the other case the contagion had been brought into the country to the infant by a healthy germ-carrier who had spent a holiday in the city. The cholera of the last few months seems to have been particularly mild, Gioseffi adds in conclusion, no child under the age of 7 succumbing to it and seven of the eleven healthy germ-carriers discovered being less than 7. He queries whether this can be ascribed to reduced virulence of the germs or to increased resisting powers of the organism.

Policlinico, Rome

September 22, XIX, No. 39, pp. 1409-1444

181 Advantages of Ether "Drop" Anesthesia. (Sull'anestesia con l'etere "a goccie" e sulle complicanze polmonari.) G. Dialti.
182 *Artificial Pneumothorax in Treatment of Hemoptysis. G. Finzi.

September 29, No. 40, pp. 1145-1480

183 Exploratory Puncture of Abdomen. L. Panichi.

182. **Artificial Pneumothorax in Treatment of Tendency to Hemoptysis.**—Finzi reports the successful application of an artificial pneumothorax in three patients displaying a threatening tendency to recurring hemoptysis. Forlanini long ago called attention to the value of this measure in hemoptysis, and his assertions have been confirmed by Fontana, Heisler and others. Finzi has had much experience with the artificial pneumothorax in treatment of pulmonary tuberculosis but these are the only cases in which the benefit on the lung process was a secondary consideration.

Riforma Medica, Naples

September 21, XXVIII, No. 38, pp. 1037-1064

184 Pulsation in Pleural Effusion. (Ancora sul determinismo della pulsatilita. delle raccolte pleuriche.) S. Livierato. Commenced in No. 37.
185 Sarcoma of Spermatic Cord Successfully Removed. G. Giordano.
186 Uterine Cysts. M. Dardanelli.

Brazil-Medico, Rio de Janeiro

August 15, XXVI, No. 31, pp. 317-326

187 Copper Salt in Tuberculosis. (Applicaçao do bi-iodureto de cobre em therapeutica.) A. Fontes.
188 German Measles in Brazil. (Rubeola ou roseola epidemica na Bahia.) G. Moniz. Commenced in No. 30.

September 8, No. 34, pp. 351-360

189 Treatment of Primary Congestion of the Lungs. C. Fraga.

Revista de Medicina y Cirugia, Havana

October 10, XVII, No. 19, pp. 531-556

190 The Rat in History and Its Extermination at Havana. (Guerra contra las ratas.) L. M. Cowley.
191 Uterine Fibroma and Pregnancy. S. V. Castello.

Semana Medica, Buenos Aires

August 22, XIX, No. 34, pp. 349-396

192 *Albuminuric Retinitis. A. J. Manes.
193 Bill for Compulsory Sanitation of Cars. (Proyecto de ley sobre higiene, desinfeccion y profilaxis en los ferrocarriles.) J. Penna.
194 *Ionization by Diathermy. C. Heuser..

August 29, No. 35, pp. 397-448

195 Modified Technic for Operation on Maxillary Sinus. (Modificacion al metodo Caldwell-Luc para el tratamiento de las supuraciones cronicas del seno maxilar.) E. V. Segura.
196 *Influence of Site of Gastric Cancer on Motor Functioning. M. R. Castex and C. B. Udaondo.
197 The Urogenital System in the Animal Series. V. Delfino.

September 5, No. 36, pp. 449-496

198 *Operative Treatment of Conical Cornea. (Keratocone.) A. J. Manes.
199 *Signs of Saturation with Mercury. N. Ragusin.
200 Sporotrichosis of the Mouth. A. Quadri.
201 Notes on Chemistry; Hydrogen. V. Delfino.

192. **Albuminuric Retinitis.**—Manes regards the prognosis of albuminuric retinitis outside of pregnancy as extremely grave. Most of the patients die within two years after the retinitis develops, although some may survive for much longer and may recover entirely if the nephritis can be conquered. The diagnosis requires besides ophthalmoscopic examination, a complete general examination including study of the blood. Treatment should be addressed to the nephritis, possibly restricting patients to milk alone. Drastic purgatives, venesection and lumbar puncture may prove useful adjuvants. High cholesterinemia is a frequent accompaniment of the retinitis and calls for special dietetic measures, possibly skimming the milk. When the retinitis occurs during pregnancy, before incriminating the latter preexisting kidney disease must be excluded and infections or intoxications in the course of the pregnancy liable to bring on nephritis.

194. **Ionization by Means of Diathermy.**—The method known as thermopenetration or diathermy is a high frequency process which causes heat to reach deep into the tissues. Heuser has been applying it to promote local salicylic medication and reports three cases in which, under this ionization by diathermy the processes rapidly subsided. One was of rheumatic origin in a man of 65, one a neuritic sciatica, and one swollen glands in the neck in a child of 5. In the latter case the ionization was done with guaiacol at one electrode and iodin at the other. Under eight applications conditions returned apparently to normal and the child gained ten pounds in a month. The medicinal action is promoted by the heat in the depths of the tissues, but Heuser warns that the procedure is liable to induce severe chronic ulceration if the fluids used are too concentrated.

196. **Influence of Site of Gastric Cancer on Motor Functioning.**—Castex tabulates the details of thirty-six cases of gastric cancer all showing the slight influence of a cancer at the cardia on the motor functioning of the stomach. When located in the lesser curvature, it interferes with the motor functioning if it spreads toward the pylorus, while if it spreads upward toward the fundus, the functional activity and tonicity suffer, as manifested by the disturbances in digestion of a test meal.

198. **Treatment of Conical Cornea.**—Manes turns back a flap of conjunctiva and then burns off the tip of the cone with the actual cautery but without perforating it. The flap of conjunctiva is then sutured to cover the whole of the cauterized surface and the cornea is then punctured at the upper corneoscleral junction. He opens the corneal wound every day with a spatula to enable the corneal wound to heal without any pressure.

199. **Saturation with Mercury.**—Ragusin expatiates on the importance of recognizing when the organism is saturated with mercury so as to keep it at this point or reduce the dosage and not let it pass into the phase of intoxication. Besides the symptoms of saturation which have been called "mercury grippe," gastro-enteritis, diarrhea, gastric distress and stomach or bowel disturbances which yield readily to an oil purge, he has encountered four cases in which the mercury caused symptoms suggesting angina pectoris. In one case the pain was so intense that the patient fainted. The urine showed a little albumin without renal elements; the dyspnea was not very intense and there were no signs on the part of the lungs, but the pulse ran up and the temperature also rose a little. This pseudo angina pectoris was observed twice in the course of treatment in three cases; it followed the fourth, sixth or ninth injection in three cases and the first in one case. The mercury can be recommended without fear of further trouble after waiting two weeks. One might think that this symptom is caused by embolism on account of the sudden onset, but the conditions in which it occurs and its recurrence will exclude this. The stomatitis is preceded by considerable salivation and swelling of the gums. The mercury being eliminated in this way, the intensity of the irritation is naturally dependent on the dose of the drug. Albuminuria also calls for reduction of the dose, but skin manifestations are generally the result of a special idiosyncrasy.

Hospitalstidende, Copenhagen

September 18, LV, No. 38, pp. 1033-1056

202 Automatic Regulation of Circulation. (Kredsløbets Regulering gennem Hjertets Forsyning med venøst Blod.) A. Krogh.
203 Chemistry of Colloids in Immunology. A. A. Meisling.

September 25, No. 39, pp. 1057-1080

204 Red Glass Becomes Permeable to Chemical Rays with Age. (Lidt on Tidens Indflydelse paa rødt Glas.) C. H. Würtzen.
205 The Oatmeal Cure in Diabetes. (Er v. Noordens Havrekur specifik.) H. Abrahamsen.

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THE HOSPITAL AS A FACTOR OF INTEREST TO THE MEDICAL PROFESSION *

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The hospital as a factor in civilization began almost back in the dark ages when military commanders, chiefs of clans and monarchs were compelled to maintain some place in which to take care of their sick and hurt soldiers. The principle underlying the hospital in those days was a wholly selfish one and contemplated merely the fighting strength of the army.

At a later day some of the religious orders began to care for the homeless and helpless within their domains. One hundred years ago society as a whole began to consider its obligations to the poor and helpless who were sick, and the first civil hospitals were created. Little by little and step by step these hospitals grew in grace, physicians began to frequent them in their studies of medical science, and it is from this period that the hospital dates as a real factor for the common good. Many can remember when the hospitals in this country were places to which might be sent only those who could not be cared for elsewhere, and no one who had a comfortable home and the means of employing physicians and nurses ever voluntarily went to the hospital.

With the improvement of methods employed in the cure of disease, and the better equipment of the hospitals, came a new period, and in desperate cases surgical patients were ordered to hospitals since these furnished better facilities in which to do surgical operations. Then came the germ theory of disease and antiseptic surgery, and the patient's home was recognized as no longer furnishing the field for a surgical operation or the facilities to perform one. The hospitals in those days reeked with vile odors of carbolized oils and iodoform and iodin and other ill-smelling stuffs supposed to have the magic power of destroying germs of disease.

Then followed a better day than all, the days of aseptic surgery and aseptic medicine, in which cleanliness was regarded as the very acme of godliness. We had a period in which the hospitals were clean and sweet, in which the sweetness of flowers was permitted to pervade the atmosphere of the sick-room and the corridors. It was then that people began to frequent the hospitals voluntarily — they no longer felt that an order to go to a hospital was a sentence of death. This brings us to a period perhaps ten or fifteen years ago. Within that time the practice of medicine and surgery has made vast strides; pathology has come to mean much, and bacteriology even more. We have learned that certain pathologic conditions of the system are made manifest by certain conditions of the blood and the secretions; we have devised means of ascertaining these conditions and of measuring their significance, and by these various means we are now able to diagnose disease more certainly and more accurately than ever before. Moreover, we have learned to treat disease far differently and to use physical apparatus, electrical instruments and devices of various sorts that are now recognized as the equipment of the modern hospital.

A period has come in which all men, women and children who suffer with even the ordinary ills of life — all actually sick persons — must be taken to the hospital if they are to receive that care and those means of cure which the science of medicine is now able to provide; so that the whole problem of our civilization so far as the sick is concerned has shifted, and to-day it is not the homeless and the helpless alone who are permitted the benefits of the hospital, but all sick mankind.

A few years ago the adequately equipped hospital was a clean house with clean floors, clean walls, a clean bed, indifferently trained nurses and a doctor whose sole means of diagnosis were his ear, his eye and his touch at the bedside of the patient. To-day such a hospital is inconceivable, and the modern hospital must be equipped with a laboratory of pathology to aid the surgeon or physician in his diagnosis, a laboratory of bacteriology, in which the heterovaccines and autovaccines are made and employed, a department of physical therapeutics for various sorts of exercise of the various parts of the body, for hydrotherapeutic and electrotherapeutic treatment, a department of dietetics in which patients may be fed by the doctor's prescription and their food measured in terms of calories and chemical constituents; an operating department, aseptic, with all which that term implies; a milk laboratory for the formulation of food for infant-feeding, and a vast list of machinery such as blood-pressure apparatus, instruments for measuring the hemoglobin, microscopes and instruments for counting the blood-cells, *x*-ray outfits not alone for diagnosis of fractures of the bones but for diagnosis of lesions of the soft tissues and for treatment of certain parasitic diseases and for the treatment of certain neoplasms, including cancer forms, apparatus for introducing normal salines and other fluids into the blood-stream subcutaneously or intravenously, and so on down the list almost *ad infinitum*.

In this modern hospital the division of units must be made so clear and convincing that an infinite variety of diseases may be treated without fear of cross-infections. The communicable diseases of childhood must be cared for so that a child brought in suffering from one disease may not contract another before it leaves the institution. The idiopathic erysipelas of the medical ward must not be allowed to communicate the infection to the surgical department. In the maternity department there must be such rigid technic and such inviolable rules of conduct that the puerperal woman may be cared for and cured without endangering the health of the other patients in the department. It is impossible always to prevent the occurrence of thrush or ophthalmia neonatorum, but it is no longer forgivable that one case shall be followed by another. We recognize the epidemic forms of cerebrospinal meningitis and poliomyelitis, but we do not forgive the establishment of these epidemics in the wards of the modern hospital.

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* Chairman's address before the Section on Hospitals of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

From these fundamental principles of hospital administration has grown a profession in which the architect in all his branches must co-labor with the pathologist, the bacteriologist and the specialist in all the branches of medicine and surgery, a profession which we have come to call hospital administration.

Now let us retrace our steps a moment for a brief review of what has been accomplished in this direction. As far back as 1863, Florence Nightingale published a book on the hospital of that day. Her plans down to the minutest detail show the hospital unit almost precisely as it is to-day—the ward flanked by the service-room, the bath, the toilet, the slop-sink room, the convalescents' dining-room, the linen room, the surgical dressing-room, the supply-rooms and the medicine-closets. We have not gone far to improve on this old unit—it is the same to-day as it was then, but the details are vastly different. The hospitals of that day ignored cracked floors, carpeted wards, holes in the walls, pictures hanging on moldings, upholstered furniture, crevices everywhere as an abiding-place for microbes. The structures were of wood, literally tinder-boxes, with a power plant in the basement as an added danger of fire.

To-day our units are the same, but our construction is steel and concrete, the monoliths and polyliths; we have no carpets and dust-catchers; our furniture is of white enamel, not only to deny an abiding-place to microorganisms but also in order that the supervisor may see where there is dirt. We have forsaken the old-time heat registers with their dust and soot; we have steam radiators that give nothing into the sick-room; we have screens on our windows to deny admission to the fly and the mosquito and other insects that may carry the organisms of disease. We know that sunlight is one of God's ways of curing disease and that fresh air is one of the greatest physicians in the world, so that we build our modern hospitals with windows facing to the sun, with air-space measured in terms of cubic feet for the sick.

We have serving-rooms for feeding the sick as they did in Florence Nightingale's day, but our method of feeding is vastly different; the pathologist has told us that the diabetic must be fed on certain kinds of food carrying certain chemical constituents, that the nephritic must be fed on very different foods, and that those suffering from certain other disease must have their diet measured in rigid terms, so that to-day we have advanced in this department to a stage at which the physcian may measure his chemical skill by means of practical metabolism against the unrhythmical and unhealthy functions of the organs of the body, and so by using the laboratories as they are constituted he may build up a wasting frame, and at the same time withhold those chemical poisons that are responsible for the patient's downfall. We have reached a time when we may see through the microscope and by our various scientific means the very processes of functional activity, looking almost as it were through a glass on the inner workings of the various organs of the human body.

Some of these thoughts must present themselves to us as we meet here to-day to inaugurate the Section on Hospitals of the American Medical Association. We meet for the first time to recognize a new specialization in the science of medicine—that of the hospital administrator, that of the specialist whose duty it is to present to the modern physician the facilities which he needs for the care of his patient. In the creation of this section, the House of Delegates, our governing body, has given a new impetus to the principle long ago recognized by some of us—that the hospital administrator must be one who is versed in at least the principles of the science of medicine, in order that he may coordinate the activities of the hospital and its varied facilities with the scientific work of the physician in charge of the patient. Many years ago a few medical men were placed in charge of hospitals, but mostly they were men who had failed in the practice of their profession, or were broken down in health and no longer able to bear the hardships of practice; they were usually men unskilled in commercial activities. Our profession is one that notoriously unfits men to deal with other business in the marts of trade—with the buying and selling of supplies, the handling of help and the management of employees, in the critical review and approval or disapproval of architectural plans, the economies of the power plant and the various physical activities incident to the administration of a hospital. Is it any wonder then that these men failed in their task? And they did fail, and in their failure brought reproach not only to their profession, but to the hospital in which their activities were employed. But within the past few years there has grown up among us a new class of men, men reared in the colleges, graduated from the best medical schools, trained in the fundamental principles of their profession, in internship and staff positions in the hospitals and who then, prompted by some special fitness that has been demonstrated in their careers, have selected for themselves the medical specialty of hospital administration, just as other men had selected other specialties. There are not many of these roundly equipped and practically trained medical men to-day, but their number is growing and the demand for their services is great.

If this section of the American Medical Association is to achieve anything—and we are solemnly impressed with the fact that it is to achieve something—then its greatest field of usefulness will be found in that junction between the medical practitioner and his work in the hospital. We are not alone attempting here to help the hospital administrator grow great in his field of usefulness, but as practitioners of medicine we expect him to help us grow great, to learn many things in hospital procedure, the use of apparatus, methods of doing new things, and of doing old things in a new way. We expect him to help us train our interns in order that the younger men in the profession may be better in this community of interest.

So let us join hands, this little body of men who are here, and let us say to each other: Here is a nucleus for a great field, for a great work; we will help each other and bring in others to help us and themselves to the end that the hospitals of this broad land may be better built, better equipped and better administered, and in order that the medical man of to-day and to-morrow may do his work better because of these physical and moral improvements, all to the common end that humanity may profit by this, the small beginning that we meet here to celebrate to-day.

1516 Main Avenue.

THE HOSPITAL IN RELATION TO MEDICAL SCIENCE *

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The formation of a section to be devoted to the consideration of hospital problems is to be welcomed as meeting a real need of the profession. Hospitals have played an important part in the past and are destined to play a much greater one in the future in the advancement of medical science and art and in the promotion of medical education. In recent years they have assumed interesting and significant sociologic functions, and it is possible that it may hereafter be deemed wise to add the subject of medical sociology to the title and functions of this section. Certainly there should be some section in which this important subject may receive proper consideration, and it does not seem desirable to multiply the sections of the Association more than is absolutely necessary.

The various activities of the hospital may be classified as humanitarian, scientific and educational. Although included in the foregoing, it may be well to specify also the sociologic activities. The most widely useful hospitals are those which recognize and give their proper share to each of these functions.

The position held by the superintendents of many of our hospitals is, I believe, peculiar to American hospitals. This position is one of much larger influence and authority and of more varied functions, not only on the administrative but also on the professional side, than any corresponding one in European hospitals. As a rule the superintendent comes into much closer relations with the trustees or managers of the hospital than do members of the professional staff. His opportunities and power for good, as well as for harm, are very great. For the position of hospital superintendent, as it has developed in this country, at least in the larger general hospitals, it seems to me most desirable that a medical man of good administrative capacity should be chosen. The career has become a highly specialized and in many respects an attractive one. A medical superintendent should be the one most likely to appreciate and further the needs of medical science and education.

The care of the sick and injured is the primary and essential purpose of a hospital. The welfare of the patient should always receive the first consideration. The plea for scientific and educational uses of a hospital could not be justified if it could be shown that such uses interfered with the patient's welfare. As a matter of fact, however, one of the strongest supports for this plea is the demonstration, based on experience and sound argument, that the interests of patients are best served in hospitals which likewise recognize fully the needs of medical education and of scientific research. The best and most famous hospitals are of this character, and such hospitals serve the community more broadly and effectively than institutions which limit their activities merely to the care of patients.

The most urgent problems of medical education to-day relate to the teaching of the clinical subjects. It is the so-called theoretical or laboratory subjects which are now taught most practically, whereas the practical branches are taught most theoretically. In the past, hospitals and medical schools have developed in this country for the most part quite independently of each other, and as a result it has become a matter of great difficulty to bring them together in some such relation as that existing in Germany between university and hospital. The need of such affiliation is now widely recognized and efforts to solve this perplexing problem have in some instances met encouraging success. The solution does not in general lie in the direction of universities securing hospitals of their own, although they are fortunate if they possess them, but rather in the establishment of the proper relations between the universities and municipal or privately supported hospitals, whereby such hospitals can be made freely available for the training of students and physicians and the cultivation of scientific medicine.

We can scarcely point to-day to the existence in this country of great medical and surgical clinics comparable to those of most German universities, nor shall we have them before there has been considerable reorganization of the professional service in most of the teaching hospitals and until we recognize that the head of such a clinic cannot conduct it properly as a mere incident of a busy outside practice. It is a curious fact that, whereas every other branch of the medical sciences has now assumed the position of a science to be cultivated by those devoting their lives to the subject, clinical medicine, the main trunk from which all these branches have sprung and the most important of all the medical sciences, has not yet assumed this rank of an independent science requiring for its cultivation and teaching the single-hearted devotion of those who pursue it.

The heads of the departments of medicine and surgery in the university should of course be the heads of the corresponding clinics or services in the hospital, and in my judgment these positions should go to those who are willing to give most of their time to the care of patients within the hospital, to teaching and to the supervision or conduct of investigations relating to their science and art. They should be provided also with a resident staff superior to the ordinary interns and comparable to assistants in laboratories, who are appointed for longer periods and are in training for academic careers or the higher walks of medicine. Under such a system the hospital and the patients will be better served, medical education will be improved, and the art and science of medicine will be advanced far more than under the prevailing conditions. It is not enough that we should ask ourselves whether our medical schools and hospitals turn out as good doctors as those of Europe; we should also inquire whether they are contributing their share to the world's progress in the art and science of medicine. The problems of clinical medicine are of an interest and importance surpassing those of any other branch of medical science. For their solution the hospital ward should be the laboratory, but at present the organization of work in the ward bears so little resemblance to that of a scientific laboratory that a comparison between the two is only misleading.

A tendency at the present time to separate scientific research from the work of teaching has certain advantages, but has, I believe, even greater dangers. Scientific investigation in medicine during the last three decades has led to results of such vast importance as regards our power over disease that this makes an appeal to the public and to philanthropists much stronger than does medical education. Hence it is that large funds are available for institutes of research and for research hospitals which have no connection with education. Hospitals are often more eager to contribute to scientific medicine than to participate in the work of medical edu-

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* Remarks made by invitation at the opening of the Section on Hospitals of the American Medical Association at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

cation, and in a number of instances have been provided with funds and laboratories intended solely for scientific research. While there is room for such independent endowments and institutions, the roots of fruitful scientific work lie in the educational system, and if the latter is neglected, the former will suffer. The traditional home and the most favorable environment for productive research is the university, and hospitals in affiliation with universities offer, I believe, the best opportunities for the promotion of medical science and art. Above all the teacher should also be an investigator.

The provision of laboratory equipment has become a necessity of the modern hospital. Modern methods of diagnosis require in ever-increasing measure trained experts and the necessary rooms and equipment for biologic, physical and chemical diagnostic procedures. Development along these lines has greatly improved the quality, both scientific and practical, of the work of our hospitals, and leads naturally to the desire to combine scientific investigation of the problems of disease with the practical aims of the hospital. This is a line of progress which should be encouraged by our hospitals, and which increases the service of the hospital to the profession and the public.

I think that a special plea is needed at present for the cultivation of pathologic anatomy, which has not, as some seem to suppose, exhausted its possibilities of usefulness in the advancement of scientific medicine. It is not necessary to decry the value of experimental and physiologic methods in order to give to pathologic anatomy its proper place in the study of the problems of disease. Every effort should be made to secure post-mortem examinations of those who die in hospitals, and in my experience such efforts, if properly made, are generally successful. Both hospitals and the public—I might add, even the profession—should be educated to a realization of the importance of such examinations, so that they are understood to be a matter of course in the conduct of the hospital.

Although but little appreciated as yet by the community, medicine is destined to play a leading part in the solution of many of the industrial, economic and social problems of the world, and in these newer activities, to which I referred at the beginning as sociologic, there is a place for the helpful cooperation of our hospitals; but I must leave this aspect of the subject to your consideration with this bare mention.

In conclusion, permit me to express my best wishes for the success of this new section, which opens with a program indicative of much useful work.

A CLINICAL VIEW OF THE SPECIAL DIET *

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The average hospital to-day is inadequately equipped to feed patients properly according to modern dietetic principles. The chief fault lies with the medical staff rather than with the administrative department of the hospital.

These are sweeping statements, but I believe they are justified. If true, the statements should not be interpreted as indicating neglect of patients, either on the part of the institution or on the part of the members of the staff, but merely as evidence of the fact that scientific dietetics is a subject of recent development with which the profession at large is not yet thoroughly familiar. But these principles are now known, and the time is not far distant when the hospital or the physician who feeds patients in the old way will justly be accused of neglect.

Up to a short time ago the feeding of patients was a matter of empiricism. By experience we found that certain articles of food disagreed with patients suffering from a given disease. Such articles were forbidden in that disease. Likewise we recommended certain articles of food because some patients had done well on them. Thus were developed a set of empirical rules, very general and indefinite in character; the diet was ordered according to the name of the disease, with little consideration for the needs of the individual patient; the rest was left largely to the judgment of the nurse or to the appetite of the patient. We did not bother ourselves with the composition of food, nor with its nutritive value. We may have tried to look up the word "protein" in the medical dictionary, and failed to find it. Perhaps we wondered if a calorie was not some article of food used by the French, instead of a convenient unit for measuring the nutritive value of foods.

Many physicians of middle age or older, even of such eminence that they are on hospital staffs, are asking these or similar questions to-day. Worse still, many of them are not sufficiently wide-awake to ask the questions at all. As the older men commonly direct the action of the staff, it is but natural that the staff has not, as a rule, been very active in advocating reform in this direction. There have been, of course, notable exceptions, but I am speaking of the average hospital of the country. It is interesting to observe that in some instances in which improved methods have been adopted the initiative has come from the trustees, chiefly laymen, who were forced into the consideration of possible economics by the increased cost of food-supplies.

While perhaps it is too early to attach definite blame to the medical staff for its indifference, the profession can take little credit to itself for what has been accomplished so far in this direction. As the feeding of patients is properly an important part of the treatment of all patients, and is essentially the whole treatment of a considerable number, it should be the duty of the medical staff to see that the hospital dietary is placed on a satisfactory basis. Because of this obligation it seems to me that the staff, rather than the management of the hospital, is responsible for the present unsatisfactory state of affairs.

Any discussion of a satisfactory diet at the present time must take account of its nutritive value, as expressed in calories, and of its content of the three nutritive constituents or foodstuffs—protein, fats and carbohydrates. For ease in calculation it is better to express the amounts of these foodstuffs in grams. Even the general or "house" diet—designed for the average patient during recovery from accident or operation or during convalescence from disease—should be estimated and planned in this way.

The limits of this paper will not allow a description of the methods by which these calculations are made, or a discussion of the reasons for the standard here suggested. For an average patient in bed the standard for a "house" diet may be placed at the following daily amounts: protein, 100 gm.; fats, 80 gm.; and carbohydrates, 300 gm., furnishing approximately 2,300 calories. By means of suitable tables on the composition

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* Read in the Symposium on Relation of the Hospital to the Physician in the Section on Hospitals of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

of food, not only can a dietitian plan a suitable diet having this composition, but the diet can be expressed simply in terms of common measures of ordinary articles of food. Hence the amounts needed for a given number of patients can readily be calculated, and such a diet may be easily prepared in the general kitchen of the hospital. Variety in the diet from day to day may be secured by the substitution of different articles of food which have approximately the same nutritive value and composition.

It is customary in hospitals to provide at least one other menu, representing a lighter diet than the "house" diet. This is intended for moderately sick patients and those in the earlier stages of convalescence. It is a slight recognition of the principle that the diet should be adjusted to the individual needs of each patient. In a general hospital, however, it is not practicable to individualize in an ideal way with every patient. Nevertheless, proper treatment demands that such attention should be furnished for a limited number of selected cases, and the hospital must be prepared to do this. It would require but a slight extension of present methods to furnish not only the "house" diet and the "light" diet but diets containing 1,500, 2,000, 2,500 and 3,000 calories. This would allow the physician to prescribe diets more intelligently, and it would not only benefit the patient but would be more economical for the hospital. To furnish 2,500 calories of food to a patient who should take only 1,500 calories represents a considerable waste, whether the patient manages to eat it all or not. To establish such diets would be a long step in the direction of adjusting the diet to the needs of the patients. These diets could be based on standard amounts or "portions" of different articles of food and could be furnished largely from the general hospital kitchen.

Any further elaboration of diets, including the furnishing of special diets, absolutely demands the establishment of an adequate diet kitchen. By this is not meant the ward kitchen where the food is finally prepared for distribution to patients, but a well-equipped kitchen of suitable capacity where, under the immediate supervision of the dietitian, special articles of food may be prepared for a considerable number of patients. It is evident that such regulation of diets cannot satisfactorily be carried out by a steward or chef, by ordinary cooks, or by the regular nurses acting without supervision. The services of a competent dietitian are essential for success.

The exact relations of the dietitian to the other persons concerned with the purchase, preparation and serving of food will vary with local conditions, the organization of the hospital, and the administrative ability of the dietitian. But, either by actual control or by cordial cooperation, she should have supervision over the whole food problem, and should manage it. To put a dietitian in charge of a small diet kitchen, and to have her, with the aid of one or two nurses, prepare some special dishes, does not meet the problem satisfactorily. That merely makes of her a refined cook, whereas she should be the diet organizer and the diet manager for the hospital. Not only should she have authority in the general kitchen over the proper preparation of food, but her authority should extend to the wards so as to secure the accurate distribution of food to the patients and its proper serving.

I have dwelt on these details at some length because they are essential. The clinical results of special diets depend almost as much on an efficient machine to carry out orders as on the excellence of the diet orders themselves. The clinical results of special diets may be summed up by saying that in appropriate cases better results are obtained by special diets if properly applied, than by any other mode of treatment. Furthermore, in all cases a properly adjusted diet not only aids toward a more complete recovery but it brings that result about more quickly. This would justify the hospital in inaugurating proper dietary measures, even if this step involved considerable additional expense. But it is safe to say that the initial outlay would later be repaid by the more efficient and economical handling of this large item of expense, by the avoidance of waste, and by the shortening of the stay of patients in the hospital.

The keynote to successful dietetic treatment is the proper regulation of the diet quantitatively as well as qualitatively. We must keep in mind both the composition of the food and its nutritive value. A brief summary of a few diseases in which such methods are of value will show the importance of this work.

Infant feeding needs only to be mentioned. The value of such methods in the case of infants and young children is accepted by all.

In diabetes we have for years endeavored to eliminate from the diet all sugars and starches. We know now that many patients do better if we allow a certain definite amount of carbohydrates; but the amount must be carefully regulated and accurately controlled. We recognize now that it is as important to maintain the nutrition and strength by a sufficient allowance of food as it is to cut down the carbohydrates.

The regulation of the amount of protein taken in the diet is practically as important in nephritis, especially in the chronic cases, as is the regulation of the carbohydrates in diabetes. We are dealing with kidneys in which the power to eliminate the waste products of protein metabolism is impaired. The secret of success is to reduce the protein to the capacity of the kidneys and yet to maintain the nutrition and strength of the patient. It can be shown that the time-honored exclusive milk diet, so long advocated in the empirical dietetics for even the chronic cases, must either overtax the kidneys in such cases, or leave the patient seriously undernourished.

In a measure the importance of diet regulation is proportioned to the chronicity of the disease. In the acute cases, such as pneumonia, the exact regulation of the diet is of relatively little importance. The diet must be light and consist of food easily digested and assimilated, but owing to the short duration of the disease the nutritive value of the diet is of little importance. Partial starvation for a week is not serious, but when it lasts for three or more weeks, as in the case of typhoid, it becomes a serious matter.

The prevalent routine treatment of typhoid affords an inadequate amount of nourishment. The patient suffers from the disease plus partial starvation. He needs more protein and more calories than normally, but in the routine treatment he gets neither. The weakness and prostration are markedly increased. It has been clearly demonstrated that on a properly adjusted diet the typhoid patient remains better nourished, is stronger, and convalesces more rapidly. Statistics are as yet too meager to warrant us in saying definitely that the mortality is reduced, yet it is becoming more and more probable that this will be demonstrated in due time.

Tuberculosis is the type of the chronic wasting diseases. Diet shares first honors with climate and fresh air in the treatment. It was long ago recognized that abundant nutrition was essential. Then came the period of superalimentation—of stuffing the patient with milk and eggs. It is now becoming more generally recognized that this is distinctly disadvantageous if carried too far. Careful studies have shown that patients do as well, and sometimes better, on less stuffing. Many do as well on diets which contain only a moderate amount of milk and few eggs. Thus the diet may be made much less costly but equally efficient.

It is only necessary to allude to the salt-free diet, the purin-free diet, the Lenhartz diet and the Schmidt diet to call to your mind the usefulness of special diets in the investigation or treatment of disease in appropriate cases.

In conclusion, the trend of progress is toward physiologic therapeutics. The importance of the regulation of the diet is being recognized more clearly every day. It is now possible to apply our scientific knowledge of dietetics in a practical way. The results justify the measures, and any hospital that pretends to keep abreast of progress must establish its dietary arrangements on an up-to-date basis soon if it has not already done so. Such measures will not only be of benefit to the patients but will prove economical to the hospital.

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ABSTRACT OF DISCUSSION

Dr. Fred A. Washburn, Boston: It occurs to me that the scheme which we have just worked out in the Massachusetts Hospital, and which is described in a paper that I shall read to-morrow, will be very helpful in just the way that Dr. Arnold has described. The surgical service is divided into two parts, each of which has a chief. These two chiefs of service and the administrator form the surgical executive committee. The medical department is also divided and has two chiefs of service and they with the administrator form the medical executive committee. These two committees combined make the general executive committee. This brings the staff and the hospital administration together to discuss diet and other questions that may arise. Such a scheme as Dr. Arnold outlines is a most excellent one, but it requires a well-trained dietitian. It means not only one dietitian in a general hospital, but an assistant dietitian. We have a dietitian who has charge of the general kitchen and of the diet kitchen. She supervises all serving of diet in the wards, but she cannot do it all. She has student dietitians to assist her, women who have volunteered their services after finishing their studies; but it needs a permanent assistant or assistants to carry the scheme all out thoroughly.

Dr. C. A. Drew, Worcester, Mass.: I wish Dr. Washburn would tell us about the ways and means of securing the right kind of dietitians. Where can we obtain qualified women to do this work and what must we pay for their services?

Dr. F. A. Washburn, Boston: There are several institutions which educate women in this line of work. Pratt Institute, Brooklyn, N. Y., Drexel Institute, Philadelphia, Cornell University, and Simmons College in Boston. We pay our dietitian at McLean Hospital $1,200 a year, and the one at the General Hospital gets about $1,000, but she has been with us but a short time.

Dr. J. W. Coon, Wales, Wis.: I was pleased with the statement of Dr. Arnold that it is becoming less and less a custom, in the treatment of tuberculosis, to insist on the forced feeding of large quantities of milk and eggs, which was formerly so prevalent, but which has been found almost universally to produce marked disorders of digestion, especially when the forced feeding was combined with enforced rest. We have found it to be far more satisfactory to feed our patients a moderate quantity of a well-balanced ration, than a forced diet consisting largely of milk and eggs. I trust the time is not far distant when in our institution, the State Tuberculosis Sanatorium, we may have the feeding of our patients in charge of a trained dietitian.

Dr. W. A. Young, Toronto, Canada: What do you recommend in the way of diet in typhoid fever?

Dr. Theodore Potter, Indianapolis: Anyone who has practiced medicine on the staff of a general hospital for a good many years can appreciate the importance and difficulties of diet in the hospital. The feature of expense is constantly before us. A special diet is usually more expensive than special forms of medical treatment, or special forms of drugging. It is one thing to say that this patient shall have this or that drug, and quite a different thing to say that this patient shall have some particularly prepared diet instead of so many quarts of milk each day in typhoid fever.

I think that the whole matter of special diet would need a great deal of simplification in order to make it possible in the ordinary hospital. The special forms of food will have to be classified and reduced to their simplest forms, for without a classification of that kind it would be difficult to carry out a diet scheme in the municipal hospitals, where the question of extra expense to the hospitals has to be considered, lest criticism should come on them.

Dr. C. A. Drew, Worcester, Mass.: The hospital with which I am associated has as matron a competent woman who has been in that position with the hospital for years. The graduate dietitian is a woman 25 years of age, and while she is a graduate of a good school of domestic science, she is much younger and less experienced in every way than the matron who was in charge of the general kitchen. We would like to have a woman capable of taking charge of the whole diet question, but we cannot turn it over to a young woman, who is perhaps more concerned in dressing prettily and having a good time than she is in the science of her profession, and give her charge over an experienced woman who has been in the hospital service for a long time, and who is very competent practically, although not a graduate of any school of dietitics. As it is, the dietitian simply presides over the small diet kitchen in which we provide special diet for those who are very sick.

Dr. F. M. Bauer, New York: I think I can say that the dietitian does not seek to supplant the competent matron or the competent person in charge of the dining-room, but that she is important in her own way (even if she be young) in unifying the problem of dietitics in many, many hospitals in one large city, or, if a student dietitian be kept in every hospital of a big department, one general dietitian can have supervision in all these hospitals.

Dr. J. O. Skinner, Washington, D. C.: I would like to ask Dr. Washburn and Dr. Arnold what has been their experience so far in this modern method of regulated diets in the hospital, and whether the staffs have assumed the responsibility of regulating these diets, or whether they have delegated to the administrative branch of the hospital, represented by the superintendent and, under him, by the chief dietitian, the responsibility in this matter? Of course, a diet, constituting as it does one of the most important factors in the treatment of cases, sometimes is looked after by the visiting staff, but I do not think it is usually done.

Dr. John Allan Hornsby, Chicago: Our dietitian is a woman we have ourselves trained out of one of the domestic science schools, and we have succeeded so far that we now think we have a real dietitian. Her training was mostly accomplished by the members of the medical staff. They go to her and she goes to them; she is seen daily on the wards, more especially with the younger men who have time to do scientific work, and she makes rough abstracts of what they tell her and they talk to her just as they do among themselves. She is learning a good deal about the feeding of the sick. She has nothing to do with the general feeding of the hospital force. She has a diet kitchen of her own; she orders her own stuff from the steward, gets her supplies through the regular stores, and handles them from that time on. The orders go direct to her, on a form. Dr. Wiley said it was excellent when he saw it. In the first place, the diet sheet is the size of the regular record sheet of the hospital. [This consists of a record for each patient, giving, for each article of food, the way it is served, the quantity served, the quantity consumed, and the proteid, carbohydrate, fats, salts, fluids and calories contained therein.] There are spaces for breakfast, dinner and supper and a space at the bottom for miscellaneous remarks and computations.

. This sheet gives the physician, in the course of a few days, if he is watching his patient, an opportunity to see what is accomplished. The patient runs along several days on a diet, and at the end perhaps he has lost some flesh, but also some sugar, albumin and so on. The physician may have to change the diet in order to bring up the patient's weight. I do not go into that, but the doctor does, and we keep him informed of what the patient is getting in chemical constituents of food and calories. In the diet kitchen we have seven undergraduates or pupil nurses. We have two women to do the heavy work and cleaning. These nurses have the work distributed among them, and each one takes a certain class of diets. The nurses are extremely interested in their work. They are asking questions from up-stairs all the time and the net results, I believe, are that we have the beginning of a real dietary. In the first place we began with two of the men doing this work, and then other men began to do it, and now we have out of a staff of forty men, I think I should say, a dozen who know diet and practice it intelligently, which they did not do two or three years ago.

Dr. Charles Richard, Washington, D. C.: In the hospital of which I have charge, we have a dietitian in the kitchen, and while she is probably not educated in the chemistry of food, she has had practical experience, primarily as a trained nurse, and has an aptitude for that sort of work. Her diet slips are sent to her specifying the articles of diet appropriate for the patient. She selects and prepares the diets accordingly. She has been employed for only a few months. Prior to her assignment to that duty, physicians complained that they were not getting the kind of food they desired. The dietitian really selects the kind of food while the physician prescribes it. The difference in conditions now compared with what they were before her advent are very marked. The complaints have practically ceased. I think there is a great deal to be said about the preparation of food; that is, the preparation of food in such a manner as to make it palatable. It is very easy for the physician to prescribe a dietary, but it takes a dietitian to prepare the food properly. I do not think that that factor has been brought out at all, but we all know that it is a very important factor in the diet of the sick.

Dr. H. D. Arnold, Boston: In reply to the question about the diet in typhoid fever, some years ago I investigated this matter at the Boston City Hospital, and found that the ordinary diet of a typhoid patient consisted of milk, broths and gruels, furnishing only about 1,200 calories in a day. This is an entirely inadequate amount of nutrition. With the same amount of milk, by the addition of more fats in the form of cream and butter, and the addition of more carbohydrates in the form of cereals and sugar of milk, it is possible to raise the nutritive value of the diet to 2,500, 3,000 or even 4,000 calories. A few eggs may also be added, and later soft solids may be used. Experience has shown that patients thus treated lose less flesh and make a much more rapid recovery.

One reason why the dietary measures I have advocated have not been more generally adopted is that up to a short time ago the subject of scientific dietetics was so complicated that it could not be satisfactorily applied in practice. In recent years, however, the knowledge and the methods have been so simplified that they can be readily applied both to private patients and in the hospital wards. The amount of detail in a hospital is so great, however, that the services of a competent dietitian are essential.

. Something has been said of the difficulty of getting satisfactory dietitians. This is certainly true at the present time. There are, however, many women now engaged in this work who are giving very satisfactory service, and others are being trained. I think that in the near future there will be an adequate supply of well-trained dietitians.

Cancer Not Necessarily a Disease of Advanced Age.—Do not assume that, because your patient is young, the lump in any part of the body—tongue, breast or anywhere else—cannot, therefore, be a carcinoma. Remove it and see what it is made of.—C. B. Lockwood in *Clin. Jour.*

THE HOSPITAL VERSUS THE HOME IN THE CARE OF THE SICK; AN EVOLUTION *

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That the home can no longer compete with the hospital in the care of the sick is evident from the increasing demand throughout the country for hospitals of every type. In 1900 there were approximately 5,000 public and private hospitals in the United States. In 1910 the number of these institutions had increased to about 7,000. Therefore, while the fear of entering the hospital for any serious purpose is still real, these figures show that the prejudice against hospitals is diminishing rapidly. It may be interesting to compare the status of the hospital and the home in the preantiseptic period and to-day.

In a monograph John Aiken, a London surgeon of the early part of the nineteenth century, expressed his thoughts on hospitals as follows:

> "Every surgeon attending a large and crowded hospital knows the very great difficulty of curing a compound fracture in them. This is so universally acknowledged that the most humane and judicious of them have been obliged to comply with that dreadful rule of practice, immediate amputation in every compound fracture. In hospitals these sufferers seem to be given up to inevitable destruction. Preserve the limb, they die of the inflammation and gangrene; take it off, they are wafted by the suppuration and a putrid hectic. It is certain that the number sacrificed after surgical operations to hospital pestilence is an evil of important magnitude. This is out of all proportion so much greater in the crowded London hospitals than in private practice and country infirmaries." Again he writes: "It is certainly from bad success in hospital practice that Mr. Sharp and others have given a dreadful idea of so simple an operation as that for hydrocele. In private practice and in country infirmaries I have frequently seen it performed without a single dangerous symptom." Imagine the despair of the author in this concluding paragraph: "When one walks through the long wards of a crowded hospital and surveys the languid countenances of the patients, when he feels the peculiarly noisome effluvia so unfriendly to every vigorous principle of life and compares their transient effect on him with that to be expected by those who are constantly breathing them and imbibing them at every pore, he will be apt to look on a hospital as a dismal prison where the sick are shut up from the rest of mankind to perish by mutual contagion."

Sir James Simpson showed in his paper on "Hospitalism" the following statistics of mortality from amputation: St. Bartholomew's, 366 deaths per 1,000; Guy's, 382 deaths per 1,000; nine other London hospitals had a mortality of 411 per 1,000. On the other hand, in amputations in country practice the death-rate was only 108 per 1,000.

Dr. Lefort reported the mortality in a collected series of more than 800,000 lying-in cases. He showed a death-rate of thirty-five per 1,000 in lying-in hospitals, and 4.75 per 1,000 at home. In homes including the poorest and most wretched only five per 1,000 died. In all instances the mortality was higher whenever the number of patients was greater. During the early part of the last century the appalling mortality at the Hotel Dieu of Paris was due as much to the actual overcrowding as to the enormous aggregation of patients. There the extraordinary spectacle was to be seen of two or three surgical patients, or sometimes even four parturient women, lying in one bed. A large proportion of beds were purposely made for four patients, and six were frequently crowded in.

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* Read in the Symposium on Relations of Hospital to the Patient in the Section on Hospitals of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

Although these hospitals were intended as a blessing and a benefit to the poor, they were as gigantic evils, when compared with the home, for the care of patients. Is it surprising that the tradition of such conditions should have prejudicial influences for generations—that the fear of the hospital should become almost a family superstition?

Until the discoveries of Lister and Pasteur, hospital fever was not understood. A flood of light was then directed on the fundamental causes of the greatest of hospital dilemmas, and the application of germicidal principles, including sanitation, hygiene and antiseptics, eradicated the scourge of hospital contagion. Thereupon began the development of the modern hospital which, during the last half century, has gained such favorable and universal recognition as an institution of great economic value in every community. It now serves to safeguard the household not only from loss of life and spread of disease, but from the financial stress involved in the proper care of the sick.

Nothing better illustrates the great economic importance of the hospital than the occurrence of typhoid in the home. Without the hospital it may be estimated that an attack of typhoid of ordinary severity would cost the working man not less than $200. Added to this are the difficulties encountered in efficient nursing and the exercise of necessary precautions to limit the disease to a single member of the family, especially if the home is crowded or insanitary. Likewise with many other diseases such as the acute exanthems, tuberculosis, smallpox, meningitis, erysipelas and pneumonia; most of these are communicable, all are preventable, and the early removal of the infected person from the home to the hospital is essential to protect the community.

The black death, which visited London in the fourteenth century, is now merely of historic interest; yet it reminds us of a period when there were no hospitals, no buildings in which the plague-stricken could be separated from the healthy, no scientific physicians, no trained nurses; in short, no effective means whatever for combating a scourge which terrified a people for six years, and according to the chronicler Heckler, paralyzed morals, religion and education, and resulted in a collapse of civilization which continued to be felt for generations.

A review of such epidemics of black death and cholera emphasizes, if nothing more, the great insurance value of hospitals. New conditions and new habits are capable of producing new diseases, and the great influx of a foreign element, especially in our large manufacturing centers, should stimulate every effort toward adequate equipment in hospital protection.

The environment of the home is rarely conducive to the mental quietude of the sick. There is an intimate association between the home and a man's business affairs, and for a woman the home is her place of business.

Surrounded by affectionate, sympathetic and indulgent members of his family, the sufferer often finds rest only when thoroughly fatigued or drugged. The old idea that a patient should make a brave fight from the start against his affliction is too often encouraged in the home by the physician and the family. The layman's attitude of a mental resistance to his disease is to him a most potent factor in favor of recovery. Is the reverse not usually true? Transfer a patient to the hospital, or place him under the care of a trained nurse, almost to the exclusion of his family, and what happens? Nearly always an improvement. He passes from a state of mental activity to one of repose.

The losses involved on the side of the individual against the disease from worry, anxiety, fear and personal responsibilities at home are replaced by a more peaceful and effective utility of the normal functions of resistance.

The hospital of the present is, in a broad sense, a clearing-house for the sick. Through its facilities in every department for the careful study of all diseases it presents the minimum liability to oversight in diagnosis. Men of high rank in the various specialties serve its applicants, and it should not cause the general practitioner too much surprise or indignation if his patient of means dons his poorest garb and mingles with the poor to share these benefits. In other words, the patient of moderate circumstances, or better, often finds that he cannot obtain at home what his neighbor, because he is poor, obtains at the hospital without cost. For this reason the Massachusetts General Hospital has attracted patients from all over the New England states, in 1911 admitting 75 per cent. of its applicants from districts outside of Boston; and it will continue to do so until the standards of this hospital are approached in the smaller cities. If such hospitals excel and cure the sick, their capacity will be taxed and their charity abused; yet the responsibility for this abuse, as a rule, may be safely assigned to the sources from which the criticism comes.

Patients who have good homes prefer to get well in them and often receive a recommendation to the hospital with mixed feelings, unless the necessity and advantages are made clearly obvious. Not long ago I was called in consultation to see a man of 50 years who was suffering with acute abdominal symptoms. He had a good home, had never experienced a severe illness, and about the only thought he entertained as to hospitals was that more people die than recover in them. It required a good deal of persuasion to obtain his consent to be taken to the hospital, yet an acute perforated ulcer of the duodenum was found, and I am quite sure that in any other than the most favorable environment the lesion might have escaped unrecognized.

Laboratory methods of investigation are now found to be indispensable for purposes of refinement in diagnosis and the consequent application of intelligent treatment. The progress in chemistry, bacteriology and pathology in a single generation has made a wonderful expansion of the means of probing the mysteries of disease. The microscope, Roentgen rays, cystoscope, proctoscope and other instruments of precision are essential for collective data suitable for scientific methods of reasoning. All these are part of the equipment of a modern hospital and are readily accessible to the patient. Here it is customary to make investigations more thoroughly than would appear always to be necessary because the means are at hand, and it is not unusual to find that by such methods only can favorable results be achieved.

The contrary is the rule for the patient in the home. No more investigation is resorted to than is absolutely necessary, owing not alone to the time, labor and expense involved, but to the patient's not infrequent and erroneous impression that the best physician is the one who offers a diagnosis promptly and with the least commotion. It is treatment that is uppermost in the mind of the patient. Therein lies an essential difference between the hospital and the home. In the former, hours and often days are spent in determining a diagnosis, and the treatment is brief. In the latter the reverse is the more common method of practice.

Rooms for special treatment and the operating-room bear an important interrelation in the management of many cases. Preparation is the sine qua non of recovery and success after many forms of surgical intervention. This is amply demonstrated by modern methods. Operations on the genito-urinary tract, especially the prostate and bladder, are done only after local and general treatment prepare the patient for a minimum liability to infection. Thyroidectomies, stomach resections, gynecologic and other operations now find their immediate and end-results better after the adoption of preliminary treatment.

The home will answer as a place for the preparation of simple cases and those which require only internal medication. Others in which preparation requires careful records, special instruments and skilled assistance should be in the hospital in proximity to these special departments. Portable apparatus can be applied in the home, but the efforts are too often disappointing. The use of the cystoscope, for example, is reliable only when employed in a room specially fitted for this purpose. Not only the equipment but the assistants should be permanent. Strange environment, odd equipment and raw assistants increase the labor and wreck results. This rule may be applied to the workers in the laboratory, in rooms for special treatment, and in the operating-room alike.

The operating-room and these special laboratories have enjoyed a combined function of recognizing many malignant diseases in their early and curable stages, whereupon the superstitious fear of the knife has by the achievement of surgery itself been displaced, and the increasing number of surgical patients in all hospitals measures the relative importance of the hospital and the home in the minds of the sick.

In addition to government, religious and community hospitals, there is a growing demand for private hospitals. Nearly all general hospitals have found it necessary to add private pavilions to their plants. This is another fair index of the change in the attitude of the public in favor of hospitals. The individual of means now finds his home entirely inadequate to meet the demands of modern medical science, and for the needs of his own family his home does not compare with the hospitals which he helps to maintain for the poor.

In many hospitals the private ward system has worked out satisfactorily, but there is a reason well founded on the part of private patients that the service in hospitals mainly devoted to the care of the sick poor does not meet the requirements of all classes. The details of refinement in furniture, dishes, linen and other supplies are not usually considered with a view to impressing a patient favorably. At a recent meeting of the American Hospital Association in New York City I heard an executive of one of our largest and best hospitals state that in refurnishing his private wards he felt obliged to instal more expensive furniture because another hospital had it. Why not? Would not many of his patients have it in their homes? Would they not select a hotel that had the best in furniture and linen? The same considerations would affect their choice of a hospital. It remains a truth that the per capita cost is of greater moment to many superintendents than an answer to an appeal from the patient for an attractive and cheerful environment.

While private wards in general hospitals often reduce the operating expenses, they add much to the burden of executives, and in some large hospitals such as the Massachusetts General and the Boston City hospitals no increase has been made in the number of private wards for many years. Smaller religious and private hospitals have been introduced to meet the demand. The former usually fulfil the average hospital requirements; the latter are made to pay dividends. While there are some model private hospitals, investigations show that the vast majority are modified apartment houses possessing the usual disadvantages of the home with few of the advantages of a modern hospital. They are operated for a hotel profit, and while my experience in conducting a private hospital covers a period of only six years, I have never succeeded in having an annual deficit below $3,000 on the hotel side.

I believe that a physician who conducts a private hospital should not be too much of a business man; like the physician in general practice, he should be prepared to make whatever sacrifices are necessary for the welfare of his patients, and his records, his system of accounting, his building, its equipment and its entire modus operandi should be open to inspection. An open door in this respect will render a service to the hospital if it deserves it, as well as to its patients. We should welcome a policy such as the licensing of all hospitals, for then, and then only, will public and private hospitals reach a standard which will make them in truth safer than the home for the care of the sick.

So great has been the demand in recent years for hospital accommodations that many hospitals have risen and flourished which in some respects have not compared favorably with the home as a place of safety. Choice of location, type of building and extent of equipment should be considered with the utmost care. Gift lots, in built-up and noisy sections of a city should have a ban placed on them for the location of hospitals. The design of building, the interior appointments and equipment should be supervised by physicians who by education and experience are familiar with problems of the sick.

For years an open countryside for the hospital has been advocated by physicians. St. Mary's Hospital at Rochester, Minn., is one of the first examples of the modern surgical hospital built in the open country. Its founder, Dr. William W. Mayo, by virtue of his indomitable courage, his ability as a surgeon of his period, and his keen prophetic sense molded an institution and an organization the buds of which have blossomed throughout the land. While not the only one, he stands out as a conspicuous figure among the early surgeons who by their great achievements have made it possible for us to-day to build hospitals in the country with most excellent results.

The last decade has marked a stage of transition in hospital conditions, and my own experience may be cited as an example of what has occurred in most cities. At Fall River, Mass., a city of 120,000 people, there was in 1905 no hospital which provided safe and sanitary accommodations for private patients. My hospital opened in that year with ten private rooms. After five years the increased demand justified me in erecting a modern hospital with thirty rooms for patients. This endeavor has not been a success financially, yet the results from a clinical standpoint have been sufficiently gratifying to offset the money loss. The continued drill of assistants in the same capacity for months or years has served two all-important purposes: It has created an *esprit de corps*, and it has operated to minimize the mortality and morbidity following major surgical procedures, thus creating in the public mind an attitude of respect and confidence free from apprehension

While a discussion of this subject, "The Hospital versus the Home in the Care of the Sick," will from nearly every point of view favor the hospital, it must be acknowledged that a good home is safer than a hospital which is not modern in construction and equipment. The support of my contention in favor of the hospital should imply a hospital equipped with all that pertains to the general welfare of a patient.

Those of you who are administrators realize that our hospitals, both public and private, even those of recent construction, are not ideal. There is much to be learned in architecture, and many problems to be solved in management. New light and progress in hospital affairs will inevitably follow the proceedings of this Section. As a component part of this great American Medical Association it presents magnificent opportunities; and its endeavors will succeed in great measure, for its field of usefulness is large, its transactions based on experience and wisdom, and its support united, fearless and effective.

ABSTRACT OF DISCUSSION

Dr. John H. Gifford, Fall River, Mass.: He would not need to be a prophet who should declare that the limit of hospital efficiency has not yet been reached. That community is fortunate indeed which has seen lifted up new ideals of hospital efficiency and, what is better, new standards to which others must in time be expected to attain. If I could put together in a few words those elements which the artist calls "atmosphere," I should picture an atmosphere of optimism, of confidence, of assurance, of cheerfulness, of freedom from fear. One of the first of the conditions of a feeling of hopefulness is early submission to treatment, appreciating that ill results are oftenest and almost always due to delay.

Location and surroundings and furnishings have been referred to as of great weight. Fine architectural features, beautiful and ample grounds, magnificent outlook—if there be anything beautiful, if there be anything lovely and of good repute and peace-producing, let it by all means be made a part of the structure and environment of the up-to-date hospital. Let no high walls arise to raise a doubt as to whether the enclosure may be an almshouse, an asylum or a prison. Stone walls do not a prison make; nor do fire-proof walls and aseptic operating-room a hospital. These are a part only of the very raw materials. The living soul who above all others shall make of these stones a hospital home, the presiding genius who shall de-institutionalize this institution and become its indwelling spirit and the embodiment of its ideals and purposes—such a one having been sought far and wide and having once been found, let her not lightly depart.

The coming guest is welcomed and the going is speeded on his way. He is never numbered or lettered. He retains a name and a personality. He never becomes a mere case. Even that *bête noire* of many a hospital patient, the anesthetization, comes normally, smoothly, simply along, a perfectly peaceable performance.

Finally, this model hospital which exists chiefly to give supreme satisfaction and not primarily for pecuniary reward has at least one competent individual who shall be responsible for the study of the mental state of each patient, with a definite purpose of abolishing fear and worry, of strengthening confidence and of maintaining mental and nervous tone. This is one of the greatest shock-absorbers ever discovered. This should be the duty not of one but of everyone. These few points not only add a great deal to the patient's happiness, but also add something to the speed of his recovery.

Dr. F. A. Washburn, Boston: We have a Social Service Department in Boston, which was organized by Dr. Cabot. In this same line of work in the hospital, we have had for many years a committee of visiting ladies—women of influence and importance in the community—who voluntarily give a certain amount of their time each month to the patients in the hospital. They give us the benefit of the outside view, the benefit of coming in contact with people of refinement; they lift the standard of the nurses going about the wards as they do, and to everybody they humanize things. We have a woman wh is a graduate nurse, full of human sympathy, who is the agent of the visiting ladies, and she also keeps in touch with the office. It is her business to go about among the patients to make out visiting lists, and to discover such patients as do not have visitors of their own. She keeps a card catalogue and when one of my assistants wishes to arrange to transfer a patient to another institution she knows just which is the best place for that particular patient. She does little errands for the patients, or sees that they are done by some of the visiting ladies. She reads to the patients herself, or has some of the visiting ladies read to them, and does a thousand and one other things which make a difference in the lives of the patient.

A common cause of complaint formerly was the discharging of patients without thought as to the ways and means to their getting home. Now, no patient leaves the hospital unless he can get home without detriment; that is, we see that he is properly accompanied and that he has a ticket. Care in these little things makes all the difference in the world as to the reputation of your hospital in the community. It cannot be limited to the mere treatment of the sick. Dr Truesdale mentioned the multiplication of small hospitals. I am afraid I do not think that this multiplication of small hospitals is usually a great advantage to a community. I think we are having hospitals built that should not be built.

I do not know the best solution of the problem. Perhaps in a community near a large hospital, first-aid stations acting as feeders might be established. There is no doubt that in many small hospitals much poor surgery is done and the community is deceived as to the character of the work.

Dr. George T. Weber, Olney, Ill.: I come from an agricultural community which is not thickly settled. Our nearest large city is St. Louis, which is 150 miles away. When acute surgical conditions arise, which require prompt action in order to save lives, we need the small hospitals. I live in a town of less than 6,000 people, and fourteen years ago I established a small hospital with fifteen beds. I had many difficulties to contend with in establishing this hospital, and getting it on a solid footing. It was not a financial success—that is, the hotel part of it—and the hospital is not a paying investment, but we do good in our work. Robert Ingersol once said that if he were making the world over, he woul make health contagious. That is what we are doing in ou small hospitals all over the country. Physicians are teaching people preventive medicine and these small hospitals, if properly conducted and managed, make health contagious in the community in which they are situated. Our hospital has grown from fifteen to sixty beds. There are exceptional cases which we send to St. Louis and Chicago, and even to the Mayos at Rochester, Minn., but there are few cases which we cannot take care of in this small hospital with perfect success and satisfaction, and our results compare well with the large hospitals.

A hospital in a small community has a tendency to educate the physicians in that community. The physician who has charge of the hospital must keep abreast with the times; he must learn from the masters of the surgical and medical profession, and perfect himself in his work, and the result is that his colleagues do the same thing as a matter of self-preservation, and they work in harmony and unity; the result is that the physicians become more thoroughly equipped and better prepared to take care of the sick and afflicted, and in that way much good is accomplished. Besides, the influence the hospital has on the community itself is far reaching in the way of usefulness. People learn to keep well. The person treated in these hospitals has been taught lessons in hygiene and he teaches his family the lessons he has learned and in that way much good is accomplished. In communities not in close proximity to large hospitals, the small hospitals are an absolute necessity and are a success if properly conducted and managed.

Dr. F. A. Washburn, Boston: I did not mean to say that there should not be any small hospitals. What I meant t say was that there are often too many small hospitals in the neighborhood of large hospitals; that these often take patients who could be better treated in the large hospitals.

Dr. P. E. Truesdale, Fall River, Mass.: In reply to Dr. Washburn's statement that there are many small hospitals in the smaller cities that are of little value, further information of a definite character will be necessary from all hospitals before this supposition can be given serious consideration. Certainly no community can be at a disadvantage for having a good hospital within its borders. Until a system of standardizing and licensing hospitals is established, the true worth of a small percentage of the small hospitals may reasonably be questioned. Dr. Washburn has emphasized the importance of the social service department, and the excellent work it has done at the Massachusetts General Hospital. It is obviously impossible for the workers in this department to travel long distances and except by establishing cooperative societies with other communities the field of activity must remain within a short radius of the hospital. In Fall River there is a social service department allied with the Union Hospital and its work is recognized as one of the elements in an organization that has met a community need.

RELATION OF THE PHYSICIAN TO THE HOSPITAL *

JOHN B. MURPHY, A.M., M.D., LL.D.
CHICAGO

The most successful hospitals to-day are those that are in sympathy with their staff. The staff and the management must go hand in hand on account of their close relationships, which are complex, and will remain so until a certain standardization of all the hospital work can be effected. Not until then can the hospital and the profession succeed as one harmonious whole.

There are three different kinds of hospitals: those owned by private individuals, those run by corporations and the municipal hospitals. To secure the best result for the patient what is essential? I wish to mention first the one relationship that is of greatest vital importance to the hospital and the keystone to success between the hospital and its physicians, viz., that of rendering to each individual patient the highest type of scientific service from all the hospital departments. As far as the contact of the physician is concerned the question comes up in my mind as to how the patient is to be given the closest attention possible by the attending physician, and what element of this is the most important.

It is most important to find out about the patient before one makes a move, and the most significant element in this is to obtain a history, which is the hardest thing to obtain of a case. There is no man who has been connected with a hospital for many years who does not know that he cannot induce his interns and staff to write histories without continual urging. The clinical history in many cases is more important in arriving at a diagnosis than the physical examination or laboratory findings, and yet who writes the history? The newest intern and least-experienced man on the residence staff. We give the most incompetent man the most important thing to do. We give him the dressing in septic cases and the writing of histories. There is a greater percentage of failures in diagnosis from badly written histories than from anything else; therefore the histories should be written by the senior member of the house staff.

The house staff has heretofore been composed of men who stay a year or a year and a half or at most two years. We must make these men, who are going to be leaders of the profession, stay in the hospital longer; we cannot make leaders in the profession from men who have only a year or a year and a half resident hospital experience. We must follow the German custom; that is, the man who is to become junior or senior assistant in the departments of medicine or surgery should remain four or five years, as this length of training is necessary to round out his apprenticeship and prepare him for his subsequent teaching and surgical responsibilities. The senior assistant is the resident representative of the attending staff. I am sure that every man who has had a hospital service will tell you that he learned more from his senior intern, if he were a competent one, than from any other man on the staff. Training in the hospital stimulates the scientific spirit and the desire to learn; without this spirit and the desire to learn there can be no resident teaching; therefore we cannot afford to be changing our interns every year.

The system of hospitals will be changed radically in the near future. The general asepsis and cleanliness of the entire hospital must be looked after as well as that in the operating department. The next important advance will be in the administration of the serotherapy and vaccine treatments. Pathology must be pushed to the top notch; the pathologist is going to play the great rôle in the new therapeutic work. We must endeavor to have in every hospital the best trained men from that point of view that we can possibly secure because of the danger of anaphylaxis in serum treatments.

In the early part of the year, I endeavored to collect some data concerning hospital pathology, asepsis and cleanliness, but I received few replies to the letters that were sent and was therefore unable to formulate a report of value. The reason for the failure of the hospitals to give the information which I desired is worthy of the attention of this section.

The relationship of the Section on Hospitals to the hospitals, and the rôle it is to play, is a colossal one; I think that it is going to be second in importance only to the relationship of the Council on Medical Education to medical practice. Therefore the Section on Hospitals is going to be one of the most important sections of the American Medical Association.

The members of this section should be divided into committees to investigate the hospitals in the various states, so as to have at the next annual meeting a report on every hospital in the United States. We should have first a committee composed of three or five members to formulate a campaign to obtain the information desired.

The work should be definitely mapped out and the outline of questions sent to each county medical society and to any man who you know will give a careful, conscientious analysis of the situation. That information will be given by the hospital management reluctantly. Hospitals refusing to give the information for the good of the profession should be classed as discredited or as questionable institutions. It will be found difficult to secure an idea from the hospital management of the septic cases and deaths in the hospital, because the hospital management realizes that a death from sepsis is a failure and a discredit to that hospital. We must make it plain that this is a fact, and just as soon as we make it appear in that light, the hospital will assume the high position to which it is entitled. It is an obligation — a sacred obligation on our part — to see that all of the work within the hospital is conducted to the very best advantage of the patients admitted.

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* Read in the Section on Hospitals of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

We want men working in every branch of the medical profession who are proficient. If they will prepare themselves as scientists they will not make so many mistakes in their early work. With this spirit within ourselves we will not have to ask people to legislate for us. Let us overcome our own shortcomings and we have all the legislation we want or need.

3305 South Michigan Avenue.

ABSTRACT OF DISCUSSION

Dr. W. B. Dorsett, St. Louis: The question is how are we going to remedy this matter of incompetent work in hospitals. I remember, in a certain hospital, after I was made a member of the staff, as I went into the room adjoining the operating-room to get an instrument, a sister came running toward me and said, "Come into the operating-room, quick." I went into the operating-room and looked over the operator's shoulder. He had opened the abdomen to find a cyst. The blood was flowing freely and he was staunching it out with a towel; strychnin was being injected into the woman's arm. I said to him, "What have you here?" He said, "A fibroid tumor." I said, "My dear man, this is the uterus. Why don't you stop that hemorrhage? You are not going to get a fibroid tumor." He had cut the uterine artery and did not know the difference. He had attempted to get a cyst. I grabbed the forceps, stopped the hemorrhage and finally got the towel out; fortunately that woman recovered.

Now, here is where the harm results: The patient went through a long siege of convalescence and finally recovered; the operator was supposed to be a great man because he had saved the patient's life when she was so ill. The result was that four patients were taken to that hospital for operation by him and four women lost their lives. What stand are we to take?

The duty of this Section on Hospitals, it seems to me, is to go into this matter of hospital management as well as other subjects, the staff, etc., but especially the management of hospitals so that hospitals may be in such a position that the staff may formulate rules and will have to take a stand against malpractice cases and other things which occur in hospitals.

Dr. R. R. Huggins, Pittsburgh: It seems a strange thing that members of hospital staffs, who are most familiar with the ability of men who attempt surgical or special work without the proper qualifications, are not strong enough in themselves to oppose these men, and keep them out of the hospitals. We do not seem to appreciate that in not opposing them we become parties to malpractice. A well-organized staff, composed of men not afraid to express their opinions, will do away with this complication in hospital work.

Dr. A. G. Barrett, Baltimore: I could relate quite a number of instances in which incompetent men were allowed to operate in hospitals. One very important one occurred in our city. A practitioner of medicine, a man without surgical training, was allowed all privileges in a hospital. He attempted all sorts of operating; necessarily the results were bad. Another question of importance is the man with ability who will operate at any time without proper diagnosis, regardless of anything but the fee.

I endorse the suggestion of advanced qualification for physicians who wish to operate and better control by hospital boards.

Dr. L. H. Taylor, Wilkes-Barre, Pa.: Very often the members of the staff cannot choose their associates. I belong to a hospital in which, fortunately, we have the opportunity very largely of choosing our associates. In our state, a great many hospitals receive state appropriations, although they are not entirely state hospitals. At the last meeting of our state legislature, a bill was passed allowing any patient in a hospital receiving state aid to choose his own physician. That bill passed both branches of the legislature and, except for influence that was brought to the governor to induce him to veto that bill, it would have become a law; if it had passed, the management of the hospital could not prevent any physician from using the operating-room or wards for his patients, whether he were qualified or not. I firmly believe that an effort will be made to pass another law of this kind at the next legislature.

Dr. H. M. Hurd, Baltimore: Some months ago, I learned that on the medical staff of a hospital in one of our neighboring cities 250 physicians had the right to bring patients to the hospital and to operate. I do not call that a proper organization of a hospital. I believe that medical men throughout the country are justified in saying that they will not be connected with a hospital in which there can be no standard of medical and surgical work. There are hospitals controlled by religious organizations in which medical men have no voice whatever as to who shall be connected with the surgical staff. As medical men we have a right to say that no hospital is a proper hospital unless medical ideas govern in its management. As members of the staff we have a right to unite in saying that we must be consulted when appointments are made; and if persons are appointed on the staff with whom we do not care to associate, let us resign. The difficulty is that many persons are so anxious to be connected with hospitals that they are willing to accept positions even under embarrassing circumstances. Let us set a standard and say we will not be connected with a hospital unless we have a standardization of medical and surgical work from start to finish.

Dr. Garry D. Hough, New Bedford, Mass.: Some years ago, Dr. Dudley Allen, then president of the American Surgical Association, in his presidential address, suggested that the American Surgical Association establish what might be called a licentiate board, that this board examine any physician who should make application and, if found qualified to practice surgery, give him a certificate to that effect. Is not that a possible solution of the problem now up for discussion? If hospital trustees will say that they will not permit a surgeon to practice in their hospital until he gets such a license, it seems to me that a large part of the difficulty can be done away with. Most hospitals in smaller communities do not feel that they can take a stand of this kind for they say such a man must be allowed to practice in our hospital because every man has some friends and the hospital management does not think it wise to get any people of the community down on them. But, if such a licentiateship were established by the American Surgical Association they can say: no license, no practice.

Dr. P. E. Truesdale, Fall River, Mass.: This problem must be approached fearlessly and yet tactfully. There are very few hospitals in the position of the Michael Reese Hospital, for instance. There the chief executive has complete control. He can promptly discover the tyro and eliminate him. The religious hospitals are in charge of the sisters, and many of them are open to the profession at large. Those in charge must be convinced that a surgical death from the hands of an amateur, who has no moral right to operate, is a crime for which the burden of responsibility rests on the hospital management. To be effective this matter should be treated by a diplomatic relationship of committees from this society with all hospital executives.

Dr. Harvey Smith, Harrisburg, Pa.: What we want is personal education, that is, each individual man has to qualify himself for his work. I do not think this can be settled by hospital management, but must be settled with ourselves and each man must qualify himself to do his work efficiently.

Dr. Edward Jackson, Denver: At the last session of the Colorado legislature there was introduced, at the request of an influential constituent—not at the suggestion of the medical profession—a bill to require the state board of medical examiners to establish examinations in surgical work, and providing that no one could practice surgery in that state who did not pass such examination. Outside of our profession there was beginning to be some appreciation of this difficulty, of men not properly prepared for the work being permitted to operate in the hospitals. I was impressed with the suggestion of the license by a committee of the American Surgical Association. It seems to me that some recognized general scientific body could do a great deal of good by establishing general regulations and a general board of examiners. It cannot be done in a single city or community, because of apparent discrimination against this and that individual, who has friends to be considered.

Dr. A. J. Ochsner, Chicago: The question is the question of development. What we will have in ten years from now would have been absolutely out of the question ten years ago because at that time the degree of qualification which must be taken in ten years from now would have been impossible. We must remember that we are in a condition of development at the present time. There are many cities of considerable size in this country that do not have a single surgeon who has served an apprenticeship. This system of having served an apprenticeship was a thing unknown twenty years ago, and was almost unheard of in this country, while in Europe it had been in practice for a long period of years. The system Dr. Hough suggested is an English system. In Germany the surgeon could not receive an appointment in a village or city hospital unless he had served an apprenticeship. Dr. Murphy's suggestion respecting training for at least five years is another thing that will settle this question. A man may come to your town and go into your hospital without any special training, but if he makes good and has the other qualities necessary he will afterward do that work well; in the meantime, the very serious crimes that are committed by absolutely ignorant men must be prevented by the men who have force and character. If I am called in consultation with one of these men, for the sake of encouraging operation by these incompetent men, I tell them they have no right to commit murder. For the sake of keeping his consultation business, many physicians flatter the incompetent and tell him he is competent to operate as well as anybody. One who does this is just as much to blame as the operator. It must be explained to all who allow such work that they will be the losers and that their hospitals will not have any standing.

THE PROPER DIVISION OF THE SERVICES OF THE HOSPITAL *

HENRY M. HURD, M.D.

BALTIMORE

The old-fashioned hospital, especially the hospital which did no teaching, but simply cared for patients as they happened to be brought in, was a comparatively simple affair having medical and surgical services only. In rare instances an obstetric service was added, but as a rule the services were the two mentioned.

SPECIAL HOSPITALS

The advent of specialties resulted in considerable complication, and the claims of the different specialties have ever since been more or less urgent, depending largely on the personal equation of the specialist. If he proved to be a man of genius with a talent for organization, and filled a large place in the public eye, he generally found much difficulty in securing adequate recognition for the claims of his specialty. For this reason the original specialists deemed it necessary to establish special hospitals. Thus, for example, the eye and ear hospitals were originally established by surgeons who devoted themselves to diseases of the eye and ear. Dr. Nathan Smith, although a general surgeon, specialized largely in diseases of the eye. Dr. J. Marion Sims found it absolutely essential to organize a special hospital for gynecology because he could not get proper facilities in connection with the general hospitals in New York. Many special hospitals were similarly established in accordance with a similar condition of things which confronted rising men engaged in special work.

SERVICE IN GENERAL HOSPITALS

Within the past few years, however, there has been a notable change in the division of service in many large hospitals. In some hospitals in place of a divided service under the charge of surgeons and physicians with periods of service ranging from three to six months each year, it has been found desirable to place the medical service under a physician-in-chief, and the surgical service under a surgeon-in-chief. At the Johns Hopkins Hospital this arrangement has been carried to the extent of supplying in addition to the physician-in-chief and surgeon-in-chief a gynecologist-in-chief, an obstetrician-in-chief, a pediatrician-in-chief and a psychiatrist-in-chief. Such newer organization of the hospital has brought with it a number of complicating circumstances. It is evident that the specialist is with us to remain permanently, and the question has arisen as to how his special knowledge and skill can be utilized for the benefit of the hospital without at the same time interfering with the supervision which should be exercised by the head of the department.

DEVELOPMENT OF SPECIALISTS

It is generally agreed that specialties should develop in a natural manner out of the general subject; that is to say, to give an example in surgery, every specialist should first be a good general surgeon, and his special work should grow out of the fact that he has developed an uncommon aptitude for a special kind of surgical work combined with a superior technic which he has acquired by long and faithful practice.

I am sure that this must be recognized as the only correct view to take of the relations of the special surgeon and general surgeon; the special surgeon must develop from the general surgeon. If it is in any manner conceded that the specialist in surgery can arise without being thoroughly grounded in general surgery, or that the special surgeon can be otherwise than a general surgeon specializing in a particular direction because of his knowledge, then we may as well abandon our present conception of medical education.

All who are interested in medical education believe that without an adequate foundation of general medical knowledge and practice a specialty cannot be properly practiced or successfully pursued. In a similar manner it can easily be shown that a gynecologist should have had previously the training and practice of an obstetrician because gynecologic diseases are often dependent on obstetric accidents. Every surgeon also should be carefully trained in medicine in order that he may be able to practice general surgery and do justice to his patients in an effective way Specialties, in other words, while necessary and most useful, cannot be considered as branches detached from medicine, surgery or gynecology, but must be grafted on a general knowledge of the healing art.

DIVISION OF SERVICE

We now approach the question: What then, should be the proper division of medical service in hospital practice? I may state, in parenthesis, that the views expressed in this paper are the result of personal observation and not in any way the expression of the views of any one else. For many years I have been familiar with hospital service and hence what I say must be regarded as dictated largely by my own experience.

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* Read in the Symposium on the Relations of the Hospital to the Public in the Section on Hospitals of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

I would recommend the division of hospitals into general wards and special wards or departments. The general wards should receive medical and surgical diseases. The special wards or departments should be as follows:

1. Eye and ear, nose and throat, and skin wards.
2. Children's wards, including infectious diseases.
3. Gynecologic wards, including female genito-urinary surgery.
4. Obstetric wards, including infants and nurslings.
5. Psychiatric wards.
6. Genito-urinary and venereal wards.

A word of explanation may be given as to the character of patients in the above special wards or departments. The diseases treated in a children's hospital should comprise the ordinary medical and surgical diseases of children and infectious diseases like measles, chicken-pox, whooping-cough, diphtheria and scarlatina. Small-pox should go to a special hospital.

Obstetrics should include the care of nurslings in addition to that of lying-in cases. Many excellent educators think that obstetrics and gynecology ought to be united under a common head, and several institutions have arranged for such a union; but I see many difficulties in the practical management of such a double department. While there are times when the gynecologic surgeon must be called on to repair accidents due to severe or untoward labors, it does not appear that the percentage of disorders of such origin is large. Many gynecologic diseases are due to infections of a venereal character. Carcinoma, fibroma, polypoid growths, uterine displacements and genito-urinary diseases have nothing in common with the lying-in state, and do not of necessity belong to it. All of these disorders, in fact, could be classed with other surgical disorders with as much propriety as with obstetrics. Gynecologic surgery is a branch of general surgery and ought not to constitute a separate division of the hospital.

In medicine, then, we may have all that relates to internal medicine, such as diseases of the chest and abdomen, including of course the thyroid gland, heart and lungs, stomach, gall-bladder, spleen, kidneys, abdomen and bladder, and also fevers and general bodily disorders.

The surgical department of the hospital offers in some respects greater difficulties because of the fact that a larger number of well-marked specialties have developed among surgeons.

There should, of course, be a surgeon-in-chief who has control of the department and is at the head of it. Subordinate to him, but autonomous in reference to their work should be capable assistants who can take charge of the numerous specialties which have grown up in surgery since the advent of asepsis.

There should be a good surgeon of the nose, throat, lungs and upper air-passages, a brain surgeon, an orthopedic surgeon, a genito-urinary surgeon and a gynecologic surgeon, all coordinate and each capable of doing the highest kind of work in his own department. The general surgeon should have a special responsibility for all general surgical procedures, such as thyroid operations, breast cancer, stomach, abdomen, gall-stone, gall-bladder, kidney operations and the like.

In such a division of surgical labor it is important to place in charge of the general work a man with liberal ideas and with a firm disposition to allow other men to develop to the fullest extent any special talent or inclination for a special branch of surgery. One man cannot possibly attend to these varied departments of surgery, and the greatest success can be attained only by the fullest cooperation of the different branches with each other to form surgery as a whole.

Neurology, in my judgment, should continue to be a branch of medicine, but there are certain neurologic affections which can be benefited permanently by surgical treatment alone, as brain tumors, pontine tumors, severe neuralgias and all difficulties of the pineal gland. These require surgical interference of the highest type, because so much in the way of physiology is involved in the study and relief of the disturbances of the nervous system.

Psychiatry should be absolutely separate and distinct from ordinary medicine, and no physician-in-chief can really do justice to it, owing to a lack of familiarity with mental diseases. These diseases are connected with other medical branches, including medicine, surgery and gynecology. Psychiatry receives aid from all these and in turn must sometimes be called on to help out difficulties which are found in the treatment of ordinary diseases.

RECAPITULATION

To recapitulate, we must have a general hospital with five divisions: medicine, surgery, obstetrics, psychiatry and pediatrics.

The medical department should comprise diseases of the head, chest and abdomen; of the stomach, bladder, the blood and blood-making organs; and the infectious diseases, such as rheumatism, gout, rheumatoid arthritis, parasitic diseases, diseases of the kidneys, intestinal diseases and nervous diseases.

The surgical department should comprise general surgery and the specialties of brain surgery, surgery of the nose and throat, chest surgery, orthopedic and genito-urinary surgery and gynecology.

The obstetric department should comprise the lying-in cases and the care of infants and nurslings.

The psychiatric department should comprise all mental diseases.

The pediatric department should comprise all diseases of children, including the eruptive diseases of children, scarlet fever, diphtheria, measles, chicken-pox, etc.

Many of these specialties are so important and combine such a variety of most useful material for teaching that it may be wise in many instances to make subdivisions within the specialties. The above arrangement is suggested more with the idea of exciting debate and stimulating inquiry than as a definitive arrangement. The ultimate division of service in each department must be largely left to the head of the department.

DIVISION OF CASES

Let us now consider for a moment the question of the division of cases between the different departments of a hospital. There is apparently no more vexing question to the gynecologist than the bounds of his surgical efforts and aspirations. Does he have any rights in the human body beyond the confines of diseases peculiar to women? He is constantly reaching out for new fields to conquer, and often calls himself an abdominal surgeon with all that is implied by the name. He operates on the kidney, drains the gall-bladder or removes gall-stones, removes the appendix or seeks after the elusive duodenal or gastric ulcer with all the zeal of the general surgeon. I am inclined to think that he ought to be satisfied with his original domain, and that he is not called on to invade the territory of the general surgeon. The obstetrician sometimes has serious doubts as to the gynecologist's territory and is inclined to annex his present field of operation to obstetrics, yet I cannot help feeling that the assiduous practice of obstetrics with its wearing and prolonged nervous strain and its undue proportion of night work is incompatible with the pursuit of gynecology, with its equally harassing duties. I am clearly of the opinion that a line ought to be drawn between the two departments. For this reason I have come to the conclusion that gynecologic surgery ought to rank with other surgical specialties as I have already stated.

To whom shall we commit the duodenal and gastric ulcers? Manifestly, I reply, to the medical man until it is apparent that rest, proper food and suitable medication cannot work a cure. As soon as this becomes evident the surgeon should step in.

It is now generally agreed that appendicitis ought to have early surgical treatment, and the same is true of such disorders as gall-stones and kidney stones. The dangers of delay and the advantages of prompt surgical interference are much better recognized than formerly.

ABSTRACT OF DISCUSSION

DR. ALBERT JOHN OCHSNER, Chicago: The hospital must work on a systematic plan. So far the development has been personal; surgeons have developed the departments in which they are most skilled. This has built up badly balanced institutions, and unless some form of standardization is applied to an organization of hospitals, the further development from now on cannot be so satisfactory as it ought. Twenty years ago many of the best-trained surgeons drifted into these departments and developed a remarkable degree of progress; but these men introduced primary principles that were good surgery, and as a result they had to drift back into general surgery, so that now the best gynecologic surgeon is the best general surgeon.

Patients are classified in most institutions by some person who knows nothing about diagnosis, and too frequently they are reclassified until they reach some point at which they receive the proper treatment, or are treated without the proper attention. Patients should be classified by men who have had at least five years' experience in acute diagnostics in some hospital and who know their business under the chief. I never send a patient into any department whom I have not examined personally and without putting my diagnosis in a sealed envelope; then the chief makes his diagnosis and compares it with mine. If I have made a mistake in my diagnosis I am going to hear about it, and if the chief has made a mistake he will hear it, as young men in the hospital are going to gossip, and that is what will keep him to his work and me to my work. If the chief has not time to examine each case he is not the man to be chief of the department.

DR. J. A. HORNSBY, Chicago: When hospital services are broken up into three months' services with enough men to take in the year, results will be unsatisfactory. If men cannot be kept busy in their own hospital they will keep busy somewhere else. The short-term service is based on the commercial idea that a sufficient number of men must be interested to bring in their private patients to keep the hospital full; but I do not believe it works out that way. I do not believe there is a hospital, excepting in the small towns, that need be suffering from want of funds. All that is needed is to convince a philanthropic person that something is being done for somebody who really needs it.

Men should be kept on the service throughout the year. The services may be indefinitely divided; let one man take gastric ulcers that go clear along to carcinoma; let him work them up. In the course of a year or two he is going to have a number of ulcers from their incipiency to the operating-table. He will attract attention if he is a worker and will soon have more cases until finally his experience will make him the best man for the place. When the work done in a hospital is known all over the country that hospital will be full of patients.

DR. C. A. DREW, Worcester, Mass.: Different hospitals must meet these problems differently. An incorporated hospital, supported by private funds, in a large city is different from a municipal hospital or a hospital related to a medical school. The hospital in which I am most interested is in a city of 150,000 with three other hospitals; there is no medical school. Our staff is appointed from men who have served in the out-patient department; no one has ever been appointed who has not been approved by the staff, though pressure is brought to bear to have an "open hospital." A municipal hospital is supported in large part by taxation, and men who are not on the staff think that they should be permitted to send their private patients to that hospital, and that the patients should have the right to choose their own physician. An endowed hospital would not consider the question seriously, but with the municipal hospital it is a serious problem. Pennsylvania has tried to pass a law that each patient may have his own physician.

Our hospital has rotation in service. This is another problem that would be different were the hospital not municipal. We have a majority of the most skilful physicians in the city on our staff, but there are many who think they have as much right as the men on our staff to practice in the hospital.

DR. H. M. HURD, Baltimore: We are met here together as a body of hospital workers to consider ideal conditions—conditions which are best for the patient; we are not actuated by personal motives or political motives or a desire to do somebody a favor. We believe, as hospital men, that the object of the hospital is to do hospital work in the best possible way. We wish to benefit the patient, not primarily the physician, and to do our hospital work in such a way as to demand the support and confidence of the community. The only way to secure this is to do those things which are right without catering to a physician or to a religious denomination. What Dr. Washburn has said in reference to raising the standard of nurses illustrates what I had in mind. Many hospitals find it necessary as a matter of policy to take women under age, with inferior education, without good home surroundings, and without those antecedents which we believe are necessary to make the best nurses. They have nurses of the servant-girl type, educated in small private hospitals, nurses who have been invalids from tuberculosis hospitals, and having taken that class of nurses, are clamoring for a lower standard of nurses. Many small hospitals have inferior nurses because they are not giving the right sort of training. Hospitals which have raised the standard of training and preliminary education find plenty of good women from whom to choose. The same is true of interns in hospitals—if the standard is lowered, poor men are obtained; if it is raised, better men are attracted.

Ventilation of Out-Patient Departments.—In the planning of the wards of American hospitals the need of fresh air is rarely overlooked; the problem may not be solved, but an attempt to solve it is invariably made. But in the planning of out-patient departments, where the need of ventilation is singularly pressing, American hospital architecture is lamentably deficient. The prevailing indifference to the ventilation of the out-patient department is part and parcel of the relative neglect of this department in matters of administration generally. It is no uncommon thing in this country to observe a hospital whose in-patients are cared for in accordance with the highest standards, but whose out-patients are accorded the most niggardly treatment possible. In this respect, if in no other, American hospitals and their architects may go to school to England, where out-patient departments and hospital wards are planned with equal care.—S. S. Goldwater: Notes on Hospital Planning, *The Brickbuilder.*

A FEW PROBLEMS OF HOSPITAL ORGANIZATION *

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STAFF ORGANIZATION

The problem of the organization of the hospital staff is one of wide-spread interest, if we are to judge by the number of articles written on the subject. We propose to give a brief discussion of the existing systems, with a statement of the attempt which has been made at the Massachusetts General Hospital to solve this problem. The usual form of staff organization in the United States is that called "rotating." Under this system the beds in the hospital are divided into a certain number of services, to each of which several physicians or surgeons are allotted. One member of the staff of each service has charge of its patients for a given period, usually three or four months, when he is succeeded by another member of the staff who has charge for a like period. The arrangement is generally such that a man has but one shorter or longer term of duty each year. Let us enumerate the advantages which may be claimed for this method. The physician may devote a certain amount of time to charity work without interfering too much with his private practice. As a large number of men are necessary to man the hospital, and they are chosen from the local practitioners, the hospital is widely represented in the community and many people are interested in it. This method gives opportunity to a number of men to become proficient. Against this form of organization several arguments are brought. The interruption in service does not permit the careful following out of a group of cases, investigation of methods of treatment or pieces of research. Many become proficient; rarely does one excel in a chosen line of work. Patients may suffer in that a man would not be so interested in the cases which are bequeathed to him by his predecessor as in those admitted to his own service. This method does not make for good teaching, granting that teaching benefits a hospital. Positions on such a staff might be given for reasons which were not entirely ethical, such as to attract private patients, to obtain the interest of wealthy or influential persons, or they might be obtained through politics.

The rotating service may be considered one definite type. Another type is the continuous service. This form of organization is the one prevalent in Germany, whence marked advances in medicine have come. This method consists of an arrangement such that there is a definite head for each major department who has a continuous service throughout the year, with assistants usually chosen by himself. The head of each department is chosen because of his acknowledged distinction in his line and fitness for the position, and not necessarily from the local profession. The advantages of this arrangement are that it enables one man with his assistants to follow for as long a period as may seem best a group of cases, method of treatment or a piece of research. It gives men the opportunity to add to the distinction already gained, and to become eminent in some one or several lines of work. Patients are under careful, continuous observation. Teaching can perhaps be better carried on under this system. It is argued that this method is financially more economical.

Against this arrangement certain arguments may be alleged. It does not interest a sufficiently large part of the community in the hospital. It enables only a limited number of physicians to receive the benefits which come from a hospital. The scientific attitude of the men in charge does not make for the best care and greatest happiness of the patients entrusted to them.

In addition to these two well-defined arrangements there are some hospitals in which part of the services is continuous and part rotating. It is interesting to note that the search we made of the literature revealed only two articles in which the rotating service was defended, and none in which the utilization of hospital facilities for teaching was considered other than beneficial to the hospitals as well as to the medical schools.

We have not discussed the organization of the "open hospital," by which we mean a hospital which permits any reputable physician to care for his patients in its wards. Our reason for not considering this type is that we suppose that no one would claim that such an organization makes for the best care of patients or progress in medicine.

Two suggestions which we found we will mention as interesting. In one paper, in which a position in favor of the continuous service was strongly taken, the writer stated that the right to inherit a position should be entirely eliminated, and that there might be a great strengthening all along the line if the rule were made that no assistant could ever succeed his chief. The second suggestion was that the staff of the hospital (in this case, municipal) have a continuous service, with a senior and junior attending physician for a certain number of beds, that a man should spend five years as junior and then five years as senior visiting man, ten years in all, and that at the end of this time he should cease to be on active duty. The advantage claimed for this was that at the end of ten years a man will have acquired all that the hospital can give him, that his practice by that time will require all his time, and that this method gives an opportunity to a large number of men.

At the Massachusetts General Hospital an attempt is being made to obtain the advantages of both the rotating service with a staff of men sufficiently large to keep the community interested, and to furnish it with proficient physicians and surgeons; and the continuous service with its opportunities for marked improvement of the men along special lines, and its convenience for research and teaching.

The medical and surgical services are large enough so that each has been divided. Thus we have two chiefs on the medical service and two chiefs on the surgical service. We will not consider the office of surgeon-in-chief, which has no place in the permanent organization, as it is not to be filled when the present occupant retires. On the surgical side are two subsidiary departments, those of orthopedic surgery and genito-urinary surgery, each with its chief and his assistants. On the medical side is the subsidiary department of pediatrics with its chief and his assistants.

The special departments of neurology, dermatology and laryngology are also reorganized with chiefs of service on duty throughout the year.

On each service under the chiefs are two visiting physicians or surgeons serving six months each. These men have the routine care of such patients in the wards as

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* Read in the Symposium on the Relations of the Hospital to the Patient, in the Section on Hospitals of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

are not otherwise assigned by the executive committee. Then each service has its own assistant visiting physicians or surgeons, out-patient men and assistants.

There is a medical executive committee composed of the two chiefs of service and the resident physician (the title of the superintendent of the hospital), a surgical executive committee constituted in a similar manner, and a general executive committee of six members made up of the two chiefs of the medical services, the two chiefs of the surgical services, a chief of one of the special departments elected by them, and the resident physician. The resident physician is secretary of the three committees. The management of the medical and surgical affairs of the hospital is entrusted to these committees. It is hoped thus to get cooperation. Groups of cases are assigned to individual men throughout the year. On the surgical side, for instance, one man and his alternate have all the stomach surgery, another two men have the surgery of the brain and spinal cord, and other special problems are similarly treated. It is hoped to retain the advantages of proficiency in general surgery and at the same time make certain men expert in special branches of surgery.

There is a retiring age of 60 years and there is a rule of the trustees that vacancies on the staff are to be filled by the person most worthy without regard to seniority. The hospital stands ready to call suitable men from other cities and appoint them to its staff, when this can be shown to be advantageous. A more definite connection has been secured between the house and out-patient services as the chiefs are responsible for both.

Our experiment is as yet too young for final judgment. It has been in operation ten months on the surgical side and is just beginning on the medical side and in the special departments. We feel that we can say that there have been markedly better results in the treatment of patients in the groups of special work. This is a long step in advance.

The change has been attended by some heart-burnings, as was to be expected, but the spirit of the staff in putting the interests of the hospital before their individual interests has been admirable. The problems which arise are many and delicate, but on the whole we are making progress in their solution.

THE RELATION OF A HOSPITAL TO A MEDICAL SCHOOL

We believe that it is generally accepted that a medical school is definitely helped by a hospital connection, for the arrangements are usually such that the professors and assistants in the medical school have clinical positions in the hospital, and the value to the students of bedside teaching and work as clinical clerks is great. The benefits to the hospital come through having men of eminence on the visiting staff, and from the presence of students in the hospital which assures to it that all the members of the staff will be kept on the *qui vive* and that the patients will be carefully and thoroughly studied from all points of view.

Complaint has been made that men who are connected with both a medical school and a hospital are more likely to let the latter than the former suffer, if one is to receive less attention. This should not be so. To avoid the possibility of this it may be wise to make arrangements so that the appointee shall feel that his appointment comes from the hospital quite as much as from the medical school, if not more. We doubt if an arrangement between a hospital and a medical school by which the members of the staff are to be chosen by the hospital from candidates furnished by the medical school would bring about this desired end. The large privately endowed general hospitals of America which have grown up independently of medical schools are probably as well off if they preserve that independence. The man whom the school would appoint professor of medicine or surgery does not necessarily possess the qualities desired by the hospital for a chief of its medical or surgical wards. The hospital needs a man with broad humanitarian principles, and one who can direct and stimulate the work of the men under him. If he is a teacher so much the better. If he is a teacher but not fitted for chief of service, he may well occupy another position similar to that of visiting physician or surgeon at the Massachusetts General Hospital, whereby he would have a six months' service; and he should be granted use of teaching material throughout the year. If a hospital and medical school have the spirit of cooperation, their interests are nearly enough identical so that nominating committees of the two working in harmony should have no difficulty in reaching conclusions satisfactory to both.

The matter of the expense of teaching medical students in hospitals is a serious one. The wages of nurses, orderlies and other attendants, and the cost of supplies used by students or because of teaching, make considerable items of maintenance. The medical school should recompense the hospital for this service. The cost of erecting amphitheater and special rooms for teaching may well be borne by the hospital if it preserves its independence. The fact that there is teaching within its walls makes the hospital enough better to warrant this expenditure. If a hospital accepts from a medical school money to build laboratories and rooms for students, it really becomes a part of the university and should expect to give to the medical school some rights of nomination.

TRAINING SCHOOLS FOR NURSES

It seems wise to us to have the training-school an integral part of the hospital, as making for the economical management of both, for efficiency and for good discipline. We feel that the superintendent of nurses should be responsible to the superintendent of the hospital directly; but we feel that as superintendent of nurses a woman of such caliber should be chosen that she can be allowed to work out most of her problems herself. We feel that the educational standards for nursing should be kept high, inasmuch as in private practice more careful and intelligent observation, and more logical deductions from them are demanded, and in the other lines of work which are open to nurses, such as hospital administration, teaching, superintending of operating-rooms, district nursing and social service work, a high degree of intelligence and previous preparation is requisite.

With the increase in the number of training-schools and of places open to nurses has come a greater demand for probationers, so much so that many institutions have great difficulty in keeping an adequate corps of nurses on duty. The experience of the Massachusetts General Hospital on this point may be of interest. Since the admission requirements have been raised, the amount of teaching increased, and the hours of work shortened, the hospital has had so many applicants that it has been possible to pick and choose probationers, a condition which did not exist before these changes were made. This has increased the cost of maintaining the training-school, but the nursing is now done better than previously.

We appreciate the fact that many small and special hospitals cannot hope to attract intelligent and well-trained women. Such hospitals would do well to realize that if they cannot furnish the necessary education and broad curriculum either within their own walls or by affiliation, they should not maintain training schools for nurses. Such hospitals should go to the expense of hiring graduate nurses. They may well train attendants.

Our object in this paper has not been to try to cover all or a large part of the problems of hospital organization, but to state three which we consider of major importance and to give what seems to us a feasible solution of each.

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ABSTRACT OF DISCUSSION

Dr. C. H. Cook, Natick, Mass.: Patients in towns have a right to good care, which is often best supplied in a hospital, yet we are told that the small hospital should not have a training-school but should depend on graduate nurses. Where are the funds coming from to run such a hospital if the nurses are to be hired? The expense would be prohibitive; the small hospitals would be closed, and lives would be sacrificed that now are saved. Patients in the small hospitals receive better care from the student nurses, under supervision, than from graduate nurses, because graduate nurses cannot be hired to do what the student nurses do; they will be more independent. Graduates from an efficient small hospital training-school are better qualified to prepare an operating-room for an operation, or to make similar preparations in a private house, and to assist the surgeon during the operation than are the graduates from the larger hospitals because they have been trained, to a greater extent than are the graduates from the large hospitals, to assist the surgeons, as in the large hospitals the interns render such assistance.

Dr. F. A. Washburn, Boston: There are small hospitals and small hospitals. Those to which I referred should not have training-schools. These are the small special hospitals that are run for the benefit of one man. A small hospital can run its training-school so as to give the nurses good fundamental training; then they can go to some larger hospital for training they cannot acquire in the small hospitals; but these are hospitals in which the nurses are simply exploited and these schools should go out of existence.

THE MEDICAL SUPERINTENDENT *

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Whatever business a man takes up, the better informed he is in regard to it the better he ought to be prepared to accomplish that work in a satisfactory manner. When a man has spent eight years in acquiring a medical education, it seems at a casual glance like a waste of that education, to apply it solely to the business part of a hospital, and it is, if a medical man cannot be of more use to an institution as its superintendent than a layman can be. If a hospital does not afford an opportunity for applying his medical knowledge, then, to deal frankly with the case, that institution should not have a medical superintendent. There are many good uses for a medical education besides the direct treatment of patients.

Not long ago I was in conversation with a medical superintendent of a large general hospital, and we were discussing the subject of interesting a bright young physician to enter the life of executive work. When we were in the midst of the conversation an older man appeared who had spent his life in executive work in insane and general hospitals. His attitude surprised us. He said that the young man in question was too brilliant for executive work — that he was capable of becoming a first-class clinician. His attitude, I think, is fairly typical of that of a large class of physicians and trustees; that the best brains should not be induced to enter on the executive work of a hospital, whereas, for managing a college or university the man with the utmost ability is sought.

THE HOSPITAL EXECUTIVE SHOULD BE A PHYSICIAN

I am one of those who believe that a general hospital in its executive work does present an opportunity for using all of the ability that any physician possesses. I do not believe that a medical education is wasted if the possessor applies himself diligently to the management of a general hospital. The man who feels that it is below him, that he is engaged in something that he does not prefer, is pretty sure to do his executive work at such arm's length that it will not be successful.

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* Read in the Symposium on Relations of the Hospital to the Physician in the Section on Hospitals of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

I have endeavored for the last twelve years to induce the brightest men that I could get to enter executive work and tried to impress on them that there is no part of the work in a general hospital that is beneath their serious study and consideration. When you once get a man to assume this attitude — that it is a serious business, and that the minutest details are worthy of serious consideration until it is established on a sound basis — he will then dignify the work so that our brightest men, not only among the staff but physicians outside, become interested and the executive position is elevated.

We must remember that there was a time when the medical and surgical profession was looked down on by what was called the highest class of society. The physician or surgeon was not thought worthy of being invited to the table of the better class of people. This attitude toward the profession has not entirely died out in some countries of the world.

I honor the medical and surgical profession more than any that I know of and I believe that by running a general hospital as a serious business I can aid medical and surgical advancement as much as I could in any other way.

There are those who are not suited to executive work. It is a mistake to induce a man to take up this work if it is distasteful to him, but if he has the proper characteristics he will find that in the running of a general hospital there is plenty of opportunity for the application of all the medical knowledge he may have acquired.

ASSISTANTS SHOULD DO MEDICAL WORK

Some twenty years ago I became the superintendent of an institution in which I had previously been, as first assistant, responsible for the medical and surgical work. I accepted the superintendency under the misapprehension that I could delegate to some one else the business part of the institution, and that I could still devote myself to the medical and surgical work. I am certain that I never would have accepted the superintendency if I had not been convinced in my own mind that this was possible.

The superintendent of a large institution is responsible for all the contracts for supplies, and for the conduct and efficiency of all the employees. I found within three months, much to my disgust, that I was no longer of that use to the patients that I had been; that, in spite of all my efforts, details of contracts, prices of materials, and in fact the financial complications of the institution would run in my mind when I was examining a patient and trying to give my best attention for the benefit of that patient. I then made up my mind to throw the responsibility for the medical and surgical work of the institution on others; that having a medical education I ought to be preeminently fitted for selecting able and efficient assistants, and that I would devote myself to the business end of the institution to make that efficient and economical, in order that it might furnish many things it never before had been able to furnish. Since that time I have devoted myself to the management of hospitals, and I have been convinced that my medical education has been an assistance rather han a hindrance.

The insane hospitals of this country have medical superintendents universally, so far as I am aware. These medical superintendents are supposed to be at the head of the medical work, experts in psychiatry, and also to be the head of all the business of the institution. This seems to result in some cases in the neglect of the business end of the institution for the sake of the medical, and in others the emphasizing of the business end to the neglect of the medical. In other words, it is well-nigh impossible for one man to be really responsible for the business of a large institution and to be its actual medical leader also. It is rather amusing to see the assurance with which some men try to convince you that they occupy such a position successfully. We who know the facts realize the impossibility, and I believe the time will come when the superintendent of the hospital will not actually assert that he is the leading psychiatrist in his institution, but that he simply selects able physicians to treat his patients and from his medical knowledge is able to judge whether they are proper persons to do it.

General hospitals, on the other hand, have done quite the opposite from the insane hospitals.

QUALIFICATIONS OF THE SUPERINTENDENT

The modern general hospital is quite a different institution from what it was fifteen years ago, and there is plenty of work to tax the energy and ability of the best-trained man in the management of such an institution. In the first place, the hospital should be a first-class hygienic machine. The superintendent should be a judge of all the elements that enter into this hygienic machine — the cubic feet of space for each patient, the proper ventilation, the machinery or equipment for doing the medical and surgical work, and the necessity of having laboratories for pathologic work, for physiology and for chemistry — so that he may be of assistance in giving his trustees proper advice as to the necessities of these adjuncts in running a first-class hospital.

Physicians not infrequently are poor business men, and not infrequently look down on the traits that make good business men; when they assume this attitude they are sure to make poor superintendents. They do, however, by education necessarily know more what the needs of a hospital are than a layman can hope to learn, and a resident staff will allow them to attend to certain kinds of business which interlace with medical knowledge, whereas it would resent a lay superintendent's attending to the same business. If a staff is to give its best efforts to the treatment of the patients it needs to be relieved of every possible business detail. The reason that this subject is open to discussion at all is that the least efficient medical superintendent is often compared with the best lay superintendent. One reason that women nurses make such good superintendents of hospitals is their practical medical knowledge acquired from long experience and close association with the patients and physicians.

The hygiene of a hospital should be perfect, and medical knowledge is essential in keeping the hygiene up to a high grade.

A medical superintendent can admit patients and place them with comparative accuracy, while, as a rule, when a lay superintendent is employed this part of the work is turned over to inexperienced members of the staff who usually do it crudely because they consider it drudgery.

The question between the lay and medical superintendent, as a rule, comes up as an item of expense. Some hospitals do not feel that they get an advantage for the extra salary paid to the medical man. As a matter of fact, they should, and if they do not, I believe this to be a fair criticism of the medical superintendent.

Not all our institutions are run on a good business basis. It is our habit to compare one with another, when the institutions are similar, by simply giving the per capita cost by the week or by the day; and the one that is running at the least per capita cost, in a general way, is supposed to be the best-run institution. Yet it is perfectly well known by every intelligent superintendent that some institutions which are conducted at a low per capita cost have extravagant departments.

There should be some method evolved by these highly trained superintendents by which this per capita cost could be analyzed and the finger put on just that part of it which is excessive. Thus there would be a chance to study that department and improve it. This studying and analyzing the per capita cost, after a while, produces a standard to which every intelligent man should be obliged to conform or he should have to explain why he cannot. Many English institutions have arrived at these standards. In conversation on the subject, more than one Englishman interested in hospitals has produced from his pocket a little book which would give a correct analysis of his weekly per capita cost: what percentage was tea, coffee, milk, butter, nursing, heat, etc. Your reader will have to acknowledge that he has contented himself with trying to run his institution economically and efficiently, without creating a standard to which the individual articles that made up the per capita cost should conform.

Every hospital is supposed to exist for its patients. If it cares for its patients well and scientifically, its reputation should grow, and on the average it does grow. It has been found to be better for the hospital and the patient that teaching should be done in the hospital. In its laboratories all scientific work allied with the treatment of the sick should be carried on. That this work adds in the long run to the light that can be shed on the patient's case, in diagnosis and treatment, is well known.

It would seem that the superintendent who would best understand this scientific work, this medical and surgical work, would be the best judge as to what the needs of a hospital are and in that way would have a clearer view as to what should be done to aid its patients and to give them the best care. This care of the patient, as physical, medical, or surgical, is more or less supervised by the chief surgeon and chief physician, but they should be assisted from the administrative side, and light should be shed on the efficiency of the care and treatment of the patient, so far as it can legitimately be done, from the point of view of the superintendent. I do not mean by this that the superintendent should interfere in the treatment of any individual case, but his inspection should show him whether patients are attended to promptly on entrance or whether there is probable neglect or delay in caring for the patient during any part of his stay in the hospital. A superintendent without the medical education cannot give this sort of service, which I believe to be the highest service that can be given by the superintendent because it conserves the time of the chief surgeon and the chief physician.

The superintendent who knows most about the medical and surgical work has the clearest view of the needs of the institution, and the highest incentive, therefore, for conducting the business on economical lines so that money thus saved may be expended in the actual need for further development.

If this paper, by suggestion or otherwise, has raised in your minds a clear picture of the complicated medical machine that a modern general hospital is with its ramifications on one side into the various scientific laboratories, and on the other side through its social service into the defective and diseased parts of the community, then I will leave it to you whether it is not worth while that the superintendent of this machine shall be required to have a medical education.

ABSTRACT OF DISCUSSION

Dr. H. M. Hurd, Baltimore: I have always been in the habit of saying that the most necessary thing in a hospital is a medical superintendent. Some years ago in the hospital of a neighboring city the question came up as to whether the superintendent should be a layman or a medical man and the board of trustees, after much discussion and effort to get a layman (they were business men who had an impression that no physician could be a business man), finally were compelled to choose a physician and later came to the conclusion that a medical man was absolutely essential, because a layman could not decide the necessities of a hospital from the standpoint of the medical men. I always urge that teaching hospitals have a medical superintendent. In other hospitals, where there is no medical teaching, it is not essential; I know many hospitals where I am sure a trained nurse makes the best superintendent. Where a hospital is small and the funds are low, the same person can act as superintendent of the hospital and as superintendent of nurses. Where a hospital has from 150 to 200 patients and it is necessary that the superintendent should attend to certain duties in the house and outside, I see great advantage in appointing a layman. It is rather interesting to see how different cities of the country have varied in their appointment of superintendents. Many years ago, the general hospitals in Boston had medical men as superintendents; New York had only lay superintendents. Recently in New York medical superintendents have been appointed in many of the large hospitals, although excellent men are still in charge of hospitals who are not medical men.

Dr. Elsworth Smith, Jr., St. Louis: In St. Louis, in our large general hospital, as far back as 1887, when I was an intern, we have always had a medical superintendent. He has also had charge of both the care of the patient and the business end of the institution. Recently, after reorganization, the first appointment was of a man as superintendent who is a cross between a medical man and a layman, a dentist. This did not work very well and there now is an excellent medical man as superintendent, besides a medical man who is at the head of the medical part of the work, a supervisor of wards, and of course, a large visiting staff. I am connected with a hospital that is under the care of the Sisters of Charity. There a sister is in charge as superintendent, who has entire control of the institution, both the business phase of it and the medical phase by consulting with the staff. While she is a woman of great ability and one who wants to appreciate the highest ideals, she is nevertheless handicapped because she is not in a position to understand the needs from a physician's point of view. I feel that in any institution of great size, especially a teaching institution, a medical superintendent would be preferable.

Dr. G. W. Green, Chicago: There are a great many of the smaller hospitals that Dr. Hurd mentioned with fifty to 100 beds that cannot afford medical superintendents. They are compelled to have a trained nurse fill this position. Eighty-seven per cent. of hospitals have 100 beds or less; so there must be a considerable number of superior trained nurses to keep these positions filled, for they cannot afford medical superintendents.

Dr. J. A. Hornsby, Chicago: Some years ago a hospital in a city of 350,000 was about to change its superintendent; the superintendent, who had no medical training, but who was supposed to be a very good business man, got into trouble with the medical staff and they wanted to get somebody else. They asked me to give them some advice. I suggested a medical superintendent; they said that they could not afford to pay a medical superintendent, they could not afford to pay more than $1,800 to $2,000 to anybody. I said I thought they could afford to pay $3,000 or $4,000 to start with; I advised them to gamble on it for one year and if, at the end of the year, they found they had made a mistake, they could go back and get somebody for $1,500 or $1,800, or perhaps $75 or $80 a month, because it had been said that one of their number had to go to the hospital every morning before he went to business to give directions for the day's work. They gambled that year. They got a man I recommended to them and paid him $4,000 salary and at the end of the year they made him a little raise. They found in the course of a year that this superintendent had won a place for himself; that he had become one of the lights in the community without butting into the business of the medical staff; he had displayed business acumen and ability, coupled with diplomacy, and after all had made good within one year. That man had met all the people in the community, and the women in the community would do almost anything he wanted them to do. He could attract philanthropists and people of means and get them interested, so that his salary had become a matter of little moment, for the money he had attracted and the popularity that had come to the institution because of his being there, had more then repaid them for that little advance in salary.

Dr. P. E. Truesdale, Fall River, Mass: To my mind there are few jobs which demand a wider range of average good qualities than that of the hospital superintendent, especially in large institutions. This executive needs a keen sense of values; the ability to size up people and everything that comes with them; to rate physicians, nurses and employees for the main purpose of getting from them their best work. Physicians generally are considered poor business men, and are looked on as easy victims by promoters of all shades. There is no rational excuse for the doctor failing to employ average good business methods in his practice, and cultivating a sense of discrimination in finance as well as in medicine. The business ability of the hospital superintendent, however, needs to be of high grade, and possessing a medical education in addition best prepares him for a career of splendid achievements.

INDIVIDUAL PROPHYLAXIS IN CHILDREN'S HOSPITALS [*]

ISAAC A. ABT, M.D.

CHICAGO

Institutions for the housing and treatment of infants and children are constantly subject to local epidemics. Every one who has had experience in the administration of children's wards or pavilions knows how the service is frequently interrupted by the occurrence of an infection or a contagious disease which is soon followed by an epidemic of contagion.

In many of our American institutions in which the facilities for the care of infectious diseases are meager, or entirely lacking, the hospital is thrown into consternation when infection occurs. Nothing will so quickly disorganize the efficiency of a children's department as one of these epidemics.

It is a well-known fact that hospitals and asylums for infants and children have been closed or abandoned on account of the ravages of contagion. It is unfortunate to be compelled to close, and the proper quarantine of nurses and interns becomes a serious and difficult problem. When one figures in terms of money outlay the occurrence of such an epidemic it is plain that it is costly from the standpoint of administration. The hospital is compelled to operate, as a rule, without the possibility of admitting new patients, the cost of maintaining the quarantine is considerable, and the subsequent disinfection and renovating are considerable items of expense.

MANNER OF INTRODUCTION OF INFECTIONS

Contagion.—An infant or child may be admitted who is suffering from the prodrome of measles or scarlet fever; or he may come from a home where other children have been ill from one of the infectious diseases, where he already has been exposed to contagion; or at other times a patient is admitted with a latent infection. Thus, an infant may be admitted with an inactive vulvovaginitis, or another may enter who has recently recovered from diphtheria with virulent Klebs-Löffler bacilli still present in the throat; or a child may show slight desquamation after a scarlet fever; or a young infant with an unrecognized, though open, tuberculosis may be admitted into the general ward. These conditions may be communicated to other infants in a manner which we will consider later.

Visitors.—It is safe to say that visitors at times bring infection into the wards; indeed, the matter of visitors and visiting is a problem in the administration of children's hospitals which requires the most delicate treatment. It is no small matter for parents, in most instances, to give up the custodial care of their children to an institution. To be denied the right to visit them would entail a hardship on parents which would seem almost inhuman.

I have sometimes thought it would be a wise precaution to request visitors to remove their outer garments, and clothe themselves in clean white caps and gowns and cloth coverings for the shoes before admitting them into the general ward. While this could be carried out it would meet with some objections on the part of the visitors and might for a time tend to diminish hospital patronage. More than anything else it would increase the already large expense account, though I think that in the end the cost would be overbalanced by the loss sustained in shutting down.

There is another and more vital reason why strenuous effort should be made to prevent infection. The most neglected and severest cases find their way to the children's wards of our various hospitals. Children suffering from rickets, pneumonia, tuberculosis and marasmus offer little resistance to infection with diphtheria, measles, scarlet fever, whooping-cough and the other communicable diseases. It is obvious that the mortality from these cross-infections must be high; and any one who has suffered the personal mortification of witnessing a pestilence sweep through the wards, and who has felt the reproach from parents, and sometimes from the board of administration, knows how indescribably sad and depressing such an occurrence is. The so-called gonorrheal vulvovaginitis which frequently finds its way into the wards of infant's and children's hospitals is one of the most dreaded and most difficult to manage of all infections which we are called on to meet. Once it has gained access it is likely to spread from one infant to another until the female occupants of an entire ward have become infected. These cases run a protracted course and offer the greatest difficulty to hospital administrators. To send these children to their homes frequently means the infection of other children in the family. It is difficult to see how infection can be avoided in homes where ignorance, filth and squalor exist. An infection of one or both eyes may occur, or more rarely a joint-involvement, or occasionally some gonorrheal complication may take place. To keep such children in the public ward is impossible, yet to send them into isolation means not only that they should be kept from children not previously infected, but that they should be given care and treatment for months or even years. It is obvious, then, that it is the highest function of a hospital to prevent the spread of this contagion.

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[*] Read in the Symposium on Relations of the Hospital to the Physician in the Section on Hospitals of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

Diphtheria.—The management in diphtheria frequently presents the most difficult problem for solution. Occasionally a child is admitted with a nasal discharge which after investigation is found to contain diphtheria bacilli. As a matter of actual experience other patients may become infected before the nature of the disease has been suspected or ascertained; but strange to say, the bacilli of diphtheria seem to travel and diffuse themselves more rapidly than does the actual disease. For example, there may have been one or two well-defined cases of diphtheria in the ward. If cultural examinations be made from the throats of all the children in the ward one is frequently surprised to find that almost every patient gives a positive cultural reaction, though without the occurrence of membrane or sore throat. If the same tests are made from the throats of nurses and interns positive results are obtained frequently. We have then to deal with a wide-spread diffusion of diphtheria bacilli in throats of patients, interns and nurses who are not definitely sick with diphtheria. Careful study in the laboratory shows these microorganisms to be morphologically diphtheria bacilli, and animal experiments have attested to their virulence. The problem which requires solution from the administration is: Can new patients be admitted into the infected ward safely? Should interns and nurses who show the presence of this microorganism be allowed to mingle with other hospital attachés in other parts of the house? Should we permit those whose throats are infected to share the sleeping-chambers and dining-room with those who are not infected? The solution of this whole problem is difficult, because by closing down we are resorting to extreme measures; but nothing short of complete quarantine ensures safety to other children and attendants and prevention of contagion. Quarantine and isolation should continue until the organisms have disappeared from all the throats.

Not the least provoking thing in this whole situation is the persistence which these organisms show; sometimes two or three weeks elapse, or even a month, before the bacilli have disappeared. It should be emphasized that the presence of diphtheria cannot be excluded simply because bacilli are not found in one single cultural test. Repeated daily examinations are necessary. At least three negative cultures should be required to exclude diphtheria.

The thought almost immediately suggests itself that the diphtheria situation could be handled by administering diphtheria antitoxin to all those who have been exposed to the infection, whether throat examinations show the presence of diphtheria bacilli or not; but, as has been stated, in some of the epidemics which I am referring to only a few of the patients have been actually sick with diphtheria. We know, too, that the diphtheria bacilli persist and may remain virulent to others after the patient has been treated and cured with antitoxin. In this sense antitoxin is antitoxic but not bactericidal, and recently our respect for antitoxin has increased. We have learned that its indiscriminate use may produce conditions which at times are undesirable, or indeed alarming, and clinicians as a rule would use it in those cases only in which it was clearly indicated.

If a single case of infectious disease occurs it is needless to say that it should be removed from the general ward as soon as possible. In the case of a diphtheria epidemic, throat cultures should be made from all those who have been exposed in the ward. In any event if one or more positive cultures have been obtained it would be well to close the ward temporarily in order that it may be kept under observation and the further progress carefully controlled by making daily throat cultures, and by a system of isolation and general prophylaxis. Ordinary gargling and spraying with the antiseptic substances in general use do not seem to destroy diphtheria bacilli. Diphtheria carriers have been treated according to Page[1] by using vaccines of *Staphylococcus pyogenes aureus.* His patients made most satisfactory progress, the diphtheria bacilli disappearing from the throats in from forty-eight to seventy-two hours. He used pure cultures of *Staphylococcus aureus.* Catlin, Scott and Day[2] have employed the same method and report satisfactory results in eight cases. In view of the few reported cases one would hesitate to recommend this method. A plan of treatment for ridding throats of diphtheria bacilli along these lines is much to be desired.

Measles.—I have seen measles spread like wildfire through an infants' ward causing disaster which was deplorable. And chicken-pox once gaining access to an infants' hospital seems to spare none save those who have been protected previously by the occurrence of the disease. Strangely enough, I have seldom seen extensive epidemics of scarlet fever or whooping-cough in children's hospitals, though these patients are occasionally admitted into the wards before they are positively identified. Possibly my own experience has been more fortunate than that of others, but I have rarely seen widespread epidemics of these diseases in hospitals; not so of orphan asylums and infant asylums where I have frequently observed scarlet fever and whooping-cough gain a firm foothold.

The so-called grip infection, especially in infants' wards, is not infrequently disastrous. Possibly a nurse is suffering from an acute cold, or from a severe nasopharyngeal infection. In another day or two an infant has a similar affection and before long several of the infants, or indeed all of the occupants of the ward, are coughing and sneezing, and showing injected conjunctivas and red throats or swollen tonsils and elevation of temperature. In a few days some of these infants show laryngeal involvement, and some develop bronchopneumonia. The mortality from this epidemic disease is considerable, and I have seen almost an entire ward devastated by grip epidemic.

Epidemics of pneumonia, other than of the grippal variety, have been reported; and wide-spread dysenteric affections are of occasional occurrence.

Syphilis from congenital syphilitics is sometimes communicated to infants who have not been previously affected. Cassel of Berlin has informed me verbally of some of his own experiences with this form of transmission. He has recently published[3] a report on "The Dangers of Syphilitic Infection in Modern Infants' Hospitals." He cites several cases and points out the menace of admitting these children into general wards.

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[1] Page, Henry: Arch. Int. Med., 1911, vii, 16.

[2] Catlin, S. R., Scott, L. O., and Day, D. W.: The Journal A. M. A., Oct. 28, 1911, p. 1452.

[3] Cassell: The Dangers of Syphilitic Infection in Modern Infants' Hospitals, Arch. f. Kinderh.

In the light of modern investigation one would think it necessary to isolate patients with cerebrospinal meningitis, as well as those with acute poliomyelitis. I do not know of a single instance in which these diseases have been transmitted to other patients in hospital wards. This does not hold true of typhoid, and certainly not of cases of open tuberculosis. With these latter diseases evidence of transmission is too well authenticated to require further comment.

Pyocyaneus and other pus infections occur in infant wards as in general surgical wards, and are difficult to control.

PROPHYLAXIS

The exclusion of epidemic contagious diseases and infections from children's hospitals depends on an accurate knowledge of the sources of the diseases and the avenues of their introduction, together with a most painstaking technic for their prevention. This technic is difficult of execution. In many of our hospitals and institutions with rotating services, with a somewhat half-hearted interest of attending men, and with an inefficient supervision or directorship, definite or stable rules of administration are difficult to carry out.

A children's or infants' hospital, almost more than any other institution, requires well-thought-out, unvarying rules of administration. The technic for the prevention of infection and cross-infection should be stringent and invariable, the cleanliness and general asepsis as perfect as that of the surgical operating-room. It is evident that the first essential in the proper conduct of an infants' or children's hospital or ward is a matter of efficient administration. Attending physicians, interns, nurses and all others who have access to this department should cooperate in the plan of prevention as it has been worked out. Having proceeded thus far it is all important that one or more of the hospital officials or attending staff should have authority conferred to enforce the rules of technic which have been agreed on, because it is common experience that, unless there is centralized authority or supervision, lapses occur to the detriment of efficient administration. With the frequent changes in nurses and interns the watchword from those in charge to those who are subordinate should be eternal vigilance.

Many of the lapses which occur may be charged to the carelessness not only of the interns and nurses, but also to attending men. The latter are frequently thoughtless, or even careless as they pass from one patient to another.

I have frequently thought that much of the transmission of disease occurs during the night Night nurses are nearly always overworked; often they take care of three or four times as many patients as would be required of them during the day. They rush from one child to another without precaution of disinfection, or even of cleansing their hands. Bed-pans and thermometers are used indiscriminately from one patient to another, and often there is no supervisor in the form of head nurse or senior ward nurse. Though the young night nurse does the best she can, errors in her technic are liable to occur, owing to the circumstances under which she is laboring.

HOSPITAL CONSTRUCTION AS AN AID IN PROPHYLAXIS

The building in which the children are to be housed should be kept absolutely clean, and should admit of the most thorough ventilation. Every form of overcrowding should be avoided. The floors should be perfectly smooth, easily cleaned and devoid of cracks and holes, which accumulate dust and germs. As in all modern hospitals, there should be no angular corners, and the walls should be easily cleansed and not contain pictures, unnecessary moldings, or memorial tablets. If the wards are small the number of children who are exposed to contagion is necessarily reduced. An observation station consisting of small individual rooms or cubicles should be provided for, so that the newly admitted patients may be kept under observation for a number of days, or in some cases for two weeks, until the possibility of introducing infection has been excluded. Numerous small rooms should be provided in connection with the general wards so that infants who develop skin eruptions, grippal affections or other infectious or suspicious processes may be removed at once from the ward to more or less complete isolation. It should be possible to isolate one ward from another; for example, if an infectious process has occurred in one ward it would be expedient to close this ward to the admission of new patients and to prevent nurses and interns engaged in such an infected ward from mingling with other patients as well as other nurses and interns.

CLINICAL AND BACTERIOLOGIC EXAMINATIONS OF PATIENTS ON ADMISSION

There is some difference of opinion as to the value of making throat cultures and bacteriologic examination of the vulvovaginal region on the admission of the patient. It is a precautionary method which can do no harm, and while undoubtedly it occasionally fails to reveal the presence of either diphtheria or a gonorrhea, nevertheless it frequently assists in the detection of one of these diseases before harm has been done. We have adopted this plan for many years past and it has frequently aided us in discovering a communicable disease. It is almost needless to say that the child should be completely undressed, should be carefully examined for skin lesions and the presence of congenital syphilis, and that the mouth should be examined for Koplik's spots. Acute or open tuberculosis should be investigated by careful physical examination. A history should be obtained as to whether the patient had been exposed directly to any contagious disease before admission, and note should be taken of any contagious disease from which the patient had previously suffered. He should be examined and then sent to the observation station. The observation station should be so arranged that in most instances only one patient is assigned to a single room. The room should admit of careful isolation and should contain running water and facilities for heating food or bottles on a gas stove or an electric plate, and for bathing the patient in the room. It should be the routine practice that every attendant who comes into this room should don a fresh cap and gown on entering; he should wash his hands carefully before handling the patient and should remove the cap and gown on leaving the room. This should apply to attending men, interns, nurses and, if possible, visitors.

PROBLEMS IN INDIVIDUAL PROPHYLAXIS

In a given case it is difficult to know exactly how an infant has become infected, or in what manner an epidemic has been started. Possibly the utensils which the patient needs in his care and treatment, possibly the linen or the hands of nurses have done the mischief, or interns may have spread the infection. In order to obviate the possibility of diffusing infections through a hospital the following points should be borne in mind:

Each patient should have his own thermometer, bed-pan, dusting-powder box, basins, wash-cloth, towel, and his own bath tub. The linens, clothing and napkins should already have been boiled and laundered. The patient should be dressed and undressed on his own bed, not on a table in general use. The scales in which he is weighed should be covered with a paper napkin or a sheet of paper which should then be destroyed; or the scales should be covered with a diaper which will subsequently be used on the patient. The nurse should wash her hands frequently, particularly as she passes from patient to patient. There can be no doubt that the infection is frequently carried on the hands of those who handle the child. The same rules should apply to interns, attending physicians, nursery maids and in fact, every one who treats the children. Simple as these rules seem, they are difficult to carry out. I recently suggested during a period of stress from a diphtheria infection that the nursery maid and nurses should wear rubber gloves which should be changed as they passed from one patient to another. It is obvious that such a rule would be expensive in time and in money if it were to become a permanent law.

It is evident that a children's hospital, or institution, presents difficulties which require the utmost thought and the most careful precautions. It is absolutely impossible that infections or infectious diseases can always be detected on admission of the patient, so that mild epidemics will occasionally occur. It is, however, possible by employing the most stringent methods, to prevent wide-spread epidemics if the organization works in complete harmony, living up to the most accepted views of prevention and general hygiene. In order to accomplish this the medical and nursing staffs must be awake to the necessity of all that pertains to prophylaxis, and must give most careful attention to all the minor details which, taken into the aggregate, contribute a technic of prevention and will solve many of the difficulties of administration.

The hospital should be properly constructed and provided adequately for quarantine and isolation. The spirit of thoroughness, helpfulness, enthusiasm in the work and a zeal to prevent the epidemics which we have referred to should pervade every one in the institution from the highest to the lowest.

4236 Vincennes Avenue.

ABSTRACT OF DISCUSSION

DR. J. O. SKINNER, Washington, D. C.: Do the Chicago health laws require cases of spinal meningitis to be isolated? Dr. Abt said that these cases do not have to be quarantined.

DR. J. A. HORNSBY, Chicago: Our laws are peculiar. Several years ago on looking into the laws I found that I would have to go to jail whichever way I interpreted them. A child with diphtheria came to our admission room. The law forbade receiving the child but also provided that communicable diseases must not be sent anywhere in a public conveyance. There was no private conveyance to which we had access, the health department had no ambulance available, but the child could not be kept in the admission room because it was dying. We gave it antitoxin and took care of it as best we could. The law prescribes that cases of cerebrospinal meningitis shall be isolated but we never isolate spinal meningitis or typhoid fever cases. Chicago prescribes a lot of things but has no means for their enforcement.

DR. J. O. SKINNER, Washington, D. C.: Dr. Abt does not consider the segregation of cerebrospinal meningitis in children necessary. I thought it necessary that these cases should be isolated and rooms fumigated, etc. One winter a nurse from Schenectady, where there was a cerebrospinal meningitis epidemic, came to Washington, and four months later she developed the disease. As there was only one other case in Washington, a tuberculous spinal meningitis, the nurse evidently brought the infection. The period of incubation is not known. If Dr. Abt does not consider the isolation of these cases necessary, it is important for us to know. We have always regarded them as highly contagious and infectious. In this case we fumigated the rooms, clothing, etc., and that was the only case that occurred.

DR. J. A. HORNSBY, Chicago: We make no attempt to isolate cases of cerebrospinal meningitis or typhoid fever.

OUT-PATIENT WORK

THE MOST IMPORTANT AND MOST NEGLECTED PART OF MEDICAL SERVICE *

RICHARD C. CABOT, M.D.
BOSTON

If a patient in a hospital ward should have pneumonia you would not think of filling up the other beds in that ward with members of the patient's family who may be going to come down with pneumonia. But when one phthisical patient applies for treatment at any up-to-date dispensary it is obviously the duty of the dispensary to send for the rest of the family exposed to infection and have them examined, and, if need be, treated. One case of rickets is the symptom of more rickets in that family, present or to come — the single rachitic seen at the dispensary is but a single symptom of the rachitic forces at home. Physicians never like to treat symptoms; they want to get down to the roots of things. One case of lead-poisoning means more cases in that shop; one case of vulvovaginitis means a nest of them in the neighborhood.

THE FIELD OF THE DISPENSARY

Out-patient work naturally leads us to follow up disease to its lair in the spirit of modern preventive medicine. Ward work deals mostly with isolated cases after the disease is in full swing. It cannot be radical, fundamental, preventive, like dispensary work.

Again, in ward work we can seldom deal with the incipient stage of disease. The patients are not sick enough to occupy a bed. But it is just in the incipient stages that phthisis, stomach trouble, malnutrition, exophthalmic goiter, lead-poisoning can be more successfully treated. The community profits far more by this bud-nipping treatment in dispensaries than by the palliation of advanced disease in hospital wards.

The dispensary has another advantage over the wards in the management of chronic cases. Patients with these troubles are better for being kept at work and in their homes. They get hospitalized and flabby in the wards. Yet they may need guidance and advice from time to time over a period of many years and this they can best get in a dispensary.

The dispensary, then, hits the problem of disease at three most vital points where the wards cannot: 1. It roots out foci of disease in families or neighborhoods, following home the clues presented in the person of the dispensary patient and so preventing disease. 2. It checks disease in its incipiency. 3. It deals with chronic cases and keeps the patients from relapsing into a discouraged and vegetative existence.

THE SLOVENLINESS OF DISPENSARIES

Yet in spite of these three distinguishing marks of superiority, and in spite of the fact that almost all hospitals treat five times as many persons in their dis-

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* Read in the Symposium on Relations of the Hospital to the Public in the Section on Hospitals of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

pensaries as in their wards, we still allow the tradition of superficial, slovenly work in dispensaries to go on. We allow the great dispensary abuse — not the abuse of the dispensaries by the patient, but the abuse of the patient by the dispensary — to go on. We allow snap diagnoses, treatments that will not bear scrutiny, and records that are a farce. We are content that hospitals should spend at least twenty times as much for the care of a ward patient as they do for the care of a dispensary patient.

From the point of view of public service and public health this is all wrong. Some day the magazines will find us out and make a scandal of the slovenliness of our dispensaries. We ought to make haste and reform ourselves from within before the storm of public disapproval breaks over our heads.

MORE SCIENCE AND MORE CHRISTIANITY NEEDED

The remedies are two: more science and more Christianity. Scientific management, efficiency tests, have just begun to permeate our dispensaries, thanks to the splendid work of Michael Davis at the Boston Dispensary. We treat many cases of scabies, of varicose ulcer, of constipation, of hemorrhoids, of chorea, but what dispensary has adopted a system and followed up its results enough to know whether the time and money which has been spent in these cases has been wasted or not? Not one that I know of except the Boston Dispensary.

Some clinics are efficient, especially those in which treatment can be administered and finished at once. If you sew up a cut or inject a dose of mercury or fit a flat-foot plate, you may be able to finish the work then and there. It is the medical, neurologic, pediatric and skin clinics that are relatively slipshod.

Hurry, crowding and too few assistants prevent creditable work in many instances. There should be in each clinic a fixed ratio of space, staff and outfit to the number of patients received, as there is in a ward. There is no sense in allowing dispensary work to be a hurried and desperate struggle against time and numbers.

It is possible to do as accurate scientific work in diagnosis and treatment at a dispensary as at a private office. It means honest, conscientious, efficient, well-organized, well-supervised work, with the interest of the patient rather than that of the physician or the student always paramount.

In like measure do we need the Christian spirit to make our treatment effective. We no longer administer our drugs with adjuvants to strengthen them, with demulcents to soften their harshness, and correctives to modify their one-sided action. All the more literally and practically, therefore, we need for efficient treatment a fund of patience, of cheerfulness, of readiness to be interested in each least promising and most unattractive individual in the clinic, that in my experience comes best out of the spirit of Christianity. Individuals must cooperate with us if we are to help their stomachs, their tuberculous lungs, their chronic joint troubles. The patients need heroism often if they are to overcome their troubles. They will not get it out of drugs or physical therapeutics. They must get it from their physicians. A physician who goes stale when he comes to treatment is nearly useless, and we all go stale without Christianity.

190 Marlboro Street.

THE EFFICIENCY OF OUT-PATIENT WORK*

MICHAEL M. DAVIS, JR., PH.D.
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According to the census of 1910 the three cities of New York, Chicago and Boston have a combined population of 7,622,751. It was recently estimated that 45 per cent. of the people in Chicago were receiving dispensary aid; in Boston and New York the estimates indicate that the proportion is not less than one-third. In these three cities the out-patient departments and reputable dispensaries are providing medical service for fully 2,500,000 people and are expending annually at least $1,500,000. In the country as a whole, in the treatment of patients, millions of dollars are thus spent. Has $100 been spent in studying the results of the treatment, in testing methods, and in framing standards by which to estimate achievements in relation to expense?

OUT-PATIENT EFFICIENCY TESTS

The general method of an efficiency test is to investigate work done in relation to effort expended; or, in other words, to compare results with cost. In the case of an out-patient department this means selecting a group of patients according to any method that does not involve bias, and seeing what happens to these patients as the outcome of their visits to the clinics. While from our point of view the results achieved are primarily medical, we should also regard social results if we are to judge out-patient efficiency aright. In reference to an individual patient this means that he is not to be considered merely as a disease; that is, as a heart, a liver, or a broken leg, as he sometimes is to a specialist. He must be looked on as a human being, a member of society, and our results are to be judged by the improvement which we produce in his health, working efficiency, or I may say more broadly, his living efficiency as a member of a family.

THE STATISTICAL METHOD

Of two methods here proposed for these studies of efficiency, one, the simpler and the less intensive, is solely statistical. This method proceeds on the assumption that the efficiency of out-patient work bears a relation to the number of visits which a patient suffering from a known disease makes to the clinic In other words, successful treatment under given clinical conditions would normally require a certain number of visits for each disease; it might be one, it might be twenty; it would vary with the diagnosis. Of course there would also be differences between patients, but if we use sufficiently large numbers to reduce the influence of individual peculiarities, we render it possible to average our figures and secure results of considerable interest.

Tests by this method will indicate both absolute and relative efficiency. That is, they will enable us ultimately to set certain standards to which a clinic devoted to certain diseases should conform if it is to do good work. These tests also enable us to compare different clinical methods or the services of different physicians and estimate their relative efficiency.

To illustrate: In a genito-urinary clinic the records of the new cases of gonorrhea were tabulated for six months, the tabulation being made after the six months were over so that nothing was known about the test during the progress of the work. The number of visits paid by each patient, as shown by the records, which in this clinic are kept by a paid clerk, are given in Table 1. The total number of patients was 450, nearly all of whom had acute gonorrhea.

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* Read in the Symposium on the Relations of the Hospital to the Physician in the Section on Hospitals of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

It will doubtless be agreed that small results can be obtained in a patient with active gonorrhea from a single visit to the clinic, and that if nearly one-half of these 450 patients paid one visit and never came back, there is a serious waste of the physician's time and of the institution's money.

These figures are particularly interesting because in 1902 two of the surgeons then in charge of this same clinic made for a different purpose a study of the treatments for a period of two months,[1] and of 130 patients with acute gonorrhea found that eighty, or 61.5 per cent., paid only one or two visits. This is almost identical with 63.3, the percentage obtained by this study made ten years later. I shall touch later on some probable causes and correctives for this waste. Certainly we should have similar figures from a number of genito-urinary clinics and try every possible method to see if the proportion of wasted effort cannot be diminished. The growing demand for dealing effectively with the problem of venereal disease renders the efficiency of genito-urinary clinics a matter of public importance. They need to be efficient as curative and prophylactic agents, and as safe and sane substitutes for the advertising quack.

TABLE 1.—NUMBER OF VISITS TO A CLINIC BY FOUR HUNDRED AND FIFTY GONORRHEA PATIENTS

No. of Visits	No. of Patients		Percentage	
1	215		47.8	
2	70		15.6	
		285		63.4
3	32		7.1	
4	32		7.1	
5	16		3.6	
		80		17.8
6 to 8	29		6.4	
9 to 12	18		4.0	
Over 12	38		8.4	
		85		18.8

Another illustration exemplifies the value of the statistical test in judging relative efficiency. In a clinic for diseases of the eye, two quarterly services were compared and the number of visits per patient tabulated, similarly, for the two services. Without going into all the details, I will summarize the tabulation as follows:

In iritis cases the average number of visits during one service was 5.8, in the other service 10.6.

In cases of phlyctenular keratitis the average number of visits during one service was 4.7, during the other service 8.5.

In 473 cases representing six of the acute eye diseases including those just named (the cases being almost equally divided between the two services), the average number of visits paid per patient during one service was 2.4, during the other service 4.0. When each of the six diseases is tabulated separately the comparison makes in every case in favor of one service and against the other, the difference ranging from 25 per cent. to over 100 per cent. in the average number of visits paid per patient.

During one service (to illustrate further) 50 per cent. of the patients with iritis paid no more than two or three visits; during the other service 80 per cent. paid more than six visits. We may question whether successful treatment of an acute case of iritis can be given in two or three visits; we may be sure that twice that number of treatments is not too much to insure control of the disease and saving of the eyesight. The figures I have given do not determine the responsibility for the difference in efficiency, but they do raise the question pointedly.

Similar tests, carried out more completely, should enable us to set standards of out-patient treatment for different diseases. Every disease must be tabulated separately because each presents a special medical problem. To secure successful treatment we shall find necessary a minimum average number of visits to the clinic. With the cooperation of a physician in charge of a large children's out-patient clinic, I am now pursuing a series of studies along this line with a view to ascertaining approximately the number of visits and the amount of time that needs to be spent on the average patient in that clinic to secure good results. These standards will, of course, vary with the diagnosis. As we approximate toward our standards we can constantly be testing our methods of receiving, examining and following up patients to see whether we can thus improve our efficiency in treating a given type of case, or diminish the amount of time required to secure a given result. This standard will give us a check on our methods which is independent of any personal bias on the part of an investigator, and requires only that the record-keeping shall be reasonably accurate.

To summarize: The statistical method of studying the efficiency of an out-patient department is based on the number of visits paid per patient, classified according to diagnosis. It should yield judgments both of absolute and of relative efficiency; it should help us to find points of strength and of weakness, to establish standards of good work, and to test methods of improvement.

THE PERSONAL METHOD

The second method of making an efficiency test I may call the personal or intensive method. According to this plan we interview the patient in the clinic and at home, and obtain facts about his life, his family conditions, etc. We also study the medical records. We visit the patient at home after he has been treated in the clinic and thus have a complete history of the case showing three points: (1) the medical and the social problem which the patient brought with him at his first visit; (2) the diagnosis and treatment which he received; (3) the outcome of this treatment as judged by the clinical record itself and by home visits made after treatment had been given.

I will give a brief account of such a test recently conducted at the Boston Dispensary. It is essential that patients be selected at random or according to a method that does not allow the personal prejudice or interest of the investigator to have weight. To avoid this, we took for the test which I am about to describe all the new patients who came to the clinics on two arbitrarily selected days. The total number of new patients on these two days was 116. They were questioned at the dispensary in a tactful way by trained social workers.[2] Visits were paid to their homes, in some cases several visits, and the records of their clinical treatment were studied. Such a study yields an all-round picture of what the clinic does for each patient. It not only gives us figures showing the proportion of good and of poor or negative results, but it also fills out the statistics with life and color. By such a method we look behind the scenes and see what really happens on the out-patient stage. There are a number of vexed problems on which such an investigation sheds light. In the discussion of out-patient abuse for instance, we have floods of opinions, but what we really need are *facts* showing the actual relations of the out-patient department to the different social classes, and thus to the community as a whole. An investigation of this kind, presenting us with a cross-section of the work of an institution in its social as well as in its medical relations, is the method of providing us with such facts. I mention this to indicate my belief that this plan of investigation has value as more than simply an efficiency test.

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[1] Cotton, F. J., and O'Neil, R. F.: Boston Med. and Surg. Jour., 1903, cxlix, 538

[2] The inquiry blanks, etc., used in this investigation will be gladly sent by the author to any physician or superintendent of a medical institution.

The limits of this paper do not permit entering into these broad problems. As for the results of treatment, this efficiency test indicated, briefly, that about half of the work was successful and a third of it was dead waste. More exactly, 57 per cent. of the patients were cured, relieved or substantially improved as a result of coming to the clinics. Results were pending or indeterminable in 9 per cent. of the cases, while in 33.3 per cent. the treatment was entirely wasted, either because the patients paid only one visit without any definite result or because they ceased to return before treatment could possibly be completed.

The 33.3 per cent. waste effort is a minimum figure for the group of patients with which this investigation dealt. I do not, of course, regard such a figure as of general application but the percentage is perhaps not remarkably high. Should not similar tests be made often; in fact, be carried on regularly in every large out-patient department?

I might suggest that this same method could be applied to the discharged patients of hospitals. Should we not find it of value to know the proportion of patients who suffered relapse or who showed no really permanent benefit from the hospital care, either because they were discharged too soon or because the permanent causes of their illness lay in the conditions of their homes or of their daily work.

HOW TO IMPROVE OUT-PATIENT WORK

If we are to have tests of efficiency and if as a result we find a large percentage of medical waste, how shall we improve the service and reduce the waste? I believe that the general conditions of efficiency in out-patient service are five:

1. The skill and interest of physicians.
2. The technical equipment for medical and surgical work.
3. The character of the medical organization, arrangement of services with reference to the number of patients to be treated, and the general administrative system of the institution as a whole.
4. The extent to which the clinics are provided with an organized paid service, including nurses, social workers and clerks.
5. The extent to which the social problems of patients are dealt with in a definite way.

Each of these conditions of efficiency must be studied separately. In recent years much attention has been given to the first two conditions and a good deal to the third, while the fourth and fifth, particularly the fifth, have been in the main neglected.

Different institutions are trying interrupted and continuous services, small staffs and resident staffs according to various plans for out-patient work. Which systems give the best results, not only in medical or administrative convenience, but in the treatment of patients? Only impersonal efficiency tests can answer.

The circumstance that most diminishes the efficiency of an out-patient department is the failure of patients to return for treatment. "He never came back" is the common complaint. To meet this we must have a follow-up system. Improved records which tell automatically when patients should return are valuable aids here, but social workers with a medicosocial training are still more helpful. Under the guidance of the physician they follow up the cases, assist in carrying out treatment and in seeing that patients come back to get treatment. To be of maximum service in this way the social worker must be regularly in the clinic instead of merely taking such patients as are specially referred to her. The latter has been the practice of most social service departments. Almost every case of tuberculosis, syphilis, anemia, and a long list of other diseases is a social problem as well as a medical, and neither problem can be solved without the other. The physician has, as a rule, neither the training nor the time to grapple with the conditions of poverty, industry and personality which lie behind a large proportion of the diseases of out-patients. Unless they are dealt with, however, neither patient nor physican can expect to get satisfactory results and there is a good reason why the patient does not come back.

But investment in the paid services of social workers and clerks, as tools of efficiency, is expensive. The extent to which it is worth while, even considering the expense, can be determined in one of two ways: (1) by using our preconceptions, and guessing; (2) by employing impersonal methods and making efficiency tests.

A system of social work, supplemented by some improvements in record-keeping which required a paid clerk to carry out, was recently established in a children's clinic treating an average of fifty patients a day. In three months this system resulted in raising the average number of visits of patients from 2.9 to 4.7 with very positive testimony from the medical men that they were getting more out of the clinic from the professional standpoint. What the patients got is another matter, but we may be sure they did not get less.

I regard the efficiency tests described in this article as merely a beginning and as experimental, and I present them not as indicating final results but to suggest methods by which out-patient departments may subject their own work, as they should, to continuous and impersonal self-criticism. Doubtless other and better methods will be devised. Surely such tests should be conducted not sporadically but as a matter of routine in large out-patient departments and hospitals generally, so that we shall be able to make comparisons and to establish standards which we lack to-day.

The growing public demand for more and better out-patient work cannot be met by institutions unless they raise large sums from private philanthropy, or from municipalities. In going to charitable givers, to city councils or to legislatures for these increased funds we need to back our arguments with figures as well as hopes. Efficiency tests supply the rational basis on which out-patient departments may progressively develop themselves as more and more effective agencies of the public health.

ABSTRACT OF DISCUSSION

DR. MILNE B. SWIFT, Fall River, Mass.: In the surgical out-patient department of the Elizabeth Stevens Clinic of Union Hospital, in Fall River, we began about two years ago to institute these efficiency tests of which Mr. Davis has spoken. We have developed a system of continuous efficiency tests, through which we are able to draw some very conclusive deductions as to the value of these tests to ourselves and to the patients.

We have a population of 120.000; one-fourth of these are operatives. Our out-patient work deals chiefly with accidents to this population. These accidents, though not serious to life, do greatly diminish the efficiency of the industry and because the manufacturers are interested in their employees, they contribute beds to the hospital, and insist that in return their injured shall be taken care of at the hospital. It was not until we instituted these efficiency tests that we were able to do thoroughly satisfactory work for ourselves, the patients and the industry. The treatment of the various classes of injuries has changed radically, and we find that the patients are getting better much quicker, and that the efficiency of the patients and the industry is increased. This we consider to be entirely due to the tests.

Miss M. E. McCalmont, Brooklyn: In occupational diseases, is not a concerted effort made to divert the patients to other occupations in dispensary cases?

Dr. John Allan Hornsby, Chicago: I am afraid there is no one here who can answer that question. In Chicago we have two large bodies that do a great deal of work, the United Charities and the Jewish Charities. Our hospital is the Jewish Hospital; and we have something in the neighborhood of 60,000 patients from the ghetto district visiting the dispensary. We do make an effort to follow up people suffering from occupational diseases and to prevent them going back to disease-inducing occupations. We try to get them out of the lead and paint factories. The patients with incipient tuberculosis we send to our tuberculosis hospital until they are well and then we try to get them other occupation and divert them from their former occupations. I have nothing to do with this work except as head of a large hospital, which eventually gets these patients.

Miss M. E. McCalmont, Brooklyn: I became interested in the subject because of interest in the child-labor question. Children in getting their working papers should be definitely forbidden to go into occupations for which they are physically unfit, and it seems to me a very important phase of social work in both dispensary and hospital that patients about to be discharged should have specified to them the occupations in which it would be distinctly dangerous for them to engage.

THE RELATIONS OF THE HOSPITAL TO CORPORATIONS INTERESTED IN PATIENTS *

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Corporations may have no souls, but they have policies dictated by the individuals who control them. These policies, as far as they touch hospitals and the medical profession, reflect the attitude of the corporations toward their employees. Those corporations which regard the employee as a means of contributing to their profits and give no consideration to his deserts as an individual, which work him to the limit of endurance during his best years and throw him into the discard when, as a result of his hard work, his efficiency has diminished, will treat the hospital in a niggardly and unfair manner. On the other hand, those corporations which deal with their employees in a spirit of fairness will show a spirit of justice in their relations to the hospital. From the standpoint of the hospital, there are good corporations and bad ones.

The employing corporation is certainly under some moral obligation to the employee, and this obligation is much stronger than the obligation of the hospital to that employee, which latter is only the slight obligation which the hospital owes to that employee as a member of the community at large. Still many corporations deny all moral obligation to the injured employee, and cheerfully foist on the hospital and its attending staff the entire responsibility for the care of the patient, paying nothing unless forced by law to do so. The patient is, as a rule, absolutely unable to meet the expense, and litigation is trying and, in the main, unprofitable, so that the hospital and its staff members accept the imposition and assume the obligation which morally belongs to the employer.

The corporation which directly refuses to meet its obligation to its injured employee by paying his hospital expenses is no worse than the corporation which virtuously refers the hospital management to the liability company in which it is insured. These liability companies make money by making the cheapest settlements possible; they have no direct obligation to the employee, such as the employer has, and every hospital bill they can avoid paying is clear gain. Occasionally they may agree to pay ward rates to the hospital, but when the staff surgeon presents his bill, he is informed that to them he is an unknown person.

It must be said for the ungenerous corporation and the liability company that legally they are not responsible to the employee in the great majority of cases, the common law giving them the defenses of assumed risk, contributory negligence and the negligence of fellow-servants. Morally, the present tendency of public opinion is to hold them responsible.

A somewhat higher moral development is shown by the corporation which, while expecting to have its employees receive hospital care without directly compensating the hospital, makes an annual contribution to the hospital in the form of a gift. Although such a corporation gets credit for being philanthropic, the gift is really a most excellent investment from a business standpoint, as in return for the gift the corporation receives in hospital care and surgical attention many times the value of the amount expended. The staff surgeon does not render a bill, for, having the interests of the hospital at heart, he does not wish to estrange the institution's philanthropic supporter.

On a par with the last type of corporation, or a little above it, is the one which regularly pays ward rates, but no surgical fees.

I now come to speak with pleasure of the exceptional corporation which treats both the hospital and the surgeon with the consideration due them. Waiving the question of legal liability, such a corporation assumes the expense of surgical care of all its employees injured in discharge of duty. Such a corporation is guided by high ideals as to its moral obligations, and at the same time finds that such a rule of conduct puts it on better terms with its employees, and is on that account good business policy. It is my good fortune to be associated with a corporation of this class. Injured employees are treated as individuals worthy of consideration, settlements are made with them on a just basis, and hospital and surgeons' bills are settled as a matter of routine. Such corporations may have their own surgeons and may stipulate that they will pay only for services rendered by their regularly appointed surgeons, but they never make their employees objects of charity.

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* Read in the Symposium on Relations of the Hospital to the Public in the Section on Hospitals of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912

No corporation ought to shift on the hospital the expense of caring for its injured employees, and the hospital management should see to it that they do not do so. The attending surgeon should not be forced, by reason of his position, to treat as charity cases the patients of a prosperous corporation. The practice in the past has been for the struggling hospital and the only moderately prosperous attending staff to furnish the great bulk of the charity, while the corporation, often a very rich one, contributed nothing or at most a disproportionately small share A more equitable distribution among the three interested parties should be insisted on.

This declaration is not in advance of the public opinon of the day, as shown by the fact that in a number of states laws have been passed requiring employers to pay a certain amount of hospital and surgical fees on account of injured employees, and depriving the employer of the common-law defenses of assumed risk, negligence of fellow-servant and, as far as hospital and surgeons' fees are concerned, of contributory negligence. The national Senate has passed a bill of similar provisions to apply to employees engaged in interstate commerce, and this will undoubtedly become a law. These laws will educate employers as to the equity of the situation, and also provide against shifting the responsibility on a liability company, except by making such company assume all the obligations which the law requires of the employer.

The hospitals, in their turn, ought to assist the corporations by keeping their case records fully written up. This is especially true in states where employers' liability laws are in force, and in dealing with interstate employees, if the bill passed by the national Senate becomes a law. Interns do not realize how every point bearing on an injury should be noted in a case which is to come to adjudication. In the case of several injuries, the minor ones should not be overlooked in the records. Too often the intern is busy with other things and puts off writing up his cases, or does this in an incomplete manner. Where liability laws are in force these accurate records are equally as important to the employee as to the corporation employing him. The hospital should also see to it that at the time of discharge from the hospital a complete and accurate statement is made of the patient's condition. The perfunctory statement that he is "improved" or "cured" will not suffice.

As to the visits of claim agents or other representatives of the corporation, I shall leave it to my legal confrère to tell you as to their permissibility under the law, but I shall state my observation as far as it relates to the corporation with which I am associated. I find that the injured employee is glad to see the representative of the claim department and takes his visit as evidence that the company is interested in him. As the claim department never takes advantage of the injured employee's predicament, and does not attempt to negotiate a settlement until he is on the road to recovery, I can see no impropriety in these visits. If a corporation not accustomed to fair dealing were concerned, it would be a different matter.

What of the visits of the personal-injury lawyers? Let me quote from a recently published interview with President Taft, in which he states the benefit to be derived from the proposed national workmen's compensation law:

> Under the common-law principle now prevailing in this country, employees frequently recover from the railroads large verdicts for damages, but after counsel fees are paid, experts compensated and other costs deducted, the beneficiary does not receive on an average over 50 per cent. of his compensation. The payment of the judgment is often long delayed through appeals to the courts, and the employee finds himself in hard straits and his family suffering.

Any one who has been in position to observe the outcome of cases which have fallen into the hands of the personal-injury lawyer can confirm the President's declaration. Moreover, these lawyers have frequently been known to inveigle an injured man to sign a contract to pay them a large percentage, usually one-half, of what he recovers, when his condition is such that the claim agent of a self-respecting corporation would be ashamed to broach the subject of settlement. Again, I do not know the law governing such visits, but from a moral standpoint I ask, Ought not the hospital authorities to forbid the visits of these self-seeking individuals?

As to allowing representatives of corporations to consult the hospital records of injured employees to assist in effecting a settlement or defending a suit for damages, it seems to me that no man's just rights are in any way trespassed on in bringing out the truth, and I assume that the hospital records contain nothing but the truth, as I cannot imagine any hospital management allowing its case records to be falsified in the interest of either employee or employer. In my opinion, both the corporation's representatives and those of the patient should have access to the records.

As to the use of the records by a patient for the purpose of bringing suit for malpractice, we know that the majority of such actions are brought through mercenary motives or through ignorance, and have no just foundation, as is evidenced by the fact that many such suits are brought against the ablest practitioners; consequently, the person bringing the suit deserves no assistance or encouragement. I do not believe, however, that the contents of the hospital record would assist his cause.

All well-managed hospitals try to prevent grossly incompetent or morally unfit practitioners from attending cases under their roofs. Occasionally one of these slips in undiscovered, and when this occurs I cannot see how the hospital owes him any protection.

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THE LEGAL ASPECTS OF THE RELATIONS OF HOSPITALS TO CORPORATIONS INTERESTED IN PATIENTS *

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It has often been said that no two doctors can diagnose a case alike, and probably the same thing is true of lawyers. I have even heard it said that no one lawyer can state the law alike twice. Consequently, in a twenty-minute endeavor to discuss the above subject, I shall confine myself to a few general propositions.

When some poor unfortunate is struck by a street-car, or steps in front of an automobile, or stumbles on a loose board on a factory floor, and the victim is brought to your hospital for six weeks' stay, some interesting problems not altogether medical are likely to develop.

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* Read in the Symposium on Relations of the Hospital to the Public in the Section on Hospitals of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

Unless your hospital is a public one, that is, maintained by the state, county or city, the injured man has no legal right to demand admittance. Your hospital does not turn him away, however, and having admitted him, you must treat him to the best of your ability, and cannot discharge him until he is able to leave without danger to himself. Toward the end of his stay the street-car company, or the casualty company in which his employer was insured, disclaims liability for the treatment, and you find that the injured man has no money, cannot pay his hospital bills, and probably for months to come will be unable to earn even a living. At the same time he wants to consult your records in a suit he intends to bring on account of his injuries, and forbids you to disclose information concerning his case. On the other hand, the casualty company or the employer wants your records and asks you for information to enable it to defend the suit, and sends its adjusters to visit the patient and perhaps talk settlement. Occasionally a lawyer calls on the patient to get him to sign a contract for prosecution of the suit. As proprietor of the hospital, what are your rights and your obligations to each of the parties involved in this interesting state of affairs? I use the words "duty" and "obligation" purely in a legal sense.

I. THE DUTY OF THE HOSPITAL TO THE PATIENT

If the hospital is a charitable one, that is, one not operated for profit or private gain, direct or indirect, its sole duty to the patient, with respect to the treatment furnished, is to use reasonable care in the selection of the physicians and surgeons, the nurses and employees whom it assigns to treat and attend the patient. In other words, when the hospital is a charity, it is not liable for the negligence of its staff and employees when it has used reasonable care in their selection. I cannot give you a better statement of the law on this subject than the words of the supreme judicial court of Massachusetts in a case brought by a patient of the Massachusetts General Hospital (a state institution, maintained in part by private donations) to recover for negligent treatment:

> The liability of the defendant corporation can extend no further than this; if there has been no neglect on the part of those who administer the trust and control its management, and if due care has been used by them in the selection of their inferior agents, even if injury has occurred by the negligence of such agents, it cannot be made responsible. The funds instructed to it are not to be diminished by such casualties, if those immediately controlling them have done their whole duty in reference to those who have sought to obtain the benefit of them. There was no attempt to show that the trustees had in any respect failed in the performance of their duty. If they had made suitable regulations, had selected proper persons to fill the position of surgeons, then whether those persons neglected to perform their duty, or whether another person, as the house pupil, not selected for the office of surgeon, assumed without authority to act as such, and injury has thus resulted, the plaintiff has no remedy against the corporation.—McDonald v. Massachusetts General Hospital (1876), 120 Mass. 432.

And it makes no difference that the patient is a paying patient. The supreme court of Michigan has expressed the law in this way:

> The fact that patients who are able to pay are required to do so does not deprive the defendant of its eleemosynary character, nor permit a recovery for damages on account of the existence of contract relations. The amounts thus received are not for private gain, but contribute to the more effectual accomplishment of the purpose for which the charity was founded. The wrongdoer in a case of injury, but not the trust fund, must respond in damages. This proposition seems too clear to require argument or authority. It is not, however, inappropriate to remark that better facilities for the care, cure and treatment of the sick, both of the poor and of those who are able to pay, are secured by the establishment of hospitals like that of the defendant. These facilities are increased by the receipt of money from those who are able to pay in whole or in part for the benefits received. Several hospitals of this character exist in this state, founded by private munificence. Obviously they would not have been founded if their donors had known or even supposed, that their charitable purposes might be thwarted by the verdicts of juries for the negligent acts of those who must necessarily be employed in the execution of the charity.—Downs v. Harper Hospital (1894), 101 Mich. 555; 60 N. W. 42; 25 L. R. A. 602.

When the hospital is operated for profit, it, like any other business enterprise, is responsible for the negligence of its employees, and must answer in damages for all injuries caused thereby. It assumes such liability, however, only in respect to those things which it contracts to furnish. If it undertakes to furnish medical or surgical attention it must do so; but it owes the patient a legal duty only by virtue of its contract. The duty or the absence of duty on the part of the hospital has no bearing on the liability of the physician or surgeon to the patient whom he undertakes to treat. The doctor always is under a legal obligation to the patient, and must pay for his mistakes.

The foregoing principles have been applied to the hospital or relief departments of railway and other companies. When such a department is supported by voluntary contributions from the employees and the company, and is not conducted for profit, it is held to be a charity, and the company's only duty is to use reasonable care in the selection of the physicians and surgeons who conduct it; whereas, if it is conducted for profit, the courts hold that it is a mere department of the company concerned.

With respect to the inspection of its records, the hospital owes no *legal* duty to the patient. The records are the property of the hospital; and while professional ethics might suggest it as a proper course, yet a refusal to permit a patient to inspect the records of the hospital certainly would not deprive the patient of any legal right, or violate any legal duty on the part of the hospital. I shall mention later the use of these records in litigation.

II. THE INTEREST OF CORPORATIONS IN PATIENTS

The word "corporation" is used in the title of this paper primarily because most of those who have an "interest" in patients in hospitals are corporations; but there is no difference in principle between a corporation and an automobile owner whose car strikes an absent-minded pedestrian. Apart from the ordinary sympathy for the injured, the "interest" referred to is merely interest in the possibility that the victim of the accident may collect a judgment for damages. Every accident carries this possibility, and the large corporation is most frequently mentioned in this connection because its manifold activities make the sum-total of its accidents a matter of great moment. We speak, therefore, of corporations.

In a strict legal sense, the large company whose employee is injured, or the street-car company whose car injures a passenger or a pedestrian, owes absolutely no duty to the injured one in the way of medical treatment or attention. Common humanity may require first aid to the injured, but the law does not make a legal obligation of it. The hospital may not look to the corporation for payment, but to the patient. If the injury occurs through negligence the law gives the patient an action for damages, but does not require the party at fault to see to it that a physician is called, or that the victim is sent to a hospital. In case damages are recovered for the injury, one element of the damages is the amount expended by the patient for medical treatment and attention; and the hospital by legal action may see that its bills are paid out of the judgment, but has no right to sue the corporation for them.

Many large companies have gone beyond their bare legal necessities, however, and established hospital and relief departments. In some cases a deduction is made from the pay of the employee for the purpose of the hospital fund, or for the payment of sick benefits. In some cases the company contributes, in others not. Whether or not the company under such circumstances is bound to furnish medical and surgical attention to an injured employee depends on the terms of the arrangement by which the relief department is supported. The tendency of the courts is more and more to regard the relief department as an agency of the company, and to hold the company liable not only for the expenses of the treatment, but for the negligence of the physicians and surgeons employed in the treatment. The workmen's compensation acts recently enacted in various states also require the employer to furnish necessary medical attention, medicines and hospital services either for a fixed period after the injury, usually two weeks, or to any amount not exceeding a fixed sum, such as $200. In some cases the required treatment for which the employer is liable is limited both in time and the amount.

III. RELATIONS BETWEEN THE COMPANY AND THE HOSPITAL

From Dr. Plummer's paper in this symposium, I take it that to the hospital the most interesting aspect of this relation is the question whether it will be paid by the company for the services rendered the patient. Here the strict interpretation of the law comes in, and it follows from the preceding section that the company or corporation interested, financially or otherwise, in the condition of a patient is not liable to the hospital for treatment given the patient unless it has contracted, expressly or by implication, to be responsible therefor. I say by implication, because in a state where a workmen's compensation act places on an employer the duty of providing medical and hospital services for an injured employee, the fact that the employer sends an employee to your hospital and permits you to treat him would raise an implied promise on the employer's part to pay for the treatment; but, in the absence of such an obligation, the fact that the employer sent an injured man to you for treatment would not alone create any obligation on his part. Indeed, in many cases in which agents of railway corporations have made express contracts with hospitals for the treatment of persons injured, the courts have refused to hold the company liable for surgical and hospital bills because of lack of authority in the agent to make such a contract. You may be interested in the reasoning of an early Kansas case, which held that the division superintendent of a railroad had no authority to employ a physician to treat passengers injured in a wreck where a train was blown from the track.

> . Probably there are but few instances of injury to passengers riding on railroad trains where negligence or fault cannot be traced to the railroad company; but, in cases where there is no such negligence, no responsibility can attach to the company, and no recovery can be had for the injuries sustained. It does not insure the lives or health of those who take passage on its trains. The most that can be required is that it shall use the highest care in the conveyance of the passenger to his destination. There is no more obligation resting on the company to provide medical care and treatment for passengers unavoidably injured than for passengers who become sick during the journey over the road. In either case the full measure of the duty of the company is to carry the passenger, in the condition in which he may be found, to his destination. Beyond this the company has no interest in the passenger, and therefore has no such concern for his health and soundness that it has in its employees who may be injured while in its service. To furnish medical care and treatment for passengers in such cases would be a mere gratuity and the funds of the corporation cannot be thus dispensed by the division superintendent without authority from the board of directors. . . . Perhaps it is true that in certain emergencies the superintendents of railroads are authorized to provide medical and surgical care for injured passengers and to bind the railroad companies for the payment of such services, and it is probably well that such provision should be made; but in those cases it will not be difficult to show the authorization, or a recognized custom or usage, of the company to furnish medical attendance to passengers injured by inevitable accident. In the absence of testimony of express authority from the company, or of a custom or usage from which authority might be implied, the company cannot be bound by such contracts made by the superintendent or his subordinates. If the injury to the passengers resulted from the negligence of the carrier, other considerations would enter into the case which might warrant the implication of authority in the superintendent or some general agent of the company to provide medical attendance and entertainment for them; but, whatever might be the rule in that case, we are of the opinion that there is no such presumption of authority in the division superintendent where the passengers are injured through no fault of the company.—Union Pacific R. R. Co. v. Beatty (Kansas, 1886), 10 Pac. 845.

The tendency of the courts is to get away from these early cases and, regardless of the company's negligence, to hold it liable for services given at the request of whatever employee happens to be in charge at the scene of the accident, at least until the surgeon has had an opportunity to communicate with the officers of the company, after rendering emergency treatment, to obtain authority for further treatment. This authority may be implied from the failure of the company to disclaim responsibility after such a request.

While the foregoing is, I think, a fair statement of the law, good business management, which is not altogether undesirable in a hospital, would seem to me to require the hospital to take the position that when services are rendered to an injured person at the request of any agent of a corporation or company, the latter is responsible for all treatment given until the hospital has been notified to the contrary. In other words, you should assume that when a patient is sent to you the party sending him is responsible for your bills. You can compel the patient to pay for his own treatment if he has the means; but if he has not the means, you do not want to have the company disclaim responsibility too early

While you cannot hold the company for your bills unless you have a contract with it, the law indirectly comes to your aid, and places in your hands a powerful and persuasive argument. I mean your hospital records.

As stated above, the hospital records are the property of the hospital, just as the physician's records are his own property. In most cases these records are of vastly more importance to the company defending a claim than they are to the man who claims to have been injured. The plaintiff can go on the stand and make all sorts of extravagant claims as to his injuries, and the jury has a right to consider these statements. He is not even required to have his statements corroborated by his physicians — his neighbors and friends can testify as to his healthy appearance and vigor before the accident, and his generally poor condition afterward. This usually is enough to get a fair-sized verdict. The defendant, on the other hand, needs all the evidence possible, and your hospital records are vital to its case. In all of our states, so far as I have been able to ascertain (except in actions arising under the various workmen's compensation acts referred to above), the defendant has no way, in litigation between itself and one of your patients, to make you produce your hospital records before trial. In other words, the defendant cannot have the benefit of your records in advance of the trial unless you are willing to permit it.

The same thing is true in a number (about half) of our states with reference to the testimony of physicians and surgeons, by virtue of statutes making communications to a physician or surgeon privileged, and providing that no physician or surgeon shall testify thereto. This privilege usually extends only to such communications as are necessary to enable the physician to treat the patient, but in all states where it exists it effectually bars the defendant from putting medical testimony on the stand unless the plaintiff waives the privilege. It is one of the anomalies of our system of legal procedure that a plaintiff suing to recover for personal injuries can, if he desires, exclude from consideration the most valuable and, in most cases, the only trustworthy evidence as to the nature and extent of his injuries, but about half of our states permit it. An excellent feature of the workmen's compensation acts in states where the privilege exists is that they provide for the examination of the injured employee at stated intervals, and provision is made whereby the result of these examinations can be introduced in evidence.

The plaintiff may waive this privilege, either by an express contract (as in an application for life insurance or a contract for employment) or by introducing the physician's testimony as part of his own case. In New York he can waive it only expressly on the trial. In states where the privilege does not exist, and in cases in which the plaintiff waives it, the defendant may subpœna any physician or surgeon who has treated the plaintiff, and probably also may compel him to produce his record of the case; but the defendant has no means in advance of the trial of determining whether this can be done or not, and no defendant wants to go to trial in a personal-injury case without knowing pretty well what the testimony is going to be. It therefore is vital to the defendant to consult the physician's records, and, as there usually is no way he can force the physician to permit it, it ought to be quite a convincing argument on the subject of the payment of the hospital bills.

The privilege above referred to does not in any state, so far as I know, extend to hospital records, as distinguished from physician's records; but while in most cases the defendant can require these to be produced at the trial, he would not like to take the risk of doing so without a previous inspection of them.

On the other hand, the law does not forbid you, if you see fit, to disclose to the employer information concerning the injured employee, or to the railway company concerning the injured passenger. This would seem to be a matter of contract between the hospital and the corporation interested. Certainly no honest patient can have anything to fear from it; and the dishonest patient is not entitled to ask you to aid him in his trickery. This is true even though the patient declines to permit the corporation to pay his hospital bills, and forbids the hospital to disclose his record to the corporation. The patient may always introduce the testimony of the physician in court, and may compel the hospital to produce the record of his case; but if the hospital, by reason of a contract with the corporation or for any other reason, desires to disclose privately to the corporation (not in court) the record of any patient, the patient has no way to prevent. An effort to prevent would certainly cast doubt on the good faith of his claims of injury.

Except in litigation between the hospital and the patient, the patient cannot force you to permit him to consult your records of his case. In the event of a suit on account of his injuries, he usually can have the records produced in court, if necessary, but that is the extent of his power.

The question whether you will permit claim agents, adjusters or attorneys to consult the patient while he is in your hospital is one with which the law does not concern itself. Certainly it is your duty not to allow the patient to see anyone until his condition permits; but while he is convalescent and can talk to visitors, the question whom you shall admit is one within your exclusive province. So long as he is a patient in your hospital, his visitors will have to be subject to your control. If a lawyer wants to consult the patient with a view to taking his case against the corporation, or if the adjuster wants to talk settlement or get a statement about the case, the only legal question that need bother you is whether the patient is in fit condition to see the visitor.

In this connection I might say a word from the viewpoint of the company which is in any way interested in your patient. What the company wants is a full, complete and accurate report of the patient's injuries. In spite of the popular outcry about corporations, I know of two or three companies of substantial size whose desire it is to accord to every injured employee or other person for whose injuries it may be responsible a fair and speedy reparation, so far as money will compensate, for all the injuries sustained. A misleading or inaccurate hospital or surgical report is worse than none. An accurate one is a help both to the patient and to the corporation, as well as to the hospital. Although the interests of the patient and the corporation may conflict, when the hospital is conducted in such a manner that both parties have entire confidence in its management, it can offer a great aid to the corporation in the fair and just handling of its injury cases, and to the patient in seeing that he gets fair treatment from all parties who have dealings with him.

Room 1025 La Salle Street Station

ABSTRACT OF DISCUSSION

ON PAPERS OF DR. PLUMMER AND MR. BELL

Miss M. E. McCalmont, Brooklyn: A question came to my mind as to whether a hospital receiving state aid should not be allowed to present a bill to a corporation for services rendered its employees. For instance, a man injured in a factory or foundry was sent to a Philadelphia hospital with instructions that only first relief be given. It soon developed that antitetanus measures were indicated, and the necessary number of injections were given. The company was asked to reimburse the hospital for the mere cost of the treatments, about $37. This the company refused to do. According to the laws of Pennsylvania, the hospital receiving that state aid could not force the collection of the bill.

MR. MCCLAIN, Philadelphia: The particular case to which Miss McCalmont refers was that of a young man who was hurt in a weaving-mill and was sent to the Samaritan Hospital. The superintendent of the establishment directed us first to give him certain treatment, and to do that we placed him in the semiprivate ward. The physician discovered that antitoxin serum was necessary. The superintendent of the factory could not be consulted, as it was Sunday, so we ordered the antitoxin; but the superintendent of the factory refused to make his company responsible for the expense incurred and as yet nothing has been decided.

DR. JOHN O. SKINNER: Washington, D. C.: The rulings of the courts vary with regard to hospital records and patients. In the District of Columbia a judge ruled that a record of our institution could be used as evidence, and our records were subpœnaed in a certain case. The point was made by the plaintiff's counsel that the hospital record was not an official record in a legal sense and was used by a visiting physician only as a memorandum and for his information. The court sustained this view. The corporation could not get access to it. It is a ruling in our hospital that no record is allowed to be inspected without written consent of the patient or the knowledge and consent of the attending surgeon in the case. I consider these records as sacred as if they were made in a physician's office. Now, Mr. Bell maintains that the plaintiff can in Chicago use the records and can have the records subpœnaed and used, whereas the defendant is excluded from them. But assuming that to be the ruling of the Chicago court, why could not the counsel for the defendant sue the hospital for damages and thus get the records before the court as the plaintiff? This would be a roundabout way of doing it; and, on the other hand, the judge might not allow it to be used after the record is produced.

MR. F. S. BUNN, Youngstown, Ohio: We had a very interesting case recently of this kind in the Youngstown Hospital. We had a case in which both tubes and ovaries were removed from a woman in September. The following July this woman was ejected from a street-car and she claimed this caused a miscarriage. I secured legal advice as to whether I could be forced to take the records in the case into court, as I had refused to do so (just as Dr. Skinner did) without the consent of the physician and patient. The attorney said I should take the records into court and leave it to the presiding judge as to whether I should answer when a question was put to me. He ruled that we had a right to introduce our records in the case, and we did, showing that the operation had been performed, and the case stopped right there.

Another point is that of admitting visitors to a patient. We have a hospital that treats, each year, from 1,400 to 1,500 corporation employees, for which the corporation pays. The objection has come up that we should exclude from the hospital at all times men who are in the habit of following patients there in order to get a suit against the company. Our legal advice in this respect has been that inasmuch as we publish a "visiting hour" to the public, we have no right to exclude from the hospital any one the patient wishes to see, provided his physical condition is such that he may receive visits.

DR. J. O. SKINNER, Washington, D. C.: In connection with a matter of this kind, if the physician attending the patient is available, why should not his testimony be taken before the hospital records are reached? It appears that the court will sustain his refusal, on the ground of "privileged communication," to give any information concerning the case. In other words, they want to get from the hospital records certain information and thus make the hospital divulge information which it obtained in confidence.

MR. F. S. BUNN, Youngstown, Ohio: Both the superintendent of the hospital and the surgeon were subpœnaed in that case. They admitted all the evidence of both the surgeon operating and the records.

DR. JOHN ALLAN HORNSBY: This is a large question, in which many interests are involved and much discretion has to be used. For instance, I was visited by a member of the City Attorney's Department of Chicago who wanted to see the record of a patient who was suing the city for personal injury. I declined to show the record or to allow the use of it without the order of the patient, on the ground that the patient had sacred rights in the hospital. The city counsel then said that he did not want to violate any of the ethical laws I had brought up, but asked me if our position would still be maintained if he could demonstrate to my satisfaction that this patient was attempting fraud. I said that if he could demonstrate that it would put an entirely different face on the matter, but that I would have to be the judge. He submitted evidence, showing that suit had been brought against four corporations within three years by the same patient, the allegations being the same in each case. I looked over the record and found he had been in the hospital twice before—once five years ago for a disease that had involved the limb which had been injured. A year after being in the hospital he brought suit against a street-car company for this accident and it was thrown out of court, but he kept bringing suit and finally he brought a suit against the city. That is only one phase of the case. We must settle each case separately and while we have a policy and stick to it always, the applicant for the record has a sacred right; and if I am in doubt I call on our attorney, or the good people of our board to decide for me.

DR. D. S. FAIRCHILD, Clinton, Iowa: The fundamental thing in this whole question is the character of the records made in the hospital. I have had the opportunity, in court and out of court, to examine the records of hospitals that have been produced. Most of these records are of little value because they are not very well kept. I believe that this is true not only of hospital records but of physicians' records. We have had to deal with corporation cases and all class of cases treated in hospitals, and where the work was recorded in a thoroughly scientific way, the records were of great value. Apparently it is often difficult to answer these questions as to the experience of hospital people because it does not appear that records were kept that would show what became of these patients and what the results of treatment were. I suppose that it is one of the purposes of this section to discuss and work out plans which shall overcome the difficulties that appear to arise from want of careful record-keeping of cases.

DR. SAMUEL C. PLUMMER, Chicago: What Dr. Fairchild has just said about care in keeping records complete is one of the most important propositions this section has before it. It is important to keep records in cases subject to employers' liability laws, because the compensation depends on the patient's condition. The interest of the corporation and the interest of the patient in the records should be equal, and the records should be complete so that they can arrive at an equitable certainty. As Mr. Bell says in his opening paragraph, in different localities different judges rule differently, and I am glad we have had some different decisions called to our attention.

Ventilation in Its Newer View.—It is disconcerting to learn that the old physiologic groundwork for a scientific system of ventilation has been seriously undermined; but such is the fact. One series of experiments, startling and bewildering, appears to demonstrate that the maintenance of the chemical purity of the air, which was the primary object of all efforts at ventilation in the past, is really of no consequence. Then one learns that one may no longer assume that the temperature of occupied rooms should be kept uniform; indeed, the preponderance of present opinion strongly opposes uniformity of temperature, and finds virtue in the natural day-and-night variation. And now the clinician clamors for means to treat each patient on his individual merits; he demands one atmospheric condition for the pneumonia patient who is in need of respiratory stimulation, and another for the nephritic whose poor circulation and cold extremities suggest a warm and comfortable room, in contradistinction to the cold air, preferably out-of-doors, in which the pneumonia patient thrives. S. S. Goldwater: Notes on Hospital Planning, *The Brickbuilder.*

THE RELATIONS OF THE CIVIL HOSPITAL TO THE MILITARY ESTABLISHMENT IN TIME OF PEACE; IN TIME OF WAR *

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The policy of the people of the United States has always been opposed to the maintenance of a large standing army. Our isolated position at a comparatively great over-sea distance from other world powers, our aloofness from international politics prior to the war with Spain, and the faith of the people in our patriotism and national courage as military assets have contributed to the continuance of this policy. Our military establishment has consequently not expanded in the same ratio as our population, or kept pace with the evolution of our institutions.

The civil hospital is now no longer an establishment merely for the care of the sick and injured, but has become in addition a teaching institution with a staff of men eminent in their respective domains, who are actuated by the spirit of progress, and whose work and coordinated experiences are directed toward the betterment and happiness of the race. It is such an ideal that I have in mind in speaking of the civil hospital in this connection.

The land forces of the United States consist of the regular army and the militia of the several states when called into the service of the United States. As the organized militia is subject to national service only when necessary to execute the laws of the Union, suppress insurrection and repel invasions, the Regular Army constitutes the land forces in time of peace. The authorized strength of this force at present is approximately 87,000; the medical department organization of this force comprises the Medical Corps, with an authorized strength of 445 officers — there are at this date about thirty-five vacancies in the lowest grade — the Hospital Corps, with an authorized enlisted strength of 3,500, the Medical Reserve Corps, active list, of about 120 officers, the Dental Corps, and the Army Nurse Corps, female.

GENERAL DUTIES OF ARMY MEDICAL DEPARTMENT

The medical department is charged with the duty of investigating the sanitary conditions of the Army and making recommendations in reference thereto, of advising with reference to the location of permanent camps and posts, the adoption of systems of water supply and purification, and the disposal of wastes, with the duty of caring for the sick and wounded, making physical examinations of officers and enlisted men, the management and control of military hospitals, the recruitment, instruction and control of the Hospital Corps and of the Nurse Corps, and furnishing all medical and hospital supplies except for public animals (U. S. Army Regulations).

For many years prior to the war with Spain, the greater part of our little Army was scattered in small bodies at frontier stations, for the protection of the outlying settlements against Indian raids. Under such conditions of service, the medical officer rarely came in contact with his colleagues in civil life, and only under exceptional circumstances into touch with civil hospitals or medical societies. Frequently he was the only physician within many miles of his station, and while such isolation appears to offer but slight incentive to professional advancement, it cultivated self-reliance, and for those who were studiously inclined, offered opportunities for study. It was under such circumstances that Beaumont of our army made his investigations on Alexis St. Martin, and gave us our first scientific knowledge of the physiology of digestion; and that Laveran of the French army made his investigations on the blood in malaria which led to his discovery of the parasite of that disease.

In more recent years, with the disappearance of the frontier and the settlement of the Indian question, troops were concentrated in larger bodies nearer cities, and the medical officer came into closer relationship with his colleague in civil life, and with the civil hospital. It then became possible to station a few officers for limited periods in the larger cities, where they could take advantage of the clinics, laboratories and other facilities of the civil hospital, and through the medium of medical societies they came in contact with civilian members of the profession.

ACHIEVEMENTS OF THE MEDICAL CORPS

At the outbreak of the war with Spain, our peace establishment, with an aggregate strength of 28,000, was suddenly expanded by the organization of the volunteers into an army of 120,000 men. Our occupation of Cuba, Porto Rico and the Hawaiian and Philippine Islands presented unknown problems to the medical department, and opened new and extensive fields in the domain of sanitation and preventive medicine. By the cultivation of these fields some of our preconceived theories of the origin and spread of certain diseases were overthrown, and these were replaced by facts established on a scientific basis. The fever-stricken camps of the South were not without their instructive lessons. I need hardly mention to this audience the value of the demonstration by the board of officers consisting of Reed of the regular army, and Vaughn and Shakespeare of the volunteers, that the typhoid of those camps was spread by contact and through the agency of the house fly; nor of the brilliant discovery of that other board of medical officers, in which Reed was associated with Carrol, Lazear and Agramonte, which gave to the world the knowledge of the manner in which yellow fever is transmitted, a discovery which made the Panama canal possible, the influence of which on the commerce, politics and international relations of the nations of the world cannot yet be foreseen.

The eradication of small-pox in Porto Rico and the Philippines, the conquest of hookworm disease in Porto Rico by Ashford of the Army and King of the United States Public Health Service, the work of the Board for the Study of Tropical Diseases in Manila, are all proof of the fact that the military medical service has made itself felt in the field of sanitation and preventive medicine, and that it merits recognition equally with the civil hospital as a factor in the development of the art of medicine.

Only under military control and authority have some of the achievements in preventive medicine been made possible. It was under such conditions that the efficacy of antityphoid vaccination was positively established. The results were so remarkable that a brief statement of the facts is excusable. In a command of a strength of 16,000, encamped near communities where typhoid prevailed, and with which communication was in no way restricted, but two cases appeared; in one of these the prophylactic treatment had not been completed; in the

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* Read in the Symposium on Relations of the Hospital to the Public in the Section on Hospitals of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

other case, that of a civilian teamster, prophylactic treatment had been avoided. Never in the previous experience of our army had troops in such numbers been assembled under similar conditions with so small a rate of morbidity from this disease. To those of us who had gone through the experiences of the Spanish-American War, these results appear little short of marvelous.

There are other problems in preventive medicine of equal importance to the civil body which can probably be solved by the military physician better than by the civilian. One of these is the venereal question, a subject which has received the serious consideration of the military authorities from time immemorial. Accurate statistics regarding the prevalence of this class of diseases among the civil population, for obvious reasons, are not obtainable. In the military service, no difficulty exists in securing such data. There is no reason to believe that these diseases prevail to any greater extent among soldiers than among civilians, and from the data obtained in the service we are enabled to form some conception of their prevalence generally. This question is one that concerns the civil hospital fully as much as the military establishment, and our united efforts should be directed to its practical solution. The medical department of the army is now engaged in a campaign against this class of diseases, the results from which lead to the belief that an efficient prophylaxis, as one of the factors in prevention and control, is possible of attainment. It must not be understood, however, that the educational and moral sides of this question are lost sight of by the military authorities; those aspects, too, are seriously taken into consideration in its solution.

The medical department of the army early recognized the value of salvarsan to the military service, and our medical officers were among the first in this country to make use of it in the treatment of syphilis; since then they have made a number of valuable contributions to the literature of this subject.

From this brief and necessarily incomplete account of some of the achievements of the medical department of our army in time of peace, it is apparent that it has not lagged far behind the civil hospital, and that its labors have been of benefit to the civil community as well as to the military establishment. In consequence a more intimate relationship has been established between the civil and military life of the country, which tends to create a greater interest in the military establishment on the part of our people. It is to be regretted that this relationship cannot be strengthened further by assigning medical officers to duty at civil hospitals for limited periods, as is done in some of the foreign services; our numbers are, unfortunately, too small to permit this.

THE VOLUNTEER MEDICAL DEPARTMENT

We have already seen that the organized militia constitutes part of the land forces of the United States when called into active service; it then becomes national in character, and the President is its commander-in-chief. This force has an approximate strength of 120,000. Its medical department comprises about 800 officers and 2,600 enlisted men; it has eighteen field hospitals and thirteen ambulance companies organized and equipped.

The organization, armament and discipline of the organized militia when called into national service is the same as that of the regular army, and it receives the same pay and allowances; it participates in the maneuver and instruction camps with the regular army, and the War Department service schools, under certain restrictions, are open to its officers. Officers of the regular army are detailed to it as inspectors and instructors.

The medical officers of this force are, as a rule, earnest and capable, imbued with the proper military spirit, anxious and willing to learn from their colleagues of the regular establishment. The joint maneuvers and camps of instruction in which the regular army and the organized militia have participated biennially during the past eight or ten years have brought about a more intimate association, official, social and professional, between the two services, which has proved of mutual benefit to both classes of medical officers, and has been productive of increased military efficiency.

In the event of war, which is a possibility that may arise at any moment, the organized militia, after muster into the service of the United States, and the regular army increased to war strength, constitute the first line of defense. Our only method of supplementing this force is by the organization of a volunteer army. Like the organized militia, it is subject to the same laws, orders and regulations as those governing the regular army; it can be organized only when war is actually existent or imminent, and practically the entire body is drawn from civil life, and is without military training or experience.

IN TIME OF WAR

Under our field service regulations the medical department is charged with the administration of the sanitary service, and its personnel, in time of war, includes:

1. All persons serving in or employed by the medical department.
2. Members of the American National Red Cross Association assigned to duty with the medical department by competent authority.
3. Individuals whose voluntary service with the medical department is duly authorized.

Specifically its duties are:

1. The initiation of sanitary measures to insure the health of troops.
2. The direction and execution of all measures of public health among the inhabitants of occupied territory.
3. The care of the sick and wounded on the march, in camp, on the battle-field and after removal therefrom.
4. The methodical disposition of the sick and wounded so as to insure the retention of those effective and to relieve the fighting force of the non-effective.
5. The transportation of the sick and wounded.
6. The establishment of hospitals and other formations for the care of the sick and injured.
7. The supply of sanitary *matériel* necessary for the health of troops and for the care of the sick and injured.
8. The preparation and preservation of individual records of sickness and injury, in order that claims may be adjudicated with justice to the government and to the individual (Field Service Regulations).

In addition to caring for the sick and wounded, medical officers act as sanitary advisers of commanders, and instruct the troops in personal hygiene. Beginning with camp sites and the water-supply, they continue their supervision of these and other sanitary matters to the close of the campaign (Field Service Regulations).

The sanitary service in the field is divided into service with the mobile forces, including camps and bivouacs, marches and combats, and service of the line of communications, including all sanitary formations not accompanying the troops.

The sanitary formations accompanying the mobile forces are ambulance companies and field hospitals (Field Service Regulations).

The home territory, in which new troops are being organized, trained and mobilized, with its large military hospitals, convalescent camps and supply depots, must also be provided with its necessary quota of medical department personnel.

INADEQUACY OF PRESENT PERSONNEL

It is unnecessary for our purpose to enter into more detail regarding the functions and organization of the medical department in time of war. Enough has been said to make clear the complexity of an efficient sanitary service, and to make evident the varied qualifications that the military medical officer should possess. The personnel of our present medical department organized, as prescribed in our field service regulations, is inadequate even for the strength of our present peace establishment, and in the event of war and a necessarily increased military establishment we shall be compelled to call on the civil physicians of the country to supply the necessary medical officers. There is no lack of excellent talent among the medical profession, and in time of national danger their services unquestionably will be freely and unselfishly tendered to the nation. We are justified in the belief that the best material will be secured from the civil hospitals. The organized system, the orderly routine and the coordination among the different departments which exist in the better class of these institutions greatly facilitate the training of such a personnel for military duty. The medical staff, trained in hospital methods, and specialists in the various branches of medicine will be invaluable to the military service, especially at our general and base hospitals. It was primarily with this object in view that the law establishing the Medical Reserve Corps was enacted.

This corps is composed of active and inactive members; the former are assigned to duty with troops, and supplement the regular corps; at present there are approximately 125 of these officers in active service. The inactive list of this corps numbers upward of 900 members, and includes former volunteer and contract surgeons of the army and many eminent hospital physicians. On the occurrence of the emergency under which they are ordered into active service, they would be assigned to the particular duty for which their experience and special qualifications best fitted them. This latter class has manifested great interest in medicomilitary subjects, as shown by the organization of a number of medical reserve corps associations. It is especially unfortunate that our government gives so little encouragement to these inactive officers, as no provision of law exists under which they can be ordered to duty with troops at maneuver and instruction camps, in order that they may obtain the practical experience so essential in military medicine.

The civil hospitals, too, in time of war may be called on to render assistance to the military establishment. No one can foretell when war may burst on us, or what unseen needs may suddenly arise as a consequence. We have military hospitals and posts which could be quickly expanded or converted into general hospitals for a sudden influx of sick and wounded, but should we become overwhelmed early in the campaign with large numbers of disabled we would be obliged to avail ourselves of the facilities of these institutions. Especially might this be the case in the mobilization of new troops near large cities.

HOW THE CIVIL HOSPITALS CAN HELP

Among a people like ours, where war ever appears remote and military service is not compulsory, it is not strange that its citizens take but little interest in military subjects; yet it is the solemn obligation of every citizen to bear his share of the burden that war may impose. Our civil hospitals, through their staffs, wield a powerful influence on professional thought and opinion, but beyond the enrolment of some of their members in the Medical Reserve Corps have accomplished little toward arousing an appreciation of the military obligations that rest on the medical profession in time of war. How can the civil hospital aid in increasing the military efficiency of the nation? By stimulating interest in the army as a career for its well-trained and capable graduates. While the material returns of the service are limited, in the early years at least, the emoluments are far greater than that of the young physician who enters on a professional career in civil life. The experiences gained and opportunities enjoyed are many and varied. It is the policy of the department to encourage study and original work and to recognize merit, and every opportunity is extended to its officers to advance themselves professionally. That it recognizes the value of men trained in civil hospitals is manifested by the requirement that every candidate for the medical corps must have had at least one year's experience as an intern in a civil hospital after graduation in medicine.

The same class of men is also desirable for service in the Medical Reserve Corps. To this class of officers when inactive, unfortunately, slight opportunity is afforded either for professional advancement or for military training, and we must appeal to their generosity and patriotism should the emergency arise calling them to active service. In his last annual report the Surgeon General of the Army makes the following remark in speaking of this class of officers:

> The profession in civil life is just as well qualified to treat the medical and surgical disabilities incident to the military service as are officers of the medical department, but they can never become familiar with the many special duties required of medical officers except by practical experience with troops.

The training of these officers should not be postponed until after the appearance of the emergency under which they are called into active service; they should be afforded the opportunity of gaining that practical experience with troops which is so essential to their efficiency as military medical officers. Here again, much can be accomplished by the civil hospitals, through concerted action on the part of their staffs looking to the enactment of the legislation necessary to make such opportunity possible.

The efficiency of an army is dependent on the efficiency of its elements, and not the least of these is its medical department; and it is to the medical profession of the country, typified in the civil hospital, that we must look for the success of this factor in the military establishment.

The relationship between the civil hospital and the military establishment has been growing closer; still closer affiliation will result in increased interest in military affairs, and prove mutually beneficial to both branches of our profession.

ABSTRACT OF DISCUSSION

Dr. Samuel C. Plummer: Up to a few years ago there was little communication between military and civil surgeons, but now that many Army surgeons are stationed nearer the cities there is an opportunity for the two to become better acquainted in the hospitals and clinics. I hope that the relationship will grow closer.

Dr. Charles Richard, Washington, D. C.: The point I wish to bring out in my paper is that few members of our profession know much of our Army and its medical department organization, or of the responsibilities of the latter in case of an outbreak of war. The greatest force we could organize and put into the field at once would consist of the militia and regular army, consisting of about 200,000 men. Of that force, a certain proportion (about one-fourth or one-fifth) would be needed to look after the sea-coast defenses. The militia, under our present laws, cannot be taken out of the country, so that in the event of invasion of a foreign country we would have to depend on untrained volunteers and that part of the regular army that could be spared from the defenses of the country. For this force an adequate medical department personnel would also be necessary. Every doctor in our country should appreciate that he can become a part of the military strength, but to do this he must take sufficient interest in the subject and learn something of the requirements of the military service. It was partly with this point in view that the Medical Reserve Corps was formed. Its members are furnished with medicomilitary literature by the War Department, and they have shown their interest by the formation of societies in which these subjects are discussed, and are becoming more and more interested in the military branch of our profession. I have no doubt that when the occasion arises, the vast majority of the members of the Medical Reserve Corps will do excellent work. The administrative work will necessarily fall to the regular Medical Corps until the Reserve Corps has gained experience in such work.

HOSPITALS AND THE HEALTH PROBLEM

WITH SPECIAL REFERENCE TO THE NEEDS OF RURAL AMERICA *

E. E. MUNGER, M.D.
SPENCER, IOWA

What is America's health problem? Briefly, it is to prevent preventable disease, cure curable disease, relieve suffering, prolong life and to do all these things in the most intelligent, satisfactory and economical manner possible. Toward the solution of this problem much is being done by states and cities through more and more efficient health departments; a part of the public press is giving generously of its space for the dissemination of knowledge pertaining to health and disease; the church is concerning itself with the problem in a manner that augurs well for the future, as, witness, Hospital Sunday, Tuberculosis Sunday, and health sermons based not on fads and fancies but on facts.

MORE COUNTRY HOSPITALS NEEDED

It is not my purpose to deal with the question of prevention, except to point out how necessary it is to care for and cure disease in order to prevent it. I shall have accomplished my purpose in part if even in small degree my paper helps to fix attention on the necessities of rural America in the solution of the health problem and on the fact that the modern hospital is everywhere a necessary adjunct to the application of preventive and scientific medicine and surgery. Notwithstanding the advantages of natural environment, rural people have not the same opportunity for health conservation that urban residents have.

The mortality-rate for almost all diseases is lower in rural districts than in cities. It is probable that a considerable proportion of the difference is due to the fact that residents of the former, when critically ill, resort to the institutions and hospitals in cities for treatment, and when deaths occur they are registered in the cities and increase the mortality of the latter.[1]

One notable exception is typhoid. The mortality-rate for this disease in 1910 for cities in registration states was 22.4 per 100,000 population; for the rural part of registration states, 23.3.[2]

HOSPITAL TREATMENT FOR RURAL TYPHOID

In view of the fact that rural typhoid in America is nearly always treated in the home, two significant statements are quoted:[3]

> This rural frequency is important for dwellers in cities. The water-supply and milk-supply, as well as many articles of food, are derived from the country. There is a constant going and coming between the city and country. An infected city may spread infection far and wide through the country, while from the country there may be a steady stream of infected persons into the city.
>
> The stamping out of typhoid fever is one of the great tasks before the profession of this country. The story is such an old one that little attention is paid to it. We of the profession shrug our shoulders and wonder at the apathy of civic authorities. Are we guiltless? Every patient with typhoid fever means infection from a previous one. If thorough disinfection were carried out in every case of typhoid fever this year, and the same next year, what a decrease there would be in the incidence of the disease! Disinfection is often in the hands of persons who do not realize the importance of its being thorough, and it is no easy task for the physician to see that it is carried out. Too often he does not realize his own responsibility and is thoroughly satisfied if he brings the patient well through the attack, heedless of the danger to the community.
>
> If possible the patient should be treated in a hospital. The advantages of this are many, for in few houses can a patient be handled as satisfactorily as in a hospital. The nursing can be done in a better way, the complications may be recognized and treated earlier and the requisite disinfection carried out more thoroughly. In country practice and in many places hospitals are not available and the best that can be done has then to be done.
>
> It has been estimated that probably 8,000 persons in the United States die every year from perforation of the intestine in typhoid fever and perhaps 2,500 of these can be saved by proper treatment.

In a country physician's practice, a typhoid patient with this complication has no more chance for existence than a snowball in a kettle of boiling water.

In 1910 the death-rate from tuberculosis of the lungs was 139.7 per 100,000 population; from pneumonia, 147.7; organic heart disease, 141.5; diarrhea and enteritis (under 2 years), 100.8; nephritis and Bright's disease, 99.0. In other words, there were in the United States in 1910, approximately 131,000 deaths from tuberculosis of the lungs; from pneumonia, 140,000; organic heart disease, 133,000; diarrhea and enteritis, 95,000; nephritis and Bright's disease, 93,000.

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* Read in the Symposium on Relations of the Hospital to the Public in the Section on Hospitals of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] Mortality Statistics, 1900-1904, Bureau of the Census.

[2] Mortality Statistics, Bulletin 109, 1910: "Of the registration cities of 100,000 population or over, in 1910, Omaha, Neb., had the highest rate, 86.7. Other cities with high rates for the year were Minneapolis, 58.7; Kansas City, Mo., 54.4; Atlanta, Ga., 50.1; Birmingham, Ala., 49.5; Nashville, Tenn., 48.9; Milwaukee, Wis., 45.7; Spokane, Wash., 45.4; and Baltimore, Md., 42. The lowest rates shown for the large cities were those of Bridgeport, Conn., 4.9; Paterson, N. J., 7.1; Cincinnati, 8.8; and Cambridge, Mass., 9.5. These rates approach the rates of typhoid mortality of the leading cities of western Europe, examples of which for the year 1910 were as follows: London, four per 100,000; Edinburgh, two; Dublin, ten; Paris, seven; Brussels, nineteen; Amsterdam, seven; Copenhagen, three; Stockholm, four; Christiania, two; Berlin, four; and Vienna, four."

[3] McRae, Thomas: Osler's Modern Medicine, 1907, ii, 78, 71, 209, 208.

TREATMENT OF PREVENTABLE DISEASES

On every hand we are being taught a great deal about tuberculosis; the instruction, most of it, is authoritative, timely and important, and is accomplishing results. Nevertheless, when it is known that the total number of deaths in the United States from the great white plague (all forms) is approximately 151,000, while from the other four diseases just mentioned it is about 461,000, one must inquire why tuberculosis should occupy the stage to the exclusion of the other characters whose parts must be played if the sequel is not to be disappointing. Is not a man who has died of heart disease just as dead as the one from tuberculosis? True, the latter has had with him the infective element in larger measure and he is entitled to the title rôle; still, the deaths from other infections disclose the real tragedy of preventable disease.

> "Heart disease in about 50 per cent. of all cases is a sequence of acute endocarditis. Among 670 cases of chronic heart disease at the Leipsic clinic 58.5 per cent. followed acute rheumatism. In the all-important endocarditic group of the acute infections, rheumatic fever plays the important rôle. There is no single problem of greater importance in preventive medicine than the reduction of the enormous waste of life in children in consequence of the rheumatic infection."[4]

Here is one of the peculiarities of mortality statistics: If a patient with a crippled heart contracts pneumonia, typhoid or other disease and dies because his limited heart-power is not sufficient to carry him through the crisis, death is attributed to the preceding acute disease. If he dies from heart-disease some time after apparent recovery from the acute infection which caused it, the latter is infrequently mentioned as even a contributory cause of death. Hence we find the death-rate from rheumatism only 7.4 per 100,000 of population, while it is responsible for more than one-half the cases of chronic heart-disease.

In no disease is it more important than in rheumatism that the physician "should be a watchman all the time," for on the early detection of heart complications may depend the life or future usefulness of a patient. If it were possible in the beginning of the attack to remove patients with acute rheumatism from their unhygienic surroundings to hospitals near at hand and there find proper diet and facilities for care and treatment, including that important adjunct to modern medicine, the trained nurse, all would be done that can be done toward lessening the severity of the attack, adding to the comfort of the patient and preventing the disastrous complications, of which heart-disease is the most common.

Rarely, indeed, can one find in a rural district a patient with rheumatism receiving the benefits of hospital care, or one who can be prevailed on to provide for himself early and suitable nursing at home, or tolerate on the part of the physician the watchfulness so necessary for sensible and successful treatment.

The rural pneumonia portion of the health problem can be solved in part, at least, if suitable hospital provision for its treatment can be made. It is well known that when we are dealing with this disease "the scenes change rapidly and the passage of an hour or two may present an entirely different picture. The obvious lesson of this is that pneumonia patients should be watched carefully and seen by the attending physician at frequent intervals, especially during the latter part of the disease, when judicious and well timed medication may tide the patient over the crisis to recovery."[5]

How is the country physician to follow this sound advice? The reasons why he cannot are perfectly plain to both the patient and the physician. In cases of diarrhea and enteritis and other children's diseases, the rural hospital, with its complement of visiting nurses, can materially help to solve the infant-mortality part of the health problem.

Time does not permit a discussion of the whole question, yet your attention is asked to two of its minor, but none the less important, elements:

In 1910 there were approximately 8,000 deaths from appendicitis in the United States—not a large number when compared with deaths from other causes, but rather formidable in the light of this indictment by one of the world's greatest surgeons.[6] He says:

> It seems to me that every death from appendicitis is chargeable directly to the people, for not calling in the physician sufficiently early after the onset of the symptoms, or to the physician and surgeon for not acting promptly when they are called. We are sorry to admit that the latter represents the greater percentage. We should have no deaths from appendicitis, but we are having them. We should accept the force of numbers and experience to guide us against the culpable, if not criminal, error of delay in this class of cases.

Granted that delay is both culpable and criminal, blame should not be laid entirely on the people or on the physician, or even on both; it is due rather to the want of instruction relative to the achievements of scientific medicine and surgery. Some there are who, practicing what they teach, cure every case of appendicitis with colon tube and olive oil—excepting only those that die of peritonitis.

In a great city, living under the very eaves of a modern hospital, a physician who would allow a patient to die from appendicitis for the want of timely surgical treatment is no doubt culpable in a degree approaching criminality. In the country, when one has any serious sickness, especially if the trouble is appendicitis, procrastination is as common as it is dangerous. An operation in the home is never consented to excepting as a last resort; in order to get to the hospital the patient must endure a variety of hardships incident to a long railway journey for a very sick person. The patient dies while waiting to recover sufficiently to be able to go away; the death certificate is made out as best suits the exigencies of the occasion, and thereby hangs a tale which mortality statistics do not tell.

In 1910 approximately 15,000 mothers died from diseases and accidents incident to childbirth; nearly 7,000 of these from puerperal septicemia. There were 70,000 deaths from premature birth and diseases and injury peculiar to early infancy—a total of 85,000 mothers and infants dying annually in the United States from causes which all authorities agree are largely preventable or curable. These cold figures do not disclose their sorrowful story; the resulting desolation, woe and despair beggar description.

Mortality statistics for maternity hospitals confirm the following statement:[7]

> The hospital is now the safe place for a woman to be delivered in; it is in the private dwellings that danger lurks. The poorest, the dirtiest, the most dissolute women are safely confined in a hospital; the richest, the youngest, the purest and the loveliest sometimes succumb in giving birth to a child in their own homes.

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[4] Osler and Gibson: Osler's Modern Medicine, 1908, iv, 205, 256.

[5] Musser and Norris: Osler's Modern Medicine, 1907, ii, 636.

[6] Murphy, J. B.: Keen's Surgery, 1908, iv, 778.

[7] Garrigues: Quoted by Dobbin, Handbook of the Medical Sciences, 1907, v, 379.

HOSPITAL LEGISLATION IN IOWA

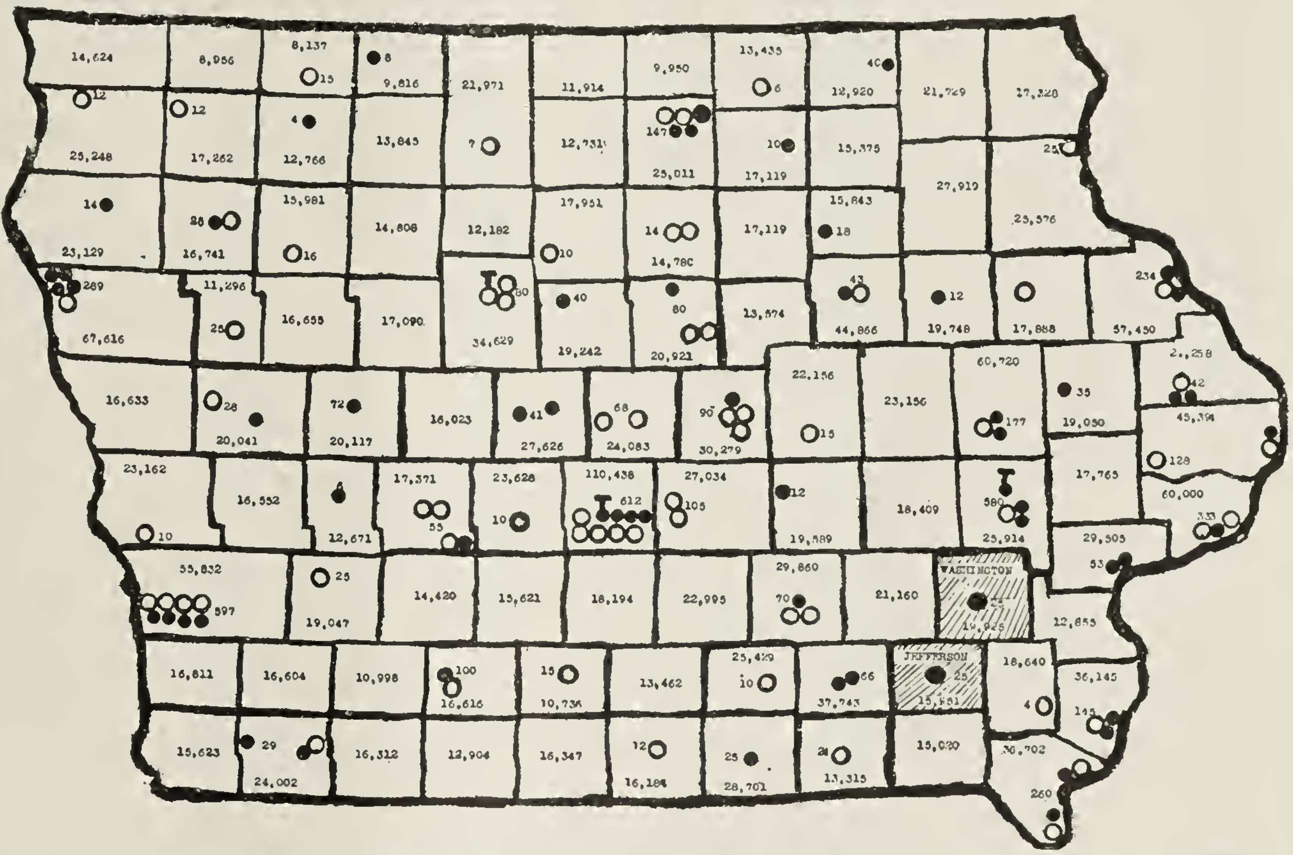
In 1909 the Thirty-Third General Assembly of Iowa became interested in the hospital and health problem; its members recognized that rural communities, in dealing with accident and disease, do not have the same advantages as urban residents. Little argument was required to convince this body of intelligent and earnest men that any considerable number of people should have at least the right to work out their common health problem. They scarcely listened to the contention that such a privilege would result in a tax on the many for the benefit of the few. Proportionate taxation for the benefit of all admitted of no argument, and this legislature deliberately enacted the law making possible, in Iowa, the ultimate establishment of an adequate supply of hospitals with equal rights to all and special privileges to none.[8]

The author of this law had in mind the necessity that exists, and it was his purpose to establish a public hospital with a board of trustees that will become a board of lay sanitarians who, in formulating such rules and regulations as will enable the hospital to be of the greatest good to the greatest number, will become informed about health matters and will be influential factors in the solution of the community's health problem.

There will be neither incentive nor opportunity to make such a hospital a money-making institution. Crime and graft in the form of illegal and unnecessary operations, wrong diagnoses for the sake of prolonged treatment, unwarranted division of fees and other evils cannot go on undiscovered and unexposed. It will furnish its care at the lowest price requisite for proper maintenance; it will not concern itself with the fees of its physicians and surgeons except in those cases in which patients are subjects for charity. It may, however, frown on exorbitant and extortionate charges. It will be conducted on a strictly ethical basis and be made the health center for a community — a center from which health information will be disseminated by both precept and example. Its equipment will be complete with every facility for up-to-date work; it will have a pathologic and bacteriologic laboratory, which should be auxiliary to the laboratory of the state board of health. An ambulance service will be provided. A necessary and most important adjunct will be a training-school for nurses. An x-ray laboratory will confer great benefits on both patients and physicians. At such a hospital the fact will be recognized that there are many specialists of signal ability whose services may be required from time to time. In order that the people of a community may, on occasion, have the benefit of their skill and experience, a consulting staff acceptable to the people will be selected by its physicians and surgeons.

It was not the intent of the law to supplant standard hospitals; all have the common function of caring for the sick and disabled. Some perform a dual service by reason of their affiliation with medical colleges, furnishing the practical training for surgeons, physicians and nurses. Many are of high class, others are good, some tolerable, some merely boarding-houses with "operating-room" and "rooms for rent," and some are positively bad. The present and urgent need is the establishment of an adequate supply of reputable hospitals, all to be standardized and inspected as the logical sequence to the same processes for medical colleges and their graduates. As a result the great surgeon will become greater and the good physician and surgeon better. The poor, careless, indifferent few who endanger society and who are the curse of reputable medical men will be driven out of the profession, removing the point of attack for carping critics who, under the auspices of the league for medical riot, go about the country, disguised with the cloak of freedom, noisomely assailing the honor and integrity of the entire medical profession and offering jeopardy as a substitute for safety.

It is noteworthy that the first hospitals built under the Iowa law were located in counties bearing the names of Washington and Jefferson. The table shows the hospital situation in the United States, and the map, the number and location of public and private hospitals,



Map of Iowa. A circle indicates a private hospital; a solid dot, a public hospital; T, a tuberculosis hospital; the figures indicate population and total number of beds in each county.

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[8] Some Fundamental Truths: (1) A number of people will have a varying amount of sickness. (2) Of this amount of sickness, a fairly definite and constant portion requires and should have the advantages of hospital treatment. (3) A given disease presents the same general characteristics and is the same thing wherever it exists. (4) Whatever is known to be the very best treatment of any disease should be made available to all persons afflicted with disease. (5) Of the total number of persons who are ill a few may have homes and the means that will enable them to be fairly well cared for, but the vast majority are not so situated. (6) In all cases of serious sickness, whether medical or surgical, nursing, diet and sanitary environment are of prime importance in treatment. (7) While trained nursing is an essential part of the treatment, the cost of such nursing is so high that it is next to impossible for any but the very well-to-do to avail themselves of its great benefits. (8) People are needlessly dying, suffering, and being handicapped both physically and financially every year, every month, every week and every day, because of the lack of hospital advantages within their reach and means. (9) Every human being, with only enough exceptions to prove the rule, having arrived at the age of discretion, regards his health as his most valuable possession and his life as the one thing for which he is willing to exchange all else. (10) Hospitals, to fulfil their mission, should be established with reference to a given number of people, be maintained by the people and conducted primarily for the people.

the number of beds and the proportion of beds to population in Iowa.[9] In studying this bear in mind that "those best qualified to judge seem to be of the opinion that every civilized community requires one hospital bed for each 100 inhabitants."[10]

Women and children first on the sea! What of mothers and infants on the land? We stand aghast at news of an appalling *Titanic* disaster, telling of over 1,500 lives lost at sea. The governments of two nations instantly prepare for an investigation of causes and quickly fix responsibility. There is no delay. The court of inquiry has convened beside the sea and is the port of entry for survivors. This alertness is striking, compared with the dilatory tactics pursued when measures are proposed for the remedying of needless waste of life on land.

HOSPITALS AND SANATORIUMS OF UNITED STATES *

State	Proportion of Beds to Population		Public		Private		Tuberculosis				Corporation		Total Hospitals
							Public		Private				
	Population	Beds	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	
Alabama	2,138,093	2,774	10	1,627	30	1,036	2	49	...	.....	2	62	44
Arizona	204,354	893	5	58	20	478	2	58	6	225	1	74	34
Arkansas	1,574,449	2,236	14	991	15	907	1	74	...	.....	1	264	31
California	2,377,549	13,709	96	6,326	183	6,032	5	397	13	696	2	258	299
Colorado	799,024	4,759	30	1,743	48	1,535	4	214	10	787	4	480	96
Connecticut	1,114,756	4,407	24	2,349	27	1,401	1	110	5	547	..	.....	57
Delaware	202,322	448	6	402	1	38	1	8	...	.....	..	.....	8
Florida	752.619	1.066	20	540	17	406	..	......	...	.....	2	120	39
Georgia	2,609,121	3,076	16	1.809	40	880	2	82	5	205	1	100	64
Idaho	325.594	1.157	19	643	21	374	..	......	1	100	1	40	42
Illinois	5,638,591	18,285	95	7,028	140	8,497	2	1,835	4	815	2	110	243
Indiana	2,700,876	6,231	45	2,791	74	3,001	2	110	4	122	2	207	128
Iowa	2,224.771	4.890	60	2.396	64	2.260	2	144	1	20	1	70	128
Kansas	1,690,949	3.382	30	1,535.	58	1,711	..	......	2	21	2	115	92
Kentucky	2,289,905	2,751	27	1,930	36	651	1	50	...	.....	1	120	65
Louisiana	1.656,388	2,718	7	1,613	20	1,055	..	......	2	50	..	.....	29
Maine	742.371	1,542	21	1,159	14	283	..	......	1	100	..	.....	36
Maryland	1,295,346	4.866	33	3,023	22	990	2	600	3	235	3	18	63
Massachusetts	3,366,416	15,474	69	6,974	158	6.367	9	1,482	13	651	..	.....	249
Michigan	2,810,173	7,237	69	2,612	91	4,075	2	322	1	48	1	180	164
Minnesota	2,075,708	6,286	57	3,678	85	2,118	4	260	3	75	2	155	151
Mississippi	1.797,114	1,061	9	429	22	632	..	......	...	.....	..	.....	31
Missouri	3,293,335	7,849	33	3,516	93	4,011	1	150	1	22	1	150	129
Montana	376,053	2.384	15	606	25	1,630	..	......	...	.....	5	148	45
Nebraska	1.192,214	4,166	26	3,543	35	713	..	......	...	.....	..	.....	61
New Hampshire	430,572	1,102	22	775	12	222	1	35	2	70	..	.....	37
New Jersey	2,537,167	6,700	48	4,434	33	1,663	4	445	1	158	..	.....	86
New Mexico	327,301	947	8	89	19	263	2	52	8	445	3	98	40
New York	9.113,279	42,904	180	23,012	234	16,035	15	2,817	16	906	2	134	447
Nevada	81,875	498	9	296	7	173	..	......	...	.....	3	29	19
North Carolina	2.206,281	2,364	19	725	50	1,367	1	50	7	185	2	37	79
North Dakota	577,056	1,200	17	611	23	589	..	......	...	.....	..	.....	40
Ohio	4,767,121	15,126	109	11,838	107	2.990	6	294	...	.....	1	4	223
Oklahoma	1,657,155	1,245	10	270	40	963	1	12	...	.....	..	.....	51
Oregon	672,765	2,109	11	795	29	1.212	1	62	1	40	..	.....	42
Pennsylvania	7,665,111	29,340	83	22,643	92	4,289	7	1,962	4	396	1	50	187
Rhode Island	542,610	1.628	8	305	11	921	4	402	...	.....	..	.....	23
South Carolina	1,515,400	834	8	332	17	431	2	65	...	.....	1	6	28
South Dakota	583,888	1.069	10	442	19	613	1	14	...	.....	..	.....	30
Tennessee	2.184,789	2,753	18	1,365	49	1,322	..	......	2	66	..	.....	69
Texas	3,896,542	7,444	30	1,726	90	5,277	1	60	5	256	4	125	130
Utah	373,351	1,327	9	920	11	395	..	......	..	.....	2	12	22
Vermont	355,956	965	6	521	14	400	..	......	1	44	..	.....	21
Virginia	2,061,612	2,870	22	1,076	43	1,545	2	131	2	27	1	91	70
Washington	1,114,990	4,285	42	3,012	49	1,210	1	31	1	32	..	.....	93
West Virginia	1,221,119	2,078	12	657	42	1,376	..	......	...	.....	2	45	56
Wisconsin	2,333,860	6,015	54	3,084	80	2,584	2	190	3	107	1	50	140
Wyoming	145,965	394	7	286	8	90	..	......	...	.....	1	18	16
District of Columbia	331.069	1.799	8	895	6	734	2	170	...	.....	..	.....	16
Totals	91,944,925	260,643	1,586	139.340	2,424	97,745	96	12,737	128	7,451	58	3,370	4,292

* Insane hospitals, reformatories, homes for aged, feeble-minded, blind and orphans, county poor farms and similar institutions not included. The table was prepared to show in a general way the number and kinds of hospitals in the United States and the proportion of beds to population. No claim is made for more than approximate accuracy.

If we think of each state as a gigantic *Titanic* carrying its cargo of human souls across the sea of life, having in mind the icebergs that hazard the voyage from birth to death, we are blind, or will not see, if we do not pay attention to the insufficient number and uncertain character of some of each ship's life-boats.

CONCLUSION

In conclusion, and in order that more and better means may be provided for the safety of passengers and crew, competition here and there and now and then should reasonably yield to cooperation for health conservation; there should be developed a public hospital system fashioned somewhat after the public-school system, and our national health should be made an ever-increasing national asset. With these ends in view Congress should enact into law the measure creating a national department of health with as many bureaus as may be necessary to enable it to perform its main function of "enlightening and directing public opinion in regard to the broad problems of hygiene and representing to the world the practical accomplishments of scientific medicine." Congress should realize that such legislation will promote the physical welfare and domestic tranquillity of our people and clearly be in accord with the high ideals of the fathers who wrote these words into our constitution.

ABSTRACT OF DISCUSSION

Dr. G. W. Green, Chicago: How is it proposed to maintain county hospitals?

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[9] Compiled from American Medical Directory, 1912, Ed. 3.

[10] Ochsner and Sturm: The Organization, Construction and Management of Hospitals, 1909, p. 11.

DR. E. E. MUNGER, Spencer, Iowa: The law provides that the board of supervisors may appropriate a certain percentage of the county general fund for maintenance. In the rural districts of Iowa there are few paupers and the question of maintenance is not a serious one. The establishment of a public hospital will create no new expense beyond the cost of building and equipment. Every person who is able will pay a reasonable price, to be fixed by the board of trustees, for his hospital care. Those who are unable to care for themselves are now being cared for by charity in one form or another.

MISS M. E. McCALMONT, Brooklyn, N. Y.: The question is really the large problem of rural nursing. Has Dr. Munger any practical solution for it?

DR. E. E. MUNGER, Spencer, Iowa: The health problem is a community problem and should be solved on a cooperative community basis—this does not mean a socialistic basis. It must be the ultimate object of scientific medicine and surgery to bestow its benefits on all people alike. How this can be done without an adequate supply of standard hospitals, located and conducted with reference to the needs of the people, I do not know. The blue-prints give some idea of the completeness of the Washington and Jefferson county hospitals, which will be ready for formal opening within a few weeks. It is confidently expected that these counties will set an example which will be followed by many rural communities. They will solve the problem of delay in operative cases, and medical and obstetric cases will find an environment where good care will prevent many fatalities and bad results hitherto attributable to lack of care. These hospitals will have training-schools for nurses. Their graduates may not all become expert surgical assistants, but they can be intelligent general nurses and there is urgent need for a much larger number of these.

DR. D. S. FAIRCHILD, Clinton, Iowa: I come from the same state that Dr. Munger does. In Iowa we have only one city which has 100,000 population, but ours is a very prosperous farming community and comparatively rich. These people are able to take care of themselves when sick and have no occasion to avail themselves of charity. So far as the hospitals in small towns are concerned, no provision will be necessary for charity cases, as there are practically no poor people. I cannot therefore join with Dr. Munger in his enthusiasm for the county hospitals, but the problem will probably be solved in time. This hospital agitation, however, will have a great influence in educating the people to the advantage of better methods of medical and surgical treatment. In our agricultural communities the money question will always enter into matters of this kind, and the question of maintenance will be of so much importance that the people will be slow to tax themselves until they are convinced that the hospital may be self-supporting.

In regard to training nurses, I believe that the county hospitals will have difficulty in securing the better class of applicants for the training-school. I am told that in towns of 10,000 to 15,000 people the hospitals now have trouble in securing high-grade girls. The tendency seems to be for the better class of young women to seek application in the training-schools located in the larger cities. The question of hospital extension is one that must necessarily work itself out slowly.

DR. E. E. MUNGER, Spencer, Iowa: The proposition was defeated in my county by a vote which under ordinary circumstances should be accepted as final; but two other counties 300 miles away carried the same proposition by large majorities. We must wait a little while to determine whether final success depends on enthusiasm or on results. Bona fide donations of nearly $15,000 to the hospital, conditioned only on the voting of a one-half mill tax, did not help matters. These offers were so generous and unusual that the donors became subjects for suspicion and derision. The question of farmers not being willing to be taxed for the public health suggests the thought that health is quite as important as education. The tax for a hospital in a rural community is a mere trifle compared to the school-tax. If results justify the expenditure not much complaint will be heard. The question may well be asked whether many small, private and competitive hospitals—some with meager laboratory equipment, others without even a microscope—can ever become the efficient factors hospitals should be in solving the health problem. They certainly cannot if they are conducted largely for the purpose of doing selected surgical operations and serving the interests of the proprietors instead of the public.

MISS M. E. McCALMONT, Brooklyn: Would it not be possible to have a district nursing organization, properly supported, on which the surgeons from outlying districts could call, taking nurses with suitable surgical equipment into the homes of the farmers? The expense would be much less and the work more far-reaching, with possibilities of educational propaganda.

DR. JOHN ALLAN HORNSBY, Chicago: Is your idea that the girls who are nursing in private cases could keep a small equipment on hand, such as is needed by graduated nurses who are on duty in towns where there is no hospital, to prepare a home hospital?

MISS M. E. McCALMONT, Brooklyn: Yes, and that they be paid by the county or state, or community, but with the proviso that hospitals or outside surgeons or medical men could have the benefit of this organization.

DR. JOHN ALLAN HORNSBY, Chicago: I recently attempted to get a line on the nursing facilities and equipment of the hospitals. I wrote to all the state boards of nursing registration and fully expected to get some sharp lectures, but instead of that I received long, fine and thoroughly well-thought-out letters from these women that were a marvel to me; I found that, instead of traveling at cross-purposes with the nursing profession I was traveling in the same direction and keeping close company with them. I found that their ideals and ambitions were the ideals and ambitions of the medical profession, as I knew these ambitions. We are not apart at all. There seemed some time ago to be a feeling that the nurses were going a little too fast; that the nursing leaders were insisting on too high a grade of preliminary education and too refined a training from an educational standpoint, according to the present status of the market, so far as material for nurses was concerned. And possibly that is true. I know it is true in some places—in our own section of the country for instance. We have been accustomed in Chicago to take grammar-school graduates until recently. These grammar-school graduates are in our training-school—some in the junior class and some in the intermediate class. Some of the other training-schools have set the high-school standard, and all of a sudden the state commission promulgated a notice to the effect that they would not register schools that did not have a curriculum prescribed by that commission. Now here we had girls in our training-school that had not had training to work out this curriculum. In addition, the commission demanded a number of hours' study each day and theoretical work in class. Some of these girls were not capable of working that number of hours; they were tired and incapable of doing the work because they had not acquired the habit of theoretical application in their school days. For these reasons we have fallen down somewhat in an effort to rise to the curriculum as it has been given to us by our State Board of Commissioners; but we are coming to it. There are some of us pushing it continuously, for some girls who are training can do it, but the great mass cannot.

MISS M. E. McCALMONT, Brooklyn: I am not here as a representative of the nursing profession, but in the general interest of hospitals. I, myself, do not believe that the nursing profession is meeting the demands of the people. The nurses of our training-schools are not all that they might be. The reasons for this are many and the discussion is a lengthy one. I do not believe, however, that the leaders are entirely unanimous in their ideas of training and training-school methods.

A QUICK METHOD FOR ACCURATELY DIFFERENTIATING THE SPECIES OF HOOKWORM OF MAN

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The most satisfactory method of demonstrating to a student the points of difference between *Ankylostoma duodenale* and *Necator americanus* is by showing him the characteristics of the buccal capsule of each species. The difficulty, however, is with properly orienting the worm so that a direct view may be had of the mouth-opening. Should a lateral view of the anterior extremity present, it is difficult to point out the anatomic differences.

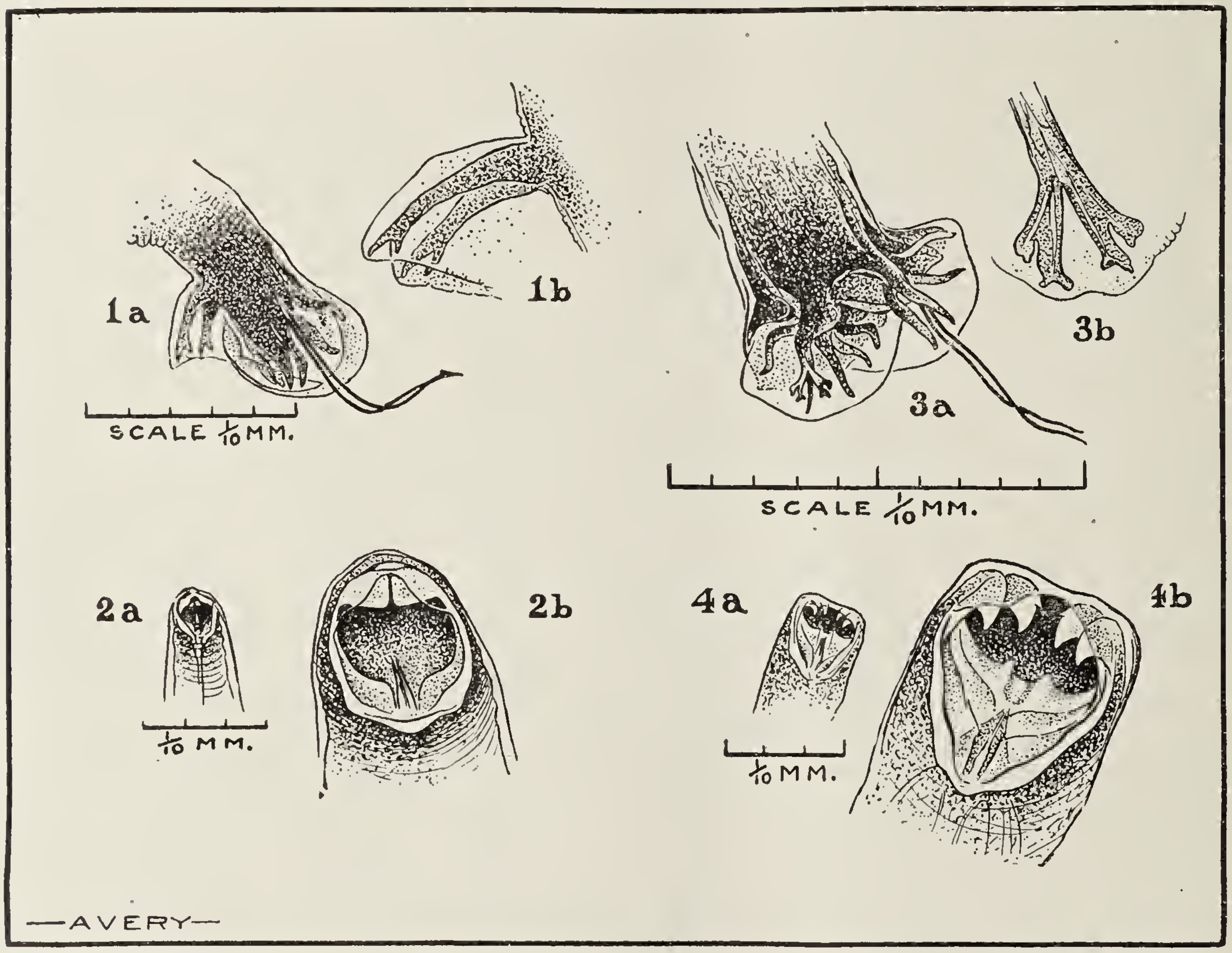

Fig. 1a.—Copulatory bursa of *Necator americanus,* showing the deep cleft dividing the branches of the dorsal ray and the bipartite tips of the branches; also showing the fusion of the spicules to terminate in a single barb. Scale 1/10 mm. Fig. 1b.—Branches of dorsal ray magnified.

Fig. 2a.—The buccal capsule of *N. americanus.* Fig. 2b.—The same magnified.

Fig. 3a.—Copulatory bursa of *Ankylostoma duodenale,* showing shallow clefts between branches of the dorsal ray and the tridigitate terminations. Spicules hair-like. Fig. 3b.—The dorsal ray magnified.

Fig. 4a.—The buccal capsule of *A. duodenale,* showing the much larger mouth opening and the prominent hook-like ventral teeth. Fig. 4b.—The same magnified.

On applying a cover-glass to a freshly passed worm in salt solution on a slide, it will be found easy to cause the worm to roll about its long axis by gently manipulating the surface of the superimposed cover-glass with an ordinary wooden toothpick. This manipulation can be readily carried on while the specimen is examined on the stage of the microscope with a 2/3 inch objective.

By proper adjustment of the diaphragm the proper amount of light can be obtained. In a few seconds one can so orient the worm as to have a direct view of the mouth-opening.

Another point of difficulty is that most of the illustrations in the various text-books are too diagrammatic and unlike what one actually sees under the microscope.

In order to present these points as they appear to me, I have so oriented the two human species as to give a direct view into the buccal capsule and from such specimens the illustrations given have been prepared. Figure 2a shows the buccal cavity of *Necator americanus* as seen with the 2/3 inch objective and Fig. 2b as seen with the 1/6 inch objective. In 4a and 4b are similar drawings for *Ankylostoma duodenale.* The four hook-like ventral teeth and the much larger mouth-opening of the Old-World hookworm is in striking contrast to the smaller opening, semilunar lips and prominent dorsal median tooth of the New-World species.

Should it be desired to study further the points of difference between the two species, the next step is to examine the copulatory bursa of the male. The figures 1a and 1b show distinctly the deep cleft separating the two branches of the dorsal ray of the copulatory bursa of *Necator americanus* with their bipartite tips. In 1b the dorsal ray is magnified as seen under a 1/6 inch objective. Figures 3a and 3b give the characteristics of the dorsal ray of the copulatory bursa of *A. duodenale.* In this species the cleft dividing the branch is shallow and the tips tridigitate.

The orientation of the posterior end is accomplished with the same case as that of the anterior extremity by a similar technic.

The student tends to form an idea from the diagrams usually furnished him that the dorsal ray is a conspicuous structure, which is not the case.

If it is desired to determine the location of the vulva in the female this is accomplished with ease by the same gentle pressure on the cover-glass with the tooth-pick, noting thereby the location of the vulva at or near the posterior third for *A. duodenale* and the location near the equator, but in the anterior half, for *Necator americanus.*

A point about which there is apparently some doubt is as to the appearance of the spicules in *Necator americanus.* The majority of text-books give the idea that there are two spicules, which proceed separately to terminate in barbed terminals.

From a careful examination of numerous specimens I have invariably found the two spicules to fuse at the terminal endings and to possess but a single barb like a fish-hook, as shown in Figure 1a. The spicules of *A.*

uodenale, on the other hand, proceed as separate hair-ke processes.

This observation as to the termination of the spicules ' *N. americanus* has been verified by others to whom I ve demonstrated this point.

Should it not be convenient to examine the specimens hen fresh the following procedure will give results qually satisfactory. Furthermore, after an experience ith lactophenol solution of about two years I can recmmend it for small trematodes as well as nematodes. n fact, it will even clear a large nematode such as *scaris lumbricoides* so that the anatomic structures are harply brought out and with only slight shrinking.

The formula for lactophenol as given in Braun and ühe is:

Lactic acid	1 part
Phenol (cryst.)	1 part
Glycerin	2 parts
Water	1 part

The specimens should be fixed in 2 per cent. formalhyd solution for from two to twelve hours according the size of the worm. It is then placed in lactophenol iluted with an equal quantity of water. Subsequently ie specimen is transferred to full-strength lactophenol.

The hookworm can be kept permanently in a bottle lactophenol and the orientation with the pressure of wooden toothpick carried out as with fresh specimens.

If desired, permanent mounts can be made by ringing ie cover-glass with gold size.

NTESTINAL PARASITES IN THE SOUTH

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With the advent of the Rockefeller Sanitary Commision there has been an awakening in the search for paratic causes of disease, particularly in regard to those rasites which find lodgment in the intestines. Some the results of this work are more or less surprising as ey indicate various parasitic infestations which are nfined to somewhat limited localities, or may be cared by the hosts to various parts of the continent. A erson who is a native of the Southern states, or who has sided in them but a short time, may admit and harbor me organisms and carry these unrecognized into a far untry.

These parasites, few or numerous, may simulate, by eir varying effects on the individual, various abdomil or systemic conditions, and cause considerable anxiy or damage if their presence is not appreciated.

That intestinal parasites are common among certain asses in the North was shown by Rosenberger, who, on camining the stools of 1,280 patients in the Philaelphia General Hospital, found 170 to be harboring rasites. Ten different parasites were encountered, ngle infestations existing in 147 cases.

The therapeutics of intestinal parasites is still quite complete, as is the knowledge of the pathologic effect used by some of them. Some parasites do not yield adily to the present treatments employed, while with hers the adopted medication gives irregular effects or complete returns. It may be safe to assume that no ve animal is of any great benefit to the intestinal tract hen harbored therein, yet there are some which have ot made their pathologic significance manifest.

The appended records represent, as far as available to e, the examinations made in the state laboratories in the Southern states, exclusive of Alabama, Louisiana, South Carolina and Texas. The figures represent the examinations made during 1911 and the first quarter of 1912, with some exceptions. The field directors of the Rockefeller Sanitary Commission, working in the various parts of the states, have made many thousands of microscopic examinations (90,724 in 1911), but since it is not customary for them to report the infestations other than those caused by the hookworm, their results are not herewith included.

To obtain figures which would be as full and representative of state conditions as possible, all the figures available were included. Some state laboratories are employing larger forces to develop as a special feature the parasitic work than are others in which these examinations are but a part of the routine work. Some laboratories have been established for years, while in other states such clinical necessities are but new innovations, and hence are less widely called on by the general practitioners.

TABLE 1.—SUMMARY OF THE INTESTINAL PARASITES REPORTED

Total examinations reported.................	62,786
Total showing hookworm infestation..........	11,147
Percentage of hookworm infestation..........	17.7
Percentage of infestation by other parasites...	6.5

	Number Found.	Ratio to Other Parasites. Per Cent.
Necator americanus	11,147	73.13
Ascaris lumbricoides	2,339	15.34
Hymenolepis nana	1,004	6.59
Trichocephalus dispar	551	3.62
Strongylus intestinalis	119	.79
Oxyuris vermicularis	72	.47
Tænia saginata	10	.06

TABLE 2.—RATIO OF PARASITES FOUND

	Arkansas	Florida	Georgia	Kentucky	Mississippi	No. Carolina	Tennessee	Virginia
Necator americanus.	94.5	41.6	94.7	40.9	90.9	82.9	47.1	65.7
Ascaris lumbricoides.	2.7	7.3	1.9	42.8	1.3	17.9	34.4	26.3
Hymenolepis nana..	1.1	39.6	2.8	.9	3.7	5.6	5.0	3.1
Trichocephalus dispar	.3	10.6	.1	15.4	..	3.1	8.6	3.2
Strongylus intestinalis	.7	.8	..	..	15.0	1.1	.2	..
Oxyuris vermicularis.	.3	1.0	.2	..	.4	..	2.6	.9
Tænia saginata.....	..	..	..	..	.4	.03	1.1	..

To publish the number of examinations made by the various laboratories, or to show the exact number of parasites discovered, would be an obvious injustice to some laboratories as the figures would be misleading in the intent and purposes for which the laboratories are founded. Hence for purposes of comparison, only ratios are presented. Apparently no attempt is made by the laboratories to distinguish the ankylostoma. If any have been seen they have been classified with the necator.

Pinworms (oxyuris) were formerly accepted as being extremely common, and dwarf tapeworms (hymenolepis) were regarded as rare. These theories are not borne out by the examinations.

There is a wide variability in the prevalence of the parasites, other than the hookworm, in the various states. Kentucky reports that 15 per cent. of all parasites found are trichocephalus, and Georgia, 10 per cent., yet they are uncommon or not found in other laboratories. One field man found them quite abundant in one locality in

Southern Mississippi. Ascaris is frequently seen in North Carolina, Virginia and Kentucky, but to the southwest of these states it is only occasionally encountered. Strongyloids are common in Mississippi, but are rare or not seen in other laboratories.

The flagellate infusoria are undoubtedly occasionally seen, but would be more frequently noticed if the higher-power objectives were employed. For practical work only the low-power lenses are used; hence the smaller organisms, including amebas, are frequently overlooked. The infusoria are not usually reported. In the Mississippi laboratory, the paramecium *Balantidium coli* was found four times. The flagellates *Lamblia intestinalis* and *Cercomonas hominis* were found once and twice, respectively.

Trematodes are undoubtedly rare in the Southern states, not being reported as seen and recognized in any of the examinations. In the Mississippi laboratories, a fluke egg was seen once, but was not found in this specimen again. This same patient, a Syrian woman, was infested with a parasite whose eggs could not be identified, but bore a close resemblance to the genus *Hymenolepis*. She was given treatment and all adult parasites lost. This same laboratory received two small flat worms which were lost in the mail before being identified.

Myiasis is perhaps quite common, but owing to the ease of extracorporeal fly contamination, there is a hesitancy about reporting the cases. Among many supposed cases received at the Mississippi laboratory only five or six are accepted as being intestinal myiasis. Two were by larvæ of the sarcophagæ, two by muscæ, and the others not identified. Five cases of myiasis are reported from Kentucky. A gastropod, obtained from the intestines of a young man, can scarcely be accepted as a parasite.

The finding of amebas is not included in the reports. In the Mississippi laboratory eleven examinations were made for the diagnosis of suspected amebiasis; the *Entamœba histolytica* was found twice. In both instances the stool was green, liquid and contained mucus.

Multiple infestations are not usually noted and reported because the examination of a specimen is discontinued after the first few ova are encountered. Prolonging the search would markedly increase the number of multiple infestations recorded.

THYROID EXTRACT IN NEPHRITIS

A PRELIMINARY STATEMENT OF A NEW AND EFFECTIVE METHOD OF TREATMENT

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GALESBURG, ILL.

CASE 1.—In March, 1909, J. E. P., a man aged 48, 6 feet in height, well proportioned and weighing 180 pounds, consulted me because of a general depression and inability to work, either mentally or physically. He had been in failing health for several years. He complained of headache, shortness of breath and at times difficult vision. There had been a progressive loss of weight for five years; previous to the beginning of this illness, it averaged from 200 to 220 pounds. The patient was conscious of an irregular action of the heart, which, he said, had developed within the past six months; it was this irregularity, together with shortness of breath on even moderate exertion, for which he sought relief. There was some irritation of the bladder, especially at night, but no prostatic trouble. His general appearance gave one the impression of a once active, energetic business man who was failing physically and who had lost courage.

External examination disclosed a cystic goiter. The nec measured 19½ inches in circumference. This had been preser for sixteen years. The heart-apex was diffused and outside the nipple-line in the sixth interspace. Blood-pressure was 19 mm. Hg. In the fingers of the extended hand there was a sligl tremor. There were no other symptoms indicative of hype thyroidism. The physical examination was otherwise negativ

The urine contained 4 per cent. albumin and was loaded wit granular and hyaline casts. The chlorids were diminished an the reaction for indican was positive.

This case represents a type seen frequently by ever practitioner in the course of his work, and medicine ha heretofore, had little to offer in the way of a direct cu since Richard Bright of England, in 1827, first publishe his paper which described the disease.

As this article is but a preliminary statement and th subject is so vast, I purpose to report here but two case leaving for the future a more extended report whic will contain all that I have learned regarding the trea ment of this disease so far. Before doing this, I a sure the following will be granted: Here was a ma in the prime of life and of large business interests, an about all we had to offer him was a diagnosis followe by some advice to limit his business activities, to go t a mild climate for the winter and to follow a prescribe suitable diet. Anything further in the way of trea ment must be done symptomatically. I told this ma therefore, that as long as he attended strictly to th business of conserving his health in the future, he woul prolong his life with a reasonable measure of comfo just to the degree that he did so. But we all know tha such advice is not scientific. It is merely a senten to these individuals to go out into life and grasp at th straws of hope that finally they may find something i the regular or irregular practice of medicine which wi stave off the evil day of total incapacity with its measur less depths of mental and physical suffering.

All that I did at first for this patient in the way c treatment was to consider his high blood-pressure. Fo this I prescribed small doses of potassium iodid an 1/100 grain of nitroglycerin every two hours. I reall had nothing, as I have said, to offer him for hi nephritis.

In thinking of this patient and his physical conditio after he had gone home, and in casting about for possible form of treatment that had more to offer tha what I had already done, I thought of a possible relationship between the kidney findings and the greatly enlarge cystic thyroid. It was easy for me to think of thi possible relationship because of my previous work i reference to the internal secretion of the hypertrophic prostate gland as a cause of certain distressing sympton in middle-aged and old men.[1] It occurred to me tha although hyperthyroidism had a very extensive literatur the subject of hypothyroidism lay in an almost unknow field in the realm of pathologic physiology. I reasone that this man's thyroid gland, greatly damaged as it wa was not giving him the required amount of its secretio I believe, by the way, that there is a direct relationshi embryologically, between the thyroid gland, the adrenal the kidneys and the sexual system; just what I believ this relationship to be, however, is not the purpose o this article to discuss.

On the basis, then, of the greatly enlarged thyroi gland and a coincident nephritis, I prescribed 20 grain of thyroid extract a day, in four doses, for a week, an

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[1] Percy, J. F.: Psychic Aberrations Associated with the Di eased Prostate Gland, Illinois Med. Jour., November, 1908; abstr. i The Journal A. M. A., Jan. 9, 1909, p. 166; Phrenitis Prostatic ibid., July 2, 1910, p. 19; editorial, ibid., Dec. 12, 1908, p. 2064.

0 grains in six doses for another three weeks, when the atient was to report again. When he returned at the ated time, I found the whole symptom-complex changed or the better. The general appearance of the man was nmeasurably improved. He had lost the appearance f being sick. But what was of greater importance, a areful examination of the urine, chemically and micro-opically, showed neither albumin nor casts. (I have arned that it requires from four to six weeks and from 0 to 30 grains of thyroid extract a day to cause a total learing up of the urine in the average nephritic.) At his second visit, in addition to the disappearance of the athologic condition in the urine, the blood-pressure as 170 mm. Hg. The heart apex-beat was also better efined and was just inside the nipple-line and well ithin the fifth interspace; it was also regular in action, ith less impulse over the precordia and a better radial ulse. Altogether, the heart was in much better con-ition than at the patient's first visit. The neck measured 8½ inches.

The treatment was continued and the patient directed o report again in two months. This he did in July, 909, and my notes record the following:

> Urine normal. Heart much better. Blood-pressure 160 mm. lg. Goiter measures 17½ inches. Improved general health.

I had reports of this case by letter occasionally for nother six months, when the patient visited me for nother examination in January, 1910. My notes con-ain the following record made at this visit:

> Urine normal in every way. General physical condition good. o irregularity of heart, and stronger. Blood-pressure 150 m. Hg. Neck 15¾ inches.

I did not see the patient again during 1910 or 1911, ut heard from him frequently by letter. I asked him o see me again Feb. 19, 1912, and examination showed hat he had held the improvement recorded at his last isit. At this visit I advised that he discontinue the hyroid treatment. For the purposes of this report, I xamined him again June 25, 1912, and found that his rine was normal and the blood-pressure was 145 mm. Ig; he had resumed full charge of his affairs and hope ad once more resumed its beneficent sway. A letter, lated Oct. 15, 1912, reports that he has remained well, hat he is in better general health than for many years, nd that his weight has increased to 220 pounds. In ddition, a sample of urine from a twenty-four-hour pecimen was found to be normal.

It is true that one swallow does not make a summer, ut I now have the records of thirty-five patients taken s they come, since this first case; all have responded in he same remarkable way and none has died.

CASE 2.—The second case which I wish to report is that of Irs. J. C. D., aged 37, American, housewife, weight 90 pounds, nother of three children; labors had been normal. The patient, vho consulted me in May, 1912, had begun to fail seven months reviously. She complained of stomach distress half an hour fter eating, nausea and at times vomiting with eructation of as. In addition, she had frequent headaches, with the pain hiefly in the top of the head. Bladder irritation necessitated eaving her bed from three to five times each night. Menstrua-ion was regular, with menorrhagia, which averaged twenty apkins a day. The flow lasted only two or three days. The atient was constipated and had lost nearly 30 pounds in veight during the last three years. She was very nervous.

Physical examination revealed a tall, thin woman, evidently hysically and mentally depressed. Temperature at 3 p. m. vas 99.6 F.; hemoglobin, 68; blood-pressure, 180 mm. Hg; lungs negative. The heart showed dulness to the nipple-line. There were presystolic and systolic murmurs at the apex, with accentuated pulmonic and second aortic sounds; the apex-beat was strong, and the radial pulse weak. Peristalsis of bowels was marked, especially over the left side of the abdomen; there was chronic appendicitis. The great curve of the stomach was on a level with the umbilicus. The retroperitoneal glands were enlarged. The uterus was low in the pelvis, subinvoluted, retroverted and painful. There was double laceration of the cervix, which was greatly enlarged and eroded. The perineum was badly torn. The right kidney was loose. The total quantity of the urine in twenty-four hours was 32 ounces; specific gravity, 1.008; urea, 4 grains; total solids, 288 grains, albumin, 0.125 per cent.; a few granular casts were present. The thyroid gland was not palpable.

This woman was put in the hospital for two weeks on a modified rest-cure plan of treatment. She showed great general improvement, and the urinary findings became normal with the exception of the total solids; these did not rise above 700 grains in the twenty-four hours. At the end of the two weeks the appendix was removed, retroversion was corrected after the method of Andrews and the gall-bladder was drained for cholecystitis. The gall-bladder proved to be unhealthy after the abdomen was opened, and was drained. The hypertrophied and lacerated cervix and perineum were repaired. The patient was on the table one hour, and was returned to bed in good condition. Uneventful convalescence followed except that the patient persistently complained of pain in the top of the head. This was attributed to her neurasthenia. She left the hospital in three weeks, apparently improved, except for the headache. Urine contained less than 0.125 per cent. albumin, and a few hyaline casts. Blood-pressure was 180 mm. Hg. I advised constant use of nitroglycerin, 1/100 grain every two hours. I did not see this patient again until September 5 of this year at her home in Abingdon, Ill., with her physician, Dr. W. S. Bellwood. The patient was delirious at times. Her chief complaint was of terrific headaches. Her general appearance was bad. Blood-pressure was at this visit as follows: systolic, 210 mm.; diastolic, 165 mm. The patient was sent to the hospital. A twenty-four-hour specimen of urine showed the following: acid reaction, specific gravity, 1.018; albumin by quantitative test, 6 per cent., many granular and waxy casts, and also pus cells; chlorids were deficient (Häser); indican negative; total solids, 288 grains.

The woman was put on six 5-grain tablets of thyroid extract in each twenty-four hours. In three days she was in partial coma with urinary incontinence and involuntary bowel movements. There was moderate edema of the feet and legs, with slight puffiness of the face and hands. Whenever there was any improvement from the condition of coma she would complain bitterly of the headache. Her friends were gathered at the hospital expecting an early death. Thyroid extract, increased to 40 grains in the twenty-four hours, was administered in solution by catheter through the nose. The semicoma persisted for a week, when she rapidly passed into a condition of wild, almost maniacal delirium, requiring the constant use of the restraining sheet for two weeks. No urine could be obtained during this time except by catheter.

September 17. A single specimen of urine was obtained. This contained 5 per cent. of albumin and a much smaller number of granular casts than the previous specimen.

September 25: Albumin was 4 per cent. with no granular casts.

September 28: Albumin was 3 per cent. and no casts. The general condition was improved and the restraining sheet was required but occasionally.

October 7: Albumin was 2 per cent., and an occasional granular cast after persistent search.

October 11: Albumin was 2.25 per cent.; no casts.

October 17: Albumin was 1.5 per cent.; no casts.

October 23: Albumin was 0.5 per cent.; no casts.

October 25: The total quantity for twenty-four hours was 58 ounces; total solids, 701 grains; color, straw; transparency, turbid; reaction, acid; specific gravity, 1.010; albumin, quantitative test 0.5 per cent.; sugar, none; urea, 4 grains; microscope, occasional pus cell; chlorids (Häser) normal; indican, negative. Thyroid extract was continued.

There has never been an elevation of temperature. As the albumin and casts disappeared from the urine, the patient's general condition improved, both mentally and physically, and the restraining sheet was no longer necessary. At present (Oct. 25, 1912), the patient gives every evidence of a rapid convalescence. Her blood-pressure, it should be added, came down in unison with the improvement in the urinary findings. The last recent record shows 130 mm. Hg. It should have been stated before this that this patient had an advanced albuminuric retinitis, which had markedly reduced her field of vision. This condition was also improved immeasurably, as shown by ability to count the fingers correctly over a much larger ocular field. The headaches are also no longer complained of. The patient is now out of bed and will soon leave the hospital.

Eye findings by Dr. R. C. Matheny, Galesburg, Ill.: Oct. 25, 1912: "Ophthalmoscope shows marked evidence of albuminuric retinitis in both eyes. In the left eye the destructive changes are confined chiefly to the central part of the fundus but show very marked changes in the retina with great destruction of the retinal tissue. The changes are not confined to the macular region but extend for some distance in all directions. In the right eye the changes are very much more extensive and not only is the retina more or less destroyed on the posterior wall of the fundus, but changes have taken place in retina far to the temporal side of the disk and extending in all directions almost to the equator. Her field of vision is not very much limited for white light. I was unable to get it for colors. There was no evidence of present or recent hemorrhage in either eye."

I am sure that this woman would, ordinarily, be regarded as suffering from a contracted or sclerosed kidney. There must be in this case actual destruction of the renal tissue; but that the thyroid gland feeding is responsible for the improved urinary findings and the general physical improvement in the two cases here reported, I am convinced admits of no contrary argument. I regret that it seems necessary in this preliminary paper to state my case in favor of the undoubted value of thyroid feeding in nephritis in this cursory way.

I should add, perhaps, in passing that when high blood-pressure is due to a pathologic hypertonus, in patients under 60 years of age, I add to the thyroid treatment 1/100 grain of nitroglycerin every two hours. In those past 60 years of age, I add to the thyroid and nitroglycerin about 40 grains of potassium iodid in the twenty-four hours. In using this treatment I have as a rule made no change in the ordinary diet of these patients.

After my faith in this treatment of nephritis had reached the stage of conviction, it dawned on me that, with the almost universal use of the thyroid gland in so many widely divergent conditions, some investigator had also certainly made use of it in Bright's disease and learned of its value. With this in mind, I asked the Surgeon-General's office at Washington to search the literature, with the result that only one contribution was found that had any bearing on the use of the thyroid gland in the conditions under discussion.

In the *Archiv für experimentelle Pathologie und Pharmacologie* (1897, xxxix, 273), I found a most valuable and interesting article by G. Diaballa and Von Illyés entitled, "Researches on Metabolism in Bright's Disease While Feeding Thyroid Preparations." This experimental work, done fifteen years ago, has evidently been buried in this special journal all these years. The purpose of the authors seems to have been simply to demonstrate that any individual suffering from Bright's disease — and many other diseases — would, if given the extract of the thyroid gland, show an increased diuresis and an increased excretion of urea. Their experiments showed that this was true also in the healthy adult, but it was not true when this substance was fed to the young. Nowhere in the published record of their work do these investigators seem to have conceived the idea that the administration of the thyroid gland would favorably influence the protean progress of the symptom-complex which has been designated so long as Bright's disease.

In a recent work on the "Theory and Practice of Thyroid Therapy" by Waller of England, no mention is made of the value of this treatment, either in Bright's disease or in the so-called toxemia of pregnancy. Shortly after the use of the thyroid extract in my first case of nephritis, I began using it in the not infrequent cases of toxemia of pregnancy which I saw in consultation. It has been observed for many years that the pregnant woman who did not develop an enlarged thyroid during the period of gestation was in imminent danger of eclampsia during the progress of her labor. Here too I was gratified to find that the active administration of the thyroid gland (30 to 40 grains a day) seemed to exert the same favorable influence that I had already observed in other forms of nephritis. I have had no experience with this treatment in the nephritis of children.

At present I am carrying on a series of observations as to the permeability of the kidney as shown by the phenolsulphonephthalein test in the various forms of Bright's disease as they are classified by the pathologist and clinician to-day, and the influence of thyroid administration in thus increasing the working capacity of the damaged kidney. These experiments are intensely interesting, and I trust, when published, will be of permanent value.

I am quite certain that, speaking generally, we can now add nephritis to the large list of cases brought to the internist suffering from hypothyroidism. This suggests another inquiry: Is nephritis in its various forms merely another phase of myxedema? In this large class (hypothyroidism) other factors will be found, which I hope, in a future paper, to show can also be greatly improved or cured when the combined physiology of the internal secretions is interpreted in the light of the normal and abnormal work of the glands which have an internal secretion other than that of the thyroid gland.

I am convinced that the improvement frequently observed in the downward progress of a case of nephritis as ordinarily treated is not due to the various methods used. The improvement can be best explained on the assumption that Nature unaided, by some means yet unknown, has changed an undersecretion from the thyroid gland to a normal or overnormal production from that gland, and to this is due the improvement sometimes observed under widely different methods of treatment. I have selected from my records the two cases reported above for the reason that the first one represents a good average as they are usually seen by the physician. The second belongs to the class of patients who have died heretofore regardless of the treatment employed.

In closing permit me to repeat that if the extract of the thyroid gland as found in the shops is given in full doses to the average nephritic the urine will increase in quantity. The urinary solids will gradually return to normal, the albumin and casts will disappear in from four to six weeks, the blood-pressure will be reduced, and the local and general symptoms, grouped under the terrible name of Bright's disease, will vanish.

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MUSCLE GROUP ISOLATION IN THE TREATMENT OF SPASTICITIES AND ATHETOSES

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“Muscle group isolation” is a term applied to a iethod devised by Schwab and Allison[1] for the treatient of athetoses and spasticities. “This implies the olation of the muscle or group of muscles which are at ult in the production of contracture, deformity or thetosis.” The isolation is accomplished by the injecon of 80 per cent. alcohol into the nerve supplying the iuscle or group of muscles. A paralysis of the physiogically stronger group of muscles results and at this oint physiologic exercises and educational methods are iade possible. Schwab and Allison have used this iethod in the treatment of athetoses, spasticities and eformities which follow anterior poliomyelitis and tic. heir contentions are that there is, first, a paralysis of ie overacting muscle or group of muscles and a disppearance of spasticity and athetosis and, second, a radual return of function in the paralyzed muscles, ithout a recurrence of spasticity or athetosis. If both f these contentions could be sustained by further work, iis procedure would assume great importance. There re, however, no definite data relative to the actual nount and strength of alcohol necessary to be injected ito the nerve to induce temporary paralysis only. The isting paralysis and trophic disturbances resulting om treatment of sciatica by injection of the sciatic erve with alcohol, and the knowledge of the cicatricial rmations resulting from alcoholizations of nerves, nphasize the importance of determining whether inction reappears or not.

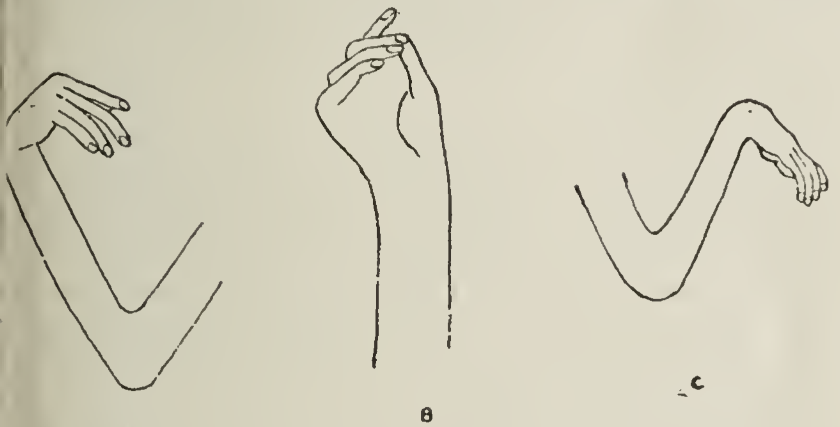

Fig. 1.—Deformity in Case 1, sketched from a photograph. A, fore operation; B, immediately after operation; C, eleven months ter.

The following six cases are reported to contribute to ie data relative to the permanency of the paralysis and ie return of spasticities following the employment of iis procedure.

Case 1.—H. J., a woman, aged 17, with spastic quadriplegia d the mentality of a child of 2. March 25, 1910: “The tient is a microcephalic idiot and has nystagmus and ternal strabismus of left eye. She shows marked spasticity " all extremities; active movements are possible only in the ft upper extremity and are here interfered with by athetosis. here is a marked deformity of the left wrist evidenced by a arked flexor contracture; the legs are flexed and adducted. Passive movements are resisted throughout; the deep reflexes are all exaggerated; there is a double Babinski.”

March 26, 1910, the ulnar and median nerves of the left side were injected with 80 per cent. alcohol. There was an immediate disappearance of spasticity and athetosis. The contracture disappeared and the wrist assumed a normal position. April 7, 1910: There was complete anesthesia to touch and pain over the area supplied by the ulnar and median nerves. April 21, 1910: There was a slight return of sensation to pain on the outer surface of the thumb. May 13, 1910: Both sides of the thumb, the little finger and the index-finger showed diminution of anesthesia. Sept. 26, 1910: There was seen a slight return of spasticity and deformity but no return of motor function. There was marked atrophy and reaction of degeneration in the muscles supplied by the ulnar and median nerves (Fig. 1).

Case 2.—H. L. B., a boy, aged 11, with spastic paraplegia and athetosis of the upper extremities, and the mentality of a child of 3. He could not talk. April 2, 1910: “The patient is a microcephalic idiot and possesses normal active movements in the upper extremity except for athetosis. Passive movements meet with considerable resistance. The lower extremities show a crossed-leg deformity. The left leg is extended; right is flexed to an angle of 100 degrees. The patient can flex and extend both legs but abduction is impossible. The deep reflexes are exaggerated and there is a double Babinski.”

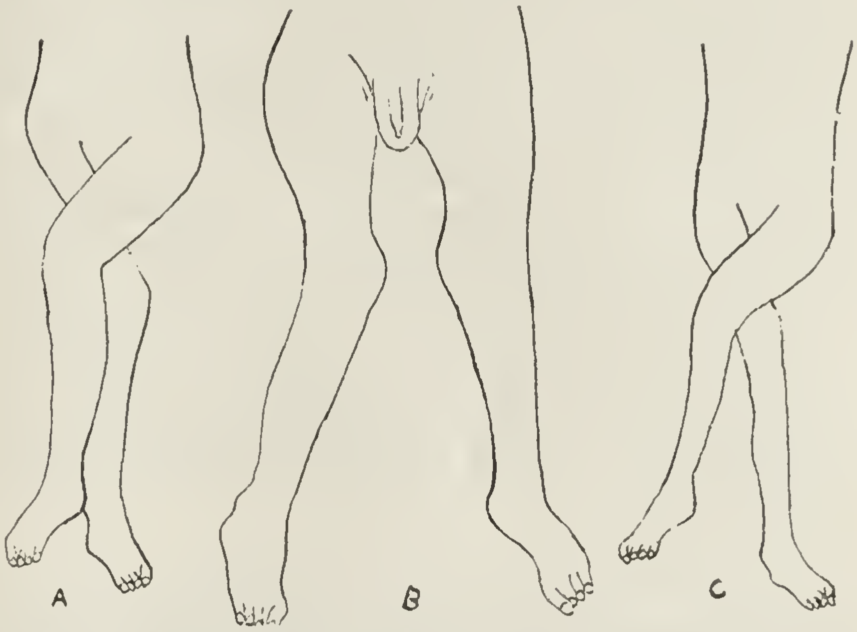

Fig. 2.—Case 2. A, before operation; B, immediately after operation; C, ten months later.

April 3, 1910: Both adductor nerves were injected with 90 per cent. alcohol. There was an immediate disappearance of the adductor spasm; both legs were now in position of slight abduction. Extreme passive abduction was possible. May 5, 1910: The condition was still the same. July 3, 1910: There was a slight return of spasticity. Feb. 1, 1911: The position of the legs had gradually reverted to the position existing prior to operation. Owing to the patient's poor mentality it was impossible to teach him to walk (Fig. 2).

Case 3.—F. M., a man, aged 20, with spastic paraplegia. April 2, 1910: “There is present a spastic paraplegia and an adductor spasm more marked on the right side. Forcible abduction separates the knees but 3 inches. There is a double pes planus. Speech is limited in extent and is somewhat paretic. Mentality is equivalent to that of a child of 3. The upper extremities are slightly spastic.”

April 13, 1910: The left obturator nerve was injected with 80 per cent. alcohol. The right obturator nerve was severed. There was absolutely no change noted in the spasticity or contracture of either side.

Case 4.—M. M. D., a man, aged 24, with spastic quadriplegia. May 28, 1910: “The patient has a kyphoscoliosis to the left with extreme deformity of the spine. There is a cross-legged deformity of the extremities. The legs are flexed on the thighs; the right to an angle of 90 degrees, the left, 60 degrees. The forearms are flexed on the arms, the wrists on the forearms. Passive movements are markedly resisted and athetoid movements make their appearance, especially on the left side."

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[1] Schwab, S. I., and Allison, N.: The Surgical Treatment of thetosis and Spasticities by Muscle Group Isolation, Jour. Nerv. d Ment. Dis., 1909, xxxvi, 449.

March 29, 1910: Both obturators and the ulnar and median nerves of both sides were injected with 80 per cent. alcohol. The left leg showed disappearance of spasticity. The right was unaffected. The deformity of the left wrist had partially disappeared. Athetosis was not present. May 6, 1910: The patient developed an acute pulmonary tuberculosis and died, having shown no change since the operation.

Case 5.—M. C., an idiot girl, aged 17, with spastic quadriplegia. March 25, 1910: "Both forearms are flexed on the arms, at an angle of 80 degrees. The wrists are flexed on the forearms; the fingers are flexed and the thumbs are adducted. The deep reflexes are exaggerated. She has but slight active movements in any of the extremities. The contractures of the upper extremities are marked." March 26, 1910: The median and ulnar nerve of right side and the median nerve of the left side were injected with 80 per cent. alcohol. There was no disappearance of the deformities. It was noticed, however, that on the right side resistance to passive pronation was less marked than on the left side. Aug. 1, 1910: There was noticed an atrophy and reaction of degeneration of the flexor group of muscles of the right side.

Case 6.—M. C., a girl, aged 18, with spastic quadriplegia. March 4, 1910: "The patient is a microcephalic idiot. The left upper extremity possesses normal active movements. The right forearm is flexed on the arm and the wrist on the forearm. The fingers are flexed and the wrist is supinated. The lower extremities are markedly flexed and adducted. The appearance is difficult to describe and at a distance seems to be a conglomeration of legs, knees and feet."

March 10, 1910: Operated on by Dr. D'Orsay Hecht. Both obturators and the median and ulnar nerves of the right side were injected with alcohol. The right upper extremity showed slight relaxation but no disappearance of deformity. There was no change in the position of legs. There was an anesthesia over the area supplied by the ulnar and median nerves. May 1, 1910: The anesthesia was disappearing and was limited to the little finger and ring-finger. Feb. 1, 1911: The same condition still existed. There was present, however, the slightest amount of active movements and reaction of degeneration is present.

The results may be summed up as follows:

In Case 1 the athetosis and spasticities of the forearms and wrists disappeared immediately after the injection. Eleven months following the operation there was a return of the spasticity with no return of motor function. There was also present an atrophy and reaction of degeneration in the muscles supplied by the ulnar and median nerves. In Case 2 the cross-legged deformity immediately disappeared and ten months after operation was again present. In Case 3 there was no change in the spasticity of the adductors, despite the fact that one of the obturator nerves was severed. In Case 4 there was a disappearance of spasticity in the left adductors and partial disappearance of the deformity of the left wrist. Cases 5 and 6 showed little change, but Case 6 showed reaction of degeneration and atrophy in the right flexors five months after operation. In a case in which the ulnar and median nerves of a patient of good mentality were treated by an injection of 80 per cent. alcohol for a condition foreign to the subject, there was complete loss of function with marked atrophy in the muscles supplied by these nerves and reaction of degeneration one year after operation.

From these results we would offer the following deductions:

It is extremely doubtful if we can be assured of return of motor function in every case subjected to this treatment, and it is preferable to suffer with athetosis and possess function than to be relieved of the athetosis and have function disappear. There is no certainty that the spasticity will not recur after some time, and from ou cases it would seem that the spasticity will probably reappear. In cases in which shortening of the contracted muscles has occurred the procedure is valueless unless supplemented by other surgical measures, as tenotomy, etc.

In our opinion there is but one indication for the procedure in the treatment of spasticities, namely, a cross-legged deformity due to spasticity of the adductor groups of muscles occurring in a child, who, on account of the deformity, is unable to learn to walk. It may be possible in such instances to educate the child to walk during the time that the deformity remains corrected and, in event of the return of the spasticity, the ability to walk, although hampered by the resulting deformity may remain.

We would particularly warn against the attack by alcohol of any nerve possessing important motor functions, as the ulnar, median, etc.

SUGGESTIONS FOR OPERATION AND AFTER TREATMENT OF EMPYEMA

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The treatment of pus in the pleural cavity differs from the treatment of pus elsewhere on account of certain anatomic, physiologic and pathologic factors. The etiology of the empyema is important as having a definite bearing on the pathologic picture and hence on the treatment.

A majority of the cases seen in infants and children are pneumococcal in origin. In general, it may be said that in such cases fluid does not tend to accumulate with anything like the persistency that is seen in the streptococcal cases, and that there is not the permanency o pathologic changes. Hence, generally speaking, the treatment of the cases need not be as radical as in olde subjects in whom there are more often other etiologi factors. In the latter classes, in either pneumococca or streptococcal cases, but especially in the streptococcal which predominate in the older subjects, there is mor tendency to the accumulation of fluid and a definit tendency to greater pathologic changes.

The staphylococcal, putrefactive, influenzal infections though showing minor differences, may, as far as treatment is concerned, be classed with streptococcal infections. Tuberculous infections are treated differentl and on an entirely different basis.

VARIOUS FACTORS

Anatomic Factors.—Collections of pus in the pleura cavity have for one boundary a non-collapsible wall. Th other boundaries usually consist at first of slightl inflamed pleura capable of being expanded by underlying lung and of filling the dead space after evacuatio of the pus. Hence, were collections of pus not associated with greater changes in this latter boundary, closure and cure would be rapid and inevitable after evacuation. In the absence of the power of stretching of th pleura a thick-walled box-like cavity exists and ther is, as a result, a persistent sinus until the dead spac is filled, which may never be.

Physiologic Factors.—The elasticity of the lung an the rigidity of the thoracic wall operate to form a negative pressure in the pleural cavity. After a pneumothorax is formed (as in the operation for the evacuatio of the pus) the lung pulls away from the thoracic wall and tends to form a larger cavity than existed before the operation. With this there is associated a certain definite amount of shock, sometimes so severe as to be alarming. The consequences of the artificial pneumothorax may be overcome by the application of negative pressure to the pleural cavity or of positive pressure to the lung.

Pathologic Factors.—On the pathologic changes in the pleural cavity lies the greatest weight in determining the differing treatment of pus in the pleural cavity and elsewhere. Inflammation of the pleura is primary, not secondary, to the accumulation of pus. Pleural inflammation acts similarly to inflammation elsewhere, except in the event of non-consolidated lungs, when there is the added insult of rhythmic motion. The result is merely what should be expected. Grossly, there is thickening of the pleura because of the organization of the fibrinous deposits; there is union, in various areas, of opposing surfaces of parietal and visceral pleura due to inflammatory reaction and, associated with this, an outpouring of seropurulent fluid. The result is an irregular cavity bounded by thickened pleura, intersected by fibrous bands and areas of pleural adhesion and containing pus. The final result may be a pleura several centimeters in thickness, non-expansile, possibly calcified, binding the lung in a leathery jacket. The cavity may be honeycombed with partitions of varying density and the contents may be thickened inspissated pus or purulent fluid containing floating masses of fibrin which, as in one case I had several years ago, may be as large as the palm of one's hand and about 5 cm. thick.

All these changes are present to but a slight degree at first. Later the cavity more nearly resembles a rigid-walled box with little or no power to collapse. In this event dead spaces exist which are filled with difficulty and until they are filled a persistently discharging sinus exists. In addition, the presence of leathery masses of fibrin which frequently act as foreign bodies diminishes the tendency for the sinus to heal. These masses are not present at first; neither is the honeycombed condition of the pleural cavity. Later they may be and very frequently are present.

To attempt drainage of a cavity by the mere insertion of a tube, with such a condition present, is analogous to attempting the evacuation of a multilocular cyst by the same method. Lastly, it must be kept in mind that a pleura once thickened is indelibly stamped; adhesions once formed are long lasting, and lung tissue bound in by heavy investments, however normal it may be in itself, is rendered physiologically "dead" by its non-expansive covering. Likewise it must be remembered that none of these changes is to any extent marked in the early periods of the inflammation.

CLINICAL CONSIDERATIONS

Empyema, if we may judge from statistics, is a very dangerous disease, perhaps 25 per cent. of all cases ending in death if untreated. Complications, such as pyemia, general infection, acute inflammation of any of the serous cavities, cerebral abscess, internal perforation and osteomyelitis, are not infrequent. External perforation or absorption may terminate a case favorably. Before the appearance of either one of these terminations, however, complications may set in. The site of spontaneous perforation may not be dependent enough for clean drainage. Meanwhile, lasting changes have occurred in the cavity, whatever the termination; and should an operation be called for at a late date the condition of the patient may be alarming to a degree.

Finally, when one realizes that added to these dangers are the slower but none the less dangerous sequelæ associated with persistently discharging sinuses so frequently seen in cases which have been allowed to pursue their own course until pathologically the cavities are incapable of closing down on the dead space, such as anemia, amyloid degeneration of various organs, nephritis, hepatitis, the disagreeable ever-present discharging wound or the results of the continuous thickening of the structures within the cavity leading to a drawing in of the chest wall with marked skeletal deformities, one is then inclined toward an operation which will either prevent entirely the appearance of these symptoms and changes or else treat most radically the conditions when once they have appeared.

OPERATIVE PROCEDURES

It has been seen that pathologic changes are slight in infants. Hence, as a rule, the accumulation may be treated as one neither honeycombed nor surrounded by rigid walls. A rapid thoracostomy, under chloroform or a mixed anesthetic, with the insertion of the negative pressure tube, preceded if the condition warrants by a slow aspiration, is all that usually is necessary. In adults or children in whom the reaccumulation of fluid is more frequent and the pathologic changes exist in their most marked form, it is necessary to explore the pleural cavity for several reasons. For this a simple positive-pressure apparatus which may be connected to any air-tight face-mask, as, for instance, on the Gatch gas-oxygen apparatus, is essential, and the gas-oxygen form of anesthesia is the safest and most reliable anesthetic.

Position is of great importance. With one lung compressed by a great effusion and the other hampered by the weight of the patient lying on his "good" side, the chances of enough oxygen being distributed to the blood are slim. I have seen several patients show alarming cyanosis on being rolled onto their normal side and as quickly clear up on changing the position. One patient died immediately after being subjected to this unnatural procedure. The best is afforded by the patient lying partially on the stomach but inclined toward the affected side. Thus easy access is given to the postaxillary line of the affected side.

If the condition of the patient is alarming or dangerous a tentative aspiration should be done under local anesthesia, the pus being slowly withdrawn with a negative-pressure aspirating syringe and bottle and the flow being checked when respiratory distress becomes evident or when the blood-pressure falls more than a moderate amount. If the accumulation is carefully withdrawn without shock, the patient will be in a far better condition to stand the shock of the greater operation a few days later. Occasionally aspiration will cure. But more frequently than not it will merely improve matters temporarily; and one must always take into account the indelible effects of waiting, where cure is merely a chance and the probabilities are that operation will become necessary under the added difficulties of diminished resistance and greater pathologic changes.

Most often aspiration except for diagnosis is not necessary as a preliminary procedure. Under gas-oxygen anesthesia a subperiosteal resection of 2 or 3 inches of rib is performed (seventh rib in the post-axillary line) and a thick aspirator connected with a negative-pressure bottle is gently forced through the pleuroperiosteal layer.

Pus is slowly evacuated with the same care as in preliminary aspirations on very ill patients. When the cavity is partially emptied positive pressure is employed in the lung and after all of the pus that can be evacuated in this way has been removed the aspirator is withdrawn. Positive pressure is still employed in the lung and the opening in the pleuroperiosteal layer is enlarged manually so as to admit two fingers. These are carefully inserted and swept well around the borders of the cavity, if possible, care being taken not to break through any of its boundaries. By this important maneuver partitions and loculi are broken, masses of adherent fibrin are loosened, and bands and adhesions are gently separated. The honeycombed cavity is thereby converted into one single cavity capable of free drainage. When the fingers are removed the results of manipulation are seen. Through the incision freed pus and loosened débris of fibrin flows. In case the lung is incapable of expansion the introduction of a rubber tube, well perforated and connected with the negative-pressure bottle, will remove practically all the débris of pus and fibrin which may not be forced out. Irrigation is to be condemned as a dangerous and unnecessary procedure, although advocated by a few writers. Sudden deaths have occurred from irrigation in not a few cases.

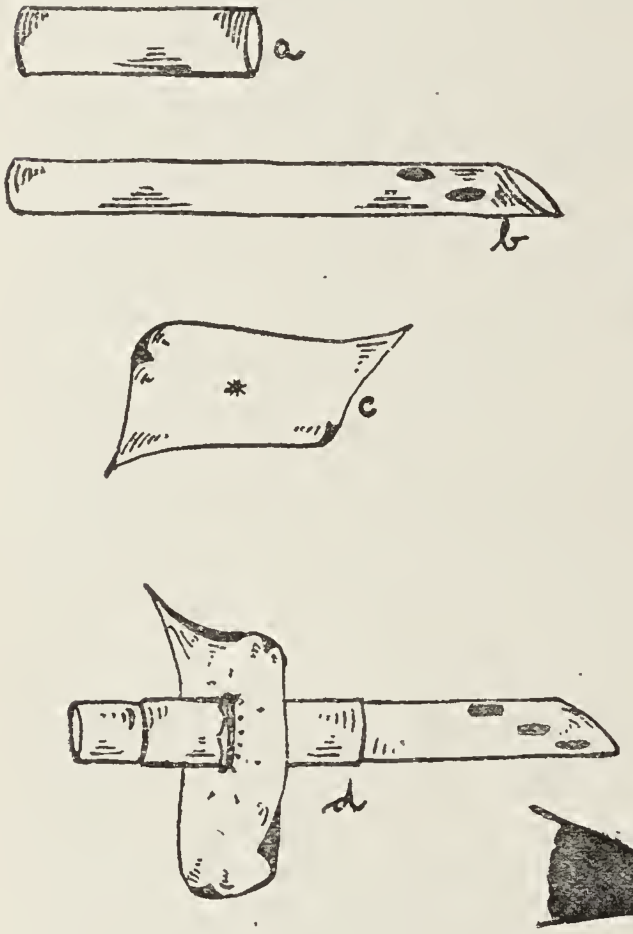

Figure 1.

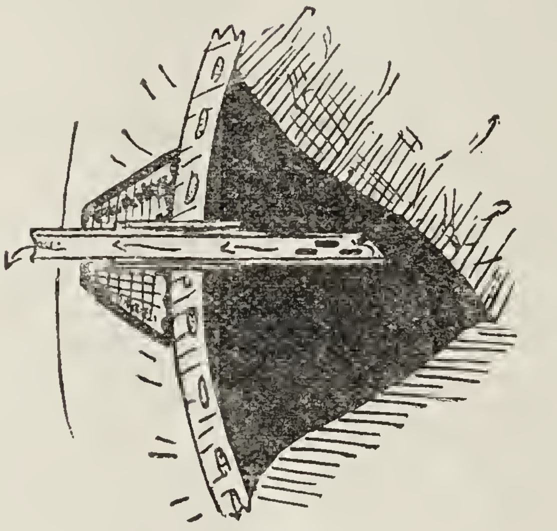

Figure 2.

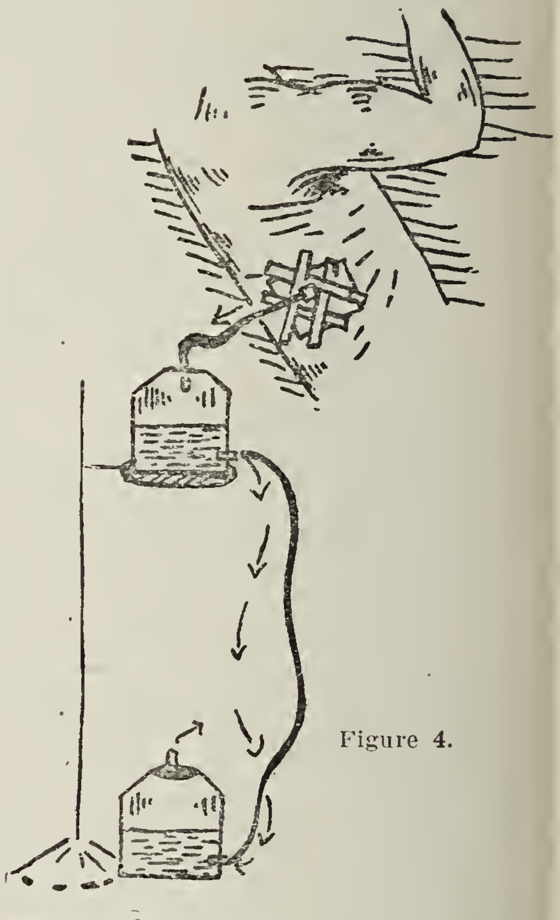

Figure 4.

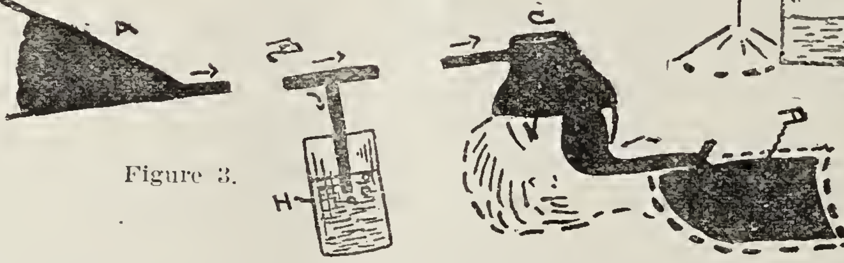

Figure 3.

Fig. 1.—Outer, short rubber tube *(a)* about the size of one's little finger, cut so that it will perforate the thoracic wall and extend perhaps one-half inch beyond on the inside and extend about one inch beyond the outer or skin side; the inner tube *(b)* fits very snugly into the outer tube. This may be accomplished by well oiling the tubes and drawing the inner one through by means of forceps. A very tight fit is easily obtained and is of extreme importance. This tube is long enough to project three inches beyond the inner end of the outer tube and a similar distance beyond the outer end; the flange *(c)* is a small square of thin sheet-rubber about four inches square. A series of quarter-inch cuts are made in the center of this with the point of a scalpel, the cuts all intersecting one another in the form of several diameters in the same circle. The outer tube is drawn through this until the flange rests about an inch from the outer end *(d)*. The flange is thus drawn out in numerous crown-like processes along the outer tube and may then be wrapped snugly with fine silk so that this is an air-tight joint. On the insertion of this combination at operation it is important to wipe the skin with ether thoroughly around the wound, quickly apply the flange to the dried skin and then apply a generous network of zinc oxid, adhesive over the flange, bringing the latter thus in air-tight apposition with the skin.

Fig. 2.—Outer tube in position passing through thoracic wall, flange applied to skin (adhesive not represented) and sliding inner tube projecting through into a collection of pus in the pleural cavity. Inner tube projects also beyond outer end of outer tube and here is joined to the negative pressure-bottle by means of long tube (this tube and bottle not represented here). Ease with which inner tube may be withdrawn without either disturbing the dressings or allowing a pneumothorax to form is seen in the cross-section diagram.

Fig. 3.—Air-tight face-mask (C), bellows (A); a T tube (B) interposed between A and C; A and one arm of the T tube are connected with rubber tubing; the other arm of the T tube is connected with the air-tight face-mask in a similar manner; the perpendicular portion of the T tube is free and affords an escape for the air forced from A to C. As long as this end is out of water pressure at A is not conveyed to C, but as the free end of the perpendicular arm is lowered under water the escape of air through this arm is interfered with, and consequently the pressure at C is increased. With the thorax open the amount of pressure may be gauged by the approach of the lung to the thoracic wall provided that consolidation is not present, and the pressure may then easily be regulated by lowering the tube or withdrawing it from the bowl of water (D). The cross-arm should be about 4 inches, the perpendicular tube about 8 or 10 inches.

Fig. 4.—A simple water-pump which may be improvised in the absence of a negative-pressure bottle equipped with a suction-syringe. The fall of water from one vessel to another creates a negative pressure in the upper vessel and this is in turn transmitted to the cavity with which the latter is connected by tubing.

The patient, during the operation, never suffers from the appearance of a complete pneumothorax. During the application of the air-tight sliding drainage-tube (Fig. 1 b), the positive pressure is forced, and, as the flange (Fig. 1 c) is applied to the skin under this pressure and the tube on its outer end is connected with negative pressure, there is constantly a tendency for the pleural cavity to empty itself of its contents through the tube. When the flange is firmly applied and the tube is tightly connected, the positive pressure is removed from the lung and from then on, except for short periods each day, the emptying of the pleural cavity and the approach of the lung to the thoracic wall are brought about passively by the suction on the pleural cavity. In detail, the patient is propped up in bed immediately on reaching the ward and a few hours later put in the open air. During the first twelve hours the greatest amount of drainage will occur, but if the bottle is exhausted as often as is necessary there will be a certain small amount of drainage or even more occasionally for the next three or four days. Within a day or two the inner tube is made to slide out for a fraction of its length and by means of the simple positive-pressure apparatus employed at operation the lung is expanded as far as possible for a period of about five minutes. Gas may or may not be used during this procedure, depending on the sensibilities of the patient. The familiar active lung exercises (as blowing water from one siphon to another) are indulged in several times a day.

For the next few days the inner tube is gradually withdrawn, care being taken always to exhaust the bottle enough times to keep up a continual negative pressure here (probably once or twice a day); and the positive-pressure applications are religiously kept up. In the course of five or more days after the inner tube has been withdrawn a greater part of its length it is usually wise to remove the whole sliding drainage-tube with its outer tube and flange under positive pressure. The tubes are quickly cleaned, boiled and reinserted as at the operation. Some days later a similar cleaning may be necessary and after removal it is well to ascertain whether the sinus is still connected with an open pleural cavity. In the absence of suction on respiration it is to be surmised that this is not the case and the tubes and flange may then be supplanted by a simple single drainage-tube and the sinus treated as any sinus elsewhere in the body. This ends the attempts to return the pleural cavity to normal by expanding the lung by means of the negative pressure in the pleural cavity. Positive pressure by the positive-pressure apparatus and by the active "blowing" exercises are then depended on for the rest and not until the patient leaves the hospital should these methods be dispensed with; and after returning home the blowing exercises should be continued for six or eight weeks.

Tuberculous effusions, though associated with greater pathologic changes in the pleural cavity, yet from their very nature should without doubt be treated differently. A surgeon who has opened a tuberculous effusion will not hasten to repeat this performance. The sinuses act as tuberculous sinuses elsewhere in the body and are never too ready to heal. Added to this is the danger of secondary infection which may change the condition of the patient from a mild toxemia into one of much greater virulency and danger as far as the termination is concerned. Aspiration is better in this class of cases, thereby avoiding such complications and should the artificial pneumothorax be indicated as part treatment for the pulmonary condition this is readily accomplished at the same time. Injection of nitrogen may be employed if indicated with practically no added discomfort.

Practically the same treatment is used in the localized areas of pus seen occasionally in the pleural cavity as is employed in the freer empyemas. Localization by the *x*-ray and the use of the aspirating-needle offer the best solution of the difficulties in determining the exact position; it is, of course, unnecessary to warn against breaking through the limiting walls at operation. In cases which are "deep-set" and not adherent to the parietal pleura the operation is better performed in two stages, as in the opening of a subphrenic abscess through the pleural cavity route: opening the pleural cavity and placing drains to the end so that a well walled-off tract may be formed from the region of the abscess to the skin is the first step, and breaking gently into the confines of the abscess in twenty-four to forty-eight hours later is the second. The after-treatment is then similar to the after-treatment of the non-encapsulated form.

To one familiar with the complications and sequelæ of empyema, inflammations of the serous cavities, brain abscesses, general infection, distorted chests and twisted spines, discharging sinuses with their train of organic diseases, nephritis, hepatitis, amyloid degeneration of various organs, emaciation, anemia, and the ever-present discomfort to the individual of being the possessor of a continually discharging wound, the advocation of an earlier and more radical operation should appeal. When one realizes the absolute impossibility of foretelling the course any one such case may take it is not wise to consider the average case lightly with the idea that a majority of patients recover, but we should rather lay stress on the percentage of such cases which do not run a smooth course and are associated with complications and sequelæ frequently dangerous to life and usually detrimental to the individual's health for years after.

800 Peachtree Street.

THE RÔLE OF MILK IN THE CAUSATION OF THE CHICAGO EPIDEMIC OF SORE THROAT

JOSEPH A. CAPPS, M.D.
CHICAGO

In a recent report on the origin of the epidemic of sore throat in Chicago, Heinemann[1] draws some conclusions in agreement with those reached by Miller and myself in a previous paper, but other conclusions he reaches are so conflicting with our own that a reply seems necessary. In this discussion we are considerably handicapped by the fact that the Dairy X Company has not been willing to furnish either the Health Department or ourselves with certain data that were requested.

I. PASTEURIZATION

Heinemann considers that "the milk of Dairy X has been apparently uniformly pasteurized," in spite of the numerous deviations below 160 F. recorded on the chart. These deficient temperatures are explained by the operator to be due to interruptions in the process, when the steam was shut off. At such times the operator states that no milk was allowed to leave the apparatus. It is evident that the written record is of no value to the inspector if every delinquent temperature can be so readily explained. A study of the daily charts in December shows that the average period required to pasteurize the milk was over three hours and fifty minutes, the minimum time being three hours and thirty minutes, with the temperature remaining near 160 F.

On December 17, 19 and 30, the process required three hours forty-five minutes, three hours forty minutes and four hours respectively. Now if we accept the operator's explanation that no milk was going through the apparatus while the temperature was below 160 F., we have remaining on these days only two hours fifteen minutes, two hours and twenty-five minutes, and two hours respectively of actual pasteurization. In other words, we find that the period of operation was not at all lengthened on account of the frequent and often long interruptions.

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[1] Heinemann, P. G.: The Epidemic of Sore Throat in Chicago, THE JOURNAL A. M. A., Aug. 31, 1912, p. 716. [Dr. Heinemann desires to state that his investigation was undertaken at the invitation of the Dairy X Company. A note to this effect was inadvertently omitted by the author from his report.—ED.]

When the steam was turned on or shut off at the beginning or end of the day the rise and fall on the chart was always *abrupt,* whereas on the dates above mentioned, the rise in temperature from 130 to 160 F. was *gradual,* consuming from thirty to forty minutes.

Finally, we submit that frequent interruptions in the operation of a pasteurizing apparatus constitute *per se* a failure to pasteurize properly. Schorer and Rosenau[2] say:

> An automatically controlled pasteurizer does not heat the milk uniformly until it has been running at least seven minutes. In practice, pasteurization is frequently interrupted and in such cases there is multiplication of irregularities each time that the process is started anew. We therefore recommend that the milk which is pasteurized during the first ten minutes should again be run through the heater.

In view of all these circumstances we consider that the burden of proof that the milk was properly pasteurized on the above-mentioned days rests on the operator.

Heinemann argues that the bacterial counts of the Dairy X milk made by the Health Department and the company's own chemist were good. No deductions can be made from the Health Department's reports, as no counts were made from Aug. 29, 1911, to Jan. 25, 1912, and this was the period in which the great majority of sore throat cases occurred.

II. CONDITIONS PREVAILING AMONG NURSES IN HOSPITALS

Heinemann states that "of the six hospitals using milk from Dairy X, two had many cases of septic sore throat, the other four did not." Yet he estimates that in two of these exempt hospitals there were 26 and 29 per cent., respectively, of the nurses and employees who had sore throat! In our own statistics we have reported only the cases among the nurses, since a *written record* with the dates of illness is kept by the superintendent of nurses. The data concerning interns and employees are less accurate and reliable and are therefore excluded.

Official records of five hospitals cited by Heinemann, in which milk from Dairy X was consumed by the nurses are given in Table 1.

TABLE 1.—HOSPITALS WHERE MILK FROM DAIRY X WAS CONSUMED BY NURSES

Hospital	Nurses	Cases	Per cent.
Michael Reese	120	69	57.5
Henrotin	33	16	48
North Chicago	28	14	50
Washington Park	35	9	26
Columbia	7	0	0
Total	223	108	48.4

The sixth hospital noted by Heinemann, the Alexian Brothers', received its milk from two dairies. The nurses (who are Brothers) use almost entirely boiled milk and cream. We are informed by the Brother who was then head of the hospital, that the Brothers *never were served with milk from Dairy X,* which was reserved for patients and interns. None of the Brothers was affected.

The written records in twelve other hospitals in which the nurses were supplied by other dairies show that, of a total of 1,095 nurses, only sixty-one, or 5.6 per cent., were attacked. The morbidity among the nurses in the five hospitals supplied by Dairy X was, therefore, eight and one-half times as great as that in the twelve hospitals supplied by other dairies.

The comparative freedom from sore throat in four public institutions mentioned by Heinemann we cannot discuss, since the names of the institutions were not given and cannot be obtained.

III. THE SITUATION IN ROGERS PARK

Heinemann obtained records of 105 cases of sore throat from physicians in Rogers Park and found that only 29 per cent. were users of milk from Dairy X, whereas this dairy is said to supply one-third of the total milk distributed in this community.

It seemed desirable to make a comparison of the number of cases occurring on a milk-route of Dairy X with that of another dairy, as was done in other parts of the city, but the lists of customers could not be secured. An extensive house-to-house canvas was therefore carried out in Rogers Park with the aid of the Health Department.

TABLE 2.—PREVALENCE OF SORE THROAT IN ROGERS PARK AMONG CUSTOMERS OF VARIOUS DAIRIES

	Dairy									
	A	B	X	C	D	E	F	G	H	Total
Number of households investigated	203	144	141	85	72	22	20	8	3	698
Number of households attacked...	15.5	8	67	7	6.3	.3	4	0	0	108
Percentage of households attacked...	7.6	5.5	47.5	8	8.8	1.4	20	0	0	...
Number of persons attacked	33	15	142	16	7	2	5	0	0	220
Percentage of total cases of sore throat	15	7	64	7.6	3.2	1	1.8	0	0	...
Percentage of total milk-supply	29	20.6	20.2	12.2	10	3.2	3	1	4	...

Table 2 sets forth the results of a canvas of 698 families. A comparison of the five large dairies shows that 47.5 per cent. of all households supplied by Dairy X were stricken with sore throat, while only 5.5 per cent. to 8.8 per cent. of the households supplied by the other dairies were affected. In the smaller dairies the percentages vary from 0 to 20 per cent., but are less significant.

In the 141 households using milk from Dairy X, there were 142 cases of sore throat; in 557 households using milk from other dairies, there were 78 cases of sore throat. Of a total of 220 cases of sore throat, 142, or 64 per cent., were users of milk from Dairy X, although this dairy supplied only 20 per cent. of the families investigated. In other words Dairy X, supplying one-fifth of the families with milk, furnished nearly twice the number of cases of sore throat found in all other dairies combined.

The percentage morbidity among customers of Dairy X in Rogers Park was 47.5 as compared with 50 per cent. in Hyde Park, 47 per cent. in the Twenty-Second Street District, 55 per cent. on the North Side, and 66 per cent. in Batavia.

IV. THE SOURCES OF CONTAMINATION

Heinemann called attention to a case of severe sore throat at the bottling plant which may well have been an important source of contamination of the milk. This, however, does not solve the problem. In searching for pollution of a stream we must continue up its course until evidence of contamination ceases. Similarly, we must consider the twenty-nine cases of sore throat among the milkers as potential sources of milk contamination. These individuals handled and drank the milk *before* it reached the bottling-plant.

Any of these twenty-nine cases could have contaminated the milk and have been the cause of sore throat at the bottling-plant, whereas the employee at the plant could not reasonably be held responsible for sore throat among the milkers.

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[2] Schorer and Rosenau: Jour. Med. Research, April, 1912, p. 156.

Whether the bovine mastitis was the primary focus of infection to which the milkers' sore throat was secondary, or the mastitis was secondary to the human infection, or the two types of bovine and human infection were entirely independent, I do not pretend to say. This question has not been determined in other milk-borne epidemics. The fact remains that mastitis due to streptococcus was prevalent in the cows, and sore throat due to streptococcus was prevalent among the milkers. I believe that on most days the streptococci were probably killed in the heating-apparatus, but that on the days above mentioned, large numbers passed unscathed through the apparatus and gave rise to successive outbreaks of sore throat among the consumers of the milk.

122 South Michigan Boulvard.

New and Nonofficial Remedies

The following additional articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Their acceptance has been based largely on evidence supplied by the manufacturer or his agent and in part on investigation made by or under the direction of the Council. Criticisms and corrections are asked for to aid in the revision of the matter before publication in the book "New and Nonofficial Remedies."

The Council desires physicians to understand that the acceptance of an article does not necessarily mean a recommendation, but that, so far as known, it complies with the rules adopted by the Council.

W. A. Puckner, Secretary.

PHENOCO.—Phenoco is said to be a mixture of coal-tar creosote and higher phenol-homologues, in soap solution. It is stated to contain coal-tar creosote, 8 per cent., phenol-homologues, 62 per cent., and soap 30 per cent.

In the above definition the term "coal-tar creosote" is stated to signify the product obtained by the destructive distillation of coal, containing 15 per cent. of cresols, but no phenol; while the term "higher phenol-homologues" is used to designate phenols containing two or more methyl groups.

It is said to be prepared by incorporating a nearly dry, vegetable oil soap with the coal tar creosote and phenol-homologues at a temperature of 100 C. (212 F.) under continuous agitation until complete solution has taken place.

Phenoco is a dark brown fluid of characteristic, coal tar-like odor. It is miscible with water in all proportions, forming a white emulsion; it is soluble in alcohol, ether, acetone and in fixed oils, forming clear solutions. It is compatible with physiological salt solution. It is incompatible with strong alkalis and acids.

When tested by the "phenol coefficient" method of the Hygienic Laboratory of the U. S. Public Health Service (Jour. of Infectious Diseases, Vol. 8, No. 1, January, 1911), it is said to be fifteen to sixteen times stronger, as a germicide, than pure phenol.

The chemical composition of phenoco is controlled according to the method published in Bulletin 107 Bureau of Animal Industry, "The Analysis of Coal-Tar Creosote and Cresylic Acid Sheep Dips."

Actions and Uses.—Phenoco is an antiseptic and germicide, being in the latter respect fifteen to sixteen times stronger than phenol. It is stated to be non-caustic, non-irritant and, for mammals, about one-half as toxic as phenol.

It is said to be useful in minor surgery, obstetrics, gynecology, ophthalmology, otology, diseases of the skin, etc.

Dosage.—It is used in dilutions of 1 per cent. to 5 per cent., or higher, according to the severity of the case.

Manufactured by the West Disinfecting Co., New York. Not patented. U. S. trademark No. 61,552.

TUBERCULIN PREPARATIONS (See N. N. R., 1912, p. 214). Cutter Laboratory, Berkeley, Cal.

Tuberculin Bacillen Emulsion.—Tuberculin B. E.—A suspension of ground tubercle bacilli containing 5 mg. of the solid tubercle substance to each Cc. Dose from 1/1000 mg. to 100 mg. or more of the fluid B. E. Tuberculin.

Tuberculin B. E. Bovine.—Made in the same manner as the foregoing, except that the tubercle bacillus used is of the bovine type.

Tuberculin Old (Tuberculin O. T.).—In 1 Cc. vials, preserved with trikresol; for use in solutions only. Also in serial dilutions; the latter packages containing 5 bottles each holding about 8 Cc., ranging from 0.01 to 100 mg. per Cc.

Tuberculin O. T. Bovine.—Made by the same process as the foregoing except that the organism used is of the bovine type.

Tuberculin Bouillon Filtrate.—In 1 Cc. vials; preserved with 4/10 per cent. trikresol. Dosage from 1/100 to 100 mg. or more of the fluid Tuberculin.

Tuberculin B. F. Bovine.—Made in the same manner except that the bovine type of tubercle bacillus is used.

Tuberculin T. R.—Tubercle Residue.—A suspension of 2 mg. of tubercle substance in each Cc. of the finished product. Dose, from 1/1000 mg. to 100 mg. or more of the fluid T. R.

Tuberculin Ointment (Moro Ointment).—A mixture of 50 per cent. each anhydrous wool fat and Tuberculin O. T., human strain. Dose, varying amounts, usually about 2/10 Gm.

Tuberculin for the Thermal Reaction.—Each Cc. contains 1 mg. Tuberculin, O. T.

Therapeutics

DISTURBANCES OF THE HEART

(Continued from page 1625)

MYOCARDIAL DISTURBANCES

While the myocardium is the most important muscle structure of the body, it has but recently been studied carefully or well understood clinically or pathologically. A heart was "hypertrophied" or "dilated" or perhaps "fatty." It suffered from "pain," "angina pectoris," from some "serious weakness" or from "coronary disease," and that ended the pathology and the clinical diagnosis. This is the age of heart defects; no one can understand a patient's condition now no matter what ails him, without studying his heart. No one can treat a patient properly now without considering the management of his circulation. No one should administer a drug now without considering what it will do to the patient's heart.

Although we are scientifically interested in the administration of specific treatments, antitoxins and vaccines; although we have a better understanding of food values, and order diets with more careful consideration of the exact needs of the individual, and although we are using various physical methods to promote elimination of toxins, poisons and products of metabolism, we have until lately forgotten the physical fact that one-thirteenth of the weight of a normal adult is blood. A man who weighs 170 pounds has 13 pounds of blood. The above proportion of course is not true in the obese, and is not true in children. Whether the individual is sick in bed, miserable though up and about, or beginning to feel the first sensations of slight incapacity for his life-work, his ability properly to circulate this one-thirteenth of his weight through the various arterial and venous channels and capillary tracts must now, with the increasing tension and speed of our lives, be taken into consideration.

The more and more frequently repeated statements that the operation was successfuly performed but that the patient died of shock, and that the typhoid fever and the pneumonia were being successfully combated, but that the patient died of heart failure, and together with the increase in arteriosclerosis, cardiac disturbances and renal disease, emphatically present the necessity of more carefully studying the circulation. A better understanding and the constant study of the blood-pressure shows nothing but the necessity of the age. The unwillingness of the patient to suffer pain, even for a few minutes, without some narcotic, generally a cardiac debilitating drug, means that, if he is a sufferer from chronic or recurrent pain, he has taken a great deal of medicine that has done his heart no good. Repeated high tension of life raises the blood-pressure and puts more work on the heart. Therefore the heart is found weary, if not actually degenerated when any serious accident, medical or surgical, happens to the patient.

The requirements of the age have, then, necessitated that the heart be more carefully studied, and therefore the heart strength and its disturbances are better understood. The mere determination as to where the apex-beat is located, as to what murmurs may be present is not sufficient; we must attempt to determine the probable condition of the myocardium. The following conditions are recognized: (1) acute myocarditis, (2) chronic myocarditis (fibrosis, cardiosclerosis), (3) fatty degeneration, and (4) fatty heart.

I. ACUTE MYOCARDITIS

Probably most acute infections cause more or less myocarditis, depending on their intensity and their prolongation. This disturbance of the heart is often unrecognized, and has been simply referred to as "the heart growing weaker from the fever process." The acute infections most likely to cause a myocarditis are rheumatism, influenza, sepsis, cerebrospinal meningitis, diphtheria, typhoid fever and scarlet fever. It is probably rare when acute endocarditis occurs that more or less myocarditis is not present. The acute myocarditis may develop some fatty degeneration, and with this softening and weakening of the heart muscle acute dilatation readily occurs, which may be a cause of sudden death, or if less serious, may be the cause of prolonged disability, if the heart ever recovers its original size and strength.

The symptoms are often indefinite and the diagnosis of the condition hardly possible. It may be taken for granted, however, that hardly any serious illness can long continue without cardiac muscle disturbance. If endocarditis is present, soft systolic murmurs soon appear. With the acute myocarditis developing the apex-beat is less positive, less accentuated, and later it becomes diffuse and even feeble. The closure of the aortic valve is less typically sharp, showing that the blood-vessels are not so thoroughly filled. The peripheral circulation is not so active, the blood-pressure falls and the heart becomes more rapid, especially on the least exertion. All of these signs indicate myocardial weakness.

The treatment of this condition is largely preventive. It should be well recognized that prolonged high fever, prolonged insufficient or improper nutrition, prolonged acute pain and especially prolonged septic processes will always cause myocardial degeneration. It should be recognized that after ether and chloroform anesthesia, especially after chloroform, the heart muscle may be disturbed and the tonicity be lost. Therefore after anesthesias, after operations, after all illnesses that have lasted more than a few days the convalescence of the patient must be more or less deliberate. Sudden rising, sudden erect posture, the exertion of walking too early, going up stairs too early or taking moderate, and later severe exercise too early, may cause dilatation of the heart muscle that has become weakened by acute myocarditis. If myocarditis is believed or known to be present, cardiac tonics such as digitalis should not be given; large doses of strychnin should not be given; vasocontractors such as ergot should not be given; large amounts of food or large bulks of liquid should not be taken into the stomach at one time; in fact, unless there is some special indication, the twenty-four-hour amount of fluid should be diminished. The surface circulation and the muscle circulation should be improved by such cold or warm water applications as the disease or condition call for. Massage should be early inaugurated to promote the return circulation. The heart should be treated as though it were the frailest of Venetian glass and would crack with the least rough handling, or even with a rapid change of temperature, great cold or too much heat. A prolonged, tedious convalescence, with the return to activity so graded as to give the heart no strain and to keep its work always just below what it is able to do will often mean return to perfect strength and health.

No cardiac debilitating drug should be administered when myocarditis has been surmised or diagnosed. The safest hypnotic, if one is needed, is morphin in small doses. If there are weakening perspirations, atropin should be given, especially as it is also a circulatory stimulant. Calcium in almost any form seems to be of value in the majority of heart conditions. It is a sedative to the nervous system, and is certainly indicated in acute myocarditis. Calcium lactate is perhaps the best salt to administer, in doses of 0.25 gm. (4 grains), three or four times in twenty-four hours. Calcium glycerophosphate may be used, in powder form or in capsule, in doses of 0.30 gm. (5 grains) three or four times in twenty-four hours; or lime-water may be given.

An exact prognosis of this inflammation is impossible. We do not know how far an acute myocarditis may progress and entire recovery take place; we do not know how slight a myocarditis may cause serious symptoms. Clinically we know that many patients after serious illness never again have perfect circulatory strength. Other patients almost die of heart failure, and yet apparently absolutely recover their ability to do hard physical work.

II. CHRONIC MYOCARDITIS: FIBROSIS

Chronic myocarditis may develop on an acute myocarditis, but is generally a slowly progressive chronic process from the beginning; it occurs mostly in persons past middle life, and as a rule is not primarily associated with rheumatism or valvular disease of the heart. Perhaps generally the term "chronic myocarditis" is incorrect, as a real inflammatory condition is not present and has not been present; it is really a degenerative process with the development of connective tissue, a fibrosis and more or less hardening of the arterioles, a cardiosclerosis. In many instances this fibrosis is associated with fat deposits or fatty degeneration. The disease is often caused by a narrowing or obstruction or calcareous degeneration of the coronary arteries, thus diminishing the blood-supply to the heart muscle. This chronic myocardial degeneration is often a part of the general arteriosclerosis, and is an important factor in what is termed cardiovascular-renal disease. In simple chronic renal diseases the heart first normally hypertrophies to overcome the increased blood tension and increased resistance.

The principal causes of this degeneration are normal old age, or premature age caused by various conditions. In other words, anything that hastens arteriosclerosis will cause myocardial degeneration. The causes recognized as most frequently producing this condition are syphilis; gout; repeated attacks of rheumatism; excess in the use of alcohol (meaning repeated daily too large amounts, as well as actual dipsomania); the overuse of tobacco; excess in drinking tea or coffee; general overeating, and excessive eating of meat in particular, if the organs of elimination do not work perfectly and if such eating causes or allows putrefactive changes in the intestines; and progressive, prolonged wasting diseases such as tuberculosis and cancer. It has also seemed in some cases that the only cause was excessive, hard physical labor, including excessive athletic work, and in other cases that prolonged anxiety and worry has been a cause of cardiac degeneration and actual cardiac failure.

These myocardial changes are sometimes associated with chronic pericarditis and chronic endocarditis, and may accompany or follow valvular disease of the heart. Failure of compensation in valvular disease and dilatation of the heart are sequences that sooner or later follow.

The symptoms of chronic myocardial degeneration are progressive weakness, slight at first, noticeable on exertion (and what was not considered exertion becomes such), as evidenced by slight palpitation, slight shortness of breath, leg weariness and mental tire. The heart frequently becomes more rapid, not only with exertion and change of position to the erect, but even after eating. Slight cardiac stimulants, as coffee, affect the heart more than previously; there is some sleeplessness, more or less troublesome; and more or less indigestion. There may be mental irritability and some mental deterioration, as shown in various ways. There is likely to be slight edemas of the lower extremities toward night. The amount of urine may diminish. A previously high blood-pressure becomes lower. The pulse may be occasionally intermittent, and later actually irregular.

The physical signs often show an enlargement of the heart, with increased activity at first, from irritability of the heart and a lack of perfect coordination; later the heart may show typical signs of weakness. Not infrequently a heart suffering from fibrosis acts perfectly until some sudden exertion, as lifting, running or serious illness, causes it suddenly to become weak. Such a heart rarely regains its former strength. This occurs frequently to those who have supposed themselves to be in perfect physical health. Some sudden strain which they have previously been able to endure without injury, such as carrying a weight upstairs, cranking a refractory engine, pumping up a series of tires or walking rapidly with a younger or more active companion, will suddenly give cardiac distress signals, serious exhaustion and more or less lengthy prostration, perhaps for an hour or so, or perhaps for several days. Permanent cardiac weakness may follow, or compensation may again occur, to be more easily broken later. Slight cardiac pains and sensations referred to the cardiac region become frequent. Disliking to lie on the left side, when previously the patient has been able to sleep on this side without discomfort, is an evidence of cardiac disturbance. There may be no real pains, but the patient becomes conscious of his heart, perhaps for the first time in his life. This alone is an indication of coming trouble.

If these signs and symptoms develop late in life, or at any age with other symptoms of sclerosis or senility, little can be done therapeutically except to afford temporary relief and to prevent the occurrence of acute attacks of cardiac distress or dyspnea. If the disturbance is really due to chronic cardiac degeneration, the sooner the patient learns that his ability is restricted, that his life is narrowed, the better for his future.

The advice he should receive is well understood: to avoid physical efforts; to avoid mental tire; to avoid overeating or overdrinking of any foods or liquids; to reduce or abstain from alcohol, coffee, tea and tobacco, depending on what seems advisable in the individual case; to reduce the amount of meat eaten, especially if there is intestinal indigestion; to relieve intestinal indigestion; to cause free daily movements of the bowels; to abstain from any food that tends to cause gastric or intestinal flatulence; to abstain from such foods as contain nucleins, if the patient is gouty; to take frequent warm baths (not too hot) to promote the secretions and the circulation in the skin; and to take such daily exercise as seems advisable. If the patient cannot take exercise, simple calisthenics or massage should be instituted.

Whether nitroglycerin or other nitrite is advisable depends on the peripheral blood-pressure. If the blood-pressure is low, or not higher than is best for the patient, such treatment would be inadvisable. If, from the supposed cause, iodid seems to be indicated, it should be given in small doses and continued for some time. It is often wise, however, to give small doses, as 0.10 or 0.20 gm. (2 or 3 grains) once or twice in twenty-four hours, for a long period, to any patient who has fibrosis or sclerosis in any form. Iodid tends to prevent the progress of connective tissue formation. It is quite possible that some of its value is in activating a sluggish or imperfectly acting thyroid gland. If the patient is old, his thyroid is subinvoluting, and a little more of its activity will be of advantage. Many diseases that cause chronic myocarditis also cause, later, subactivity of the thyroid. Thyroid extract may be indicated if the patient is obese.

If, in spite of this management and treatment, the patient has cardiac asthma attacks, with or without pain, especially if there are pendent edemas, the question arises as to whether or not digitalis should be given. In such cases one cannot tell without trying whether digitalis will be of benefit or will cause more discomfort. A small dose of an active preparation should be given at first twice in twenty-four hours, and after a week once in twenty-four hours, its action being carefully watched and the decision as to whether the dose is too large or too small arrived at. It may do a great amount of good; it can cause increased cardiac pains. If used carefully and stopped when it appears not to be acting well, it will do no harm.

Chilling of the surface of the body should be avoided; in other words, sudden cold or sustained severe cold, by increasing the contraction of the peripheral blood-vessels and putting more strain on the heart muscle, is to be avoided if possible. More hours in bed at night and lying down after the heavier meals of the day will tend to give the heart the kind of rest it needs. Also complete rest for one day a week, or a rest of several days at a time, and a rest, both mental and physical, with such walking, golfing or riding as seems advisable, for at least one month every year, will prolong the lives of these patients, and may make an imperfect heart act well for months and years. If the patient is anemic he should, of course, receive some non-astringent iron, and an *Eisenzucker* tablet (saccharated oxid of iron), in small doses, 0.20 gm. (3 grains), once or twice in twenty-four hours, is sufficient.

The prognosis of a case diagnosed as chronic myocarditis or chronic degeneration of the heart is doubtful, as one cannot tell until several weeks or months of observation whether this particular heart also has fatty degeneration or not. If there is fatty degeneration, the prognosis is bad. If there is no serious fatty degeneration, the patient, with the modified life outlined, may live for a long time. Acute dilatation from any serious strain on the heart may occur, and if there is fatty degeneration it is likely to occur at any time. Attacks of cardiac asthma are always serious and always damage the heart a little more.

(To be continued)

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[*For other information see second page following reading matter*]

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THE ADRENALS AND THE SYMPATHETIC NERVOUS SYSTEM

There has arisen, of late, a growing appreciation of the fact that a considerable number of the physiologic responses of the organism may be under a sort of double control. On the one hand, impulses are brought to secretory cells or muscular structures along nervous paths; on the other, the humoral channels carry chemical compounds which may act directly on glandular or contractile mechanisms without any immediate intervention of the nervous system. In the case of respiration, for example, the carbon dioxid content of the circulating blood normally tends to regulate the character of the breathing movements. This is distinctly a type of chemical control in which the gaseous product of tissue waste acts as a so-called hormone or chemical regulator. But when an unexpected stimulus from outside rapidly alters the rate or depth of breathing, the modifying impulse is usually transmitted to the respiratory muscles more directly through some nervous path. Both modes of excitation, the chemical and the nervous, find application in the respiratory functions. Other comparable illustrations might be cited in two-fold regulations of secretion and of the movements of the alimentary canal. As Elliott remarks, the nature of the double action above referred to has never yet been analyzed, though it may contain the essential secret of nervous activity.

The epinephrin produced by the suprarenal glands is now commonly looked on as a typical hormone — a product of specialized cellular manufacture which is discharged into the circulation as an internal secretion. Numerous investigations, in particular those of the English school, have taught that epinephrin acts on various organs in precisely the same way as does the stimulation of the sympathetic nerve-supply of these organs. Contrary to the opinion still popularly held, it seems quite unlikely that the effect of the suprarenal product is exerted directly on the smooth muscle widely distributed in different parts of the body; for it is a fact that the musculature of some organs is "toned up" by epinephrin, whereas in other cases there may be an inhibition of tonus. Such unlike effects must have a local explanation, and the evidence points to the endings of the sympathetic nervous system as the seat of attack for this potent substance.

Granting, then, that epinephrin is liberated into the circulation in variable amounts from time to time through the agency of the glands in which it is produced, and assuming as we must that this chemical product vigorously influences numerous physiologic functions, how are its manufacture and secretion regulated? How is the suprarenal itself controlled in respect to so important a response as the liberation of a secretion which may almost instantly convert collapse into excellent vascular tone? That the ductless glands, and in particular the suprarenals, are under the dominance of the nervous system has long been maintained.[1] If this contention shall prove to be correct, it will be noted that the organism can control a widely distributed field of plain muscle directly through the sympathetic nerves, or indirectly by nervous impulses to the suprarenals, whence a chemical messenger, epinephrin, is dispatched to the same muscles almost simultaneously with the nervous impulses. The mere suggestion of some of the manifold known effects of epinephrin suffices to indicate how much is involved in this assumption. Aside from the blood-vessels, the musculature of the alimentary canal, the bladder, the uterus, the skin, the bronchial tubes, the iris, not to mention incidental metabolic functions, are influenced by this compound.

Quite recently American investigators[2] have reported facts which associate certain psychic states with stimulation of the sympathetic system and raise the question as to the resultant effect on the secretory activity of the suprarenals. It is known, for example, that fright, in appropriate subjects, will induce phenomena directly attributable to sympathetic stimulation, manifested in changes in the pupils, inhibition of peristaltic movements of the gastro-intestinal tract, accelerated pulse, and other ways. Cannon and de la Paz believe that they have demonstrated a coincident increase in the epinephrin content of the blood, leading one to conjecture that the suprarenals too have been drawn into participation in the response to the psychic manifestations. The discrimination between primary cause and effect is not easy here; yet the interrelation between the nervous and glandular systems deserves attention.

Related to such questions is that of the share taken by the suprarenal glands in resisting processes harmful to the body. If these secretory organs are called on to provide a product under all sorts of provocation, do they not experience exhaustion at times? Dr. T. R. Elliott[3] of the University College Hospital Medical School in London has broadly summarized his experience with human glands in the general statement that they suffer rapid exhaustion in cases of any microbic fever, of repeated simple hemorrhage, and of surgical shock. The conditions of fatal disease in man, however, are usually too complex to permit of simple analysis; hence Elliott had recourse to animal experimentation in which the individual factors of disease could be reproduced or controlled. The method consisted in measuring the residual epinephrin in the glands of individuals subjected to specific influences. An exhaustion of residual epinephrin is provoked by manifold causes, such as fright, anesthesia (with ether, chloroform or urethane [ethyl carbamate]), stimulation of afferent nerves or direct injury to the brain. In many cases this "emptying" of the glands is probably an expression of the efforts made to combat the fall of blood-pressure ,and other detrimental factors. The epinephrin exhaustion, in fatal cases, is not a primary factor leading to death, but is secondary — an expression of the struggle for life.

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[1] Compare The Internal Secretion of the Adrenals, editorial, The Journal A. M. A., Aug. 31, 1912, p. 723.

[2] Cannon, W. B., and de la Paz, D.: The Stimulation of Adrenal Secretion by Emotional Excitement, The Journal A. M. A., March 11, 1911, p. 742.

[3] Elliott, T. R.: The Control of the Suprarenal Glands by the Splanchnic Nerves, Jour. Physiol., 1912, xliv, 374.

The way in which the entire machinery of the sympathetic musculature and the suprarenal glands may be thrown into activity by an emotional alarm like anger or fright reveals the wonderful character of the responses of the organism to psychic as well as physical influences. Elliott aptly remarks that from the variety of methods and the rapidity with which epinephrin loss can be induced through the splanchnic nerves, it appears probable that the suprarenal glands are played on by the splanchnic nerves in the emotional and vasomotor reflexes with almost as delicate and ever-changing an adjustment as are the muscles of the peripheral tissues connected with the sympathetic nerves.

THE EARLIEST KNOWN PAIR OF SPECTACLES

The facts that the Chinese have long known of spectacles and that snow spectacles have been employed by the Samoyed tribes near the arctic circle have been frequently remarked on in books of travel, and Layard found a plano-convex lens of rock-crystal in the ruins of Nineveh; but that these oriental races knew of the use of eye-glasses before the fifteenth century is a matter of grave doubt, according to the best modern authorities — Hirschberg, Pansier, Fuchs. All European references to the use of spectacles before the year 1270 are dubious. Pliny's description of Nero looking at the gladiatorial combats in an emerald (*Nero princeps gladiatorum pugnas spectabat in smaragdo*) means at best only a lorgnette, or most probably a reflecting mirror. Roger Bacon seems to have known of magnifying lenses (1276), which soon became common enough, but the probable inventor of spectacles as such was a Florentine worthy on whose tombstone in the church of Santa Croce is the inscription: "Here lies Salvino d'Armato degli Armati of Florence, the inventor of spectacles. May God forgive his sins. [He died] Anno Domini 1317."[1] An old chronicle of the Dominican cloister of St. Catherine at Pisa states that Brother Alessandro de Spina, who died in 1313, taught himself and others how to make spectacles after seeing those of an earlier inventor, who was, in all likelihood, d'Armato. The dictionary of the Florentine Academy (1729) states under the heading "spectacles" (*occhiali*) that Rivalto, a monk of Pisa, in a sermon delivered Feb. 23, 1305, said that spectacles had been invented less than twenty years before that date; and an Italian manuscript of 1289, published by the biologist-physician, Francesco Redi, states that spectacles were of recent invention. This would fix the date of d'Armato's invention at not later than 1285.

Early in the fourteenth century, spectacles were mentioned in the writings of Bernard de Gordon, Arnold of Villanova and Guy de Chauliac, and they were afterward figured in the pictures and public documents of the period, such as Jan van Eyck's Madonna at Bruges, Martin Schöngauer's engraving of the Death of Mary, the decorations of the altar of St. Jacob's Church at Rothenburg an der Tauber or the drawings in a Ratisbon manuscript of 1600, now in the Germanic Museum at Nuremberg. All these indicate huge circular lenses mounted in rings of black horn or leather, united by a short leather band and fastened by another band passing around the head, the lorgnette and pince-nez patterns with metal mounts appearing later.

Prof. R. Greeff[2] of Berlin, in a recent interesting article, says that after long search in different museums and collections he has at length found the earliest known specimens of the old leather-mounted type of the sixteenth century. These are now to be seen in the Pirkheimer room in the Wartburg (near Eisenach, Thuringia), and were discovered behind the wooden wainscoting of Willibald Pirkheimer's chamber at Nuremberg in 1867, when the latter apartment was removed in its entirety to Luther's famous retreat. Greeff thinks that they undoubtedly belonged to the doughty old humanist who was councilor to Maximilian I and Luther's friend and whose portrait was etched by Albrecht Dürer in 1524. Pirkheimer's spectacles consist of eight pairs of the above type, the lenses mostly sprung or broken, and clouded through some physicochemical changes in the interior of the glass. Their convexity shows them to belong to an early period, which Greeff fixes at between 1520 and 1530, the date of Pirkheimer's death (at the age of 60). The mounts are of the earlier type in tanned leather colored black, and the eye-glasses of this period were called "nose-riders" (*Nasenreiter*) because they straddled the nose like a modern pince-nez and had to be supported by the hand from the side or above when used for reading. They were very expensive, costing, it is said, from $45 to $75 a pair, and as all eight pairs have the same radius of curvature, the set was probably little adapted to changes in accommodation and refraction, and must have been a costly layout for even a wealthy

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[1] "✝ QVI DIACE SALVINO D ARMATO DEGL ARMATI DI FIR. INVENTOR DEGL OCHIALI. DIO PERDONI LA PECCATA. ANNO. D. MCCCXVII." Cited by Hirschberg in his Geschichte der Augenheilkunde, Leipsic, 1906 (Graefe-Saemisch Handbuch, Nos. 109-110, p. 273, Footnote 3).

[2] Greeff, R.: Die ältesten uns erhaltenen Brillen, Arch. f. Augenh., 1912, lxxii, 44.

Nuremberg patrician of the sixteenth century. Professor Greeff closes his interesting paper with a humorous imaginative picture of the old scholar, holding two or even three pairs of his glasses before his eyes to get a better view of the printed page, resting now and then from sheer fatigue, and finally cursing and scolding his servants for losing the glasses or sweeping them out of the room, in ignorance of the fact that the whole outfit had slipped behind the wainscoting in his little chamber.

COFFEE SUBSTITUTES: CHICORY

At present there is a wide-spread agitation in favor of the use of substitutes for tea and coffee, the beverages which have won so prominent a place as food accessories in the dietary of man. The current talk about coffee substitutes emanates from a variety of sources and is encouraged by a variety of interests. In part it is a reaction against alleged objectionable or actually detrimental effects of coffee on the individual; in part the outcry is a feature of the temperance wave which is directed against stimulants in general; in small degree attention has been directed to the substitutes for coffee because they happen to crop out in the guise of adulterants for the genuine product; but above all else the question of the advisability of replacing coffee has been raised by the potent force of almost unlimited advertising. This commercial propaganda has incorporated into itself the commendation of a sort of pseudoscience; and any one who follows the present purchasing habits of the American public can scarcely deny that some one is reaping a financial harvest from the seeds sown in the columns of our newspapers and magazines. The story of the substitutes for coffee has been typical of American public procedure. Expert opinion respecting the so-called coffee substitutes has never been solicited and there is no indication that the lack of dependable information is missed. Advertising talent has become an accepted substitute for scientific evidence in many quarters, even among intelligent laymen.

Chicory is widely used as an admixture with coffee or as a substitute for it, although it is by no means so well known in this country as in Europe. Professor Oswald Schmiedeberg, the Nestor of German pharmacologists, has lately collected numerous facts of historic and hygienic interest in relation to the significance of chicory in the diet.[1] One species of chicory commonly known as endive is familiar through its use as a vegetable in the same manner as lettuce. The product of immediate interest as a coffee surrogate is the roasted root of *Cichorium intybus*, one of the *Compositae*.

The history of the use of chicory is full of those amusing contradictions that have characterized the dietetic theory and practice of the past. Although the plant was originally applied to human use solely for curative purposes, its employment in the dietary has been sanctioned by generations. It is reported that the custom of roasting and pulverizing the root prior to its employment was the outcome of a chance suggestion. The decoctions of the dry chicory root became unpalatable to an august patient, whereupon the physician who ordered it as a remedy concluded to roast the plant material in the same way that coffee is prepared for extraction. When chicory began to be introduced more extensively as a coffee surrogate in the latter part of the eighteenth century, it was pronounced by expert testimony of that period to be less objectionable than coffee from the point of view of health. Its harmlessness in the form of a beverage was almost universally admitted, although many were unwilling to grant that it could replace the stimulating features of real coffee. In the middle of the nineteenth century a sudden change of sentiment became apparent. Manifold minor ailments or untoward symptoms, most of them familiar to the physician as types of daily complaints, were charged to the use of chicory coffee.

The fact that chicory does not contain caffein has long been known. This places it at once in contrast with the rival coffee-bean and has been one of the reasons advanced for the alleged dietetic inferiority of the substitute. Other purin derivatives, such as theobromin, theophyllin or their allies, are likewise absent. According to Schmiedeberg's investigation the chicory is, further, devoid of alkaloids. A substance imparting a bitter taste to the extracts has received the name "intybin." In addition, there is a considerable content of the carbohydrate inulin in the root. By roasting, this is converted into levulose, dextrin-like compounds and aromatic oxidation products, all of which, along with the intybin, impart a characteristic flavor and aroma to the decoction of the root. According to Schmiedeberg's investigations the bitter intybin is physiologically harmless, as are the other substances extracted with it. Chicory, then, deserves a reputation for freedom from noxious properties, along with the roasted cereals and other coffee substitutes.

It should be pointed out that chicory has won a conspicuous place for itself among the diet accessories of great groups of people independently of any advertisement which it has received in commercial ways. To attribute this unique popularity to mere chance is scarcely an adequate explanation. It is far more likely that chicory furnishes a decoction with certain properties that appeal to the palate of the masses. The carbohydrates which the root contains afford, as a result of the roasting process, products which are comparable with those of the roasted cereals now so widely introduced. We need not admit that the flavor of the chicory beverage can compete with that of good coffee in the estimation of a discriminating palate. Nevertheless the combination of bitter, sweet and aromatic features makes it appeal to many, while the color serves to supplement the weakness of the poorer brands of coffee or to imitate them with psychologic success. Schmiedeberg believes that the bitter or astringent feature plays a physiologic rôle. It is well known that bitter taste lends an efficiency to various valued stomachics. A well-known writer[2] has frankly stated in regard to coffee surrogates that they are for the most part worthless, and serve merely to produce dark-colored concoctions. He adds that the public ought to be apprised of the fact and directed away from the purchase of such useless products. In the case of chicory, however, there may be a helpful hint in the almost instinctive use of the preparation in many quarters. If it awakens a keener appetite and thereby facilitates the secretion of the digestive juices, even in psychic or indirect ways (aside from a further mild antiputrefactive property which has been ascribed to chicory decoctions by Schmiedeberg), this surrogate will deserve the same sort of dietetic recognition that is accorded to many spices which act similarly. A harmless beverage which may stimulate the appetite and promote digestion apart from any content of recognized drugs like caffein deserves to have its properties fully disclosed. The knowledge thus gained does not, however, solve the much-debated question of the place of real coffee in the dietary.

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[1] Schmiedeberg, O.: Historische und experimentelle Untersuchungen über die Zichorie und den Zichorienkaffee in diätetischer und gesundheitlicher Beziehung, Arch. f. Hyg., 1912, lxxvi, 210.

TELEPATHIC DIAGNOSIS!

Dr. J. A. Quackenbos of New York, who has from time to time enriched the field of psychiatrics by amazing if undemonstrable statements, has had the good fortune to find a Belgian woman having the power to diagnose disease at a distance; when entranced and commanded to go (in psychism) to a designated patient she can describe the latter's bodily conditions. On several occasions, being several miles away, the Belgian seeress has defined, with startling exactness, lesions of which she could know nothing. The procedure is as follows:

Let the physician be designated as Dr. A; the Belgian mystic Mme. B and a woman (the sister of a New York physician) as Miss C, whose business it is to hypnotize or put into a quasicataleptic state Mme. B, and then to direct the latter to go (psychically) to the patient, look into his body and describe the nature of his trouble. This is done in detail by Mme. B, who points out conditions of which Dr. A, Miss C and her own (Mme. B's) objective self could not have had the slightest knowledge. In one instance, in which Dr. Quackenbos followed her statements through the telephone, Mme. B "diagnosed, while five miles away, an obscure case in my office and told correctly the cause of the lesion." She not only feels and acts the part of the person *en rapport*, "but she is that person unmistakably, possessed of his knowledge, character traits, feelings and mental attitudes; he talks through her lips, suffers through her bodily organs and energizes through her brain. A remote subject is thus brought face to face with me, and I am enabled to effect salutary changes against his objective will and consent by appeal to the commingled subliminal selves. If this unparagoned means of enforced attention results from a spiritual facility that is lasting, then every man and woman in the world is accessible through this channel; susceptible to corralling by this subliminal method of approach; coercible to apprehension of the wrongness of positions, incentives and motives for action when they are wrong, and changeable to right view and moral action."

Every one will at once see the possibilities and advantages of this method of diagnosis: Should a physician be sent for on an inclement night, or summoned to a case of virulent and dangerous infection, he need not leave his comfortable bed, but may instead simply reach over for the receiver, and telephone the hypnotist, who will in turn call up the medium-diagnostician, who will then throw herself into the requisite psychic state, pay the patient a hypnotic visit and find out what the trouble is. It is but fair, however, to note the objection that the medium-diagnostician is apt to suffer in her trance, because she then "assumes the symptoms and sensations she discovers, and on several occasions she has suffered acutely for hours from pains and perceptions similar to those of the patient."

How these results are achieved Quackenbos is not sure, though he writes of a "series of 10,000 experiences with hypnotized patients." He knows that "telepathy works through the subconscious"; that "time and space offer no obstructions"; that "matter is penetrable and perceptive and becomes infinitely sublimated"; yet he "must admit that the laws of telepathic transmission are unknown." He gives Bozzano's explanation of telepathy as being "due to an initial physiopsychic vibration which, expanding concentrically in all directions, reaches the brain of the percipient, bringing with it the agent's thought," and he believes that Mme. B's power lies in intercepting the vibrations that link her to the person she is in search of. Mme. B, for her part, describes "spirally undulating physiopsychic vibrations which, she thinks, may have curative powers."

As usual in such writings as this, we are assured that the race is on the threshold of a discovery, of wonders far beyond any yet disclosed; that man is going to be "superior to all science as at present interpreted"—poor, much-objurgated science, which is after all nothing else than systematized common sense — nothing else than the crystallized, reasoned wisdom of the ages! And a lot of weird statements are breezily set forth which are "commonly admitted" by "advanced thinkers"—"leaders of science," among whom Quackenbos cites only the name of the sensational Flammarion! On the other hand, we do know that such phenomena as spiritualism, clairvoyance, prescience and the like have been patiently investigated by such men as Huxley, Faraday, Newcomb, Spencer and Darwin, their conclusions having been pretty well summed up in the latter's observation, "the Lord have mercy on us all if we have to believe in such rubbish." For further details we must refer the impatient reader to Quackenbos' article,[1] among the many astonishing features of which the most astonishing is that it appears, not in a theosophic journal, but in the *North American Review.*

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[2] Rubner, M.: Lehrbuch der Hygiene, 1903, p. 595.

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[1] Quackenbos, J. A.: Is Telepathy a Fact or a Delusion? North Am. Rev., September, 1912.

REPRODUCTION WITHOUT FERTILIZATION

To those who are interested in the broader significance and underlying import of biologic processes the real purpose of the process of fertilization has furnished a theme for speculative discussion. The spontaneous growth which is now and then exhibited in parthenogenetic development makes one hesitate to ascribe to the mechanism of normal fertilization any specific indispensable function; and it raises the question whether typical fertilization does not, after all, serve some more indirect use than the mere initiation of the growth impulse. There is a widely promulgated view that protoplasm manifests an inherent tendency toward senescence, so that there is a natural periodic physiologic need of rejuvenation by which the vigor of cells may be renewed. This forms the basis for the "dynamic" view of fertilization whereby animals are supposed to be endowed with the potential for a new period of reproductive activity. The general vitality of protoplasm is thereby restored or maintained.

It is quite possible, however, as Woodruff has remarked, that fertilization is connected in some way with the phenomenon of variation, or may be a process which enables certain forms to withstand changed environmental conditions. In the higher forms the agency of the male element as a bearer of hereditary qualities is well appreciated. The conjugation of the unicellular organisms has often been described as analogous to fertilization in the more complex types of living beings and has been regarded as offering a natural means of approach to the problems of fertilization. What then, is the relation of conjugation in the protozoa to protoplasmic old age and protoplasmic rejuvenation? Hitherto the conclusion has been reached that the infusoria cannot reproduce indefinitely without conjugation. In a most laborious and painstaking study of the reproduction of a familiar and widely distributed form known as *Paramecium,* Professor Woodruff of Yale University has succeeded in continuing a culture from a single, isolated specimen for more than five years, during which time it passed through more than three thousand generations without signs of degeneration and with full maintenance of morphologic characteristics and physiologic vigor.[2] This remarkable result seems to establish the fundamental biologic fact that the protoplasm of a single animal cell may be self-sufficient to perpetuate itself indefinitely. Woodruff concludes that his experiment eliminates the phenomenon of conjugation or fertilization as a fundamental inherent necessity of protoplasm for its continued existence.

Figures are sometimes fascinating. If it is borne in mind that the organism described above has reproduced itself entirely by a fission process the statistics of the experiment permit some startling speculations. The protoplasm of the cell originally isolated possessed at least the potentiality to reproduce cells to a number represented by 2 raised to more than the 3,000th power, or (according to Woodruff's calculation) a volume of protoplasm "approximately equal to $10^{1,000}$ times the volume of the earth." Surely there is in this no suggestion of senescence or of the need of fertilization as a primary attribute of living matter.

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[2] Woodruff, L. L.: A Summary of the Results of Certain Physiologic Studies on a Pedigreed Race of Paramecium, Biochem. Bull., 1912, i, 396; A Five-Year Pedigreed Race of Paramecium Without Conjugation, Proc. Soc. Exper. Biol. and Med., 1912, ix, 121

COUNTY HOSPITALS FOR THE TUBERCULOUS

In 1909 a law was passed in New York state authorizing the establishment and maintenance in each county, by its board of supervisors, of its own hospital for the tuberculous.[1] The New York State Department of Health, in conjunction with the State Charities Association of that commonwealth, has since been striving to make this law effective, with gratifying results. Twenty-one counties have decided to build such institutions, some of which, indeed, are in operation; and it is hoped that by the end of the present year thirty will be projected, representing action by more than half of the counties in the state.

The representatives of the department of health and of the association cooperating so ably with it, in addressing the laity in mass-meetings and otherwise, have had to dispel some erroneous ideas and to do considerable educating; especially has this been so in the rural districts, where there seems to be a false sense of security regarding tuberculosis. The State Department of Health, by reason of its governmental character, is peculiarly anxious for the establishment of these institutions, because it recognizes its responsibility to protect the people it serves from tuberculosis precisely as from small-pox or typhoid or any other infection. By the provisions of the law cited any sufferer who is a citizen of his county is eligible in the order of application; after admission his finances are ascertained and if he can pay, wholly or in part, he is expected to do so. But well-to-do and poor alike must be received without discrimination. The tuberculous in all stages may apply, wherefore the name "sanatorium-hospital" has been suggested for these institutions. As the patient's home is within the county, his relatives may at little trouble and expense visit him from time to time, so that those devitalizing factors, nostalgia and family worries, are largely obviated. Those working for the establishment of these institutions have ever to meet the objection, demonstrated over and over again to be without foundation, that the sanatoriums would be a danger to the region in which their establishment is contemplated; rather than a danger, such institutions are almost invariably an advantage.

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[1] A copy of this law (Chapter 341 of the Laws of 1909) may be obtained from the New York State Department of Health, Albany, N. Y.

In one county a plant costing $140,000 is projected, but very costly institutions are not advocated; all that is insisted on is that for "tuberculosis hospital" one shall not read "almshouse." It is held that the county's sick consumptives should not be expected to tenant institutions of the latter nature. The number of beds would be computed as two-thirds the average of tuberculosis deaths in the county, the cost of construction about $500 per bed, and the maintenance about $1.25 per day for a patient. The expenditures (which are to be met by the taxpayers of the respective counties) would be insignificant in comparison with the sums the public pays for good roads and the erection and maintenance of armories, orphan asylums, jails and prisons. Besides, money put into the county tuberculosis hospital would help to close up many an almshouse and many an orphan asylum; for this disease (the most deadly in the most productive period of human existence) is one of the greatest causes of pauperism, and probably the greatest single cause of orphanage.

Current Comment

MEDICAL IMPORTANCE OF PANAMA

On the completion of the Panama Canal, there will be a readjustment of routes of commerce and travel, which will radiate from the canal to all parts of the world. The western coast of Central and South America will then constitute a definite sanitary menace to the United States. Close contact by ship with the ports where yellow fever, cholera and small-pox are almost endemic, not to mention a host of other infectious diseases, will expose our Atlantic and Gulf ports to the constant peril of epidemic invasion. It will probably fall to the Public Health Service to provide against this new danger. The present quarantine service embraces a chain of fifty-three stations encircling the United States, New York being the only important port not covered by the federal service. The Public Health Service also includes Porto Rico and Hawaii in its quarantine protection, and administers the quarantine of the Canal Zone. The maritime traffic which will converge at the Canal Zone will bring with it large numbers of sailors of all the nations, including the United States, and a medical relief station will be necessary. A large marine hospital should be erected at some favorable location in the Canal Zone, either at sea-level or in the mountains; it would find a large and increasing field of usefulness, and, in fact will be almost a necessity. Out-patient offices at Colon and Panama should be equipped for emergency and ambulance cases, and as receiving stations for the marine hospital. There is a unique opportunity in the Canal Zone for the establishment of a laboratory for the investigation of tropical and subtropical diseases. The clinical material which will be available from all parts of the world, especially from Central and South America, will afford opportunity for valuable studies of diseases which will soon be even a greater national menace than at present. Such an institution, associated with the suggested hospital or working in cooperation with it, would supply a definite need in the advancement of American medical science.

A POSSIBLE FALLACY IN TESTING DIABETIC URINE

A letter was recently received from a subscriber who described himself as an elderly man afflicted with diabetes mellitus. He stated that he had tried various remedies, and had even been led to use a widely advertised nostrum, which he was convinced was doing him good, because the amount of sugar in his urine was greatly reduced. In reply it was suggested to him that the medicine he was taking was a diuretic, increasing the amount of urine, and that instead of helping him was probably doing him harm. It was further suggested that instead of testing one specimen of urine, as he evidently had been doing, he take the quantity for twenty-four hours, and test it. His next letter stated that an examination of a twenty-four-hour specimen showed that, instead of decreasing, the sugar had actually increased. On several occasions case reports have been submitted in which it was evident that the medical attendant had adopted the method of testing employed by the physician mentioned above; that is, he had tested a single specimen instead of the total for twenty-four hours. In the present case, the diuretic had increased the quantity of urine in twenty-four hours; hence any single specimen contained proportionately less sugar.

THYROID EXTRACT IN BRIGHT'S DISEASE

While many remedies have been tried in Bright's disease, generally to be discarded after a period of enthusiastic application, it is a singular fact that until recently no use seems to have been made of thyroid extract in the treatment of diseases of the kidney. Probably the fact that thyroid extract increases the nitrogenous waste and that in some cases it causes the appearance of albumin in the urine has deterred therapeutists from resorting to a trial of this remedy, for fear of injuring the kidney instead of benefiting the patient. The use of thyroid extract in cases of eclampsia of pregnancy should not be held to warrant the conclusion that it will be useful in ordinary forms of nephritis, because the etiology and character of the kidney affections in pregnancy are quite different from those of ordinary nephritis. The occurrence of hyperthyroidism in certain cases of nephritis has been repeatedly noted. On the other hand, the cases of nephritis in which the thyroid is insufficient must be rare. In such cases it is possible that a cautious administration of thyroid extract might be beneficial. In this connection, Percy's experiences, as given in his article in this issue, are of special interest. This article announces a series of thirty-five consecutive cases, two of which are reported in detail, in all of which Percy believes that the use of thyroid extract was of benefit. From what we know of the thyroid, we are naturally skeptical of benefit to nephritis from such an agent. While Percy's paper is worthy of the attention of the practitioner, we suggest that the number of cases is too few to justify an immediate acceptance of this method of treatment. It must be borne in mind that the author presents the matter merely as a preliminary report. Granting that thyroid extract may be beneficial in exceptional cases, it remains to be determined in what kind of cases such treatment may properly be used. Of course physicians will remember that so far as can be judged from its known properties, thyroid extract may do harm to the kidney diseased from ordinary causes. Until the cases likely to be benefited are more accurately determined, it should be used only after a careful study of the patient to determine the absence of conditions in which the remedy would be liable to do harm. If the treatment is determined on, we suggest the use of small doses cautiously increased.

HOOKWORM WORK IN KENTUCKY

A good issue of the *Bulletin of the Kentucky State Board of Health* is the one devoted to the hookworm, an active campaign against which by the dispensary plan has been conducted in that state during the past year. The life-history of the worm, its occurrence throughout the state and the ravages wrought by it are described, and the method of detection and details of treatment are given. The *Bulletin* also announces that Dr. Lillian H. South, state bacteriologist, has demonstrated that the eggs and larvae may be carried on the legs of flies, a fact which has been suspected for some time. The *Bulletin* is written so that it may be understood by the layman and is profusely illustrated with photographs of hookworm victims and conditions which foster the spread of the infection. It is a valuable publication and should have a wide circulation in districts where hookworm disease is prevalent.

Medical News

CALIFORNIA

New Hospital for Burbank.—The new hospital being erected at Burbank will be of reinforced concrete and practically fireproof, and will cost not less than $5,000.

Appropriation for State Hospital.—The trustees of the Stockton State Hospital have asked an appropriation of $900,000 for maintenance for the next biennium.

Leper Colony Planned.—The health officer of Los Angeles County proposes that a colony for the care of lepers should be established on San Clemente Island, off the coast of Southern California.

COLORADO

Gifts to Hospital.—The Jewish National Hospital for Consumptives received some valuable gifts, including the James E. Shoenberg Memorial, a well-equipped trade school, and the Dudley C. Shoenberg gift, a farm of sixty acres stocked with a herd of cattle and three thousand chickens.

Leper Transferred to Washington.—C. W. Bronson, the leper who recently escaped from a leper colony in California and was apprehended by Colorado officials and isolated in a tent near the Sand Creek Pest House six months ago, is to be removed to the Federal Colony for Lepers in the state of Washington.

ILLINOIS

Diphtheria Closes Schools.—Schools, churches and all public meetings at Wenona have been ordered closed by the State Board of Health because of the prevalence of diphtheria.

Personal.—Dr. Charles A. Potter, St. Charles, has been appointed a member of the committee of the Illinois State Charities Conference for medico-social work.——Dr. W. E. Guthrie, Bloomington, has been appointed district surgeon of the Chicago and Alton Railroad.——Dr. and Mrs. Henry C. Littlejohn, Farmer City, have gone to California for the winter.

Information Desired Concerning Dr. W. R. Ely.—Dr. W. R. Ely, Gibson City, disappeared on the night of October 29, while in Chicago, and it is feared that he has met with foul play. Dr. Ely is 33 years old, 5 feet 9 inches tall, and weighs 150 pounds; he is of dark complexion with brown hair and eyes, has a smooth face and a very good set of teeth, and wore a gray suit. Any information concerning the whereabouts of Dr. Ely should be sent to Mr. John J. Halpin, Captain of Detectives, Chicago.

Chicago

Hospital Notes.—A bazaar was held in the interests of the Norwegian Tabitha Hospital Society building fund, November 2, at the Humboldt Park Parish House.——The Englewood Hospital has had plans prepared for an addition to cost $50,000. The new building is to be erected on a lot adjoining the present hospital. Of the $50,000 required, about $5,000 has already been contributed and an appeal for the remainder has been issued by the trustees.——The Board of Education is said to be taking steps to establish a special school for epileptic children. This school will be expected to care not only for epileptics at present in the school, but for nearly three hundred others.

INDIANA

Health Exhibit in Terre Haute.—From October 29 to November 1, inclusive, a health institute was held in Terre Haute. The work of the institute included lectures given under the direction and management of the State Board of Health, assisted by local societies, and also a health exhibit consisting of moving pictures, charts and specimens, under the charge of Dr. Owens of the State Board of Health.

Personal.—Dr. W. A. Gekler, assistant superintendent of the State Tuberculosis Hospital, Rockville, has been elected superintendent pro tempore, vice Dr. H. B. Leavitt, deceased. ——Dr. J. O. Stellson, Indianapolis, has returned from Europe. ——Dr. Harvey A. Moore, Indianapolis, has resigned as medical director of the Indiana National Life Insurance Company. ——Dr. Walter N. Sharp, Indianapolis, is reported to be seriously ill at a local hospital.——Dr. C. B. Stemen, Fort Wayne, who has been seriously ill with bronchitis, is reported to have recovered.——Dr. W. F. Schrader, Fort Wayne, is ill at his home with septicemia, due to a post-mortem wound.——Dr. W. Y. Wells, Laketon, was painfully injured in a collision between his buggy and an Erie Railroad engine, October 17.

KENTUCKY

Personal.—Dr. J. N. Fireline, Owensboro, has resigned as city physician and has been succeeded by Dr. Alexander McKenney.——Dr. Forest Gabert, Louisville, was seriously injured when his automobile skidded and ran into a telephone pole, October 14.——The office building of Drs. John G. Foley and Tillman Ramsey, Pineville, was destroyed by fire October 14 with a loss of $7,000, partially covered.——Dr. Henry A. Cottell was elected president of the Louisville Literary Club, October 28.

New Officers for State Association.—At the fifty-seventh annual meeting of the Kentucky State Medical Association held in Louisville, October 29-31, the following officers were elected: president, Dr. David O. Hancock, Henderson; president-elect, Dr. William O. Roberts, Louisville; vice-presidents, Drs. James H. Hendron, Cary; Thomas C. Holloway, Lexington, and J. Paul Keith, Hopkinsville; delegates to the American Medical Association, Dr. Arthur T. McCormack, Bowling Green (reelected for the sixth term), and Dr. James W. Kincaid, Catlettsburg; councilors: first district, Dr. William W. Richmond, Clinton (reelected for fourth term); second district, Dr. Cyrus B. Graham, Henderson, and tenth district, Dr. Isaac A. Shirley, Winchester. Dr. T. Atchison Frazer, Marion, was elected as orator in medicine and Dr. Wilford E. Senour, Bellevue, orator in surgery. Bowling Green was selected as the meeting place for 1913.

LOUISIANA

Health Car Returns.—The State Board of Health car, presided over by Dr. Oscar Dowling, has returned from its trip to the east and is on inspection during the entire eight days of the State Fair.

Good Luck Day for Dispensary.—The board of trustees of the Women's and Children's Free Dispensary, New Orleans, has decided to hold a "Good Luck Day," November 16. The institution treats, free of charge, more than two thousand women and children a year.

Personal.—Drs. George K. Pratt, Jr., and J. W. Newman, New Orleans, have returned from Europe.——The house of Dr. I. B. May, Columbia, was burned October 22.——Dr. A. G. Darcental, White Castle, has been elected health officer of Iberville Parish, vice Dr. B. O. Le Blanc, St. Gabriel, resigned.

New Officers.—New Orleans Academy of Science, reorganized after a lapse of twenty-three years, October 17: president, William Berry Smith; secretary, R. S. Cocks.——Washington Parish Medical Association organized at Franklinton, October 16: president, Dr. H. C. Cole, Bogalusa; secretary-treasurer, Dr. J. L. Brock, Franklinton.

Supreme Court Sustains Dowling.—The Supreme Court of the state has sustained the State Board of Health in the case of A. R. Susslin, a baker of New Orleans, charged by the board with operating a bakery in violation of the rules and regulations of the board, which claimed that the bakery was so insanitary that it amounted to a public nuisance. The baker won his case in the civil district court, whereupon the attorney for the state board applied to the Supreme Court.

MARYLAND

Baltimore

Bazaar for Widows' and Orphans' Home.—The managers of the Home for Widows and Orphans of Baltimore announce that the annual bazaar will be held in the Howard Street Armory, November 21-25.

Personal.—Dr. Charles F. Bevan has resigned as professor of surgery in the College of Physicians and Surgeons, Baltimore.——Dr. C. B. Gamble, Jr., was attacked by a negro burglar, October 28.——Dr. H. Barton Jacobs has returned from Europe.——Dr. Marshall L. Price, secretary of the State Board of Health, is ill with nervous breakdown in a hospital in Philadelphia.——Dr. Adolph Meyer, director of the Phipp Psychiatric Clinic, was the guest of honor at a dinner given by D. Allen Willey, at the Baltimore Country Club, October 16.——Prof. Carl Von Noorden, of the University of Vienna, lectured at Johns Hopkins Hospital, November 2, on "The Principles of Treatment of Diabetes Mellitus."——The Faculty of Physic of the University of Maryland gave a dinner to Prof. Randolph Winslow at the University Hospital, October 22, and not to Dr. John Randolph Winslow, as was announced in The Journal, November 2.

MISSISSIPPI

Health Day.—Health Day is to be observed in the public schools throughout Mississippi, November 20. The program has been arranged by Miss Susie V. Powell, supervisor of the School Improvement Association in cooperation with the State Board of Health.

Economic Loss From Preventable Diseases.—The State Board of Health announces in its exhibit at the State Fair that the economic loss of Mississippi in deaths from preventable diseases amounts to $20,500,000 a year. The statistics show that the annual loss from tuberculosis in the state is $11,586,250, and that from typhoid $2,334,500, and these figures do not include the easily preventable and common diseases.

NEW YORK

Hospital Items.—The first building of the Syracuse Hospital for Contagious Diseases is to be the mixed infection building, which is to cost about $12,000, and will be practically fireproof.——At the annual meeting of the Cohoes Hospital Association, October 15, Drs. James H. Mitchell and J. L. Archambault were elected trustees.——At the annual meeting of the Ithaca Hospital Association, Drs. A. T. Kerr, Eugene Baker, C. P. Biggs, H. B. Besemer and I. M. Unger were elected trustees.——The Mountain Sanatorium, Binghamton, reopened October 28. Drs. Joseph J. Kane, Charles A. Squires, J. S. Kelley, S. B. Blakely, George H. Fox, F. M. Miller, C. A. Ward and A. S. Chittenden will take turns as attending physician.——On the closing of the Summer Tuberculosis Camp near Huntingtonville a winter hospital for tuberculosis was opened in Watertown.

New York City

Personal.—Dr. Anthony Bassler has been appointed clinical professor of medicine in the New York Policlinic Medical School and Hospital.——Dr. Harry T. Summersgill has been appointed superintendent of the Cincinnati City Hospital.

Minturn Hospital Announcement.—This institution, which cares for diphtheria and scarlet fever patients, has sent out an announcement stating that physicians who send patients to this hospital are requested to visit them and direct the treatment.

Hospital Clinic for Defectives.—The Clearing House for Defective Children was opened October 22, in the Post-Graduate Hospital by Dr. Max G. Schlapp. Children sent by various city departments and private charities to this clinic will be examined and treated on every week day excepting Monday.

Appeal for St. Rose's Home.—The Servants of Relief for Incurable Cancer have made an appeal for financial aid to complete and furnish the new St. Rose's Free Home for Incurable Cancer. The building is nearly finished at a cost of $91,000. For minor contracts, furnishings and provisions, $25,000 more is needed, and at present a mortgage of $45,000 is on the home.

Vessels Cannot Dock at Night.—Dr. Joseph O'Connell announces that the ruling of the health officers of the Port of New York that no vessels will be passed after sundown will be permanent. He says this is a matter concerning the health of the nation, and not the convenience of passengers; that it is impossible to examine a large number of persons at night by artificial light satisfactorily, and that examinations can be made more thoroughly and speedily in the morning. The staff of health officers has been increased and five now board each vessel at Quarantine.

Pediatric Clinics.—The section on pediatrics of the Medical Society of the State of New York has arranged a series of pediatric clinics to be held in New York City, November 14. From 10 to 11 a. m. there will be a clinic at the Post-Graduate Hospital, conducted by Drs. Chapin and Pisek. From 11:30 to 12:30, Dr. L. E. Le Fetra will conduct a clinic in the children's ward of Bellevue Hospital. At 1 p. m. luncheon will be served at the Policlinic Hospital and from 1:30 to 2:30 Dr. Charles G. Kerley will give a clinic at that institution. From 3 to 4 p. m. there will be a clinic at the Babies' Hospital, conducted by Dr. L. Emmett Holt, and from 4:30 to 5:30 Drs. Koplik and Heiman will hold a clinic in the children's ward of Mount Sinai Hospital.

Hospital Standards and Supplies.—At the end of the third year, the Hospital Bureau of Standards and Supplies Association, conducted by a group of private hospitals in the interest of economy and higher efficiencies, reports successful and satisfactory results. Each hospital sends requisitions directly to the suppliers under the agreements, receives invoices direct, and is liable only for its own purchases, which it pays for directly to the suppliers. The standards recommended, based on the interchange of information regarding practice, quality and experience, have an educational value, which should be considered in addition to the economies secured. While each institution preserve its autonomy, the extent to which the members cooperate in supplying information, in using the agreements secured, in advising on questions of practice, measures the advantages to the members and the success of the bureau. This cooperation is the essence of the association. The committee is convinced from the benefits secured to members that the extension of the work of the bureau would be desirable for other hospitals, and recommends superintendents and officers who are interested in cooperation and higher efficiency to visit the offices of the bureau at 381 Fourth Avenue for further information.

Wants Hospitals and Medical Schools United.—Chancellor John H. MacCracken of New York University, in his report for 1912, predicts that New York will share the same fate as London as a medical center, unless the hospitals and medical schools pursue a different policy. He urges control of medical and laboratory work in the municipal hospitals of the city by the university medical schools. He finds at present a decreased cooperation between the municipal hospital and the medical school which he considers a distinct menace to both. Dr. MacCracken also criticizes the control of visiting physicians and surgeons by a board of trustees, and urges that a definition of their privileges and appointments be placed in the hands of the university faculties. He would place the appointments and control of the force of each municipal hospital in the hands of those who hold the chairs in the medical faculty of the school connected with that hospital. To do this the university should be able to provide a salary sufficient to make teaching, research and the conduct of a hospital ward the main issue, and private practice secondary. He continues: "If, however, the university cannot furnish a complete career for the teacher of medicine, it is of immediate importance that positions should be created in the medical world which, in opportunities for public service, in dignity and permanency of tenure, shall compare favorably with judgeships and bishoprics."

NORTH CAROLINA

New Hospital Opened.—The management of the Roanoke Rapids Hospital announces that the institution is now opened for the treatment of all surgical and non-contagious medical diseases.

Registration System Needed.—Dr. W. S. Rankin, Raleigh, secretary of the State Board of Health, recently elected chairman of the section on vital statistics in the American Public Health Association, with his associates, is working to secure the enactment by the next legislature of a complete system of registration for the state outside of towns and cities in which there is registration at present.

Personal.—Dr. J. W. Willcox, Carthage, has been appointed assistant physician at the State Hospital for Tuberculosis, Montrose.——Dr. J. P. Turner, Greensboro, has been elected medical director of the Jefferson Standard Life Insurance Company, vice Dr. Albert Anderson, resigned. Dr. Anderson will open an office in Raleigh.——While making a night call in Wilmington, Dr. F. W. Avant, a colored physician of Wilmington, fell through a railroad bridge, sustaining serious injuries. ——Dr. E. E. Stewart has resigned as professor of anatomy in the Wake Forest Preparatory College of Medicine and will remove to New York City. He has been succeeded by Dr. Edwards S. Ruth, New York City.——Dr. and Mrs. J. M. Belk and daughter, Monroe, have returned from Europe.

OREGON

New Medical Office Building.—A medical and dental building will probably be erected at Seventh and Morrison Streets, Portland, ten stories in height and of reinforced concrete. The upper eight floors will be exclusively for physicians and dentists.

New Staff for Physiologic Laboratories.—The University of Oregon Medical College announces that Dr. John Matthew Connolly, formerly of Harvard Medical School, has begun work as professor of chemical physiology and as physiologic chemist in the Portland Physiology Laboratories. The personnel of the staff also includes Dr. John D. MacLaren, director; Dr. Horace Fenton, clinician, and Dr. Mary V. Madigan, anesthetist.

Private Versus State Sanatoriums.—The Oregon Board for General Supervision of State Institutions recommends that the State Tuberculosis Sanatorium be abolished and that persons suffering from tuberculosis be cared for in private sanatoriums. It is proposed that the state pay a certain amount, say $25 per month, for each patient in a private institution and furthermore that the tuberculosis board shall examine such institutions. The Oregon Sanatorium has an annual appropriation of $25,000 and the complaint is made that the per capita cost of maintenance is too high.

PENNSYLVANIA

Personal.—Dr. D. A. Arter, Greensburg, celebrated his eighty-fourth birthday, October 26.——Dr. W. H. Robinson, secretary of the Pottsville Board of Health, is reported to be ill at his home.

Appropriation Asked for Criminal Insane Hospital.—The board of trustees of the State Hospital for the Criminal Insane, Fairview, have decided to ask for an appropriation of two million dollars from the legislature for the completion of buildings, their equipment and maintenance.

Sanatorium Accepted.—Health Commissioner Dixon, on October 24, formally accepted in behalf of the state, the new building at the Cresson Sanatorium, to be used as an administration building. The dining hall and vestibule will be finished in a short time, and it is expected that the institution will be ready to receive patients in less than a year.

Railway Fatalities Increase.—According to the report of the State Railroad Commission for the months of July, August and September, there were 34 more persons killed and 673 more injured than during the same period last year. The number killed was 300—90 employees, 20 passengers, 160 trespassers and 30 others. The number injured amounted to 2,977—2,300 employees, 302 passengers, 212 trespassers and 133 others.

New Officers.—Somerset County Medical Society at Rockwood: president, Dr. Bruce Lichty, Meyersdale; secretary, Dr. G. C. Berkheimer, Windber.——Medical Branch of the Johnstown Chamber of Commerce, October 24: Drs. L. M. Gurley, Henson; F. Tomb, and Eugene D. Geer, Edinboro, executive committee.——Green County Medical Society at Waynesburg, October 23: president, Dr. H. C. Scott; secretary, Dr. R. E. Brock, both of Waynesburg.

Hospital Items.—Bethany Hospital, attached to the Bethany Orphans' Home, Womelsdorf, erected at a cost of about $9,000, was formally dedicated October 10.——Residents of the Chartiers Valley are making a campaign to raise $100,000 for the erection and equipment of a new Chartiers Valley Hospital.——The Board of Health of Harrisburg is confronted with the necessity of an isolation hospital. The only accommodation at present in the city for communicable diseases is the isolation pavilion at the Children's Industrial Home.——At a meeting of the staff of the West Side Nesbitt Hospital, Wilkes-Barre, for organization October 21, Dr. W. H. Faulds was elected president and Dr. D. H. Lake, secretary-treasurer.

Contagious Diseases.—Since the first of August 70 cases of typhoid have been reported in Norristown and Chief Medical Inspector B. Franklin Royer, of the State Health Department, has been sent there to investigate.——Although the total number of cases of typhoid at Troy has reached 184, no new cases have been recently reported and it is hoped that the epidemic has run its course. On October 28, a clinic was held at the Emergency Hospital for free typhoid vaccinations. The investigation of the causes made by the State Health Department shows that the epidemic is due to a typhoid case on a farm near the headwaters of Sugar Creek, from which the town receives its water supply.——Three new cases of diphtheria were reported during the week ending November 2, at Lewistown, one being an instructor of music in the high school. All the schools, churches and theaters have been ordered closed. ——During the last month, nearly 100 cases of measles have developed in Fleetwood borough, near Reading. At a special meeting of the School Board of Fleetwood, October 29, it was decided to close all schools for three weeks.

Philadelphia

Scotch Scientist in Philadelphia.—Sir William Ramsey, K.C.B., LL.D., F.R.S., of Kings College, Aberdeen, read a paper on "Electrons" before the American Philosophical Society, November 1. He was the guest of honor at an informal dinner given by Dr. William W. Keen, before the meeting of the society.

Charity Ball Beneficiaries.—The thirty-third annual charity ball will take place December 19, at the Academy of Music and the beneficiaries are: The Children's Aid Society of Pennsylvania; Jefferson Hospital Roof Garden for Pneumonia; Policlinic Hospital and the gynecologic ward of the University Hospital.

Personal.—Dr. W. G. Turnbull, for three years in charge of State Tuberculosis Dispensary 107, has been appointed medical director of the State Tuberculosis Sanatorium, Crescent. ——Dr. E. A. McClaine has been appointed resident physician in the Scranton State Hospital.——Dr. Charles D. Fox has returned from abroad.

Reorganization of Dispensary Staff.—The University of Pennsylvania Hospital Medical Dispensaries have been reorganized and the staff at present consists of Dr. M. H. Fussell, consultant; Dr. Frederick H. Klaer, chief of staff, and Drs. A. A. Howell, S. J. Repplier, T. C. Kelly, J. H. Musser, Jr., H. I. Goldstein, Camden, N. J., H. M. Wise, A. Bowen and Holt.

Large Appropriation Asked.—The Health and Charities Department has asked councils to make an appropriation of $6,151,704 for maintenance of the respective bureaus during 1913. Three million dollars of this appropriation is asked for buildings for the insane at the new site on Byberry Farms; $150,000 for the building for the pathologic laboratory; $500,000 for the building for the female indigent; $25,000 for the employment of fifty outdoor physicians, and $500,000 for the erection of a hospital for the treatment of contagious diseases.

Hospital News.—The first of the group of buildings for the Children's Hospital at Bainbridge, Eighteenth and Fitzwater streets, will be an outpatient structure. The site for the new hospital is an area of more than one and one-half acres. The proposed buildings will cost about $500,000 and this, with the endowment fund, will represent a total investment of more than one million dollars.——Nearly $10,000 has already been raised for the Abington Hospital to be erected on Highland Avenue in that suburb. When $100,000 has been pledged, erection of the buildings will be commenced.——On October 28 the University of Pennsylvania opened a new dispensary in connection with its maternity.——The West Philadelphia Hospital for Women offers to women medical students of the senior class of any regular medical college of Class A the privilege of serving as student assistants to the interns throughout the year.

WISCONSIN

Hospital and Sanatorium Notes.—Dr. J. J. McShane, commissioner of public health of Kenosha, announces the urgent need of an isolation hospital in that city.——At the next meeting of the school board of Milwaukee, Chief Medical Inspector Dr. George P. Barth will submit a plan for the establishment of a school for crippled children, of which there are said to be 137 in the city.——The contracts for the construction of the Sunny Rest Tuberculosis Sanatorium to be erected by Racine County near the county insane hospital, have been awarded to contractors of Burlington.——The supervisors of Grant County have accepted the bid of Monroe contractors of $104.562 for the construction of an insane hospital to replace the building recently burned.——The Sisters of Misericorde, Milwaukee, have instituted a campaign to raise $60,000 for the erection of a new Misericordia Hospital.

Personal.—Dr. Earl L. Baum has been appointed resident surgeon of the Good Samaritan Hospital, Milwaukee.——Dr. Joseph P. McMahon, Milwaukee, has been appointed chairman of the standing committee on health of the Central Council of Philanthropies.——Dr. H. C. Maurer, Beloit, was operated on for appendicitis in the Beloit Hospital, October 26.——Dr. E. F. Woods, Janesville, who was operated on for appendicitis in the Augustana Hospital in Chicago, is reported to be making steady progress toward recovery.——Dr. Joseph Williams, Green Bay, has been appointed house physician of Emergency Hospital, Milwaukee, vice Dr. George T. Hegner, resigned.——Dr. J. W. Coon, Wales, has been appointed a member of the committee of the Wisconsin Antituberculosis Association to make further study and recommendations in the matter of utilizing the forest reserves for the employment and treatment of convalescent consumptives.——Dr. C. F. King, Hudson, was thrown from his buggy, October 10, in a collision with an ice wagon, fractured his clavicle and suffered internal injuries.——Dr. F. B. Hoermann and family sailed, October 23, for Honolulu.——Dr. E. C. Pratt, Kewaunee, has assumed his new duties at the Kankakee (Ill.) State Hospital.——Dr. Samuel Bell, who has been ill in his home in Beloit, is reported to be improving.

CANADA

Personal.—Dr. George L. Clark has succeeded the late Prof. J. Stewart Dickey as lecturer on practical anatomy in the Western Medical School, London.——Dr. W. C. Swenerton, Fort George, B. C., has been appointed medical health officer of the Grand Trunk Pacific System with jurisdiction over territory from Fort George to Frazer Lake.

Hospital News.—The board of management and guild of the Ottawa Maternity Hospital held a tea and sale October 24, the proceeds of which are to be applied to the additional wing required for the institution.——At the annual meeting of the Niagara Falls General Hospital Trust, it was decided to ask a city architect to submit sketches for an additional wing to the hospital to cost about $30.000. This wing will be built from the proceeds donated to the hospital by the late Susan Thompson.

Tuberculosis Campaign.—The offer of the Royal Edward Institute for Consumptives, Montreal, to donate $100,000 toward a site and building to be used for advanced cases of tuberculosis is still open provided the city and province subscribe their share toward the maintenance of the institution. For the maintenance of the hospital, $20,000 a year is required, of which the city and province are asked to furnish $7,000 each.——An antituberculosis league has been organized in Saskatchewan. A site for a sanatorium has been selected near Fort au'Appelle and 230 acres of land have been bought and paid for. Dr. William Hart has been elected superintendent of the institution.

German Physicians in Canada.—The German Central Committee for Physicians' Study Travels visited Toronto October 3, and were entertained by the municipality and the University of Toronto and the Academy of Medicine. The entertainments included a reception at Convocation Hall, of the University of Toronto, where the committee was received by President Falconer on behalf of the university and Dr. R. A. Reeve on behalf of the Academy of Medicine. Dr. Rudolph Lennhoff of the University of Berlin responded to the address of welcome.——At a dinner given by the city of Toronto, the mayor and Dr. Gerhard Heintzman welcomed the guests, and Professors His of the University of Berlin and Loeffler of the University of Greifswald responded on behalf of the guests.——The visiting physicians were also welcomed by the medical profession of Montreal, October 5. After visiting the Royal Victoria and general hospitals they were given a reception in McGill University, and in the evening the Montreal Association of Physicians and Surgeons welcomed them in a reception at the Hotel Windsor.

PARIS LETTER

(From Our Regular Correspondent)

Paris, Oct. 18, 1912.

Local Treatment of Vincent's Angina by Salvarsan

At the meeting of the Academy of Medicine, October 8, Dr. Achard, professor of pathology and therapeutics at the Paris Faculté de médecine, read an interesting paper on this subject. The success of salvarsan in syphilis suggested the use of salvarsan in diseases caused by other spirochetes than the *Spirochæta pallida*. Ehrlich, Rumpel and Gerber reported cures of Vincent's angina by the intravenous injection of salvarsan. As Vincent's angina is a local affection and as the intravenous injection of salvarsan is not without danger, Achard treated a patient with local applications in the throat. He selected an especially severe case which had been under observation since last year; the velum of the palate was deeply ulcerated and the uvula had been destroyed; customary treatment had been of no avail. Salvarsan was applied, first in solution and then in powder. Improvement was noted at once and cicatrization took place quickly. In another case of angina the third day, the two tonsils had a sanious and offensive coating, the ganglia were congested and the neck was edematous. Diagnosis was verified by microscope; applications of salvarsan in glycerin were commenced and repeated three times a day with no other treatment. After four days the cure was complete. This treatment is all the more valuable in Vincent's angina as the disease is often long-continuing and rebellious to ordinary means. It is advantageous to verify the clinical diagnosis with the microscope. The differential diagnosis between Vincent's angina and syphilis is sometimes difficult; a trial treatment with mercury might be dangerous, and Möller has even seen angina become gangrenous and fatal following it. With the local application of salvarsan no risk is run; in Vincent's angina there is every hope for a rapid cure. If there is a question of syphilis the treatment would be advantageous in combating an additional spirochetal infection, and according to some authors it would do some good in syphilitic lesions, primary, secondary or tertiary.

Other local infections due to spirochetes are sometimes curable by this local treatment, especially mercurial and ulceromembranous stomatitis, several ulcerative conditions of the buccal cavity, necrosis of the dental pulp and noma, a lesion of the most serious kind. This simple treatment is free from danger and can be employed by every practitioner.

Suicide Statistics

The number of suicides, which in 1901 was 8,818 (6,809 men and 2,009 women), has been increasing, especially since 1905, until in 1910 it was 9,819. This number is evidently less than the total number of suicides, for without doubt many suicides are never noted by the authorities. The suicide rate is 25 per hundred thousand. This is three times what it was seventy years ago (9 per hundred thousand in 1840, 17 in 1880, 22 in 1900). The mean number was exceeded in 1910 in twenty-six departments. The 9,819 suicides in 1910 comprised 7,476 men and 2,343 women, or 34 per hundred thousand males and 12 per hundred thousand females. Frequency of suicide increases with the advance of age and the maximum is reached among the old; but the rate is increasing among children less than 16; the annual mean from 1901 to 1905 was 60 and from 1906 to 1910 was 80. Widowers do not take a prominent place in the total number of suicides but advance to first position if considered according to the census enumeration. Their suicide rate is 163 per hundred thousand, about three times that of bachelors. Widows and divorced women show a tendency to suicide, but to a less degree than widowers and divorced men. Among 9,282 suicides whose home was known, 4,968, or 54 per cent., lived in the country and 4,314, or 46 per cent., in the city. The rate in the country was 21 per hundred thousand and in the city 26. Servants of both sexes committed suicide oftener than persons employed in other ways, and members of the professions come next. Spring and summer are the favorite seasons for committing suicide. Physical suffering accounted for 21 per cent. of the suicides, mental disease for 15 per cent., unhappiness and ill fortune for 13 per cent., drunkenness for 12 per cent., domestic misfortunes for 9 per cent., disappointment in love for 4 per cent., misconduct for 2 per cent., and other motives for 24 per cent.

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, Oct. 18, 1912.

The Annual Meeting of the Organized Profession in Germany

The annual *Aerztetag* will not be held this year, as the most important matter to be discussed, namely, the readjustment between physicians and the Krankenkassen according to the imperial insurance law is not yet ready for discussion. This resolution of the executive committee of the Aerztevereinsbund indicates to what extent the economic interests of the German physicians are predominant at the present time, for, without doubt, there are a number of other important questions which might have been sufficient to justify the calling of a meeting.

The Medical Member of the Berlin City Council

The years of effort on the part of Berlin physicians to secure representation of the interests of the medical profession, and especially of public health matters, by a regular member of the municipal government of the metropolis, have been, after many difficulties, at last successful. The board of aldermen over a year ago made the proposal to the municipal government to appoint a salaried municipal medical councilor, with the right to sit and vote in the council, and the council has now finally acceded to this proposal. This fact justifies the assumption that the difficulty which stood in the way of the fulfilment of our desires was solely due to the former mayor, who resigned his office in the middle of this year. If the new mayor will show a similar understanding and interest in the other wishes of the Berlin medical profession, we may be quite satisfied with the change in the personality of the head of the city. Now we must wait with anxiety to see who will be chosen for this very important position, which in the extent of its functions and according to its salary is equal to that of a cabinet minister. Surely this man must be conversant with all questions of public-health matters, and this is not a small requirement.

A Prince-Physician

One of the Bavarian princes, as many of your readers may possibly know, "honored" many years ago our science and our profession by the fact that he adopted the medical career. After a regular education he settled in Munich as a surgeon and is in active practice (which has not been a great success, according to some). More in consequence of his ancestry than of his scientific importance, he has been elected an honorary member of different distinguished societies. But these societies will not be very much edified by their honorary member, since lately things have repeatedly come to our notice in regard to the princely colleague, which have excited a quite unpleasant attention in medical circles. Two such circumstances are to be noted within the last few months; they throw a striking light on his interest and intelligence in medical affairs. The *Gesundheitslehrer*, a well-edited journal devoted to the campaign against quacks and patent-medicine swindles, published a notice that a book written by Dr. Hey, the discoverer of Rad-Yo (a disreputable nostrum of the worst sort) was dedicated to his royal highness, Prince Dr. Ludwig Ferdinand of Bavaria, with his hearty consent. The editor then received a communication from a Munich attorney on behalf of the prince, in which it was stated that Dr. Hey solicited the prince for the acceptance of the dedication and that the latter, without having any knowledge of the contents of the book, had given his consent, after Dr. Hey said that he had practiced for a long time in the tropics. While one might be astonished at the remarkable naïveté evidenced in this matter and its public confession, one's wonder will be still increased by a publication which followed shortly after that which has been referred to. The manufacturer of Rad-Yo and Amol (a certain Wasmuth in Hamburg) has repeatedly been convicted on the ground of fraudulent advertisement which he had carried on with the use of Professor Kouwer's name; he asserted in his circular that Professor Kouwer had used Rad-Yo at the delivery of Queen Wilhelmine of Holland, and had thereby facilitated the childbirth. Wasmuth recently published a circular in which he stated that Prince Ludwig Ferdinand of Bavaria had shown great interest in the obstetric remedy Rad-Yo. He had received Wasmuth several times at his castle so as to secure thorough information regarding the remedy and to order several bottles of it. As a striking evidence of the interest that the prince showed in the remedy, and surely also an indication of his respect for the fraudulent manufacturer, the prince gave him his picture with the inscription "To my dear Mr. Wasmuth for constant pleasant remembrance of Dr. Ludwig Ferdinand." It must be a great satisfaction to the prince that this picture, together with his autograph, is published in the advertising circular. It is to be hoped that the district medical association of Munich, or the Munich Aerztekammer, will take the occasion to explain the principles of ethics to their princely colleague as plainly as they would to colleagues of a lower rank who sin against professional interests, so that such an objectionable circumstance will not occur again on the part of the princely colleague.

VIENNA LETTER

(From Our Regular Correspondent)

Vienna, Oct. 20, 1912.

The Balkan War and the Austrian Profession

The war which broke out in the southern part of this country makes itself felt here in a most unpleasant manner. Not only is political tension marked, but also the supply of the daily markets is suffering. We import a large amount of foodstuffs from the Balkan States, especially eggs and meat. These articles are now seriously cut down. Furthermore the medical organization of the Balkan armies is rather poor. The papers here are filled with horrible news about the lack of provisions for the wounded and numerous physicians have volunteered to render medical service at the front. The Austrian Red Cross has sent eight physicians with seventeen nurses together with equipment for a field hospital to Montenegro, the nearest of the fighting states, while another staff of physicians and nurses will be sent soon to Servia and Turkey. The profession in this country includes a large percentage of Slavic physicians whose sympathy with their fighting compatriots called them to the battlefield at this serious time, with the result that there is now a lack of physicians in several frontier districts of Austria. In another respect also the profession is influenced by the war. Our army is being prepared for any possible contingencies, and the lack of medical men has led to the notification of every practitioner between the ages of 32 and 45, residing in Austria-Hungary, that he may have to render service at the field hospitals in case of war, regardless of the practice that will have to be given up.

An Outbreak of Paratyphus Infection in the Vienna Hospital Due to Bacillus-Carriers

Some time ago an alarming incident occurred in the Allgemeines Krankenhaus of Vienna. A large number of physicians, about eight hours after their dinner had been served to them in the common dining-room, complained of nausea, diarrhea, fever and general prostration; so did the nursing staff in various wards. In one medical ward the entire staff of nurses, numbering from eight to ten, were bedridden at the same time. The outbreak of gastro-intestinal disturbances was at first thought to be due to some kind of poison in the food, or to an unwholesome condition of the articles used in the hospital kitchen, where food is provided for about 4,000 people, comprising patients, staff, administrative officers and workers in the hospital. A thorough investigation was begun at once. It appeared that a few weeks previously a similar, though not so extensive occurrence, had taken place among the patients. The cases were few and scattered all over the wards. This time, however, over forty physicians, dining in the same room, were attacked while others were not, although they ate food prepared from the same material in the same kitchen; the same thing was observed with the nursing staff and the patients. No unwholesome condition was found in the kitchen and no metallic or other poison was discovered in the excreta or dejecta of the patients, who all soon regained their health. The kitchen staff was next thoroughly examined and after thousands of analyses by the chemical and pathologic departments the cause was found. Out of twenty-six persons examined, no less than four were bacillus-carriers, and the sickness was diagnosed as paratyphoid. The investigation was conducted by the government, and from the beginning it was decided to tolerate no bureaucratic interference. At present all precautions have been taken to prevent any further mischief through the employment of the persons who fell ill, and of course the bacillus-carriers will be treated as required. The investigation is still going on, for it is intended to have all persons concerned examined thoroughly. It is most likely that contamination took place after cooking, in making up the portions for the separate dining-rooms.

Marriages

Charles Lee Ferguson, M.D., Somerville, O., to Miss Katherine Schoenling of Cincinnati, October 21.

Adrian Van Brackleen Orr, M.D., Chester, Pa., to Miss Bish Beulah Lamb, at Tyner, N. C., October 17.

Earl Rogers Whipple, M.D., Steelton, Pa., to Miss Jean Isabelle Newlands of Buffalo, Pa., October 23.

Charles Leo O'Neill, M.D., Newark, N. J., to Miss Helen Regina Gilligan of Orange, N. J., October 15.

Lathy L. Yerkes, M.D., to Miss Cora Wright, both of Alton, Ill., at Edwardsville, Ill., October 15.

Edwin N. Brown, M.D., to Miss Gertrude Whitt, both of Arena, Wis., at Mazomanie, Wis., October 16.

Ray Close Whitmore, M.D., Quincy, Mich., to Miss Ethel Bradford of Ishpeming, Mich., October 23.

Elmer Allen Myers, M.D., Burdett, Kan., to Miss Thirza Hope Fox of Lawrence, Kan., October 23.

Harrison Smith Collisi, M.D., to Miss Anna B. Simpson, both of Grand Rapids, Mich., October 26.

Harry Toulmin, M.D., Philadelphia, to Miss Ruth Davis Sprague of Brookline, Mass., October 26.

Curtiss Eugene Mason, M.D., Canby, Ore., to Miss Bertha Clement of Beaverton, Ore., October 14.

Frank Walton Larrabee, M.D., Alton, Ill., to Miss Illa Smith, at Claremont, N. H., October 17.

John Wesley Parsons, M.D., Benson, Neb., to Miss Eva Wicklund of Omaha, Neb., recently.

Cadis Phipps, M.D., Boston, to Miss Ruth Elizabeth Brock of Washington, D. C., October 21.

George M. Luckey, M.D., Vinton, Ia., to Miss Edna Black of Canton Township, October 10.

Simon Franklin Wade, M.D., to Miss Elsie R. Mawha of Newark, N. J., October 16.

Frederick Binder, M.D., to Miss Emily DeCou, both of Corning, Ia., October 23.

Frank W. Van Kirk, M.D., to Miss Vera Wilcox Leighton, in Chicago, October 17.

David M. Brown, M.D., to Miss Rose Freund, both of New York City, October 15.

Byron E. Biggs, M.D., Flint, Mich., to Miss Walt of Carson City, Mich., recently.

Deaths

Major-General Robert Maitland O'Reilly, surgeon-general, U. S. Army, retired; a member of the American Medical Association; died in Washington, D. C., November 3, from uremia, aged 67. He was born in Philadelphia, Jan. 14, 1845, and was graduated in medicine from the University of Pennsylvania, Philadelphia, in 1866; two years prior to that time he was appointed a medical cadet in the U. S. Army and served during the latter part of the Civil War. On May 14, 1867, he was commissioned assistant surgeon, U. S. Army, and was promoted to colonel in 1902. He was appointed surgeon-general with the rank of brigadier-general Sept. 7, 1902, reappointed Sept. 7, 1906, and was retired with the rank of major-general Jan. 14, 1909, on attaining the age of 64 years. He took part in the expeditions against the Sioux Indians in 1874 and 1891. In 1884, while attending surgeon in Washington, Colonel O'Reilly was assigned to the White House as personal physician to President Cleveland. During the Spanish-American War he was chief surgeon of the First Independent Division and later chief surgeon of the Fourth Army Corps at Tampa. During General O'Reilly's service as surgeon-general the reorganization of the medical staff into the Medical Corps of the Army was accomplished, the Medical Reserve Corps was established, contract surgeons were abolished and anti-typhoid inoculation was introduced in the Army. During his service in Washington he was a member of the board of directors of the Columbian Hospital, consulting surgeon to the Providence Hospital, a member of the board of commissioners of the Soldiers' Home and president of the central committee of the American National Red Cross. After his retirement he resided for a time in Oswego, N. Y., but soon returned to his old home in Washington

Arthur Tracy Cabot, M.D. Harvard Medical School, 1876; a well-known surgeon of Boston; died at his home in that city, aged 60.

He was born in Boston, the son of Samuel and Hannah Lowell (Jackson) Cabot, and received his A.B. degree from Harvard in 1872. After postgraduate medical studies in Vienna and Berlin for two years he returned to Boston and was given his A.M. degree by his alma mater. His practice was not entirely confined to surgery. He was consulting surgeon to the Massachusetts General Hospital, the Children's Hospital and the New England Hospital for Women and Children, and was chairman of the Massachusetts Commission on Hospitals for Consumptives. He was a member of the American Medical Association, once president of the Massachusetts Medical Society, a fellow of the American Surgical Association and a member of the American Association of Genito-Urinary Surgeons and the Boston Society of Medical Science. He was also honorary president of the American School Hygiene Association, a trustee of the Boston Museum of Fine Arts and a fellow of the American Academy of Arts and Sciences.

William Frederick Dudley, M.D. Long Island College Hospital, Brooklyn, 1886; a member of the American Medical Association, American Rhinological, Laryngological and Otological Association and Associated Physicians of Long Island; adjunct clinical professor of diseases of the throat and nose in his alma mater, and chief of clinic in the nose and throat department; consulting laryngologist to St. Christopher's and the Norwegian hospitals; laryngologist to the Brooklyn and St. John's hospitals and associate laryngologist to the Long Island College Hospital; died at his home in Brooklyn, October 22, from septicemia, aged 50.

Charles Harris, M.D. Louisville Medical College, 1880; a Confederate veteran, the first practitioner to settle in Muskogee, Okla.; local surgeon for the Missouri, Kansas and Texas Railroad; for several years physician on the Indian reservations at Fort Mohave and Parker, Ariz.; died at his home in Brushy Mountain, Muskogee, October 23, from disease of the stomach, aged 74.

John Oatts Reddie, M.D. University of Glasgow, 1884; formerly secretary of the El Paso County (Colo.) Medical Society but for six years a resident of Prince Rupert, B. C.; president of the Prince Rupert Medical Society, health officer of Prince Rupert; medical inspector of immigration for the Dominion at that port; died at his home, August 28, from carcinoma of the kidney, aged 54.

Charles William Oviatt, M.D. College of Physicians and Surgeons, Chicago, 1887; a member of the American Medical Association, American Surgical and Western Surgical associations; one of the best known and most skilled surgeons of the Northwest; respected, beloved and honored by all who knew him; died at his home in Oshkosh, Wis., October 30, from heart disease, aged 59.

William Quincy Huggins, M.D. University of Buffalo, N. Y., 1870; a member of the Medical Society of the State of New York; one of the oldest practitioners of Niagara County; surgeon of Battery E, First New York Volunteer Artillery throughout the Civil War; for 42 years a practitioner of Sanborn; died at his home, October 21, aged 70.

Sydney Howard Carney, M.D. Harvard Medical School, 1861; formerly of Boston; resident physician at the Massachusetts State Almshouse and a member of the staff of the Massachusetts General Hospital and the Boston Dispensary; died at the home of his son in Tompkinsville, Staten Island, October 22, from pneumonia, aged 75.

Herman B. Stadt Singer, M.D. University of Leipzig, Germany, 1893; a member of the Medical Society of the State of New York; for two years assistant medical examiner in the Buffalo Department of Health; died at his home in Buffalo, October 23, after a surgical operation, aged 48.

William B. Charles, M.D. University of Louisville, Ky., 1887; formerly president of the Kings County (Cal.) Medical Society; physician to the Kings County Hospital and health officer of Hanford; died at his home, October 18, from heart disease, aged 55.

John Allen Millhouse, M.D. Medical College of Georgia, Augusta, 1885; of Perry, S. C.; a member of the South Carolina Medical Association; was found dead at a hotel in Columbia, S. C., October 20, from accidental gas asphyxiation, aged 53.

Emma W. Moorehouse (license, Missouri, 1895); formerly of Appleton City, Mo., a member of the Missouri State Medical Association; died at her home in Sugar City, Colo., October 12.

Richard Mason Fletcher, M.D. University of Alabama, Mobile, 1894; formerly contract surgeon, U. S. Army, and assistant surgeon of volunteers during the Spanish-American War; for several years a practitioner of Chicago and chief surgeon of the Chicago Emergency Hospital; died at his home in Birmingham, Ala., November 2, aged 46.

Albert Frederick Hyde, M.D. Rush Medical College, 1882; formerly a member of the American Medical Association; for twenty-eight years a practitioner of Shelby, O.; died in Columbus, O., October 23, from post-melancholic dementia, aged 53.

Hiram L. True, M.D. Eclectic Medical Institute, Cincinnati, 1870; a member of the McConnelsville, O., Board of Health; died in a hospital in Columbus, October 22, from uremia, five days after an operation for prostatic hypertrophy, aged 67.

Joseph J. Jaches, M.D. University of Moscow, Russia, 1887; visiting physician to the Jewish Maternity Hospital, Manhattan, and a resident of Bath Beach, Brooklyn; died suddenly at his home, October 20, from cerebral hemorrhage, aged 52.

Edward Fleming Jeffries, M.D. Western University, London, Ont., 1909, and gold medalist of his year; assistant physician at the Hospital for the Insane, Hamilton, Ont.; died in that institution, October 17, from typhoid fever, aged 26.

Dennis F. Moss, M.D. Medical College of Ohio, Cincinnati, 1869; for 25 years United States pension examining surgeon at Winamac, Ind.; died at his home in that place, September 18, from empyema, aged 65.

Harry Frye Holt, M.D. Harvard Medical School, 1906; a member of the Massachusetts Medical Society and of the staff of the Worcester Memorial Hospital; died at his home in Worcester, about October 20.

William M. Millen, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1882; formerly principal of the Monmouth (Ill.) high school; died at his home in Omaha, October 22, from heart disease, aged 65.

William Johnson, M.D. Medical College of Ohio, Cincinnati, 1883; a member of the Ohio State Medical Association; was found dead in his office in Cincinnati, October 20, from heart disease, aged 56.

DeWitt Clinton Hunter, M.D. University of Buffalo, N. Y., 1873; a practitioner for more than fifty years; died at his home in Rochester, N. Y., October 21, from cerebral hemorrhage, aged 78.

Niel B. Gillies, M.D. Queens University, Kingston, Ont., 1871; formerly a practitioner of Pueblo, Colo.; died at his home in Tulsa, Okla., October 24, from carcinoma of the stomach, aged 74.

Edward P. Ford, M.D. Northwestern University, Chicago, 1896; formerly of Chicago; for ten years in the government employ in the Indian service; died in Valentine, Ariz., October 16, aged 38.

Frederick Werner, M.D. Northwestern University, Chicago, 1904; instructor in operative obstetrics in his alma mater; died at his home in Chicago, October 23, aged 31.

George Washington Nuckolls, M.D. Rush Medical College, 1881; a retired practitioner of Minneapolis; died at his home in that city, October 19, aged 69.

Bertram Eugene Thomas, M.D. Ohio Medical University, Columbus, 1895; died at his home in St. Marys, O., October 13, from locomotor ataxia, aged 42.

Erastus M. Ward, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1877; died suddenly at his home in Rosendale, Mo., October 21, aged 70.

Thomas E. Rinehart, M.D. Pulte Medical College, Cincinnati, 1885; died at his home in Roseville, O., October 19, from heart disease, aged 50.

George Eli Marshall, M.D. Detroit College of Medicine, 1897; of Peterboro, Ont.; died suddenly in that city, recently, from heart disease, aged 47.

Frederick O. Stoddard (license, Maine, 1895); a resident of South Berwick for twenty-five years; died at his home, October 15, aged 50.

John Nutting (license, Minn., 1884); died at his home in North Mankato, Minn., October 21, from carcinoma of the throat, aged 78.

Joseph Odilon Poitras, M.D. Victoria University, Coburg, Ont., 1890; died at his home in Ste. Cunegunde, Que., September 3, aged 47.

E. T. Parker, M.D. University of Nashville, Tenn., 1857; died at his home in Lafayette, La., about October 22, aged 78.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

AUBERGIER'S SYRUP OF LACTUCARIUM

That clause in the federal Food and Drugs Act which requires certain potent drugs to be declared on the label of the proprietary mixtures containing them has been responsible for clearing up many mysteries. Physicians have frequently wondered why they were unable to obtain from the syrup of lactucarium, U. S. P., the therapeutic results which they were able to obtain from a proprietary product known as Aubergier's Syrup of Lactucarium, sold by Fougera & Co. at an exorbitant price and put up in "patent-medicine" style. The milk-juice of lettuce once bore the reputation of being a soporific — a reputation that has been artificially maintained largely through the effects of the Aubergier preparation. With the advent of the Food and Drugs Act the secret of the soporific effect of the Aubergier product was explained — it contains morphin.

The practical difficulties of making a satisfactory syrup of lactucarium are not realized by most physicians. To such the following note, presented at a meeting of the Pennsylvania Pharmaceutical Association by Mr. Louis Emanuel, president of the Pennsylvania Pharmacy Board, will prove enlightening:

"Did you ever make a syrup of lactucarium direct from the crude drug? If you did, shake hands, and let me hail you as a brother, a brother pharmacist in fact worthy of the title. If you did not, I am sorry for you; you have missed something worth knowing.

"The *American Journal of Pharmacy* tells us that in 1851 'Aubergier cultivated lactuca and poppy on a large scale, in order to obtain lactucarium and opium. Please note the latter for further reference. In lactucarium he found lactucin, mannite, resin, cerin, asparmid, brown coloring-substance and oxalic acid.' In 1860 in the same publication, Proctor says: 'The attention of the medical practitioners has of late been turned to the syrup of lactucarium, and the preparation sold usually by apothecaries in this city is that known as Aubergier's, a French preparation, made by dissolving 30 parts of alcoholic extract of lactucarium in 500 parts of boiling water, straining the liquor and adding 15,000 parts of boiling simple syrup, which is kept boiling, and albuminous water added from time to time until it is clarified.' In '66, '77, '78, '82 and '84 various writers produced elaborate dissertations on the supposed improved methods of making this syrup, but not one has had the temerity of inquiring into the therapeutic value of this preparation, or to examine the French preparation to ascertain whence comes its vaunted superiority.

"The French, it is said, are an impressionable people, but they appear to have a limit; they do not take any chances on *plain* syrup of lactucarium. Theirs contains the added product, extract of opium. This implies a lack of faith in soporific properties of lactucarium, and displays a recklessness in regard to cost and labor.

"The National Dispensatory, fifth edition, says:

> "The utility of retaining lactucarium as an official medicine is very doubtful. It may possibly be desirable as a hypnotic for very impressionable persons, with whom faith in a remedy supplies its want of intrinsic efficiency."

"The official modus operandi for making this syrup looks laborious, but the innocent-looking task of reducing the drug to a coarse powder is a revelation to the uninitiated.

"It was a hot day in July, and it took my 175-pound clerk and me all that day to reduce 50 gm. of lactucarium to a satisfactory condition. The stuff looked like old pieces of discarded rubber shoes, and it really appeared to act like rubber. After perspiring all day with the Pharmacopeia and iron mortar, imagine our disgust, if you can, on reading in the National Dispensatory the following:

> "This alcoholic preparation of lactucarium is quite as valueless and more objectionable than the syrup of the same drug.

"Moral: Why pay $6.50 a pound for material that has no medicinal value, and is so hard to manipulate as lactucarium when decrepit rubber shoes are so cheap? You can have just as much fun on a hot summer day in reducing the latter to a coarse powder with clean sand in an iron mortar as you can with the more expensive material."

One of the advantages claimed for ready-made prescriptions over the made-to-order variety, or even over pharmacopeial preparations, is that they are more elegant in appearance and less offensive to the nostrils and palate. This is the common experience of physicians who, having prescribed some ready-made mixture, wish to change the dose of one of its constituents and write a prescription or ask their pharmacists to prepare a similar preparation. The inability of the pharmacist to prepare a preparation even approaching the original in appearance, color or taste usually leads to increased confidence in the skill of the manufacturer of the proprietary and a correspondingly decreased belief in the pharmacist's professional attainments. But these conclusions, although natural, are based on false premises. As the proprietary did not have the composition declared on the label, a mixture based on the formula differed more or less widely from the proprietary it was expected to resemble.

A SHOTGUN PRESCRIPTION

The prescription that follows is an interesting sample of polypharmacy:

℞	Cascaræ evacuantis	℥ iss
	Strychninæ sulphatis	gr. 1/4
	Sodii bicarbonatis	ʒ i
	Codeinæ sulphatis	gr. iv
	Caffeinæ citratis	gr. xx
	Sodii salicylatis	ʒ i
	Liq. potassii citratis	℥ iss
	Misturæ Bashami	q.s. ℥ iv

M. et Sig: ʒi every three hours, in water.

The patient who has this complicated prescription prepared for him will have the somewhat melancholy satisfaction of knowing that the resources of the drugstore have been strained to supply his needs. It will be noticed that one of the eight ingredients of this prescription—Basham's Mixture—is a preparation that is in itself a mixture of six ingredients. Furthermore, if one wanted to be hypercritical, it might be said that one of the ingredients of Basham's Mixture—aromatic elixir—is made up of five component parts and one of these parts, in its turn, has five elements in it. Leaving out of account the chemical reactions possible between the various twenty-one parts of this complicated compound, and omitting all ingredients that cannot be said to have some therapeutic action, this is what the patient gets:

Cascara evacuant
Strychnin sulphate
Sodium bicarbonate
Codein sulphate
Caffein citrate
Sodium salicylate
Potassium citrate
Iron acetate
Dilute acetic acid
Ammonium carbonate
Aromatic oils
Alcohol

This is an actual prescription recently written by a physician in a prominent eastern city in this enlightened nation of ours. It seems strange that in the light of our present knowledge a physician would be guilty of writing such a prescription. We wonder who could figure out what the action of this mixture would be.

Correspondence

The Proprietary Evil and "Gullible Doctors"

To the Editor:—After reading your knocks and boosts of the issue of October 19, I think that the term "gullible doctors" might be applied to the profession in its relation to the proprietary evil. It seems as if there were a large percentage of the profession waiting for some salesman to come along and hand him green or pink pills, telling him that they are good for almost everything, from nephritis to the vomiting of pregnancy, and explaining how much more cheaply than the other fellow he can sell to you. It was only the other day when one of these men walked into my office, pulled out a concoction of some kind and started to tell me that it was good for nephritis. I asked him what nephritis was and he said, "Doctor, I didn't come here to be quizzed; I am here to sell you goods." I asked him how he knew so much about it. He said in so many words, "You see, we are called into the house for which we sell and are coached along those lines, while in reality we don't know what we are talking about."

It seems as if the average physician could not say "no" to these semipatent medicine agents, and this accounts for the number of thrifty proprietary houses which are supported by the "gullible doctor."

If the average man will just "mix a few brains" with his prescription work and not depend on the inert proprietary drug, but insist on his prescription being filled with drugs from a reputable house, I feel sure that more of us would have much faith and better results in our drug therapy.

James E. Reeder, M.D., Dyersville, Iowa.

Importance of Keeping Medical Society Records

To the Editor:—Having completed the history of the Summit County Medical Society, one evident fact is impressed on my mind: The records of local and state organizations are not properly kept. I do not refer to "minutes" or to any one society, for my researches brought me into contact with county, district, state and national history. Everywhere are gaps, lack of records of origin, and absence of many important items which should be obtainable if records had been properly kept.

I therefore beg to suggest that every medical society dig up its past, put its history into proper shape and provide for its proper recording in the future; also that every member sign the constitution of his society and give his birthplace, date, college, etc. The birthplace should be the country with the proper geographic name; not "America," but "United States," etc.

If any reader imagines these remarks to be unnecessary, let him endeavor to write the history of his society and learn the truth by experience with past defects.

A. S. McCormick, Akron, Ohio.

[Comment.—Dr. McCormick calls attention to an important matter: the records of a county society are worthy of greater care than they ordinarily receive. The minutes should be recorded in such a manner as to make them permanent and should be transmitted from one secretary to his successor. Minute-books should be preserved. Their value increases with years. This is appreciated by some of the component societies, but few officers realize that official correspondence is the property of the organization and should be properly filed in the archives of the society. Often when such correspondence is kept at all, it is placed with the individual's business or personal correspondence and does not pass to his successor in office or into the organization's possession. This is a grave error, as this correspondence is of inestimable value as a record of the society's activity—of its history. When the members and officers have failed to preserve records of passing events, it is practically impossible to write a history of the organization for, lacking corroboration, what should be history becomes merely legend. Every society should provide suitable files for preserving its records, and require that they be safeguarded and preserved.—Ed.]

Queries and Minor Notes

Anonymous Communications will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

EARLY RECOGNITION OF THE RELATIONSHIP BETWEEN THE MOSQUITO AND DISEASE

To the Editor:—While the subject of early observations on the causes of disease is rife, I wish to call attention to the fact that a Spanish physician of Havana, Cuba, noted that patients in his wards who slept under mosquito-nets did not acquire yellow fever.

This observation was made in the last half of the seventeenth century. The article citing the observation appeared in the *Edinburgh Review* or the *London Quarterly Review*, in some issue of the year 1850. I have lost the article, so cannot give exact dates, but there must be copies in existence. If this be accepted as a direct observation, it is probably the first incrimination of the mosquito and antedates Stanley and Stevenson by a century.

F. J. McKinley, M.D., Pala, Cal.

Answer.—A careful examination of the *Edinburgh Review* and the *London Quarterly Review*, in the Library of Congress, failed to reveal any such reference as that to which our correspondent refers.

The first reference to mosquitoes as vectors of yellow fever is, according to Sir Robert Boyce ("Mosquito or Man?" 1909), that of Louis Daniel Beauperthuy, in the *Gazette officielle de Cumana* (1854, No. 57), in which he describes the *"Zancudo bobo, à pattes rayées de blanc,"* as the agent of transmission. In 1848, however, the South Carolina physician Josiah Clark Nott, then practicing at Mobile, Ala., already regarded the mosquito hypothesis as proved for yellow fever, so far as his own observations were concerned *(New Orleans Med. and Surg. Jour.*, 1848, iv, 563, 601). Nott was (in 1844) the first to describe and operate for the condition which Sir James Y. Simpson afterward (in 1861) made known as coccygodynia, and was the author of some interesting ethnologic treatises, particularly on the Jewish race.

To those of our readers who have never seen it, the following extract from the Sanskrit Suśruta, bearing on the causal relation of mosquitoes to malarial fever, may perhaps be of interest. It was written at least fourteen centuries ago, and was translated at the instance of Sir Henry Blake, Governor of Ceylon, in 1905, the translation having been verified and certified by five Sanskrit scholars of acknowledged authority, among them a high priest, a Brahmin, and the Tamil and Cingalese translators to the government. As it reads, the translation gives a neat thumb-nail sketch of some characteristic malarial symptoms, while at the same time affirming the mosquito theory. After listing twelve different kinds of "life-destroying terrific" mosquitoes, with equally terrifying Hindu names, the Susruta proceeds:

> Their bite is as painful as that of serpents and causes diseases resulting from the three humors joined together; the bite, as if burnt with caustic or fire, is red, yellow, white and pink color, accompanied by fever, pain of limbs, hair standing on end, pain, vomiting, diarrhea, thirst, heat, giddiness, yawning, shivering, hiccup, burning sensation, intense cold, vesicles or pustules increasing, swelling, knots under the skin, circles, etc.

As a clinical notation of "chills and fever," this little extract approaches some of the early Greek records of disease in fidelity to fact, and the statement of the mosquito hypothesis given is therefore much more definite and scientific than the haphazard collocation of swamps, mosquitoes and malaria which we find in so many pieces of secular literature, Baring Gould's "Mehalah," for instance.

WILL THE TYPHOID BACILLUS LIVE IN SEA-WATER?

To the Editor:—It is said that the typhoid germ will not live or propagate in sea-water. Is that true? The oyster is the occasion for the inquiry.

J. F. H.

Answer.—The statement that the typhoid germ will not live or propagate in sea-water cannot be true, because experiments are reported in which "oysters were inoculated with the typhoid bacillus and kept alive in tanks of sea-water and typhoid bacilli were obtained from their interior four, nine, sixteen and even eighteen days from the commencement of the experiment, the oysters showing no abnormal condition, while the typhoid bacilli recovered from them and from the tank water retained unimpaired all the characters of a typical typhoid bacillus." This statement is taken from Hewlett's "Manual of Bacteriology," page 268. It is true, however, that oysters are more frequently infected with typhoid bacilli in shallow, fresh water to which sewage has access than in their original beds in the sea-water.

PROTONE

To the Editor:—Please inform me about the authenticity of a certain medicament for thin persons, called Protone, which has been recommended to me by a certain druggist of this city. I want to know if this is a fake cure similar to many I have seen exposed in your paper, or if I can rely on its properties. They claim that Protone changes thin persons to robust ones in a few months.

J. B. Nogueras, Chicago.

Answer.—Protone is a fraud and was exposed as such in The Journal, September 21, 1912, p. 958.

THE BLUE SPOT IN THE SACRAL REGION

To the Editor:—Where may I obtain a copy of the *Archives de médecine des enfants*, Paris, June, xv, No. 6? It was listed in the Current Literature Department of The Journal, July 27, 1912, p. 312. I do not read French, but can easily have the article translated.

The Navajo Indian babe is invariably marked by the "blue spot" over the sacrum. These Indians are supposed to have migrated from Asia and have been traced by language roots as far as Alaska. So far no Tartar tribe has been found using the same dialect. This blue mark may help us to solve the problem.

A. M. Wigglesworth, Fort Defiance, Ariz.

Answer.—The *Archives de médecine des enfants* is a monthly published by Masson et Cie, 120 Boulevard Saint-Germain, Paris, France, for 16 francs a year.

The article in question, "The Blue Spot in the Sacral Region" (*La tache bleue sacrée dite mongolique*), is by Dr. Bruch of Tunis, Africa, who states that the blue spot is quite common among the children there, but only in brunette children. He quotes a number of authors who have noticed the blue spot in Europeans in proportions of 1 in 600 or 1 in 300. He cites further K. Enjisawa's assertion (1906) that the blue spot is not peculiar to the Mongolian races. Monkeys have it almost constantly, and it persists in them throughout life. Comby mentions that the blue spot is found in certain families with mixed Indian blood, who live near the equator, and is regarded as a sign of this admixture. Bruch suggests that the blue spot might be found in negro babies if examined soon enough after birth, before their skin grows too dark for it to be perceptible.

HYDROCHLORIC ACID DEFICIT

To the Editor:—Please tell me in detail how to estimate the "hydrochloric acid deficit" in a specimen of stomach contents. Both Emerson's "Clinical Diagnosis" and Sahli's "Diagnostic Methods" (American Edition) are vague on the subject. Therefore kindly give me a concrete example with the mathematics of the procedure explained. Please omit name and address.

D. B. N.

Answer.—"Hydrochloric acid deficit" is a term used to indicate the amount of hydrochloric acid necessary to saturate a specimen of stomach contents which is deficient in hydrochloric acid so that it will give a reaction for free hydrochloric acid. To determine this, 10 c.c. of the stomach contents are placed in a beaker and a solution of tenth-normal hydrochloric acid is added drop by drop until a reaction for free hydrochloric acid is obtained. The point at which free hydrochloric acid appears may be determined by testing with congo paper, which turns blue at the point at which the protein is saturated and some of the hydrochloric acid remains free. Thus, if in the estimation 2.5 c.c. of tenth-normal hydrochloric acid must be added before a piece of congo paper (or better a solution of congo-red) is turned blue by the mixture, the hydrochloric acid deficit would be stated at 25.

LITERATURE ON HEAT CRAMP

To the Editor:—In The Journal (June 1, 1912, p. 1706) appeared a request for literature on this subject. Heat cramp is a pathologic condition which has been either overlooked or disregarded by earlier writers on the subject of heat affections. Recent evidence suggests that the condition is not uncommon and that at times it may be caused by exposure to solar influences. Shortly after entering the Navy I witnessed about fifty cases of this interesting condition on a forced-draft run to Honolulu. To my surprise, there was nothing on the subject discoverable in the literature then available; more diligent search since that time has given better results.

Heat cramp seems to be the symptom of a morbid condition of distinct pathologic entity, which I have described under the name of "myalgia thermica" (*U. S. Naval Med. Bull.*, vi, 380), and have attempted to differentiate it etiologically and clinically from prostratio thermica and febris thermica. From a study of meteorologic conditions and a tabulation of data, it seems that prostratio thermica is essentially a "syncope" taking place among those exposed to high temperature who suffer with any impairment of proper heat dissipation, either internal or external, such as ill health, foul air, humidity, lack of drafts, etc.

Myalgia thermica appears to be caused by excessive heat with concomitant conditions that favor rapid heat dissipation by the production and evaporation of large quantities of perspiration, thereby causing deficient serosity of blood. Judging from my own experience on about 100 cases and from a review of the literature, it tends to occur among those working in places of high temperature with low relative humidity (sometimes as low as 7 and 8 per cent.), and especially when strong drafts of this hot dry air are present. In this disorder the relative increase of thermogenesis and thermolysis is about the same, thus causing thermotaxis to remain near the normal.

The cramps observed were apparently divisible into "local" or myogenic and "general" or neurogenic. They were often spontaneous, but could at times be produced by pressure and other means. The attacks of the "general" type were usually precipitated by some sensory stimulus, as cold baths or exposure to outside air. The majority of these originated outside the fire-room and after the completion of the four-hour watch. Complications and sequelæ of this condition are varied and curious. Following one of these forced-draft runs, six cases of appendicitis (*U. S. Naval Med. Bull.* v, 190) among those working in the fire-room took place within the brief period of about thirty-six hours; the diagnosis of five of these was afterward confirmed by operation.

The presence of an undetermined pathogenic factor in the production of thermic myospasm has been noted by others (Meyer, Kennedy, Grunwell). The striking tendency to "grouped cases" leads me to suggest the possibility of some micro-organism as one of the pathogenic agents.

After a cursory review of the English literature, I have managed to find the following articles, and will be glad to know of any that have been overlooked. In addition, there are a few by foreign writers, but these have not yet been obtainable.

Meyer, Randolph M.: *Virginia Medical Semi-Month.*, 1897-98, p. 552.
Coplin and Bevan: *Med. News*, Philadelphia, 1892, lxi, 262 (?).
Welsh, H. W.: The Journal A. M. A., April 10, 1909, p. 1179.
Gatewood, J. D.: Naval Hygiene.
Anders, J. M.: Practice of Medicine, p. 1290.
Rennie, W. H.: *Southern Med. Jour.*, February, 1911.
Cameron, W. H.: The Journal A. M. A., May 8, 1909, p. 1483.
Clendening, L.: *Ibid.*, May 7, 1910, p. 1517.
Comment: *Ibid.*, June 1, 1912, p. 1706.
Edsall, D. L.: *Ibid.*, Dec. 5, 1908, p. 1969; also *Am. Jour. Med.* Sc., December, 1904.
Elliott, M. S.: *Jour. Mil. Surg.*, xxii, 227.
Edsall, D. L.: Tr. Assn. Am. Phys., xxiv, 625; also *Wis. Med. Jour.*, 1910, p. 425.
Grunwell, A. G.: *U. S. Naval Med. Bull.*, iii, 223.
Suggestion: *Ibid.*, iii, 44.
Kennedy, J. T.: *Ibid.*, iv, 187.
Diel, O.: *Ibid.*, iv, 189.
Johnson, M. K., and Mann, W. L.: *Ibid.*, v, 190.
Higgins, M. E.: *Ibid.*, iv, 207.
Abeken, F. G.: *Ibid.*, v, 57.
May, H. A.: *Ibid.*, v, 53.
Mann, W. L.: *Ibid.*, vi, 380; Oct. (?), 1912.

Some points in the following literature may be indirectly applicable to the subject of heat cramp.

Fleming, W. J.: *Jour. Anat. and Phys.*, July, 1879, xxiv.
Wood, H. C.: Sunstroke, 1872; also *Boston Med. and Surg. Jour.*, cxi, 505.
MacLeod, Kenneth: *British Med. and Surg. Jour.*, September, 1899.
Sandborn: *Ibid.*, 1898, l, 744.
Stannius: *Arch. f. Phys. Heilk.*, 1852.

William L. Mann, Ph.B., A.M., M.D.,
Passed Assistant Surgeon, U. S. Navy.

ARTICLES WANTED ON TREATMENT OF FRACTURES OF THE LONG BONES

To the Editor:—The American Surgical Association has appointed a committee to report on the operative and non-operative treatment of closed and open fractures of the long bones and the value of radiography in the study of these injuries. Surgeons who have published papers relating to this subject within the last ten years will confer a favor by sending me two reprints. If no reprints are available, the titles and places of their publication are desired.

John B. Roberts,
Chairman of Committee, 313 South Seventeenth Street, Philadelphia.

Society Proceedings

COMING MEETINGS

American Physiological Society, Cleveland, Dec. 26-28.
Clinical Cong. of Surgeons of North America, New York, Nov. 11-16.
Southern Medical Association, Jacksonville, Fla., Nov. 12-14.
Southern Surg. and Gynec. Assn., Old Point Comfort, Va., Dec. 17-19.
Western Surgical and Gynec. Assn., Cincinnati, Dec. 20-21.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION

Thirty-Eighth Annual Meeting, held at Chicago, Oct. 22-24, 1912

The President, Dr. Louis Frank, Louisville, in the Chair

The officers elected were named in The Journal November 2, page 1636.

Pernicious Anemia

Dr. J. H. Stealy, Freeport, Ill.: Prognosis and treatment depend wholly on the physician's ability to determine the etiology. The acid treatment in proper dosage is the best adjunct in cases of known etiology, and the best single system in those cases in which the cause cannot be established. Dietetic measures are essential. Food should be selected with care and careful attention paid to the frequency of feeding.

Arteriosclerosis

Dr. G. W. McCaskey, Fort Wayne, Ind.: The most important factor in the production of this disease is overstraining. The various intoxications derived either from within or without play an important rôle. Fibrosis and spasm are the two changes found in the arterial wall. The former is impossible of removal; the latter more or less completely amenable to treatment. The proper object of treatment, therefore, is not the impossible task of removing fibrous tissue, but the overcoming of vascular spasm, the conservation of the failing myocardium in the later stages and so far as possible the overcoming of auto-intoxication by rational measures. The best means for accomplishing these results must depend on the individual case, especially the character of the dominant arterial change, whether fibrous or spastic, the stage in which the case came under observation, the degree of involvement of the heart, associated auto-intoxications, habits of life, etc. If blood-pressure is high, degenerative changes advanced and the general aspects of the case threatening, rest in bed is the most important initial measure of treatment. The diet should be as near the minimum requirements of the body as possible. This is less important with regard to the starches and fats than the proteins. Vasodilators, iodids, and in advanced cases with failing hearts, digitalis, and in certain cases, a special bath devised by me are the general measures of treatment. A special measure of treatment in a group of cases in which the habit of cardiac hyperactivity is in excess of circulatory requirements and tends to keep up high blood-pressure, is aconite in increasing hourly doses to the limit of tolerance or accomplishment of therapeutic results.

Therapeutic Value of Tuberculin

Dr. Francis M. Pottenger, Monrovia, Cal.: Tuberculin will stimulate the machinery of immunization and increase the amount of protective antibodies in the blood. Tuberculin by its focal stimulation favors healing of the focus and as a result of this we expect a more rapid healing of the disease.

Management of Pregnancy and Labor in Pelvic Contraction

Dr. Henry Schwarz, St. Louis: In cases of moderate pelvic contraction in primiparous women in which the head has failed to enter the pelvis a week before term, the patients should enter a hospital and be given the test of labor. If this test fails, they should be delivered by pubiotomy. In cases of moderate pelvic contraction in multiparous women, with a record of craniotomy, high forceps or pubiotomy, the patients should enter the hospital six weeks before term and be delivered by artificial premature labor. Patients with highly contracted pelves should enter the hospital near term and be delivered by cesarean section.

Indications For and Against Sterilization

Dr. J. H. Carstens, Detroit: We are not justified in sterilizing a woman in cases of cesarean section for bony deformities when the pelvic organs are normal and there is ordinary health, or in cases of cesarean section for eclampsia or placenta praevia. In cases of tumors of various kinds the tumors should be removed at the time of operation, if possible, and the woman not sterilized. In case of multiple fibroid tumors, hysterectomy is indicated when the tumors cannot be enucleated. In rare cases in which constitutional conditions exist, such as tuberculosis, etc., sterilization may be not only justifiable but actually indicated.

Cesarean Section

Dr. Asa B. Davis, New York: I have performed 149 consecutive cesarean sections in twelve years, with the loss of seventeen mothers, a total maternity mortality of 11.4 per cent.; 152 children were delivered, twins three times; twenty-five children were still-born or failed to live, a fetal mortality of 23 per cent. I have done seventy-one consecutive cesarean sections in the past two years, with a loss of four mothers, a maternal mortality of 5.6 per cent. There were seventy-two children delivered; eight died or were stillborn, a fetal mortality of 11 per cent. I report fourteen cases of eclampsia so delivered; ten patients lived, 71.5 per cent.; four died, a mortality of 28.5 per cent. Sixteen children were delivered; eleven, or 68.8 per cent., lived. Five children died or were stillborn, a mortality of 31.2 per cent. Twelve mothers were primiparas, one was a secundipara, and one a tertipara; none was in labor. Sterilization of the patient is not practiced. Repeated cesarean section has been performed in twenty-seven cases; in eighteen the second time, in seven the third time, in one the fourth time and in one the fifth time. The best time to operate is at once after labor starts, thus insuring a mature child. If one is sure of the duration of pregnancy, the operation may be done at one's convenience at any time near term. It is not necessary to wait for dilatation of the cervix. I prepare the patient as for any laparotomy. The operation is done by a short median incision wholly above the umbilicus, in the mid-line. The uterus is opened in front, mid-line, from just below the fundus downward. It is closed by an interrupted layer of chromic sutures down to the mucosa, and this layer is buried by a continuous suture, so that no raw surfaces are left on which adhesions can form. The uterus drops into the lower abdomen as after normal delivery. I have not seen hernia in any of my high operative cases.

DISCUSSION

Dr. E. Gustav Zinke, Cincinnati: We have been taught that the management of narrow pelvis is now a simple proposition. It consists of the test of labor, hebosteotomy and cesarean section. All the so-called compromise operations are discarded. The new therapy consists in the test of labor, and in 80 per cent. of the cases this test answers the purpose. In 15 per cent. symphyseotomy or hebosteotomy is necessary, and in only 5 per cent. cesarean section. Every pregnant woman should select a hospital for the place of her delivery. It is the safest place for her, and it is the easiest place for the obstetrician. Cesarean section as a curative agent for puerperal eclampsia cannot be accepted. It has always been a riddle to me why cesarean section should be accepted for the relief of puerperal eclampsia when the same physicians deny cesarean section a place in the treatment of placenta praevia.

Dr. Charles S. Bacon, Chicago: There can be no question about the induction of premature labor in suitable cases. This necessitates our being able to determine the degree of development of the child, and that can be done in practically all cases by a careful study. It also necessitates our being able to give the premature child proper care; this should also be possible with every one who is able to do cesarean section. In certain properly selected cases, it is the operation to be included in the treatment of contracted pelvis. In cases of contracted pelvis, I cannot see why there should be any objection to the operation of sterilization, if it is asked for by the woman herself, as she and not the physician runs the risk. In regard to section in cases of eclampsia, abdominal section is attended with more shock to the woman than vaginal section. In a few cases in which evacuation of the uterus seems necessary and in which the uterus cannot be dilated, vaginal section seems to have a place.

Dr. Charles E. Paddock, Chicago: We should leave the matter of sterilization to the patient I would present to her the facts of what is likely to happen in case she becomes pregnant again, and if she so elects, very well; but she must know the dangers of a second pregnancy.

Dr. Charles B. Brown, Sycamore, Ill.: Cesarean section has a legitimate and proper place in obstetrics. If there were more first-class obstetricians in the country and fewer wonderful abdominal surgeons we would hear less about cesarean section. My statistics as a general practitioner, which include no cesarean sections for normal labor, for puerperal eclampsia, or for placenta praevia, are better than any of those that have been presented.

Dr. C. Edward Sayre, Chicago: I agree with Dr. Paddock, that after the risk of a subsequent pregnancy has been explained to the patient, if she wishes to be sterilized, the operation should be done. As regards the high and low incision in cesarean section, I advise the high incision.

Dr. Rachelle S. Yarros, Chicago: With reference to the induction of premature labor, it seems to me that the induction of premature labor will in a few years, when we have perfected cesarean section, be a thing of the past, for two reasons: 1. The bringing of a premature child into the world is not so difficult a thing as to keep the child alive. 2. The mother is subjected to considerable manipulation, even by the introduction of a bag, and cesarean section, after all, with the great reduction in the mortality, will be more frequently performed in the future than it has been in the past.

(To be continued)

DELAWARE STATE MEDICAL SOCIETY

One Hundred and Twenty-Third Annual Meeting, held at Wilmington, Oct. 7-8, 1912

In the absence of the president, **Dr. L. H. Ball** acted as temporary chairman.

The officers for the coming year are: president, Dr. L. A. H. Bishop, Dover; vice-presidents, Drs. Albert Robin, Wilmington, and Joseph M. Martin, Lewes; secretary, Dr. G. W. K. Forrest, Wilmington; treasurer, Dr. S. C. Rumford, Wilmington.

Rheumatoid Arthritis

Dr. J. J. Jones, Wilmington: I have a patient who has been suffering from osteo-arthritis since September, 1866, and who has had recurrent exacerbations nearly every year—a good many in some years. He has been confined to bed on account of these attacks for more than six years altogether. I started to treat him in 1901. At that time both hands were much disfigured and the joints were ankylosed. He now has the use of all his joints and is able to attend to his duty as president of a bank nearly every week through the year. He can bring on an attack in twenty-four hours by taking certain food containing a good deal of sugar. Sweets and acids especially have a tendency to bring on an attack.

The second patient is a little girl. In the first week of April, 1911, she was taken down with measles from which she soon recovered. On May 4, 1911, she was taken with what was supposed to be rheumatism. It started in her hands and wrists; then it went from one joint to another until the wrists, elbows, ankles, hips, shoulders, the joints of the fingers and most of the spinal column were affected. She became a complete invalid. Nearly every joint was fixed. In December I had her etherized and the adhesions broken up in all the joints. I was unable to straighten many of the joints the first time. I etherized her three times, broke up the adhesions and stretched the tendons and muscles; finally we succeeded in restoring her to pretty good condition and she left the hospital April 24, 1912. Now she is able to bend her head back and has not an ankylosed joint.

The most important part of the treatment is the recognition of the case in the early stages, before it starts, as it were, in the synovial membrane. After ankylosis has taken place, we have a good deal to contend with. One must be careful not to use too much force in breaking up the adhesions. In every one of these cases there is achylia. Digestion is very imperfect. There are putrefaction, decomposition and absorption of the protein matters. Treatment might as well not be started unless the gastro-intestinal tract is taken care of. The two elements in the local treatments which are most important are glycerin and iodin, which produce immediate effects.

DISCUSSION

Dr. Albert Robin, Wilmington: "Rheumatism," like "malaria," is a term which has covered a multitude of diagnostic and therapeutic sins. There are all kinds of rheumatism and all kinds of arthritis of the joints. During the process of infection there may be the same hyperemia and edema and apparently all the other manifestations of inflamed joints. There is undoubtedly a joint infection, metabolic in character, which is due to errors in digestion or lack of elimination or changes in the blood-supply which produce deposits in the blood. There is another form of blood infection which is undoubtedly due to some defect in the secretion of the ductless glands—a defect in the secretion of thymus, some assert. Just how one treatment can apply to all I cannot conceive. I do not see how any one treatment, unless simply invigorating, can be in any way specific in all cases of arthritis or joint infection. Furthermore, I do not see how a joint already destroyed can be restored by any application, whether local or not. You might as well say that by treatment you can restore an amputated leg. Eventually there is such a destruction of cartilage and bone and such an infiltration of the synovial membranes of the capsule that it cannot be restored by any kind of treatment.

Dr. P. W. Tomlinson, Wilmington: I agree with Dr. Robin in his view of these cases that no local treatment is going to cure a case that is the result of faulty elimination. I think that these local applications will in all probability afford some temporary relief to the patient, and, if a proper line of constitutional treatment is pursued, the patient will be made more comfortable during that time and will be encouraged. My experience in these cases has not been so extensive as that of Dr. Jones, but has been enough to convince me that I need to find some other treatment besides local application.

The Diagnostic Value of the Cystoscope

Dr. H. A. Cleaver, Wilmington: The work that has been done in differential diagnosis of gastric conditions in the last few years warrants us in the belief that there is nothing to prevent the same hopeful outlook on the part of those who have been the pioneers in the development of cystoscopy. The possibilities of the cystoscope are not limited to the bladder. You can examine the deep urethra and the verumontanum by using dilatation. The illumination is enough to examine such things as small papilloma, to examine and tell the difference between mulberry stone and the smooth dark stone we so often see. It is possible to detect tuberculosis of the kidney before it has shown itself elsewhere. Another subject of importance to surgeons because of the great advances in this field in recent years is hypertrophy of the prostate. Palpation by rectum does not reveal the extent of the enlargement of the middle lobe of the prostate. That can be demonstrated with the cystoscope. Another thing to be determined even when two kidneys are functionating is which kidney is secreting properly and which is not.

DISCUSSION

Dr. H. J. Stubbs, Wilmington: In catheterizing the ureter, if it was twisted or bent or there was a misplaced kidney, how would you tell the difference between kinking and stone impaction?

Dr. H. A. Cleaver, Wilmington: When the question of prolapsed kidney comes up, palpation of the abdomen is one of the first things that would have to be done, to determine the exact state. In differentiating the blocking, whether due to kink or to impacted stone, the use of a blunt-tipped catheter would naturally be difficult. Dr. Laird of Philadelphia has invented an exceedingly ingenious blunt-tipped searcher; the catheter has a metal tip, from which a small wire runs back to a phonendoscope. The minute you strike the stone there is a sharp clink.

The Importance of Early Diagnosis and Prompt Action in Certain Conditions

Dr George I. McKelway, Dover: In the matter of cancer, physicians should instruct every woman patient that if she has an irregular bloody vaginal discharge, especially at about the time of the menopause, she should have her case carefully studied; she should be examined, and a diagnosis should be arrived at as early as possible. If cancer be present, the only treatment is the immediate and complete removal of the diseased structures. A lump in the breast of a woman at any age, if it appears to be cancer, requires immediate operation. In every case of persistent indigestion, it is necessary either to find or to exclude cancer of the stomach, gall-bladder or pancreas. Sometimes the patient's own home-made diagnosis of "bleeding piles" is accepted when the condition is really one of cancer of the rectum. Ectopic pregnancy should be diagnosed early and should always be suspected when one or two menstrual periods have been missed. The ideal time to operate is before rupture occurs. There are three cardinal symptoms of appendicitis: pain in the abdomen, muscular rigidity on the right side and tenderness to pressure with the tip of one finger over McBurney's point. When these are present the patient should at once be turned over to the surgeon.

DISCUSSION

Dr. H. J. Stubbs, Wilmington: I think that more lives are lost from mistaken diagnosis in medicine than in surgery. The only time to operate for cancer successfully is in the very early stages of the disease.

Dr. J. Ward Steele, Dover: As an aid in making a diagnosis of some malignant diseases I should like to emphasize the importance of taking a leukocyte count. If the disease is malignant, the leukocyte count will vary from 16,000 to 20,000 or 30,000; sometimes it will be as high as 40,000.

Dr. P. W. Tomlinson, Wilmington: If it is not appendicitis, there is no great harm done. We naturally shrink from operation. One of my medical friends who generally recommends operation in appendicitis had the symptoms; he waited, kept the ice-bag applied, and called up a friend in a neighboring city to talk with him about this condition. The friend said, "Well you know what you advise in such cases." The doctor said, "Yes, but I find that there is a great difference between having a patient and being one." He persisted in his ice-bag treatment and fortunately has not had another attack. I think, however, that it is natural for us all to resist an operation as long as we can; so it is not always easy to induce your patient to consent to operation.

Dr. H. A. Cleaver, Wilmington: I know perfectly well that what Dr. McKelway says of prompt action is the keynote of the modern treatment of appendicitis. At the same time what are you going to do in those cases which every man knows have been treated so apparently well with ice-bags and antiseptics? What was that condition? Was the physician mistaken in diagnosis? We cannot be mistaken always. A great many patients have a horror of the operating-table. When you have a case that is not accompanied by profound disturbance, and the patient is not severely shocked; when there is merely rigidity of the right rectus, a slight area over the iliac region, and the patient is suffering not too intensely, the ice-bag gives relief. Should immediate operation be advised, or would you advise, as is done by some, that the patient be watched carefully? Are you going to wait during the interim between that and the possible next attack?

Dr. Albert Robin, Wilmington: The protest against the ice-bag is becoming so universal that the ice-bag will be a memento of the past, in which it has been not only unnecessary but harmful.

Dr. J. J. Jones, Wilmington: As for doing harm to the tissues, you should guard against the tissues becoming thickened, and must not keep the ice too close to the skin. We must put about three thicknesses of towel under the ice-bag, or perhaps more in some cases. It is not necessary to freeze the skin. It diminishes the pain in a very short time. After from six to twelve days' application of the ice I have operated and had the patient come out all right. In many cases I have found pus down in the pelvis, and in some cases a gangrenous condition of the appendix which came out all right.

Dr. H. J. Stubbs, Wilmington: A certain percentage of appendicitis patients recover whether ice or hot water is used. We are interested in the patients that die. Why do they die? Because they have been temporized with. Every patient with appendicitis should be operated on the day before the attack—if the diagnosis could be made.

AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY

Third Annual Meeting, held in Cleveland, Oct. 2-5, 1912

(Concluded from page 1645)

Maternal Feeding

Dr. J. P. Sedgwick, Minneapolis: The number of mothers who nurse their infants can be increased. This may be accomplished by giving the mother every advantage of good nourishment and care during the whole of her pregnancy, with proper instruction as to her diet after the baby is born. The mother's comfort should be considered: longer intervals and shorter nursings will often change nursing the baby from a burdensome duty to a real pleasure. Night feeding should be avoided. Contagious diseases are not sufficient ground for weaning, but open tuberculosis in the mother is a contra-indication to breast-feeding. Complete and regular evacuation of the breasts is necessary for the stimulation and continuation of the milk-flow. Weaning should be begun in the last quarter of the first year. Insufficient quantity, mother's condition, poor quality of milk, colic and mastitis are some reasons given for discontinuing breast-feeding. All classes, the ultrasocial, the educated of means, the middle, the poor, can be reached by the physician, who should impress on mothers the necessity of breast-feeding. Consultations and dispensaries, newspapers and clergymen are doing much to disseminate information concerning the importance of the mother's first duty to her baby.

Pasteurization and Sterilization (Boiling) of Milk

Dr. Henry F. Helmholz, Chicago: By adequate pasteurization is meant the process by which milk is heated to a temperature of 140 F.+ in a period of at least twenty minutes and then rapidly cooled. By sterilization of milk the layman usually understands the boiling of milk, which, however, does not render the milk sterile unless repeated on three successive days. By actual sterilization is meant the process of rendering the milk absolutely free from bacterial life either by the interrupted method, mentioned above, or by heating with steam under pressure. There can be no doubt that adequate pasteurization has come to stay and is to be recommended under practically all circumstances. Milk is to be pasteurized in the final package before it is sent to the home. This applies to milk sent in bulk as well as that sent in modified form in tubes.

DISCUSSION

Prof. C. E. A. Winslow, New York: It has been said that pasteurization does not destroy toxins; that it does destroy enzymes; that it produces a milk of keeping quality, and that it causes scurvy and rickets. Dr. Helmholz has shown the fallacy of these statements. On one point he did not speak quite so fully, and that is whether we should prefer a clean raw milk of certified grade, or the pasteurization of a dirty milk containing chicken legs and all manner of filth. I, for one, refuse to accept this dilemma. There is absolutely no reason why you cannot keep milk clean and then pasteurize it. You can have farm and dairy inspection and bacterial count, and in each case you can enforce just as high a standard as the public can pay for—and then pasteurize. You cannot enforce a certified milk standard with tuberculin testing because 15- and 20-cent milk is of no value in solving the general milk problem. But you can enforce just as high standards as are enforced for any raw milk of good grade to-day. Even for the best certified milk I believe pasteurization in the home should be an invariable rule. In an epidemic of septic sore-throat in the neighborhood of Boston, in the study of which I spent the greater part of the summer of 1911, there were 1,000 cases and fifty deaths caused by a clean milk, not of certified grade but very nearly so, a milk running usually under 100,000 bacteria, supervised by one of the best milk experts in the country. You cannot help these things. Care may minimize the danger but no amount of care can insure against infection of the cleanest milk from an unrecognized carrier case.

Elimination of the Midwife

Dr. Charles Edward Ziegler, Pittsburgh: The outlook for the solution of the midwife problem in this country is hopeful, but there is danger in too great haste. The real danger lies in the possibility of attempting to educate the midwife and thereby giving her a permanent place in the practice of an important branch of medicine. Obstetrics is an important branch of medicine, and yet it is the most poorly done, not only because 50 per cent. of the work is done by midwives, but also because of the low standards of midwifery among physicians and laity alike. We can do very well without midwives, but physicians are indispensable. The sensible thing to do is to eliminate midwives and educate physicians until they are capable of doing good obstetrics, and then make it financially possible for them to do it. Physicians cannot be properly trained in obstetrics, however, until they can have the work midwives are doing, since 75 per cent. of the clinical material otherwise available for teaching purposes now provides a livelihood for midwives. Our present system of giving medical service to the dependent poor is wrong. The burden of providing medical service for them should not be placed on physicians without compensation, but should be assumed by the state. Hospitals and dispensaries caring for the dependent poor should be supported by the state, and the physicians in charge and doing the work should be paid adequate salaries and their incomes limited. They should not be allowed to use the control which they have over free patients to gain for them a monopoly over private patients also. Private patients should not be cared for in hospitals provided by public moneys, without a just compensation to the people for the privilege. Physicians holding professorial appointments in medical schools should have liberal salaries, their incomes should be limited, and they should devote their entire time to hospital work, research and teaching. In medical centers patients cared for by the state should be placed in teaching hospitals affiliated with medical schools. They thus supply the adequate clinical material and at the same time receive the best possible care. In the larger cities maternity hospitals are rapidly supplanting midwives, and may be extended to care for all patients unable to pay for the services of physicians and nurses. In smaller towns and rural districts midwives are less common, and the work they now do should be done by physicians and nurses, subsidized by the state.

DISCUSSION

Dr. N. T. Miller, Cleveland: The chief argument employed by the defendants of this midwife system which we have imported together with a foreign-born population is that the people themselves prefer midwives, and do not want physicians. To ascertain the truth of this, Dr. Gerstenberger instituted an inquiry among the people handled through the Babies' Dispensary. The nurses asked the question, "Do you prefer a doctor or a midwife?" Almost universally the answer was "A midwife." He then changed the form of question, asking them whether they knew that they could obtain the services of a physician and a nurse by paying not more than they would be obliged to pay the midwife. A large percentage at once declared that they preferred the doctor and nurse, but imagined the expense prohibitive.

Through its lying-in clinics Cleveland is endeavoring to give to its poor foreign-born population, as well as to the poor of every class, a substitute for the midwife which will fulfil the minimal requirement. These clinics or substitute agencies have been organized solely for the purpose of educating the public, improving the social and physical conditions of the women which they handle, and to give instruction to men and women in the proper handling of the pregnant women. Their figures justify the assertion that as far as Cleveland is concerned women can be taken care of with far better results than those which the midwives obtain.

Dr. S. Josephine Baker and Dr. Philip Van Ingen, New York, made a strong appeal for the education of the midwife, and held that she was an essential factor in the obstetric service of any large city with a large foreign population.

Dr. A. J. Skeel, Cleveland, took exception to this view holding that it is criminal in this advanced age to countenance, for poor women, any attention or care that is not based on modern scientific knowledge.

Dr. Alice Weld Tallant, Philadelphia, while recognizing that midwives may be a necessary institution under present conditions, thought that the solution of the problem lay in altering those conditions. She felt that this could best be done through more maternity hospitals, and by enlarging the out-practice service of our hospitals.

Better Parents of Better Children

Dr. Helen C. Putnam, Providence, R. I.: We face the fact that parenthood does not make wise parents. It is the greatest vocation in the world, and the only great vocation entered on without definite training, without definite requirements of fitness by the state. The quality of their home-makers determines the existence of nations. The feeble-minded, insane, habitually criminal, confirmed alcoholic, sexually depraved man or woman cannot make good homes for children. They must be segregated in communities, the sexes separate, as is done in a few places. These villages become almost self-supporting, the people enjoy the comforts and many of the pleasures of life, but cannot blight normal homes by their influence and children. If the billions now spent on such unfortunates could be used for well-born children instead, we could double our educational opportunities; and if these degenerates continue to multiply as during the last half century, the burden of their care must cripple us even more seriously. The other line of effort in making better parents is education of all normal persons for intelligent home-making. Such education is a process as definite as training for nursing or civil engineering.

The Importance of Hospitals for Infants and Their Part in the Prevention of Infant Mortality

Dr. L. Emmett Holt, New York: We have in this country been slow to appreciate the need of special hospitals for children. Homes for foundlings, which most of our large cities have provided, have been in no sense hospitals, are often lacking in proper medical control and by their excessive mortality have served as an example of how little philanthropy without science can accomplish in saving infant life. Boards of managers, superintendents of general hospitals and even head nurses can rarely be made to appreciate the peculiar hospital requirements for infants. Separate hospitals are greatly to be preferred to wards for infants in large general institutions. The construction, equipment, organization and operation of a hospital for young children are quite different from those needed in hospitals for adults. These grow out of two great difficulties which attend the hospital care of these patients, the problem of nutrition and that of ward infections.

The special hospital is first of all the research department of organizations for the reduction of infant mortality. Observations must be made from which the fullest and most exact knowledge regarding the causes of infant deaths is to be obtained. It is to the modern hospitals with their well-equipped laboratories, their trained staff of workers, their wards furnishing opportunities for the most careful study of individual children that we must look, not only for progress in the diagnosis and treatment of disease in infants, but also for more exact knowledge in the problems of infant hygiene and nutrition on which prevention of infant deaths is based. It is only in hospital wards that new ideas in infant-feeding, or in the diagnosis or treatment of disease, can be put to the practical test to see how much of value they may possess. This can be done only to a limited extent in private practice and in out-patient work. The infants must be where all the conditions of life can be controlled and all symptoms watched with the closest attention; this is possible only in a hospital.

The educational value to the public of an up-to-date special hospital can hardly be overestimated. It does much for the community besides caring for the sick poor. It sets a standard of medical practice for the profession of the city. It is an exponent of modern science in its particular field. Here the best hygiene should be illustrated, the most intelligent feeding practiced and the best care of the infant, sick or well, exemplified. From those immediately connected with the hospital as physicians, nurses and managers, these ideas gradually spread to the general public and the institution takes its place in the community among the great forces for social uplift in the department of child welfare.

One of the weakest points in our present system of visiting district nursing is our failure to provide for the suitable training of the women who are doing this work. Something can, of course, be done by special courses of lectures such as are given in some cities to their corps of visiting nurses; but this instruction is of necessity very superficial. We must go much further than to give a few general lectures on infant hygiene and emergencies and to teach how to make up four or five standard milk formulas. The visiting nurse must work much of the time without close supervision and must act on her own initiative; unless she has been specially trained, her work, though carried on with a praiseworthy devotion, may be very inferior.

Since the largest part of the work for the reduction of infant mortality lies in the direction of the prevention rather than the cure of disease, it follows that only a small part of it can actually be done in hospital wards. But the lines of work undertaken must be largely based on hospital experience. By it rules can be formulated and policies determined according to which the general outside campaign is to be conducted to accomplish the results aimed at. If infant hospitals are to do their part they must have proper buildings, well-equipped laboratories for chemical and pathologic studies, a corps of attending specialists, and an adequate nursing staff. Organized on this high plane their field of usefulness is a very large one, not only in advancing this special department of medicine, but in furnishing the groundwork on which a proper knowledge of the child, sick or well, must stand.

ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES

Twenty-First Annual Meeting, held in Baltimore, Oct. 1-5, 1912

(Concluded from page 1565)

Representatives of Foreign Nations

The following accredited delegates from foreign countries were present at the meeting:

Canadian Army Medical Corps: Lieut.-Col. George S. Rennie, Major E. J. Williams, Capt. James H. McGarry.

Chinese Army: Col. H. C. Chang. Chinese Navy: Major S. H. Chang, Capt. M. Y. Tong, Capt. S. F. Hsii.

Royal Navy, Denmark: Surgeon-General A. Bornemann.

French Army: M. le Médecin Inspecteur Général Charles Fevrier, M. le Médecin en Chef de Deuxième Classe Barthelemy, M. le Médecin Principal de Deuxième Classe Rouget.

Royal Army Medical Corps, Great Britain: Lieut.-Col. S. Hickson, M.B.

Guatemala: Col. R. Bengoechea.

Italian Royal Navy: Col. Surgeon Chevalier Francisco Testi, Major Carlo Maurizio Belli, Surgeon Mariggio Serrati.

Mexico: Colonel Eduardo R. Garcia.

Imperial Russian Navy: Surgeon-General A. A. Zohrt, Baltic Squadron.

Australia: Col. Ramsey Smith, P.M.O., Fourth Military District.

Public Meeting

At the public session formal addresses of welcome were delivered by Hon. Philipp Lee Goldsborough, governor of Maryland, on behalf of the state; by Edwin L. Quarles, director of the Greater Baltimore Committee, on behalf of volunteer organizations; and by Dr. Hugh H. Young, president of the Medical and Chirurgical Faculty of Maryland, on behalf of the medical profession of Baltimore. Dr. Young, in his address, spoke of the important part Baltimore had played in the development of modern military medical science, and mentioned by name many of the eminent medical scientists who had received their education in the medical schools of Baltimore. He strongly advocated the passage of a state-wide law compelling the use of antityphoid inoculation.

After the president's address, which has already been mentioned, the foreign delegates were introduced and presented with the insignia of the association. Several of the delegates responded either in English or in their own languages.

The Mentally Unfit

Assistant Surgeon R. F. Sheehan, Jr., U. S. Navy, discussed the exclusion of the mentally unfit from the military service, and said that from a personal investigation of the statistical tables presented in the annual reports of the surgeon-generals of the Army and Navy, it is apparent that as a cause of disability in the service, insanity is far from a negligible factor, and that, as it represents the total loss of the individual, and in most cases a large and prolonged expense to the government for his maintenance, it would seem to be important to take more decisive measures to safeguard the military forces from the entrance into them of those mentally unfitted, and even of the potentially insane. It is a common experience in the service to find men who, although physically desirable, are mentally unfit, "dummies" or imbeciles, and who through their inefficiency and misdoings are a source of annoyance, expense and even danger. Care should be taken to eliminate the recruit with a history of nervous or mental disease, epilepsy, chronic headache, ungovernable temper, alcoholism, drug addiction or slow progress at school, or with a history of frequent changes of occupation and residence, careless personal habits, slovenly dress, awkward movements or effeminacy. Dr. Sheehan believes that it would be advisable to have at least two or three central training stations to which medical officers should be detailed, who would be specially equipped with training in mental diseases, and whose duty should be the careful secondary examination of all recruits during a probationary period, to assure the exclusion from the service of the potentially insane.

Cooperation with Public Health Service

Surgeon T. W. Richards, U. S. Navy, spoke of the necessity of cooperation of the Public Health Service with the Navy in time of war. In general terms it may be said that the Navy is always on a war footing, because the fleet is ordinarily called on to strike a decisive blow immediately on the outbreak of hostilities, or even before a formal declaration of war. In the event of war, however, quick expansion must follow, and here it is suggested that the institutions of the Public Health Service might and should be placed wholly, or in part, at the disposal of the Navy. The several hospital reservations of the Public Health Service would, he believes, be invaluable adjuncts to the naval service in time of such necessity.

In Time of Peace Prepare For War

Surgeon Lieutenant-Colonel S. Hickson, R. A. M. C., speaking, by invitation, on the training of medical men for service in war, suggested that it might be well for this country to examine and possibly adopt some of the thorough testing-out methods employed in the English service in its maneuvers. He detailed in brief the methods of imitating practical battle-field work which had been evolved at Aldershot. At the maneuvers at this camp the surgeons of both the regular establishment and the volunteer militia, work out problems from maps, locate field hospitals and dressing-stations, and are shifted from day to day to the different lines of duty which might come on them in actual service. A medical officer may be a good physician and surgeon, but in a military sense he is worthless until he has been tried out under actual war conditions. He cited the experience of Great Britain with civilian medical men during the Boer War as an example of this, and advised the medical officers of this country to meet frequently for instruction by lectures, for discussion and for practice in the technical part of their work, including map reading, all of which would prove invaluable in case of war.

Weakness of Militia Medical Organizations

Captain Henry D. Thomason, M. C., U. S. Army, read one of the most important papers presented, in which he discussed the weakness of the medical corps of the state militia organizations. He declared that while the situation in this regard was now 50 per cent. better than it was two years ago, there was still a woful lack of training and equipment in these branches. The hospital service of the national guard organization should be on a par with that of the regular Army. But this is not the case. Two years ago the field hospital and ambulance equipment of all the national guard organizations of the United States consisted of two field hospitals and one ambulance company. A year later there were twelve field hospitals and eleven ambulance companies, and to June of this year altogether twenty fully equipped field hospitals and sixteen ambulances had been issued to the organized militia. While this improvement, due to the indefatigable efforts of medical officers throughout the country, has been so marked, yet in time of war, the mobilization of the militia would show a deficit of about thirty-five field hospitals and a like number of ambulance companies.

Resignation of Major Lynch

At the morning session, October 4, Major Charles Lynch, M. C., U. S. Army, the retiring secretary, was presented with a handsome silver salver suitably inscribed, bearing testimony to the thorough and painstaking manner in which he had performed the onerous duties of his office.

Entertainment

The committee of arrangements, headed by Capt. J. Harry Ullrich, N. G., Maryland, provided lavish entertainment for the association. This included a reception to the president and a ball at the Hotel Belvedere; an excursion to Annapolis by special train, where the association was received by the governor, and entertained by Superintendent Gibbons at the United States Naval Academy; a theater party; a tea for the ladies at the Arundell Club; an automobile ride around the boulevard system and through Green Spring Valley; and a dance in the Fourth Regiment Armory.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arkansas: Regular, Little Rock, November 12. Sec., Dr. F. T. Murphy, Brinkley; Homeopathic, Little Rock, November 12. Sec., Dr. P. C. Williams, Texarkana; Eclectic, Marion Hotel, Little Rock, November 12. Sec., Dr. C. E. Laws, Fort Smith.

California: Los Angeles, December 3-6. Sec., Dr. Charles L. Tisdale, 929 Butler Bldg., San Francisco.

Connecticut: Regular, City Hall, New Haven, November 12. Sec., Dr. Charles A. Tuttle, 196 York Street; Homeopathic, Grace Hospital, New Haven, November 12. Sec., Dr. Edwin C. M. Hall, 82 Grand Avenue; Eclectic, New Haven, November 12. Sec., Dr. T. S. Hodge, 19 Main Street, Torrington.

Delaware: State Society and Homeopathic Examining Boards, Dover and Wilmington, December 10-12. Secretary of the Medical Council, Dr. Henry W. Briggs, 1026 Jackson St., Wilmington.

Florida: Regular, Jacksonville, November 11-12. Sec., Dr. J. D. Fernandez.

Kentucky: The Armory, Louisville, December 12. Sec., Dr. J. N. McCormack, Bowling Green.

Maine: City Council Rooms, Portland, November 12-13. Sec., Dr. Frank W. Searle, 776 Congress Street.

Maryland: Regular, 1211 Cathedral St., Baltimore, December 10. Sec., Dr. J. McPherson Scott, Hagerstown; Homeopathic, St. Luke's Hospital, Baltimore, December 13-14. Sec., Dr. O. N. Duvall, 1326 N. Mount Street.

Massachusetts: State House, Boston, November 12-14. Sec., Dr. Edwin B. Harvey, Room 159, State House.

Nebraska: State House, Lincoln, November 13-14. Sec., Dr. C. P. Fall, Beatrice.

Ohio: Columbus, December 10-12. Sec., Dr. George H. Matson, State House.

Pennsylvania: Philadelphia, December 3-5. Sec., Nathan C. Schaeffer, Harrisburg.

Texas: Dallas, November 13-14. Sec., Dr. J. D. Mitchell, Wheat Bldg., Fort Worth.

Virginia: Richmond, December 17-20. Sec., Dr. Herbert Old, Norfolk.

West Virginia: Wheeling, November 11-13. Sec., Dr. H. S. Barbee, Point Pleasant.

Medical Schools and Hospital Expenses

In his presidential address before the American Hospital Association, Detroit, Sept. 24, 1912, Dr. Henry M. Hurd made the following statement regarding the relation of medical schools to hospitals:

"The need of furnishing training to physicians is so largely recognized as the duty of all hospitals situated in the vicinity of medical schools it seems hardly necessary to refer to the matter. I am of the opinion that it is not only essential to do this in the interest of physicians and of the community, but also of the patients in the hospitals. Whenever medical teachers are properly appointed and students are admitted to hospital wards under proper restrictions, it is evident that the diseases of patients are more carefully studied and more skilfully treated than under other circumstances. The tone of the hospital is better, and the medical work is more active and of a higher type. Granting that these benefits flow from medical teaching, and I do so cheerfully and without reserve, I am still compelled to add that such cooperation in teaching adds materially to the expense of the hospital. It should also not be forgotten that access to the wards of a good hospital has become in these modern days one of the best assets of a medical school. For these reasons medical schools ought not to become burdens on hospitals, but should pay a proper proportion of the increased expense which they entail on the hospitals."

Utah October Report

Dr. G. F. Harding, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, Oct. 7-8, 1912. The number of subjects examined in was 22; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 7, of whom 5 passed and 2 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Rush Medical College	(1912)	75
Northwestern University Medical School	(1912)	78.1
Jefferson Medical College (1911) 81.5;	(1912)	79.7
National University, Athens, Greece	(1899)	76.2
FAILED		
Hahnemann Medical College, Chicago	(1905)	74.2
Queen's University, London, Ontario	(1912)	74.8

Book Notices

THE CARE OF THE INSANE AND HOSPITAL MANAGEMENT. By Charles Whitney Page, M.D. Cloth. Price, $1. Pp. 154. Boston: W. M. Leonard, 1912.

In these days when so many ambitious and theoretically educated young people are rushing into print, either out of a spirit of adventure, or to force a public recognition which their experience and knowledge do not warrant, it is most refreshing to pick up a book like this by Page. Dr. Page writes from an experience extending over thirty-five years in a number of hospitals for the insane, and there is a ring of truth and soundness in what he says that carries conviction. The spirit of the book throughout is an advocacy of the "non-restraint" system of managing insane patients. The author tears the veil ruthlessly from the mysteries that have sometimes been made to surround the management of violent patients without physical restraint, and brings the whole technic down to a question of organization, good judgment and every-day common sense.

It might be said that whole libraries have been written on the management of hospitals for the insane; Dr. Page epitomizes the story when he demands for insane hospitals "a well-constituted governing body;" a sane superintendent, properly supported; a corps of assistants, selected with discrimination and promoted from the ranks as opportunities offer; a good laboratory of pathology, ably directed, and a good nursing corps, created and maintained under conditions that will make for the self-respect of the members and permit ambitions for their future.

It is to be regretted that so widely experienced a director of institutions for the insane has not taken up their architecture and equipment. The last word in insane hospital architecture has not been said; in fact, there are many mooted questions that an acutely interested person with the literary resources of Dr. Page could turn up for discussion and perhaps final solution—such, for instance, as that concerning the mental effect on certain classes of patients in being brought, by force of architectural necessities, into constant association with other patients similarly affected. Imagine, for instance, an island inhabited by misanthropes, pessimists and melancholics! Let us hope that some day Dr. Page will venture on this field and write and illustrate hospital architecture with some of his sane sentiments as the point of initiative.

FRESH AIR AND HOW TO USE IT. By Thomas Spees Carrington, M.D., Assistant Secretary of the National Association for the Study and Prevention of Tuberculosis. Cloth. Price, $1. Pp. 250, with illustrations. New York: National Association for the Study and Prevention of Tuberculosis, 105 E. 22d Street.

The 150 illustrations in this book indicate that the interest in obtaining fresh air is wide-spread, for three-fourths are photographs of apparatus in use. The remainder are line drawings and architects' plans. The book was prepared in answer to requests for information as to methods for procuring fresh air. Practical ways are pointed out under living conditions of every sort, as it is recognized that people must live in surroundings determined by their income. Explicit directions are given for the simpler devices, and as the treatment of the problem becomes more complicated, lists of material and estimates of cost are added. Any of the temporary sleeping-porches illustrated may be built by a good carpenter from a study of the photographs. Simple means of window-ventilation are first described, and then window-tents, roof-bungalows, wall-houses, porches, tent-houses, open-air apartments and cottages, and roof-playgrounds for children. The final chapter treats of clothing, bedding and furniture. The book is for physicians and laymen, for those who need fresh air in the treatment of the sick and those who want it as a means of keeping well or out of pure enjoyment. The chapter on new houses with open-air apartments should be an inspiration to any one who intends to build a home.

DIRECT LARYNGOSCOPY, BRONCHOSCOPY AND ESOPHAGOSCOPY. By Dr. W. Brünings. Translated and Edited by W. G. Howarth, M.A., M.B., B.C., Surgeon in Charge of the Throat Department at St. Thomas' Hospital, London Cloth. Price, $5 net. Pp. 370, with illustrations. New York: William Wood & Company, 1912.

This is a revision of Brünings' original work published in German in 1910. A considerable part of the former edition was taken up with a description of instruments that is no longer necessary; therefore this has been omitted and similar space devoted to important clinical material. The instruments used are illustrated and explained, the technic of the operation is described, and the difficulties that are liable to be encountered and the methods of overcoming them are clearly pointed out. The normal appearance and physiologic action of the parts to be examined are carefully considered and the indications for, and dangers of bronchoscopy and esophagoscopy are discussed. An excellent chapter on treatment of various diseases has been added. The book is a most useful one that can be studied with profit by all those who essay to do tube work. The book is well illustrated and has an excellent index.

MODERN HOSPITALS. A Series of Authoritative Articles on Planning Details and Equipment, as Exemplified by the Best Practice in This Country and Europe. By Edward F. Stevens, A.A.I.A., Edward Pearce Casey, A.A.I.A., and Others. Cloth. Price, $5. Pp 49, with 125 illustrations of Recently Constructed Hospitals, Their Architectural and Technical Equipment. New York: The American Architect, 1912.

This beautifully printed book contains a number of articles on the details of hospital construction and equipment by architects, engineers, physicians and sanitary experts, all of whom speak from practical experience in their several lines with relation to hospitals. The book is finely illustrated with numerous pictures of the latest and best types of modern hospital construction and arrangement, the exteriors, interiors and ground and floor plans being shown. General hospitals as well as those for special purposes are illustrated, and the book should prove of great value to every one interested in hospital construction and equipment.

COMMENTS ON SOME PLANS OF HOSPITAL CONSTRUCTION. By Hermann M. Biggs, M.D., General Medical Officer. Paper. Pp. 61, with illustrations. New York City, Department of Health, Monograph Series, No. 7, 1912.

This number of the monograph series issued by the New York City Department of Health contains descriptions, views, plans and cost of construction of various hospitals erected and maintained by the city, particularly those for housing and caring for infectious diseases, including the tuberculosis hospital at Otisville. In hospital construction three things have been kept in mind by the department: the value of open air in the treatment of all infectious diseases, the desirability of erecting pavilions that could be used interchangeably for all infectious diseases, including tuberculosis, and simplicity and economy of construction and maintenance. The monograph should be of interest and value to those contemplating hospital construction, as giving the experience of New York City rather than the ideas or theories of architects or others.

DIE KARLSBADER KUR IM HAUSE. Ihre Indikation und ihre Technik. Von Dr. Oscar Simon. Paper. Price, 2.40 marks. Pp. 85. Berlin: Julius Springer, 1912.

The author here presents the principles and methods of the drink and bath cure at Carlsbad in such a way that it can be applied at home. He describes the application of the spring water especially in fifteen diseases commonly benefited by resort to Carlsbad.

Medicolegal

Privileged Information in Actions for Services

(Schamberg vs. Whitman (N. Y.), 135 N. Y. Supp..262)

The City Court of New York, Trial Term, granted the defendant's motion to strike out various allegation of the complaint in this action by a surgeon to recover the reasonable value of his services after a refusal by the patient (defendant) to pay the amount demanded. The court says that the complaint disclosed information which was acquired by the plaintiff while attending the defendant in his professional capacity and which was necessary to enable him to act in that capacity. That was a violation of the provision of the New York Code of Civil Procedure prohibiting the disclosure by a physician or surgeon of information acquired in his professional capacity. Read in connection with the sections in relation to code pleading, the plaintiff might proceed with his action without either directly or indirectly violating that provision. He might set forth a plain and concise statement of facts without unnecessary repetition; that is to say, the issuable or ultimate facts, and not the evidence of those facts. The legislature never intended to deprive a physician of his cause of action for services if he could prove them by proper evidence. The prohibition was against the disclosure of information acquired by and necessary for him to act in his professional capacity. The form in which such statements are made is of no consequence.

Physicians in State Hospitals for Insane as Witnesses

(Liske vs. Liske (N. Y.), 135 N. Y. Supp. 176)

The Special Term of the Supreme Court of New York, New York County, holds that, in an action to annul a marriage on the ground that the defendant was a lunatic at the time of the marriage, the testimony of one of the physicians in charge of one of the state hospitals for the insane, to which the defendant was committed by order of the court, was properly admitted in evidence, although it was contended that it was not admissible under section 834 of the New York Code of Civil Procedure with reference to privileged communications. The court says that the public policy of the state demands the maintenance of such institutions and the care and treatment of the inmates, which necessarily involve their medical examination. The court does not think that the relation arising by operation of law between a patient committed by legal process to a state institution for the insane and the official physicians in charge thereof is within the professional relation contemplated by section 834, or that such section was designed to exclude the testimony of such official physicians, whose duty it is under the police power of the state to make physical examinations of irresponsible patients. The purpose of the protection being here absent, the legislative enactments as to the duties of medical officers in the state institutions for the insane, and as to the making of public records relative to their condition, indicate that the testimony objected to in this case was properly admitted.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany (N. Y.) Medical Annals

October, XXXIII, No. 10, pp. 563-624

1 *Syphilis of Stomach. J. Meyers, Albany, N.Y.
2 Surgery of Stomach. C. W. L. Hacker, Albany, N. Y.
3 Cooperation in Medicine. J. H. Gutmann, Albany, N. Y.

1. **Syphilis of Stomach.**—One personal case is reported by Meyers and sixty from the literature are reviewed. He says that it is a rare manifestation of syphilis, congenital or acquired, occurring mostly in males, especially in the fourth and fifth decades, but also at almost any age. Its pathology is characterized by (1) multiplicity of lesions in many organs, (2) by variety and plurality of lesions in the stomach itself. Its symptomatology corresponds to the pathologic findings; it presents no unanimity of symptoms. There are four symptoms which are, however, fairly common, singly or combined. These are (1) pain, especially immediately after eating, (2) emaciation, (3) tenderness, (4) hemorrhage. Clinically, we should not divide cases of gastric syphilis too strictly, as an exact diagnosis of the form of lesion is often impossible, except by operation or autopsy.

We may classify syphilis of the stomach under (1) ulcer in any part of the stomach and its results, (2) gumma in any part and its sequelae as to tumor, (3) wide-spread infiltrations of gummatous or more fibrous character leading to deformity, cicatrization or involvement of the peritoneum or neighboring organs, (4) a combination of two or more of these. The diagnosis is extremely difficult as a rule. If there be a clear history of syphilis, or if the Wassermann is positive, the diagnosis should be comparatively simple. The proper diagnosis is extremely important, as exitus may occur through hemorrhage, inanition or stenosis, when timely intervention could have cured. Even when properly diagnosed, many of the cases have suffered delays through false diagnosis and treatment. Any form of mercury or the iodids give as brilliant results as are to be found in the practice of medicine.

American Journal of Public Health, New York

October, II, No. 10, pp. 753-824

4 Our Association, Hygiene, Business and Government. J. N. Hurty, Indianapolis.
5 Permissible Limits of Sewage Pollution. G. A. Soper, New York
6 Some Economic Aspects of Factory Hygiene. W. Talbot, Cleveland.
7 Points of Contact Between Health Officer and Social Worker. H. Folks, New York.
8 Prophylaxis of Bubonic Plague. W. C. Rucker, Washington, D. C.
9 Measles Outbreak in Chicago. G. B. Young, Chicago.
10 Diphtheria-Carriers and Their Relationship to Medical Inspection of Schools. H. Albert, Iowa City, Iowa.
11 *Treatment of Rooms After Diphtheria and Scarlet Fever. H. L. Arms and C. F. Whitney, Boston.

11. **Treatment of Rooms After Diphtheria and Scarlet Fever.**—From the last of November, 1910, until August, 1912, all fumigations with data made by the Boston Board of Health were kept by one of the authors, who recorded any subsequent cases from that address together with the elapsed time. During this time 2,675 fumigations were made after diphtheria with forty-eight "secondary" cases or 1.8 per cent. and 1,748 fumigations with twenty-seven repeat cases or 1.5 per cent. after scarlet fever. New cases after the fumigations following diphtheria: Four occurred during the first three days and a total of nineteen during the first week; of this number fifteen were sent to a contagious hospital and the fumigation performed within forty-eight hours of the time of the report of the case, consequently the new case had the exposure to either the same source of infection or the first case itself within nine days preceding the report of the new case. Therefore, it would seem quite probable that contact would be more apt to be the cause of the infection than the room which the patient occupied during the short period between the onset of the disease and his removal. The other four cases followed the release of the patient from quarantine after two successive negative cultures on different days and it is a well-known fact that even this does not absolutely rule out the presence of organisms in the nose or throat. During the second, third and fourth weeks there were but sixteen "repeat" cases and of course exposure has been possible during this time. Over four weeks there were thirteen cases from thirty-three to fifty-eight days, but the authors doubt very much if many would consider that these were due to infection from the room.

The "secondary" cases after fumigations following scarlet fever occurred as follows: two within the first three days, a total of twelve within the first week, eight during the second, third and fourth weeks, and seven over four weeks, a total of twenty-seven. Of the twelve during the first week the room was fumigated within forty-eight hours of the report of the case in nine instances, on the third day in one and after convalescence in the other two. Of the entire number nineteen were fumigated within forty-eight hours of the report of the case, two on the third day, one on the tenth day and three after convalescence. The number of "secondary" cases is raised by having five children in one family taken as follows: Dec. 4, 1911, fumigated the same day; Dec. 7, fumigated the eighth; Dec. 8, fumigated the twelfth; Dec. 15, fumigated the same day and the last one on the nineteenth.

The authors believe that it seems very reasonable to assume that these infections came from persons rather than from inanimate objects. In order to demonstrate the fallacy of fumigation the board has since July 4, 1911, authorized the use of practically no disinfection after diphtheria and scarlet fever, using for each room, no matter what its size, a fumigator which would disinfect not over 500 cubic feet, and it can readily be seen that when this is used in rooms of from 1,000 to 3,000 cu. feet no real disinfection would be accomplished. The householders were instructed thoroughly to air the room following the "fumigation" and to wash all woodwork. The results have borne out the contention that fumigation after these infections was unnecessary, 63 per cent. of the secondary cases occurring with the smaller amount of fumigation which comprised 57 per cent. of the total number after diphtheria, and, if we except the family detailed above, 59 per cent. of the secondary cases of scarlet fever after the smaller amount of fumigation comprising 61 per cent. of the total number. If the labor of fumigation after diphtheria and scarlet fever would be dispensed with as it has been in many places after measles, and real disinfection carried on after tuberculosis, it seems to the authors that much more good would be accomplished and the public would then realize that it is the individual that is the cause of the spread of the acute infectious diseases in the great majority of cases.

Archives of Internal Medicine, Chicago

October, X, No. 4, pp. 297-404

12 *Fat Metabolism of Lipomas. H. G. Wells, Chicago.
13 *Utilization of Parenterally Introduced Serum. J. H. Austin and A. B. Eisenbrey, Philadelphia.
14 *Low Fever. T. H. Wright and W. Allen, Charlotte, N. C.
15 *Experimental Investigation of Value of Hexamethylenamin and Allied Compounds. C. F. Burnam, Baltimore.
16 *Complete and Permanent Heart-Block Following Use of Digitalis in Auricular Fibrillation. A. E. Taussig, St. Louis.
17 *Adrenal Glands and Blood-Pressure. R. G. Hoskins and C. W. McClure, Columbus, Ohio.
18 *Diagnostic Worth of Glycyltryptophan and Tryptophan Tests in Diseases of Stomach. F. Smithies, Rochester, Minn.
19 *Experimental Study of Racial Degeneration in Mammals Treated with Alcohol. C. R. Stockard, New York.
20 Progressive Interstitial Hypertrophic Neuritis of Childhood of Dejerine and Sottas. W. F. Schaller, San Francisco.

12. **Fat Metabolism of Lipomas.**—The literature lacks satisfactory evidence to establish the generally accepted statement that simple subcutaneous lipomas do not give up their fat to the body during emaciation, although there are certain more or less incomplete observations in support of this contention, and also definite cases which are entirely at variance with it; there is no question that it is correct for fatty sarcomas. All reported analyses indicate that the fats of lipomas are identical with the fats of normal fat deposits. A series of experiments by Wells has also failed to indicate any lack of ability on the part of lipoma tissue to hydrolyze various fats and esters which are also hydrolyzed by normal fatty areolar tissues. No reliable method could be devised which would indicate whether lipomas and normal fat tissues differ in their quantitative action on fats and esters. Lipoma fat is hydrolyzed by pancreatic lipase as readily as is normal human adipose tissue.

13. **Utilization of Parenterally Introduced Serum.**—The author's procedure has been to place each dog on a diet of butter, rendered nitrogen-free by ether extraction, and of cane sugar in quantities sufficient to maintain a minimal nitrogen elimination without producing either diarrhea, glycosuria or vomiting. In order to use changes in the elimination of nitrogen as a basis for deductions concerning the utilization of nitrogenous substances parenterally introduced, the animal must be on a calorically adequate, nitrogen-free diet. A dog on such a diet and receiving intravenously an amount of nitrogen, in the form of dog-serum, approximately equal to that being eliminated, shows no increased elimination of nitrogen. When a foreign serum, as horse-serum, is injected instead of dog-serum, the nitrogen elimination is increased very little, if at all. The dog, therefore, is able to utilize completely for anabolic processes the protein of dog-serum and all, or almost all, of the protein of horse-serum introduced intravenously.

14. **Low Fever.**—For a number of years, but during the past summer particularly, attention has been directed to a clinical picture variously known as "continued fever," "sun fever," "Wilmington fever," "low fever," etc., the only constant symptom of which is a supposedly continuous elevation of temperature. That this supposition is incorrect the authors hold can easily be determined by taking the temperature throughout the twenty-four hours, when it will be found that during the night the "fever" disappears. But as these patients do not feel ill, and do not go to bed, they are seen by the physician only during the day; hence the idea of a continuous elevation of temperature. In their cases they have encountered this low fever in persons who were overworked and underfed. The series comprises three men and six women. It seems to be confined to the most active period of life, between the ages of fifteen and forty years. Social condition and occupation seem to be without effect. Overstrain, mental or physical, is the predisposing cause. These cases all show loss of weight, a secondary anemia of varying degree and poor muscular tone. Their time is spent mostly indoors, and practically no exercise is taken. The caloric value of their diet is always considerably below normal, running from 20 to 28 calories per kilo of body-weight. The usual fatigue symptoms are in evidence, anorexia, nausea, flatulence, constipation or the early morning diarrhea which is liable to accompany any condition in which there is low blood-pressure (as pellagra, sprue, etc.), headache, vertigo, insomnia, early mental and muscular fatigue, backache and aching in the legs and knees.

The physical examination has been uniformly negative. The fever curve itself was the only thing characteristic of the condition. A vacation to the coast or mountains may put an end to the "fever" at once. They believe that this "low fever" is simply an abnormal diurnal variation of the body temperature, due to a temporary instability of the heat-regulating mechanism; this depression of the heat-regulating function being merely one expression of a general functional depression or state of chronic fatigue, dependent on undernutrition and over-strain, and emphasized especially during the summer of 1911 by the unusual heat.

15. **Value of Hexamethylenamin and Allied Compounds.**—Burnam's examinations of the bile, sputum, saliva and cerebrospinal fluid show that even after rather large doses of hexamethylenamin, there appears in them but traces of the drug, certainly in percentages less than 1 to 150,000. Whether this trace is of hexamethylenamin, as seems most likely, or of formaldehyd, it is impossible to state, because the only test which would show it is Hehner's which does not differentiate these two substances. So far as any therapeutic value is concerned, it does not make any difference because, as already shown, solutions of formaldehyd of the weakness indicated, do not possess any antiseptic value. Burnam believes, therefore, that the use of hexamethylenamin for the curing or bettering of, or as a prophylactic against, infections of the bile passages, respiratory passages and cerebrospinal system is illusory, and cannot possibly yield results. In the urine the clinical and bacteriologic findings have conformed in every way with the chemical findings, viz., only those patients who show free formaldehyd have been improved by the drug. The phenylhydrazin-nitroprussid test is simple, and when applied gives the physician an easy method of determining the dose of hexamethylenamin which he should use, and also shows those cases in which no results from this drug can be expected.

The test is of value in determining the efficiency of compounds whose value rests on the liberation of free formaldehyd, and it is to be hoped that an endeavor will be successful in securing a substance which, when taken by the mouth, will be excreted through the kidneys and will liberate formaldehyd in the urine in every case.

Although it has its limitations, Burnam's experiences show that hexamethylenamin, when properly given, in more than half the cases of urinary infection is of immense value, and at the present time superior to any other drug in common use.

16. Abstracted in The Journal, June 22, p. 1973.

17. **Adrenal Glands and Blood-Pressure.**—The authors summarize their work as follows: Comparison of the amount of epinephrin required to affect blood-pressure with the adrenals intact with the quantity required after occlusion of the adrenal circulation indicates as a maximum an epinephrin secretion of 0.13 c.c. 1:1,000,000 solution per kilo per minute. This value is probably too high. The amount of epinephrin necessary to affect blood-pressure is, on an average, approximately 0.42 c.c. 1:1,000,000 solution per kilo per minute in the intact animal, and 0.55 c.c. after removing the adrenal glands. The characteristic primary effect of epinephrin administered intravenously is lowering of blood-pressure. The quantity required to cause minimal hypertension is several times this quantity, or at least ten to twenty times the amount secreted by the adrenal glands. Incomplete data indicate that peristalsis is depressed by quantities of epinephrin inadequate to raise blood-pressure. Adrenal secretion is not, therefore, a direct factor in the maintenance of the tonus of the vasomotor system. It is probable, then, that other activities controlled by the sympathetic nervous system are not directly dependent on adrenal activity.

18. **Glycyltryptophan and Tryptophan Tests in Stomach Diseases.**—The work done by Smithies in the examination of 1,175 cases makes apparent the following: In this series, more than one-third of the proved cases of cancer of the stomach gave positive glycyltryptophan reactions; more than one-fourth were lactic-acid-positive and about one-thirteenth of the number exhibited the tryptophan test. Diagnosis of malignant disease of the stomach was in each case quite possible, independent of the above chemical reactions. As a test associated with cancer of the stomach, Smithies says that in his series the glycyltryptophan reaction proved more consistent than tests for common organic or existing free amino-acid (tryptophan). While gastric conditions other than cancer exhibit positive glycyltryptophan reactions, in no single class of disease of the stomach is this test obtained so frequently as in cancer. This fact is of considerable significance chemically and, perhaps, etiologically. While cancer of the stomach can doubtless be diagnosticated clinically without the glycyltryptophan test, one cannot state that the study of this and allied reactions will prove valueless. Smithies' work does not show that the tryptophan test is, as has been advanced, pathognomonic of cancer. Low free hydrochloric or total acidity is frequently determined in gastric contents exhibiting positive glycyltryptophan, lactic acid and tryptophan reactions. One cannot state positively that this diminished acidity is causative. Many cases of low acidity were negative to the above tests. Approximately one-half of the positive glycyltryptophan and tryptophan reactions were in gastric extracts containing bile and blood elements. Approximately one-fourth of the negative extracts contained blood and bile elements.

19. **Racial Degeneration in Mammals Treated with Alcohol.**—Guinea-pigs were treated with alcohol by Stockard in order to test the influence of such treatment on their offspring. Male and female animals are given alcohol by an inhalation method until they begin to show signs of intoxication, though they are never completely intoxicated. They are treated for about an hour at a time, six days per week. The treatment in some of the cases has now extended over a period of nineteen months. The animals may be said to be in a state of chronic alcoholism. Fifty-five matings of the alcoholized animals have been made, forty-two of which have reached full term and are recorded. From these forty-two matings, only seven young animals have survived, and five of them are unusually small, though their parents were large, vigorous guinea-pigs.

The following combinations were made: 1. Alcoholic males were mated to normal females. This is the paternal test, and is the really crucial proof of the influence of alcohol on the germ cells, since the defective offspring in this case must be due to the modified spermatozoa, or male germ cells, from which they arise. Twenty-four matings of this type were made, fourteen of which gave no result or very early abortions; five still-born litters were produced, consisting of eight individuals in all, and five living litters containing twelve young. Seven of these twelve died soon after birth, and only five have survived. Four of the survivors are from one litter and the fifth is the only living member of a litter of three. 2. Normal males were mated with alcoholic females. This is the maternal test. In such cases the alcohol may affect the offspring in two ways—by modifying the germ cells of the mother or acting directly on the developing embryo in utero. Only four such matings were tried. One gave no offspring; three living litters were born, one consisting of three premature young that died at birth, while the other two litters consisted each of one young, which have survived. The alcoholic treatment in one of the last cases was only begun after the mother had been pregnant for about three weeks. 3. Alcoholic males were mated to alcoholic females. This is the most severe test, both parents being alcoholic. Fourteen such matings gave in ten cases no offspring, or very early abortions. Three still-born litters were produced, consisting in all of six individuals, while only one living young was born. This single offspring from the fourteen matings died in convulsions on the sixth day after birth. The young that have died in the experiment showed nervous disorders, many having epileptic-like seizures, and all died in convulsions.

Nine control matings in the same group of animals have given nine living litters, consisting in all of seventeen individuals, all of which have survived and are large, vigorous animals for their ages. Two young from non-alcoholic parents died, but this mother also died two days later. Her diseased condition doubtless affected the suckling young. Forty-two matings of alcoholic guinea-pigs have given only eighteen young born alive, and of these only seven, five of which are runts, survived for more than a few weeks, while nine control matings have given seventeen young, all of which have survived and are normal, vigorous individuals. These facts convincingly demonstrate the detrimental effects of alcohol on the parental germ cells and the developing offspring.

Boston Medical and Surgical Journal

October 24, CLXVII, No. 17, pp. 567-602

21 *Muscle-Training in Treatment of Infantile Paralysis. W. G Wright, Boston.
22 Scattering Notes on Arthritic Disease. H. W. Marshall, Boston.
23 *Excretion of Formaldehyd by Kidneys of Patients Taking Hexamethylenamin; Study of Burnam's Test. O. R. T. L'Esperance, Boston.

21. **Muscle Training in Infantile Paralysis.**—The problem of bringing back the maximum of strength to the weakened muscles, Wright says, can only be solved by carefully supervised exercises. In most cases the duty of supervision falls best on the parents, who must first be trained by the family physician. It is for his guidance in prescribing the exercises and from time to time changing them as the muscles gain in strength that this paper has been written. It therefore assumes a knowledge of muscle and joint anatomy, but goes into detail concerning the exercises, with which the physician is presumably unfamiliar.

It has been Wright's experience, during the six years in which she has been the assistant of a surgeon in the treatment of infantile paralysis by muscle training, massage and electricity, that better results have been obtained from the combination of physician and parent than where the management of the exercises has been left to an unskilled gymnast or masseur, who has neither the scientific knowledge of the physician nor the patience and enthusiasm of the parent. The training of the muscles should be begun as soon as the patient can move his limbs freely without pain. In most cases this will be from three to six weeks after the initial attack. The principles which underlie the training of muscles which have partially or wholly lost their power of voluntary contraction as a result of infantile paralysis do not in any way differ from those underlying the development of normal muscles. The result in both instances is an improvement in the nutrition of the muscle fiber and in the facility with which the nerves carry their impulses. The method employed by Wright is described in detail.

23. **Excretion of Formaldehyd by Kidneys of Patients Taking Hexamethylenamin.**—The Burnam test was applied by L'Esperance to the urine of more than 250 patients taking hexamethylenamin by mouth. The urine of some patients received several tests at various times under variable conditions. The results of 250 urines were that 130 or 52 per cent. showed the presence of formaldehyd (or were positive); 120 or 48 per cent. did not show the presence of formaldehyd (or were negative).

Colorado Medicine, Denver

October, IX, No. 10, pp. 283-320

24 Medical Progress. W. A. Jayne, Denver.
25 Neglected Factors in Diagnosis of Heart Disease. C. L. Greene, St. Paul.

Delaware State Medical Journal, Wilmington

October, III, No. 11, pp. 1-26

26 Protest Against Incautious Use of Silver-Nitrate Solutions in Ocular Inflammations. B. F. Baer, Philadelphia.

Journal-Lancet, Minneapolis

October 1, XXXII, No. 19, pp. 507-534

27 *Unifying Medical Profession. J. A. Witherspoon, Nashville, Tenn.
28 Neglected Danger from Anesthesia. R. S. Hart, Hazel, S. Dak.
29 Post-Rheumatic Ankylosis. R. St. J. Perry, Parkers Prairie, Minn.
30 *Blood-Vessel Anastomosis. J. F. Corbett, Minneapolis.
31 New Public Health. H. W. Hill, Ontario, Canada.

October 15, No. 20, pp. 535-560

32 Surgical Notes on Goiter. A. Schwyzer, St. Paul.
33 Anatomy of Female Ureter and Methods of Repair of Injured Ureters. M. C. Johnston, Aberdeen, S. Dak.
34 *Perinephritic Abscess. E. C. Robitshek, Minneapolis.

27 and 30. Abstracted in The Journal, September 7, p. 824.

34. **Perinephritic Abscess.**—The chief symptoms of perinephritic abscess which Robitshek says should aid in the diagnosis are, first, the history; second, urine analysis; third, the range of pulse and temperature; fourth, the leukocytic count; fifth, and most important, the ever-present point of tenderness between the internal oblique, the twelfth rib and the erector spinae muscles. As in all cases of suppuration, the treatment is surgical and should be instituted as soon as the diagnosis is made, in order to prevent the pus from burrowing and possibly perforating into the lungs or other organs. Incisions should be made into the outer edge of the lumbar quadratus muscle, in the costo-iliac space. The incision should be made large enough to prevent a too-rapid healing. If the pus is in the adipose tissue it will now come out, but if beneath the fibrous capsule of the kidney, this capsule must be incised. Secondary pockets should be carefully looked for. The origin of the pus may still remain in doubt, and for this reason the kidney should be raised up into the wound, and both it and the ureter carefully inspected. A nephrotomy might be indicated and should be performed, but generally later if pus has been found, although nephrotomy usually ends in nephrectomy. After the preliminary opening of the abscess, drainage-tubes and gauze should be inserted into the deepest portion of the wound, and thorough drainage instituted. As the pus decreases and the wound tends to heal, the tube and gauze are gradually removed. Sometimes, a troublesome discharging fistula remains in which case a second opening of the wound is necessary, in order to ascertain the reason of the continued discharge.

Journal of Arkansas Medical Society, Little Rock

October, IX, No. 5, pp. 113-135

35 Pathology of Different Lesions of Syphilis. L. R. Ellis, Hot Springs.
36 *Diagnostic Value of Reaction Following Intravenous Injection of Salvarsan, with Therapeutic Value of Drug. A. H. Cook, Hot Springs.
37 *Drainage-Tube for Female Bladder. B. C. Dorr, Batesville.

36 and 37. Abstracted in The Journal, June 29, pp. 2047 and 2048.

Journal of Missouri State Medical Association, St. Louis

October, IX, No. 4, pp. 107-132

38 Psychotherapy. G. W. Goins, Breckenridge.
39 Diagnosis of Nephritis. W. Engelbach, St. Louis.
40 Training of Nurses for Service in State Hospitals for Insane. M. A. Bliss, St. Louis.
41 Clinical Methods: The Eye. P. I. Leonard, St. Joseph.
42 *Epithelioma of Lower Lip; Report of Case. E. H. Skinner, Kansas City.
43 Experimental Work on Antirabic Immunization with Desiccated Virus. D. L. Harris, St. Louis.
44 Need of Further Development of County Medical Society. L. Mallette, Parma.
45 Hemorrhagic Diathesis. D. E. Broderick, Kansas City.

42. **Epithelioma of Lower Lip.**—There are several elements of interest in Skinner's case. First, the involvement was more on the skin than on the mucous margin of the lip. Therefore, there was less lymphatic drainage than if the mucous membrane alone was involved, and consequently a better chance for an early and permanent cure. Second, the Roentgen-ray produced a recession of the growth after surgical, medical and caustic measures had been employed with care and skill, but without result. Third, the protected and measured dose of the Roentgen-ray promoted a progressive improvement without any danger or discomfort to the patient. The response to the Roentgen-ray was evident on the third treatment. After twelve exposures the hard indurated edges had entirely softened; the ulcer was reduced to a third of its former size; the mucous margin was entirely healed, with a healthy pink glow to the mucous membrane; the edges of the skin margin were drawn and puckered. Treatments were then reduced to twice weekly. After twelve more treatments the skin was entirely closed over a soft and yielding lip. No pain has been experienced after the second treatment. The patient has been seen frequently during the last two years and no recurrence or untoward symptoms have been displayed since May, 1911.

Journal of South Carolina Medical Association, Seneca

October, VIII, No. 10, pp. 262-284

46 Management of Normal Pregnancy and Labor. B. L. Chipley, Calhoun Falls.
47 Case of Uterine Fibroid Complicated by Pregnancy. J. B. Britt, Princeton.
48 Preventive Medicine in Private Practice. F. Moore, Aiken.

Lancet-Clinic, Cincinnati

October 12, CVIII, No. 15, pp. 379-406

49 Treatment of Gonorrheal Rheumatism. C. J. Broeman, Cincinnati.
50 Medical Treatment of Inebriety. T. D. Crothers, Hartford, Conn.
51 Synthetic Study of Latent or Larval Forms of Tuberculosis in Infants. B. F. Lyle, Cincinnati.
52 Bismuth Poisoning; Report of Case. J. C. Oliver and F. B. Samson, Cincinnati.

October 19, No. 16, pp. 407-438

53 Cystoscope as Aid in Urinary Diagnosis and Treatment. A. W. Nelson, Cincinnati.
54 Direct Cycle of Protozoon. H. G. Graham, Elmdale, Kan.
55 Public Prophylaxis Against Venereal Diseases. A. Ravogli, Cincinnati.

Medical Record, New York

October 26, LXXXII, No. 17, pp. 737-786

56 Some Studies in Family History. B. Symonds, New York.
57 Progressive Curvature of Radius (Madelung's Deformity) Corrected by Osteotomy. H. L. Taylor, New York.
58 *Some Clinical Observations in Three Cases of Huntington's Chorea. M. A. Bahr, Indianapolis.
59 Two Cases of Seventh-Nerve Paralysis Secondary to Artificial Congestion. B. Rosenbluth, New York.
60 Indicanuria and Chlorids. J. C. Warbrick, Chicago.
61 Treatment of Interstitial Keratitis by Salvarsan. G. W. Vandegrift, New York.

58. **Huntington's Chorea.**—In the three cases reported by Bahr heredity appeared to be a constant factor, all three cases were in women, and the disease developed in all three after the thirtieth year of age and before the fortieth year of age. There appeared to be a decided tendency toward paranoid ideas. A defective hereditary endowment was noted in these cases. Two cases presented psychoses in the ancestry aside from the chorea.

New York Medical Journal

October 26, XCVI, No. 17, pp. 825-880

62 Inheritance of Acquired Characters. J. Wright, New York.
63 Membranous Pericnteritis. A. E. Isaacs, New York.
64 Pedunculated Sarcoma and Myxoma of Larynx. A. M. MacWhinnie, Seattle, Wash.
65 Fractures of Skull. E. P. Magruder, Washington, D. C.
66 Medical Economics. T. F. Reilly, New York.
67 Ten Sex Talks to Girls. I. D. Steinhardt, New York.
68 Specific Therapy of Cancer. I. Levin, New York.
69 Pathologic Relations of Urine to Mental and Nervous Diseases. S. R. Klein, Chicago.
70 Femoral Varix. P. T. Geyerman, Hot Springs, S. Dak.

New York State Journal of Medicine, New York

October, XII, No. 10, pp. 549-618

71 Some Cases Illustrating Ocular Disturbances Due to Disease of the Nose and Accessory Sinuses. J. E. Weeks, New York.
72 Keratitis Neuro-Paralytica After Removal of Gasserian Ganglion. W. B. Weidler, New York.

73 Some Common Results of Eye-Strain. W. R. Broughton, New York.
74 Occupational Diseases of Eye. W. A. Holden, New York.
75 Blindness as Result of Inflammatory Disease Affecting Conjunctiva and Cornea. C. W. Cutler, New York.
76 Blindness from Toxemia. A. Knapp, New York.
77 Some Ocular Observations in Brain Tumor. S. Voorhees, Elmira.
78 Three Cases of Family Periodic Paralysis. C. E. Atwood, New York.
79 *Spontaneous Fracture as Initial or Early Symptom of Tabes Dorsalis. H. L. Taylor, New York.
80 Symptomatology of Cerebral Abscess, with Special Reference to Diagnosis and Indications for Surgical Intervention. L. Archambault, Albany.
81 Pathologic Anatomy of Goiter. W. C. MacCarty, Rochester, Minn.
82 Results of Early Diagnosis of Urinary Tuberculosis. W. F. Braasch, Rochester, Minn.
83 Diagnosis and Treatment of Intestinal Obstruction. C. A. McWilliams, New York.
84 Present Status of Cancer. R. G. Loop, Elmira.
85 Rôle of Education in Prevention of Insanity. C. M. Campbell, White Plains.
86 Responsibility of Country Practitioner in Relation to Public Health. E. T. Bush, Horseheads.

79. **Fractures in Tabes Dorsalis.**—The nine cases observed by Taylor are sufficient indication that spontaneous fracture in tabetics cannot be very rare; and the fact that in the first seven cases the practically painless fracture occurred before there was any disturbance of the ordinary gait, and had not led, so far as could be ascertained, to the diagnosis of tabes, is Taylor's reason for calling attention to its importance as an early symptom of diagnostic importance. Seven of the nine patients gave a history of lues from eight to twenty-four years before the fracture, but believed themselves to have recovered under treatment; seven at the time of fracture were working at their ordinary occupations, and considered themselves well. The fracture was in each case produced by such activities as are, or may be, practiced daily without harm, by ordinary individuals. In each of the nine patients the fracture was painless or nearly so, and while the fracture was often slow in healing, all (except one not traced and one with a loose fragment) finally united, under rest and fixation, usually with a very large callus, giving a useful limb. Most of these patients had been treated for their fractures before applying for advice, and sought help for a stiff knee, or complicating, or subsequent Charcot joint. In these cases it was only by careful questioning or study that the preceding fracture was discovered.

In several cases the fracture had occurred years before, and was discovered almost accidentally through the large callus or the history. In all the cases but two the patient had suffered from persistent but irregular, sharp, shooting pains in the trunk or limb, or both, before the fracture, and this, Taylor says, would indicate that pains of this character are among the earliest striking symptoms of tabes and that careful attention should be paid to them in general practice. Adults, especially men, presenting this symptom should be carefully examined for tabes. In two cases ophthalmoplegia had also preceded the fracture. In two cases, so far as could be ascertained, the patient was aware of no symptoms preceding the fracture. In the last two cases the patients had been markedly ataxic for years, and were known to be suffering from tabes. None of the first seven patients presented any ataxic gait at the time of the fracture except one patient who was aware of some difficulty when walking in the dark. Several of the patients are still without the ataxic gait, though several years have elapsed since the fracture in some instances.

The cases reported were: 1. Spontaneous fracture right patella. Myositis ossificans of rectus cruris. 2. Spontaneous fracture left internal tuberosity of tibia. 3. Spontaneous fracture of left femur. Right and left Charcot hip. Tabes. 4. Spontaneous fracture left femur (twice). Right Charcot knee. Tabes. 5. Spontaneous fracture left femur. Right Charcot knee. Tabes. 6. Spontaneous fracture right femur. Tabes. 7. Spontaneous fracture of right astragalus. Charcot astragaloscaphoid joint. Tabes. 8. Tabes. Fracture left humerus. Spontaneous fracture left tibial tuberosities. 9. Tabes. Spontaneous fracture of right femur. 10. Lues. Spontaneous fracture of femur.

Taylor concludes that spontaneous fractures are not infrequently an initial or early symptom of tabes. Such fractures occur frequently before there is any disturbance of gait. All adults who have had painless or spontaneous fractures should be examined for tabes. Tabetics should avoid sudden or jerky movements, especially heavy lifting, and twisting movements. Charcot joints may also be an initial or early symptom of tabes. Persistent attacks of shooting pains in the trunk or limbs should always lead to an examination for tabes. The term tabes dorsalis should be preferred to the misleading "locomotor ataxia," since an ataxic gait is not infrequently one of the latest symptoms to appear.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

October, XV, No. 4, pp. 175-229

87 Some Practical Uses of Electricity, with Report of Several Cases. R. L Pittman, Fayetteville, N. C.
88 *Spontaneous Healing of Superficial Ulcer with Malignant Metastasis After Six Years' Latency. B. C. Willis, Oshkosh, Wis.
89 Cancer and the Public. W. K. McCoy, Gum Spring, Va.
90 Most Common Mistakes Made in Administration of Ether; Few Suggestions as to Their Corrections. M. J. Alexander, Richmond, Va.
91 Medical Ethics. I. W. Surratt, Sylvatus, Va.
92 Medicine in Lay Literature. B. M. Randolph, Washington, D. C.

88. **Spontaneous Healing of Superficial Ulcer.**—Six years ago Willis' patient developed a slow, superficial ulcer near left angle of lower lip, "mere loss of skin." He consulted a physician regarding this, and he prescribed a drying salve (no arsenic preparation), as the place did not look even suspicious of malignancy. Under treatment the ulcer gradually healed. The patient thinks that three or four months would cover the entire duration of this ulcer. On April 8, 1912, the patient again presented himself to his physician, stating that four and a half months ago a small lump freely moveable and size of a pea was felt at left angle of lower jaw, which has gradually increased in size, but he has suffered no pain nor had it ulcerated at any time. No thickening was felt nor scar seen at left angle of lower lip. Beneath ear and under angle of left jaw were several discrete, hard, freely moveable lumps, size of hickory nuts. One gland behind cephalic end of sternomastoid size of almond, seemed attached to the muscle structure. The parotid, submaxillary and all lymph-nodes were removed, including those in the posterior cervical triangle. On section, these glands were grayish-white, hard and glistening. Frozen section was made and microscopically the growth was seen to be an epithelioma spinocellularis malignum. The epithelial cells were unusually large and many mitotic figures were observed; hence an unfavorable prognosis was made to relatives. Recurrence at end of three months.

Ohio State Medical Journal, Columbus

October 15, VIII, No. 10, pp. 503-554

93 *Fundamental Factors in Cardiac Conditions. P. G. Woolley, Cincinnati.
94 Indications for Use of Obstetric Forceps. S. J. Goodman, Columbus.
95 Mills-Reincke Phenomenon. M. Friedrich, Cleveland.
96 *Early Diagnosis and Treatment of Syphilitic Disease of Central Nervous System. E. M. Baehr, Cincinnati.
97 Guarded Prognosis in Injuries to Cornea. F. Jacobi, Toledo.
98 Treatment of Hip-Joint Disease. L. G. Bowers, Dayton.

93 and 96. Abstracted in The Journal, May 25, pp. 1629 and 1631.

Southern Medical Journal, Nashville, Tenn.

October, V, No. 9, pp. 583-656

99 *Gradual Elimination of Preventable Disaster from Surgery. M. H. Richardson, Boston.
100 Tuberculosis. P. J. Glass, Mobile, Ala.
101 *Case of Giant-Celled Sarcoma of Jaw. B. W. Fontaine, Memphis, Tenn.
102 Value of Vital Statistics and Their Relation to Public-Health Work. W. H. Brooker, Raleigh, N. C.
103 Necessity for Collecting Vital Statistics. H. B. Wood, Rochester, Minn.
104 Fibroid Tumors of Uterus; Treatment. J. H. Carter, Memphis, Tenn.
105 Abdominal and Pelvic Drainage. E. P. Hogan, Birmingham, Ala.
106 Pus Tubes; Pelvic Abscesses. F. D. Smythe, Memphis, Tenn.
107 *Early Diagnosis of Filariasis. D. Rivas and A. J. Smith, Philadelphia.
108 Inguinal Hernia. L. Sexton, New Orleans.
109 Abdominal Drainage and Through-and-Through Suture. H. A. Elkourie, Birmingham, Ala.
110 Intubation. J. J. Waller, Oliver Springs, Tenn.
111 Ileocecal Adhesions (Lane's Kink). W. Kohlmann, New Orleans.

99. Abstracted in THE JOURNAL, May 11, p. 1473.

101. **Giant-Celled Sarcoma of Jaw.**—The subject of this report, a male, white, aged 14 years, was referred to Fontaine for diagnosis with a history of the growth having appeared following a contusion of the jaw from a baseball six months previously. The tumor had apparently begun about the first bicuspid tooth, and it finally presented a red, fumigating mass the size of a large walnut, entirely surrounding the two bicuspids and the canine tooth. Aside from a stomatitis and quite a severe secondary anemia, there were no constitutional symptoms and no evidence of metastasis. The condition was accompanied by considerable pain and discomfort to the patient in the mastication of food, and it was on this account that he came for consultation. Microscopic examination of the tumor showed that it consisted largely of spindle-cells, through which were distributed giant-cells, or myeloplaxes, varying in size and containing from five to thirty nuclei which were of uniform size and evenly distributed through the body of the cell. The points of interest in the case are its relation to traumatism, the low malignancy of the tumor, the absence of metastasis and the radical cure after complete excision.

107. **Early Diagnosis of Filariasis.**—The authors conclude from careful study of cases that filaria embryos are found in the peripheral blood at all times of the day and night. The periodicity of filaria embryos in the peripheral blood is a matter of a relative number of embryos circulating in the blood and not a matter of absolute absence of them from the capillaries. Filaria embryos are found in the capillaries. Filaria embryos are found in the capillaries as well as in the venous blood, their number being probably always greater in the capillaries. The acetic acid method as described is an expedient and efficient procedure in the early diagnosis of filariasis. By this method the embryos can be demonstrated in the blood as soon as the adult filariae reach maturity and begin to discharge them, which in all probability takes place before the obstructive symptoms of filariasis are manifested. Finally, since the acetic acid method gives a reliable result, regardless of the time at which the blood is examined, this method avoids the inconvenience of having to make the examination at given hours as usually recommended.

Texas State Journal of Medicine, Fort Worth

October, VIII, No. 6, pp. 157-179

112 Responsibilities of Profession in Conservation of Child Life. J. W. Amesse, Denver.
113 Conservation of Public Health. J. F. Corry, Rockwall, Tex.
114 Safest Route to Surgical Operation. F. L. Barnes, Trinity, Tex.
115 Case of Mycetoma. H. Allison, Kingsville, Tex.
116 Tonsillotomy or Tonsillectomy, Which? C. Joyes, Fort Worth, Tex.
117 Placenta Praevia. T. S. Ragland, Gilmer, Tex.

Ophthalmic Record, Chicago

October, XXI, No. 10, pp. 519-576

118 Burns of Eyeball from Contents of So-Called "Water-Core" Golf-Balls. C. A. Wood, Chicago.
119 An Ophthalmic Pilgrimage. T. Smith, Queensland, Aus.
120 Case of Melanotic Sarcoma of Ciliary Body. H. T. Aynesworth, Waco, Tex.

Ophthalmology, Seattle, Wash.

October, IX, No. 1, pp. 1-152

121 Newer Operations for Glaucoma. L. W. Fox, Philadelphia.
122 Unilateral Glaucoma from Congenital Malformation. L. Dor, Lyons, France.
123 Technic and Mode of Action of Recent Operations Proposed for Retinal Detachment. P. Bettremieux, Roubaix, France.
124 Case of Tumor of Pontile-Cerebellar Angle. M. Danis and J. Geerts, Brussels.
125 Leproma of Iris Cured by Radium-Therapy. J. de J. Gonzalez, Leon, Mexico.
126 Present Operative Treatment of Trachoma, with Description of Author's Method of Grattage with Strips of Sterilized Sand-Paper. D. H. Coover, Denver.
127 Recurrent Third-Nerve Paralysis, with Report of Case. J. F. Klinedinst, York, Pa.
128 Optometry Question. L. Stricker, Cincinnati.
129 Axis, Objectively in Retinoscopy. W. L. Pannell, New York.
130 Guarded Prognosis in Injuries to Cornea. F. Jacobi, Toledo, Ohio.
131 Intracapsular Cataract Operation from Viewpoint of Assistant. J. W. Millette, Dayton, Ohio.
132 Revolver Bullet in Chiasm; Consecutive Binocular Blindness. J. N. Roy, Montreal, Canada.
133 Homeopathy in Ophthalmology. D. A. Strickler, Denver.
134 Recurring Neuritis. H. Terlinck, Brussels.
135 Malingering (Pretended Blindness). F. C. Todd, Minneapolis. Minn.
136 Some Clinical and Pathologic Aspects of Glaucoma; Retrospect of Two Hundred Cases. F. Tooke, Montreal.
137 Vision in Relation to Marksmanship. E. J. Grow, U. S. Navy.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Australasian Medical Gazette, Sidney

August 31, XXXII, No. 9, pp. 215-242

1 Children's Teeth. W. N. Robertson.
2 Some Cases of Skin Disease. E. H. Molesworth and A. Verge.

September 7, XXXII, No. 10, pp. 243-266

3 Dilated Veins of Trunk, a Sequel to Renal Growth. J. B. Nash.
4 Organization of Profession. F. W. Harlin.

September 21, XXXII, No. 12, pp. 295-320

5 Injuries and Diseases of Man in Australia Attributable to Animals (Except Insects). J. B. Cleland.
6 Anesthetics. J. W. Bean.
7 Present-Day Methods of Administering Anesthetics. D. S. MacKenzie.

British Medical Journal, London

October 12, II, No. 2702, pp. 913-1004

8 Some Cardiac Problems. T. W. Griffith.
9 Length of Life of Rat-Flea Apart from Its Host. W. Nicoll.
10 *Diagnosis and Treatment of Early Cardiac Complications of Rheumatism. D. B. Lees.
11 Pathogenesis, Diagnosis and Medical Treatment of Gastric Ulcer. B. Dawson.
12 Quantitative Regulation of Diet in Diabetes. P. J. Cammidge.
13 Treatment of Syphilis with Salvarsan and Neo-Salvarsan. T. W. Gibbard and L. W. Harrison.
14 *Treatment of Pulmonary Tuberculosis, Including Continuous Antiseptic Inhalation. C. Muthu.
15 Some Further Experiences of Artificial Pneumothorax (Nitrogen) in Treatment of Pulmonary Tuberculosis. S. V. Pearson.
16 *Tuberculin in Diagnosis and Treatment of Tuberculous Diseases. L. D. Parsons.
17 Estimation of General Improvement in Pulmonary Tuberculosis. F. R. Walters.
18 Cause and Treatment of Certain Cases of Neurasthenia. F. W. Brook.
19 More Systematic Dorsal Apical Percussion; Oval Interspinous Dulness as Aid to Early Diagnosis. W. Ewart.

10. **Early Cardiac Complications of Rheumatism.**—Lees' first proposition is that the disease which, for want of a better name, we still call "acute and subacute rheumatism," is a bacterial infection, most common and most virulent in childhood, less common and usually less virulent in adolescents and in young adults. Second, an acute dilatation of the left ventricle can always be detected by careful percussion in every acute or subacute rheumatic attack both in children and adults. Dilatation of the left ventricle (greater or less) appears to be an inevitable manifestation of the disease and one of its earliest symptoms. Third, the practitioner ought to have no difficulty in determining this essential fact. All that is required is a correct method of percussion and a little careful observation. By light percussion on the terminal phalanx of a finger of the left hand it is quite easy to ascertain the limit of the left ventricle in the third, fourth and fifth intercostal spaces, and the limit of the right auricle in the third and fourth spaces to the right of the sternum.

In a rheumatic attack the left ventricle will almost always be found to reach the nipple line; usually it extends beyond it, possibly as much as a fingerbreadth, or in a severe case even two fingerbreadths. The cardiac impulse will be diffused and weak, the pulse-wave feeble, the first sound at the apex much enfeebled, the second sound at the base (and especially the pulmonary second) abnormally loud. In many cases, but by no means in all, there will be at the apex a systolic blowing presystolic murmur, and sometimes also a local reduplication of the second sound. The second element of this sometimes develops into a mid-diastolic murmur. A short blowing presystolic murmur, or what sounds like a presystolic reduplication, is sometimes audible to the right of the nipple line. In cases of great severity, where the dilatation is great, there may also be evidence of pericardial friction. Aortic murmurs are rare in a first attack.

Fourth, the first essential for the successful treatment of the cardiac implication of rheumatism is prolonged rest. A reduction of ten beats per minute secured by the recumbent position is equivalent to a diminution of the number of beats by 600 per hour, 14,400 per day, and 100,800 per week. Fifth, it is the duty of the practitioner, not merely to keep the patient at rest in bed, but also to submit him to a careful but thorough antirheumatic medication. This is specially necessary when the patient is a child. Sore throat, pains in the joints, muscles, or tendons, erythema, arthritis, subcutaneous and subperiosteal nodules, pain in the chest, shortness of breath, marked pallor, and choreic movement (however slight) are all symptoms more or less strongly suggestive of rheumatism and demanding an antirheumatic medication.

Lees' experience has led him to the conclusion that sodium salicylate conjoined with sodium bicarbonate, in the proportion of one part of the former with two parts of the latter, is a most effective antirheumatic medication, if the dose is gradually increased to a sufficient extent. Certain unpleasant symptoms are undoubtedly caused by salicylate, such as vomiting and tinnitus, and some individuals are much more prone to these side-effects than others. Yet, in the great majority of cases, this difficulty may be overcome by a proper method of administration. If, when symptoms such as vomiting or tinnitus occur, the medicine is suspended for a few hours, and is then given again in smaller doses than before, half or two-thirds of the former dose, it will usually be found that the unpleasant symptoms pass away, and the dose can be raised to a considerably larger amount without causing their recurrence. If they do recur, another pause, followed by a reduction, will usually be successful.

In this way it is possible to train almost all patients to tolerate much larger doses of the drug than those generally administered. In a rheumatic attack it is often desirable to increase the amount of salicylate to 150 or 200 grains per day, with double the amount of sodium bicarbonate, given in ten doses. It may be desirable to increase the amount still further, even to 350 or 400 grains. The largest dose Lees has ever given was 60 grains ten times daily, in the case of a boy of 16 who had an enormous crop of rheumatic nodules, about 250 in all, with pericarditis, endocarditis, dilated heart and moderate arthritis. The maximum amount of 600 grains of salicylate and 1,200 grains of bicarbonate was given for two days. The dose had been gradually increased to this amount without any difficulty. After this he took 500 grains of salicylate and 1,000 of bicarbonate for six days a week for three weeks. The amount was then gradually reduced. Every one of his nodules disappeared under this treatment, his pericardial friction soon vanished, his heart became smaller, and he left the hospital with merely a short presystolic and a short systolic murmur at his apex. He has since then been in the hospital for a short time with a very much milder rheumatic attack.

Cases of chronic rheumatism in adults, with subacute exacerbations, which show no sign of improvement under 200 or 300 grains of salicylate daily, will sometimes be definitely cured when the amount is raised to 450 or 500 grains. During the treatment by salicylate it is necessary: (1) to prevent constipation; (2) to keep the urine slightly alkaline; (3) to stop the medicine when vomiting or other symptom due to salicylate occurs, but to resume it after a few hours in a dose of one-half the size of the dose last given, and soon to increase the amount as far as possible. When the dilatation (with or without endocarditis) is great, and especially when pericarditis is present, the medicine should be freely given, and an ice-bag should be kept permanently over the precordial region, with due precautions against general chill. Careful nursing is essential. The application of leeches is often beneficial.

14. **Treatment of Pulmonary Tuberculosis.**—Muthu still believes that volatile vapors continuously used enter the alveoli and have a direct action on the pathogenic organisms, inhibiting their growth and activity, and cutting short the morbid process in the lungs. This, he says, is clinically proved by the reduction of temperature, cough and sputum, gradual disappearance of tubercle bacilli, and final arrest of the disease. Some patients improved so rapidly by its continuous use that it was impossible to attribute their improvement to anything else. Although he has used the inhalation in many hundreds of cases he has had no ill effects from its use. Patients use weaker solutions to begin with, and as they get accustomed to them they go on to stronger mixtures. Muthu uses mainly two kinds of solutions, one a mixture of liquor formaldehydi (in 2½, 5 and 7½ per cent. strengths), with guaiacol, menthol, pine, chloroform and rectified spirit; and the other is a stronger solution containing guaiacol, iodin, terebene, pine, chloroform and rectified spirit. In 1911, leaving out those who only stayed a few weeks in the sanatorium, forty-two patients went through the treatment from three to ten months. Placing them under six divisions: Twenty made an excellent recovery; they had no physical signs and no bacilli in the sputum. Six greatly improved; they had no temperature, very few physical signs; had they remained a little longer they would have made a complete recovery and been placed in the first division. Five moderately improved; they had no temperature, areas of disease smaller, expectoration less, physical signs improved. Six improved; temperature reduced, gained some weight, physical signs improved. Four went back. One died of hemoptysis.

16. **Tuberculin in Diagnosis.**—Parsons recommends the use of tuberculin in gradually increasing doses until large doses are tolerated without reaction for treating all cases of tuberculous disease.

Journal of Laryngology, Rhinology and Otology, London

October, XXVII, No. 10, pp. 521-576

20 Operative Treatment of Labyrinthine Vertigo in Non-Suppurative Disease of Internal Ear. W. Milligan.
21 Technic of Regional Anesthesia in Rhino-Laryngology. J. Broeckhaert.
22 Case of Acute Cerebrospinal Meningitis of Nasal Origin. H. L. Gregory.

Journal of Tropical Medicine and Hygiene, London

October 1, XV, No. 19, pp. 289-304

23 Blackwater Fever in Burma. L. G. Fink.
24 Comments on Dr. Lawrence G. Fink's Article on Blackwater Fever, of September 15, 1911. H. M. James.

Lancet, London

October 12, II, No. 4650, pp. 997-1058

25 Ventral Hernia. W. H. Battle.
26 Septic Thrombosis of Left Sigmoid, Left Cavernous and Left Inferior Petrosal Sinuses. C. A. Ballance.
27 Prevention and Cure of Beriberi. H. Fraser and A. T. Stanton.
28 *Temporary Partial Heart-Block Occurring as Sequel to Acute Pneumonia. A. L. Dykes.
29 Spinal Analgesia. J. W. H. Houghton.
30 Ovariotomy About Forty Years After Discharge of Fetal Bones Through Rectum; Recovery. J. D. Malcolm.
31 *Life Cycle of Organism of Syphilis. J. E. R. McDonagh.
32 Spasmodic Rhinorrhea Cured by Irrigation of Maxillary Antra, Which Were Infected by B. Coli. H. Whale.
33 Rupture of Lung in Labor. C. W. Cunnington.
34 Traumatic Dislocation of Both Hip-Joints. A. F. S. Sladden.

28. **Temporary Partial Heart-Block.**—In Dykes' case a temporary partial heart-block occurred as a sequel to acute pneumonia. The pulse was irregular for a period of three weeks, commencing to be so a week after the crisis. The irregularity was usually more marked in the evening, and appeared to give the patient no discomfort. Examination of the heart did not at any time reveal any physical signs of disease. The type of irregularity was fairly constant. The pauses never at any time appeared longer than would be accounted for by one missed beat, and, as a rule, one long beat would follow three, four, five or six shorter and regular ones. This state of matters continued till about four weeks after the crisis, when the pulse again became perfectly regular in rate and rhythm, and remained so while under observation during the following month.

31. **Life Cycle of Organism of Syphilis.**—It has been mooted for some time past that *Spirochaetae pallidae* had a resting stage. The resting stage was held responsible for the long incubation period of syphilis. McDonagh cut sections of chancres, lymphatic glands and various forms of syphilitic lesions, and examined films obtained from their juice, both *in vivo* by the borax methylene blue film-method andby fixed specimens. He paid most attention to the lymph-glands, as he thought the cycle was more likely to take place there than anywhere else, owing to the fact that, in spite of vigorous syphilitic treatment, the adenitis takes months to subside. He examined seventeen lymphatic glands, both before and after salvarsan; ten chancres in various stages from an early erosion to the slight induration left by a healed primary sore, and over twenty various skin lesions both before and after salvarsan. For controls he examined four lymphatic glands enlarged by gonorrhea, three enlarged by soft sores, three normal glands and various glands enlarged as a result of tuberculosis, lymphadenoma and malignant disease. Also five soft sores and skin lesions consisting of a plasmoma, or granuloma, viz.,

lupus, sporotrichosis, etc. In every instance in the syphilitic group, and in no instance in the control group, did he find any of the bodies described.

As these bodies were found exclusively in syphilitic tissue, he suggests that they may be phases in the cycle of the syphilitic organism. The commencement of the cycle is with a sporozoite or infective granule. By means of its progression, since it is motile (McDonagh thinks it has flagellae), the sporozoite reaches a large mononuclear cell and enters. It then becomes motionless, grows bigger, and develops a distinct mantle of protoplasm around itself. The development goes on within and at the expense of the protoplasm of the mononuclear cell, the nucleus of the cell always remaining intact. The degenerated protoplasm forms an envelope around the sporozoite, which has to be gradually increased in size according to the growth of the parasite. The sporozoite then divides. Each half forms a large non-granular staining mass. This mass, on the one hand, appears to become vacuolated and transformed into an irregular coil; and, on the other hand, to leave the cell and become extracellular. The coil later is found to be thicker in some parts than others, and the ends seem club-shaped. At the base of the coil, lying just above the nucleus of the cell but in the protoplasm of the mononuclear, are some rod-shaped bodies, which stain better than the strands of the coil. The coil, which now appears to be extra-cellular because the protoplasm of the mononuclear is so degenerated, becomes broken up into irregular, short wavy bodies. From these short, thick and wavy bodies the delicate, long and corkscrew-shaped body, the *Spirochaetae pallidae*, develops. This is the microgamete, or adult male gamete, which has no more necessity to divide than a spermatozoon. In some coils there appear to be circular masses, with spirochetes coming out of them.

The female development appears to be quite distinct from the male after a certain point. The other half of the sporozoite mentioned above, and which is now extracellular, becomes crescentic and then spherical. This spherical body is the perfect female or macrogamete and is now ready for fertilization. The act of fertilization McDonagh has never seen, but he thinks it is highly probable that the spherical body forms a "cone of reception," which is touched by the microgamete; the microgamete must then penetrate the macrogamete until its pronucleus reaches the female pronucleus. The forms met with in the next stage are rather difficult to distinguish from the macrogametocyte. A clear membrane appears over the whole surface of the zygote, and then the sporogony runs its course. The zygote divides into two and again into four; these four masses are the sporoblasts. Each sporoblast then becomes oval in form and goes on dividing to form numerous sporozoites, one of which starts the cycle again. This completes the spore stage, or sporogony. If this observation is correct the syphilitic parasite belongs to the order sporozoa and to the subclass telosporidia, since the spores are formed at the end of the cycle. An appropriate name for the syphilitic organism would be *Leukocytozoon syphilis*. The infection is probably conveyed by the sporozoite, or, as McDonagh calls it, the infective granule, and not by the *Spirochaetae pallidae*. The bodies visible in the sections are, he thinks, the sporoblasts and possibly the macrogametocytes. The reason he thinks some of the bodies are spores is because they persist in spite of treatment with salvarsan. Possibly the recurrent syphilids, meta- and para-syphilis, are due to the presence of these spores, which can *in loco* start a new life cycle.

Practitioner, London

October, LXXXIX, No. 4, pp. 445-588

35 Acute Intestinal Obstruction in Children. A. Edmunds.
36 Surgical Aspect of "Indigestion." H. W. Carson.
37 Clinical Aspects of Exophthalmic Goiter. R. O. Moon.
38 Law and Medicine, 1911-1912. W. A. Brend.
39 Recent Work in Anesthetics. J. Blumfeld.
40 Appendicitis in Children. S. F. S. Green.
41 *Acute Appendicitis in Children. H. E. S. Stiven.
42 Etiology, Diagnosis and Therapeutics of Appendicitis. F. C. Barlow-Eberhardt.
43 Appendicitis. J. D. Shapland.
44 Suggestive Medicine. I. G. Cobb.
45 *Why Voices Fall. C. Horsford.

41. **Acute Appendicitis in Children.**—Owing to their greater liability to a generalization of the infection, Stiven says, early operation is more imperative in children than in adults. The odds are three to two on this generalization of the infection arising; whereas, if they are operated on within twenty-four hours, the mortality, for this series at least, is nothing. A prolonged operation and undue exposure cause relatively greater risks. In the after-treatment, certain special arrangements will make all the difference between success and failure. The Fowler position, that is, the practice of raising the head of the bed from 2 to 3 feet off the ground, has contributed very greatly toward reducing the mortality in general peritoneal affections in adults, but it has done even more for children; this is truer still in the case of appendicitis. In order to compare the results, since this treatment has been adopted, Stiven has analyzed the mortality of the years 1904, 1905 and 1906, and 1908, 1909 and 1910. In children, the percentage mortality of the first three years is 38.4 per cent.; in the later years it is 29.3 per cent. In all appendix cases, it is 13.7 per cent., compared with 8.7 per cent. in the later years.

Of the cases in children, during the years 1904, 1905 and 1906, only four in which there was a gangrenous or perforated appendix and no localized abscess, recovered; in the later years, there were twenty-four such cases. Continuous instillation of saline per rectum is the rule in adults; in children, it is a complete failure. They do not retain salines given per rectum at all well, and, in the Fowler position, they retain less than when lying flat. Stiven has found it more satisfactory to give saline in small quantities, eight to ten ounces, per rectum, every four hours or, if possible, every two; children can retain this amount fairly well, provided it is given slowly with a catheter and funnel. It is easier, when given in this intermittent way, to be sure that the saline is injected warm; a most important matter, for any chill to a child is most dangerous. With adults, the rule for diet is starvation, with or without water, or albumin water. In children, this practice must not be followed, as they cannot bear starvation. Raisin tea, a decoction of crushed raisins, may be given with advantage; a feed of this, alternated with albumin water, will provide them with proteid and a carbohydrate (dextrose), which is absorbed directly unchanged. The bowels should be opened as soon as possible. In children, little difficulty is experienced, in contradistinction to adults, who are inclined to be obstinate. If a normal motion is not passed within twenty-four hours after the operation, a glycerine enema should be given, and syrup of senna used as the routine aperient. Complications are probably less frequent in children than in adults.

45. **Why Voices Fail.**—With all due respect to voice training as an art, and to the great skill frequently displayed by many gifted masters, Horsford says, the safe and effective training of the singer will be more certainly obtained by the cooperation of singing master and laryngologist. The latter will be able to advise in and guide over the numberless little ills which beset the path of the vocal student. He will be able to discover and treat latent abnormalities, which are unfavorable to the development of the voice. He can watch the effect of any special vocal treatment (by exercises) on any diseased condition. He may even be able to advise, in a doubtful case, in the classification of the voice from the type of throat under consideration. He will be able to explain to the teacher the physiologic processes at work in any given vocal phenomenon, and, therefore, favor the discovery of a cure on vocal lines.

Sei-I-Kwai Medical Journal, Tokyo

September, XXXI, No. 9, pp. 217-229

46 Acute Appendicitis. Y. Takaki.

Annales de Médecine et Chirurgie Infantiles, Paris

October 1, XVII, No. 19, pp. 577-608

47 *Initial Localization of Tuberculosis in the Lungs in Children and Adults. E. Rist.
48 Typhoid Spondylitis in a Boy of 10. Third Case Reported in France. Ardin-Delteil and Others.

47. **Initial Localization of Pulmonary Tuberculosis.**—Rist declares that the lower lobe of the lung is almost invariably the initial site of pulmonary tuberculosis in children; the apex is usually affected secondarily in both children and adults. Coughing forces air and septic material up into the apex, as can be seen by roentgenoscopy. The air expelled by the

cough spasm from the lower part of the lung is driven up into the apex. When roentgenoscopy fails to show that the apex clears up during coughing from the air being driven into it, the conclusion is evident that the apex has already lost its elasticity and hence is the seat of some permanent lesion.

Archives des Maladies de l'App. Digestif, Paris

September, VI. No. 9, pp. 481-540

49 *Gastric Adenomatous Polyposis. Devic and Bouchut.
50 Abscess of the Liver. (L'abcès du foie.) D. Giordano.
51 *Unusual Forms of Gastric Cancer. E. Rousseau. Commenced in No. 8.

49. **Polyadenoma of the Stomach.**—Devic and Bouchut found numerous polyps in the stomach of a man of 59 with aortic insufficiency who had succumbed to apoplexy. There was no tendency to malignant disease of the stomach in this case. The polyadenoma generally develops without causing symptoms, but chronic gastritis and cardiovascular disease were generally associated with it in the few cases of the kind on record.

51. **Unusual Forms of Gastric Cancer.**—The first part of this article was summarized on page 1578. Rousseau concludes it with a bibliography classified for the types with ascites, jaundice or liver or intestinal involvement.

Archives de Médecine des Enfants, Paris

October, XV, No. 10, pp. 721-800

52 *Fractures of Lower End of the Humerus in Children. A. Trèves.
53 *The Diet in Scarlet Fever. (Le régime dans la scarlatine.) M. de Biehler.
54 *Rumination in Children. J. Comby.

52. **Fracture of the Humerus in Children.**—Trèves discusses the features which are peculiar to children in these fracture cases. In his seventy-eight cases of fracture just above the condyle the final outcome was excellent in all but two cases. In forty-two cases of fracture of the external condyle, six of the children were left with more or less deformity although the outcome as regards functioning was not bad. Except when dislocation occurs and is overlooked, the prognosis of fracture of the epitrochlea is good. In three of his twenty-one cases of fracture of the epitrochlea an operation was necessary but the outcome was equally favorable in all but two of the twelve cases with dislocation. He gives case reports and some skiagrams of these various types as also of fracture of the lower end of the humerus, and discusses how to ward off deformity later. Lateral deviation consecutive to fracture of the elbow can always be traced to defective reduction and consecutive hypertrophy of the region involved. It seldom or never is due to actual bone growth. The power of spontaneous repair and the chance of ultimate functional adaptation are amazing in these fractures although massage and forcible mobilization of unreduced fractures will naturally aggravate conditions and entail actual deformity. The functioning of the joint should not be accepted as definitely compromised until two examinations at several months' interval show that there is no tendency to improvement. An early operation is not needed in such cases; time alone may restore normal conditions when reduction has been skilfully done.

53. **The Diet in Scarlet Fever.**—Biehler's experience seems to indicate that children with scarlet fever put on a milk diet escape nephritis most effectually (from 0 to 2.04 per cent. of forty-nine and twenty-seven children), while on a mixed diet without meat the proportion was 3.3 per cent. of twenty and eighty-one children. On a mixed diet with meat the proportion was 5.3 and 5.5 per cent. of ninety-three and eighteen children. The above groups represent respectively wage-earners and well-to-do families. The parents were all told to give as little salt as possible to the children. It seems logical that a diet which has a more or less irritating action on the kidneys would create a point of lesser resistance for the bacterial toxins. It is better to keep the child on milk alone for the first ten or fifteen days, or until the fever drops, and then give a mixed diet without meat, not allowing any until the end of the fourth week and after examination of the urine. Any tendency to albuminuria or nephritis indicates a return to the strict milk diet.

54. **Rumination in Children.**—Comby has encountered five cases of this kind; the children were between 2 and 4 years old. They did not seem to suffer from the anomaly, but it is better to break up the habit as soon as possible. Means to promote digestion and tone up the nervous system, persuasion and psychotherapy must be the main reliance.

Bulletin de l'Académie de Médecine, Paris

October 1, LXXVI, No. 32, pp. 127-152

55 *Curable Forms of Angina Pectoris. C. Fiessinger.
56 Principles of Hospital Construction. (Sur le projet de construction d'un nouvel hopital à Lyon.) E. Mosny and others. Commenced in previous volume.

55. **Curable Forms of Angina Pectoris.**—Fiessinger thinks that persons with attacks of angina pectoris are liable to live as long as others with heart disease if they take special care of themselves. In his experience with eighty patients whose history he has been able to trace for a number of years, he has found that the most serious cases are those with coronary disease, next in severity those with aortic or myocarditic disease; then follow the cases with angina pectoris in the course of mild chronic nephritis, and lastly those with angina pectoris as the effect of obesity or the swallowing of air. When the attack is brought on by physical exertion, then the myocardium is at fault, but on this myocardiac element is superposed a nervous factor, and the latter may be the work of toxic, infectious, reflex or simply emotional influences, and all these can be kept under control or corrected. The patient should be guarded against fatigue, worry and overexertion of any kind. The general treatment should consist in inhalation of amyl nitrite or exhibition of 3 or 4 drops of a 1 per cent. solution of trinitrin three times a day, and injection of 0.001 gm. morphin every three hours during a bad attack, with prolonged bed rest and small meals of a single dish every two hours—a total of seven meals a day. A glass of hot water should be taken after each meal, or a cup of cocoa. All patients benefit remarkably by this treatment; it fails only when the coronary disturbance is of syphilitic origin, in which case specific treatment is necessary; it cured completely four of his six patients in this class; none has had an attack for over six months, when before this they occurred almost daily. Angina pectoris in the young should always suggest syphilis. When the angina is due to aortic insufficiency, potassium iodid may benefit, keeping it up twenty days in each month. Bed rest for six or eight weeks may be necessary to reduce the irritability of the myocardium in these cases. The angina pectoris with myocarditis is frequently benefited to a remarkable extent by keeping in bed for a month, with very weak doses of digitalis and theobromin. Even in the elderly, this often arrests the tendency to angina pectoris when the myocardium is but slightly affected, while the innervation of the heart is peculiarly vulnerable. With interstitial nephritis, the patients sometimes cure their tendency to angina pectoris by some physical overexertion which dilates the auricle. In two cases of this kind, carrying a valise or running brought on for the first time a murmur of mitral insufficiency and they have had no angina pectoris since, although the nephritis and the high blood-pressure are still evident. In other cases a milk-vegetable diet, small frequent meals, frequent laxatives, and theobromin and digitalis ensured almost constantly marked improvement. The tendency to angina pectoris also subsides remarkably in the obese when they are kept on small frequent meals and theobromin for a month. Any person with angina pectoris who weighs above the standard for his age should have his weight reduced. The obese should guard especially against physical exertion; fatal syncope occurred from this cause in two of his twenty patients in this class. When a man under 45 has attacks of pain in the chest after walking or other exertion, and syphilis and aortic disease can be excluded, the trouble can generally be traced to distention of the stomach from swallowed air. With simple dyspepsia the angina pectoris has the feature of a neurosis, but with aerophagia the angina pectoris seems to be that characteristic of organic disease. The diaphragm pushed up by the swallowed air interferes with the action of the heart. It is possible for a person to die in apparently organic angina pectoris when in reality the trouble was from mechanical distention of the stomach. This

aerophagia should always be sought in examining a patient with angina pectoris. Small frequent meals, followed by sodium bicarbonate and absorbing powders are the measures indicated. Trinitrin and theobromin are useless and injurious in these cases, although we must not forget that association of the above types is possible. The results of the treatment outlined above are the more striking, he says, the older the patient. After 70, recovery is the rule. To ensure it, the patient must be kept under treatment more or less for fifteen months to three years.

Journal de Chirurgie, Paris

August, IX, No. 2, pp. 125-272

57 Osteoma of the Elbow. (Ostéomes de la région du coude.) G. Pascalis and C. Infroit.
58 Technic for Spinal Anesthesia. (Technique de l'anesthésie lombaire à la novocaine.) H. Chaput.

Journal de Médecine de Bordeaux

September 29, XLII, No. 39, pp. 613-628

59 *Experimental Research on General Anesthesia by Injection of Chloroform into the Peritoneum. G. Jeanneney.

59. **Experimental Intraperitoneal Injection of Chloroform.**—Jeanneney states that this method has no prospects either in surgery or physiology. The liver suffers more from the toxic action of the chloroform by this route, and also the kidneys. The injections seemed to be extremely painful, the parietal sheet of the peritoneum being peculiarly sensitive.

Lyon Médical, Lyons

September 29, XLIV, No. 39, pp. 505-552

60 *Nitrogen Output in Kidney Disease. (Le coefficient azoturique dans les affections rénales.) R. Boulud.

60. **The Nitrogen Output in Kidney Disease.**—By experimentation on dogs and healthy human beings, Boulud has determined that the nitrogen coefficient, that is, the relation of the urea to the total nitrogen, is normally 80 to 82 in both man and dog. He then induced nephritis in the dogs by the use of various agents, such as mercuric chlorid, chloroform and quinin, and there followed a marked decrease in this coefficient; it dropped sometimes as low as 60. In human subjects he found likewise a decrease in the nitrogen coefficient of patients with diseased kidneys, and in cases of albuminuria when the nitrogen coefficient was normal or high, some other reason for the albuminuria could always be found. He believes that the nitrogen coefficient is a valuable diagnostic and prognostic point in diseases of the kidney, and describes in detail his method of determining the urea, total nitrogen and ammonia in the urine.

Presse Médicale, Paris

October 5, XX, No. 81, pp. 809-820

61 Technic for Serotherapy of Tuberculosis. (Sur le mécanisme et la prévention des accidents de la sérothérapie antituberculeuse.) L. Bernard, R. Debré and R. Porak.
62 Diuretic Action of Digitalis. A. Martinet.
63 Mechanism of Pulmonary Emphysema. Malibran.

Revue Médicale de la Suisse Romande, Geneva

September, XXXII, No. 9, pp. 613-664

64 *Primary Tuberculosis of the Conjunctiva. E. M. Serebroff.
65 *Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis; Twenty-Three Cases. Jaquerod.

64. **Primary Tuberculosis of the Conjunctiva.**—Serebroff thinks that this affection is more common than is generally recognized, and that the prognosis under proper treatment is less serious than according to the reputation it has hitherto borne. The ulcerative forms with a rapidly destructive tendency are the gravest. General measures to tone up the system and stimulate the vitality of the tissues are indispensable, supplemented by excision and cauterization of the tissues left beneath in the cases that permit radical removal of the lesion.

65. **Artificial Pneumothorax.**—Pleural adhesions prevented effectual compression of the lung in eight of the twenty-three cases in which Jaquerod tried to apply therapeutic pneumothorax. The untreated patients have died since, while a number of those with the artificial pneumothorax are practically cured and all were improved. Two are clinically cured of the five with febrile tuberculosis and a destructive process in one lung, and all of four afebrile patients with unilateral cavities, and one with acute pleural tuberculosis. A tendency to recurring severe hemoptysis was immediately arrested by the pneumothorax in two cases, although the compression was not complete in one. One patient was a young woman with occasional moderate hemoptysis, bronchiectasia and much expectoration. The temperature was slightly above normal and the patient was running down although no tubercle bacilli could be found in the sputum; a remarkable turn for the better followed injection of from 100 to 250 c.c. of nitrogen at a sitting, repeating this about once a week for two months. This did not compress the lung completely but still enough to cause the healing of a cavity and put an end to the expectoration. On one occasion the injection was followed by transient almost total blindness for fifteen minutes. He has never observed by-effects of any kind in any other case, and he ascribes the reflex disturbances in this instance to the fact that this was the only case in which he ever introduced the gas under pressure.

Révue Mens. de Gynécologie, d'Obstétrique et de Pédiatrie, Paris

September, VII, No. 9, pp. 513-552

66 *Vaginal Hysterectomy for Fibroma. S. Pozzi.
67 Instrumental Demonstration of Pulse in Apparent Death. (Mort apparente d'un nouveau-né en période agonique; persistance de la circulation démontrée par l'oscillomètre de Pachon.) P. Balard.

66. **Vaginal Hysterectomy for Uterine Fibromas.**—Pozzi discusses the indications and technic, remarking that the vaginal route is contra-indicated if there is a suspicion of appendicitis or disease in the uterine adnexa. On the other hand, general anesthesia during a vaginal operation seems to be freer from accidents—other things being equal—than in abdominal operations, the operative shock being so much less.

Revue Prat. d'Obstétrique et de Gynécologie, Paris

September, XX, No. 9, pp. 257-284

68 *Lactic Acid Bacilli in Local Application. (La bactériothérapie lactique en obstétrique et gynécologie.) L. Pouliot.
69 Tuberculosis Complicating Pregnancy. (Conduite à tenir dans les cas de tuberculose compliquant la grossesse.) M. Brindeau.
70 Post-Mortem Delivery. J. Péry.

68. **Lactic Acid Bacilli in Local Treatment.**—Pouliot observes that the vogue of lactic acid bacilli in treatment and prophylaxis of intestinal troubles seems to be waning. This method of internal treatment long continued is said to lead to demineralization of the organism and hence to invite tuberculosis. On the other hand, lactic acid bacilli in local application seems to be acquiring more and more of a footing in gynecology and obstetrics. The Bulgarian bacillus produces the largest amounts of lactic acid; other strains average only 10 gm. to the liter of milk while the Bulgarian strain produces up to 32 gm. In local applications they rapidly clear off gangrenous and ulcerative patches and healing proceeds smoothly. Pouliot regards the method as having a wide field of effectual action in accessible gynecologic and obstetric lesions.

Semaine Médicale, Paris

October 2, XXXII, No. 40, pp. 469-480

71 Roentgentherapy of Uterine Myomas. R. de Bovis.

Archiv für klinische Chirurgie, Berlin

XCIX, No. 2, pp. 307-595. Last indexed Oct. 12, p. 1410

72 Primary Cancer of Small Intestine. (Ueber den primären Dündarmkrebs.) R. Hinz.
73 Transformation of Bladder Papilloma into Sarcoma. (Zur Frage der Mutation von Harnblasenpapillomen in Sarkom.) S. G. Lenenberger.
74 *Recovery After Opening Up Fourth Ventricle; Four Cases. (Breite Freilegung der Hirnventrikel, namentlich des vierten.) F. Krause.
75 Omentum Flap to Arrest Hemorrhage During Cholecystectomy. (Verwendung der freien Netzverpflanzung als blutstillendes Mittel bei der Gallenblasenexstirpation.) L. Stuckey.
76 *Operative Treatment of Ulcerative Colitis. H. Lindenberg.
77 Gastric Ulcer and Gastro-Enterostomy. A. Kocher.
78 *Chronic Duodenal Ulcer and Its Operative Treatment. (Chronische Duodenalgeschwür und seine chirurgische Behandlung.) A. Blad.
79 The Popliteal Artery in Relation to Aneurysm, Etc. (Lageveränderung der Arteria poplitea bei Flexion und Extension des Unterschenkels.) N. D. Buschmakin.
80 *Circumscribed Serous Cerebral Meningitis. W. Wendel.
81 Operative Treatment of Gastric Ulcer. (Chirurgische Behandlung des Magengeschwüres.) F. v. Fink.

82 Operative Treatment of Nephritis. (Intrarenale Drucksteigerung und chirurgische Behandlung der Nephritis.) M. Zondek.
83 Aseptic Destructive Processes in Bone and Cartilage. (Ueber einfache, aseptische Knochen- und Knorpelnekrose, Chondritis dissecans und Arthritis deformans.) G. Axhausen.
84 Recurring Malignant Chordoma of Sacrococcygeal Region. A. Vecchi.
85 Operation for Umbilical or Median Line Hernias. (Radicaloperation der Hernien des Nabels und der Linea alba.) G. A. Waljaschko.

74. **Opening Up the Ventricles of the Brain.**—In two of Krause's four cases the lateral ventricle and in two the fourth ventricle was opened up. All the patients recovered. The first two were children with hemiplegia for which difficult delivery was evidently responsible as unilateral convulsions had followed, gradually yielding to paralysis of the cerebral spastic type followed by Jacksonian epilepsy, and the mind had evidently suffered. At the ages of 7 and 10 Krause turned back a flap in the dura and found a large cyst in each case. After removal of the cyst wall he covered the ventricle with flaps from the dura, and there has been no recurrence of the epilepsy and the children have regained considerable use of their limbs. In the other cases the cyst or tumor was in communication with the fourth ventricle and cerebellum; the patients recovered after its removal although the centers for respiration and pulse had been exposed during the operation. One of these patients was a woman of 30.

76. **Operative Treatment of Ulcerative Colitis.**—In the first of the two cases reported Lindenberg opened the colon and eventrated its mucosa, suturing to the skin the edges of the split bowel and keeping it open this way for three months, with complete final recovery. The open gut acted like a large artificial anus and was washed out with a watering pot as the patient lay on a large basin, and this kept conditions bearable. But the complete recovery after the intestine was sutured and reduced repaid a thousandfold for the three months' discomfort. The colitis was of nine months' standing in this case but no specific germs for it could be found. In the other case the colitis was acute and was found so extensive at the operation that the intended anastomosis had to be abandoned and the young man died the next day. Nehrkorn has reported eight cured among eleven patients treated by a left artificial anus, while only seven were cured of the sixteen treated by a right anus. Seven were cured of the twelve patients treated with a cecal anus.

78. **Chronic Duodenal Ulcer.**—Blad remarks that duodenal ulcer is being found oftener now that it is more systematically sought for. An early operation is the only means for a permanent cure. Chyme may pass out of the pylorus even with a functioning gastro-enterostomy.

80. **Serous Meningitis.**—Wendel describes a case of circumscribed serous meningitis which developed inside the skull of a young man from an infectious process in the orbit, after the orbital process had healed. The symptoms and treatment are the same as with a brain tumor, but the process in itself is sterile, being merely the result of obstruction of lymph passages.

Beiträge zur klinischen Chirurgie, Tübingen

LXXVII, No. 3, pp. 601-780

86 *Exophthalmic Goiter a Surgical Affection. (Die Basedowsche Krankheit. Eine chirurgisch-experimentelle und biologische Studie.) H. Klose, A. E. Lampé and R. E. Liesegang.

86. **Hyperthyroidism.**—Klose and his coworkers present 181 pages of evidence of various kinds to establish beyond question that exophthalmic goiter is a surgical affection and that the cause of the trouble is not an excess of normal thyroid secretion but that the secretion is abnormal and toxic. Operative treatment has given from 75 to 85 per cent. permanent cures, while the operative mortality has dropped to 3 per cent. in general—zero in the incipient cases while still high in the severer forms. All of which, they declare, testifies to the importance and efficacy of early operative treatment. The red cells do not seem to be affected in hyperthyroidism, but the constant, relative or absolute lymphocytosis, involving both large and small lymphocytes, is of great differential value and a guide to treatment. The blood with hyperthyroidism is also slow in coagulating and the freezing point is low.

Beiträge zur Klinik der Tuberkulose, Würzburg

XXIV, No. 3, pp. 283-410. Last indexed November 2

87 *Unilateral Pulmonary Tuberculosis Spreading from Hilus. (Einseitige vom Hilus ausgehende Lungentuberkulose.) H. Straub and M. Otten.
88 *Pulmonary and Tracheobronchial Syphilis. H. Lindvall and J. Tilgren.
89 *Complications Liable in Treatment with Artificial Pneumothorax. A. Weiss.
90 Lymphogranulomatosis. (Ueber Befunde bei Morbus Hodgkin mittelst der Antiforminmethode.) H. Löffelmann.
91 Gases in Blood with Disease of Air Passages and Lungs. (Experimentelle Studien über das Verhalten der Blutgase bei Erkrankungen der Lunge und der luftführenden Wege.) E. Lippert.
92 The Movement in Germany for Public Sanatoriums for the Tuberculous. A. Brecke.

87. **Pulmonary Tuberculosis Starting in the Hilus.**—Straub gives the details of twenty-seven cases with several illustrations to show the differential points between pulmonary tuberculosis commencing at the apex or in the hilus. Those of the latter type are especially amenable to artificial pneumothorax. He advocates it in all cases of advanced tuberculosis starting in the hilus and restricted to one lung or with only slight involvement of the other, with a process having shown some tendency to repair although the general trend is progressive. The left upper lobe is the one generally involved in this type.

88. **Pulmonary Syphilis.**—Lindvall and Tilgren give the details of the clinical course and necropsy findings in two cases, the patients men of 35 and 36. In the first case the process proved fatal in a year. Chronic nephritis developed and other symptoms of amyloid degeneration of the viscera. Universal lymphadenitis suggested at first a tuberculous affection, but the findings in the lung were not those of advanced tuberculosis and no tubercle bacilli were found in the sputum. In the other case tertiary symptoms developed eleven years after infection but only a little potassium iodid was taken. Two years later the "carnification" lesions in the pharynx and lungs became evident, but they showed no special characteristics of syphilis under the microscope.

89. **Complications of Artificial Pneumothorax.** — Weiss remarks that it is amazing what a favorable influence can be exerted on a pulmonary process by injection of even a small amount of the gas. Gas embolism is a bad complication; Brauer has reported four cases in which it occurred and Weiss has had it once, but his patient recovered. The needle had evidently pierced a blood-vessel as the patient was told to breathe deep in ascertaining whether the puncture needle was in the right place. The emphysema which may be observed is more annoying than dangerous; effusions may require removal eventually, but should be treated expectantly for a time. He never tapped the effusion when staphylococci were involved. He aims to puncture deep to release as much fluid as possible and then inject nitrogen to take its place. In his experience active foci in the other lung were never benefited by the pneumothorax therapy, and he regards them as a contra-indication. In one case the pneumothorax was applied to arrest hemoptysis, and the patient seems in the best of health now, the bacilli having long disappeared from the sputum. Compression of the diseased lung evidently floods the blood with toxins so that reactions are induced as with tuberculin. In one case a man with a destructive process in the upper lobe and scattered foci elsewhere in the lung was treated by the artificial pneumothorax, but the gas spread into the pleura on the other side, evidently from a tear in the mediastinum, thus compressing both lungs, and the gas had to be released. The tear must have healed soon, as in three weeks the procedure could be repeated without further trouble. Weiss insists that the indications for the pneumothorax treatment should not be extended and that it is better to refrain from sacrificing too much healthy lung tissue. One of the great advantages of the procedure is the improvement in the patient's state of mind. One danger from it is in case of pneumonia in the other lung; he had a case of this kind and the patient died notwithstanding that the nitrogen was withdrawn.

Berliner klinische Wochenschrift

September 30, XLIX, No. 40, pp. 1873-1920

93 *Pathogenesis of Orthostatic Albuminuria. B. Stiller.
94 *High Blood-Pressure and Sugar Content of the Blood. (Hypertension und Blutzucker.) M. Hagelberg.

95 *The Blood-Findings in the Obese. (Blutbefunde bei Adipositas.) L. Caro.
96 Hysteria as a Product of Civilization. O. Aronsohn.
97 *Atropin Poisoning; Two Cases; One Fatal. R. Wolter.
98 Advantages of the Phenolsulphonephthalein Test of Kidney Functioning. F. Fromme and C. Rubner.
99 *Experimental Research on Influencing of Sexual System by Operations on Nose. Koblanck and H. Roeder.
100 *Attempted Abortion with Extra-Uterine Pregnancy. (Fruchtabtreibungsversuche bei extrauterinem Sitz der Schwangerschaft.) M. Hirsch.
101 Gonococcus Vaccine in Diagnosis. H. Ziemann.
102 Prognosis of Melancholia. W. H. Becker.
103 *Epidemic of Seborrheic Eczema. C. Bruhns and M. Cohn.

October 7, No. 41, pp. 1921-1968

104 Research on Hemoglobinuria. J. W. Miller.
105 The Streptococci in Tonsillar Infection. (Zur Bedeutung der hämolytischen und anhämolytischen Streptokokken für die Pathologie der Tonsillen.) F. Henke and H. Reiter.
106 Dilatation of the Esophagus. (2 Fälle von diffuser Ektasie der Speiseröhre.) Ratkowski.
107 Preparation of Eye for Removal of Cataract. (Zur Vorbereitung des Auges für die Staroperation.) T. Treitel.
108 *Dry Heat and Boiling Water in Treatment of Chronic Skin Disease. (Die strahlende Wärme und das siedende Wasser im Dienste der Behandlung von Hautkrankheiten.) J. Toth.
109 Research on the Wassermann Reaction. (Beeinflussung der Wassermannschen Reaktion durch Schwankungen des Komplements.) J. Trinchese. (Verlauf nach der Salvarsaninjektion.) K. Shiga.
110 *Aseptic Catheterization. R. Roosen.

93. **Orthostatic Albuminuria and Congenital General Asthenia.**—Stiller claims that the phenomenon observed by Jehle, namely, that induced lordosis is liable to cause albuminuria in previously healthy children, is a manifestation of the universal asthenia to which Stiller long ago called attention. This asthenia is the basis on which the orthostatic albuminuria develops, as also the narrowing of the upper aperture of the chest—all are the consequences of the general asthenia characterized by the tendency to sagging of the viscera, nervous dyspepsia, neurasthenia of both the volitional and vegetative nervous systems, motor, sensory and secretory disturbances of the stomach, splashing sound, etc. The constitutional inferiority is responsible for the development of the albuminuria on slight causes.

94. **High Blood-Pressure and Sugar Content of the Blood.**—Hagelberg found abnormally high sugar content in the blood in twenty-six cases of nephritis or arteriosclerosis or both combined. At the same time the proportion was within normal range in his six cases of arteriosclerotic contracted kidney. The data presented suggest that an abnormal increase in the proportion of epinephrin is the primal cause for the high blood-pressure and also for the high sugar content. This assumption harmonizes with the results of recent research in other lines.

95. **The Blood-Findings with Obesity.**—Caro gives the minute details of the blood-findings in thirty-four cases of obesity, constitutional or acquired. Relative lymphocytosis was evident in all with reduction of neutrophil granulated leukocytes. Under thyroid treatment the blood-picture improved. He also found relative lymphocytosis in the majority of thirty-three diabetics; the eosinophils were increased in 25 per cent. of the cases. Kocher's finding of relative lymphocytosis in 155 persons with myxedema or cretinoid symptoms showing deficient typhoid functioning, is important as myxedema so often is accompanied by obesity. Guggenheimer has also found much lymphocytosis in a case of eunuchoid giant growth and two of eunuchoid obesity.

97. **Atropin Poisoning.**—The man of 52 became unconscious soon after taking a mouthful of a liquor labeled "anisette," and chemical examination later showed that he must have taken 3.2 gm. of atropin sulphate. The maximal dose is given as 0.003 gm. The man died after twenty-seven hours. The jaws were locked with a tonic cramp, the temperature ran up to 42 C., the pupils were dilated to the maximum, and the knee-jerk was lively. Another man who had tasted two drops of the liquor recovered after a period of delirium and tonic spasm of the jaws. Under chloroform the mouth was opened enough to introduce the stomach pump and the stomach was thoroughly rinsed out and milk poured in. Consciousness returned the next morning, the pulse dropped to 104 and complete recovery soon followed.

99. **Experimental Influencing of the Sexual System by Operations on the Nose.**—Koblanck and Roeder state that the operation on the nose to destroy the so-called genital points seemed to have no influence on the development of the animals. They grew as well as the controls, except that the total weight was a trifle less, but when the animals were killed the genital organs were found practically rudimentary in the treated animals and while the untreated animals had two litters, the treated animals seem sexually indifferent. It is probable that there is some intimate connection with the hypophysis, and there may be some nervous stimulus from the points in the nose causing the hypoplasia of the genital organs.

100. **Attempted Abortion with Extra-Uterine Pregnancy.**—Hirsch reports four cases in which injury from attempted abortion complicated the extra-uterine pregnancy. Differentiation in such cases is difficult but was possible in these cases as the pains in the side recurred more and more frequently, while the tumor became less tender under rest in bed, ice and morphin, while the temperature dropped and the general condition improved. With pyosalpinx, the objective and subjective phenomena generally subside parallel under bed rest. The recurrence of the attacks of pain, notwithstanding appropriate expectant treatment, suggests extra-uterine pregnancy even when preceding criminal manipulations may have obscured the picture.

103. **Epidemic Seborrheic Eczema.**—Bruhns and Cohn found twenty-nine girls, in a room with thirty-five, presenting seborrheic eczema; the children were between 11 and 14 and the foci were in the face. The course was tedious owing to the tendency to recurrence. In the other school rooms there were only a few isolated cases.

108. **Heat in Treatment of Chronic Eczema.**—Toth has the patient hold the part affected in the heat from an oven or other source at a temperature of 100 or 115 C. (212 or 239 F.) passing the part gently back and forth five or six times until the prickling from the heat has stopped, doing this two or three times and repeating it three times a day at first. The part should be held closer to the source of the heat each time, and the patients do this instinctively when they feel the relief from itching and the benefit generally from the process. After the dry exposure a folded towel is dipped in boiling water and laid gently on the part and moved to and fro, applying this with more force each time. Patience and perseverance were necessary to conquer the old chronic eczema in the case reported, Toth himself being the victim, but permanent success finally crowned his efforts after a number of relapses. The cleanliness, simplicity and self-regulating features of the method and its prompt relief of the distressing symptoms are the special advantages of this combination of heat and boiling water. The only drawback is its tediousness. In his case the eczema previously kept constantly recurring and extended from the top of the head to the toes.

110. **Aseptic Catheterization.**—Roosen has not yet tried in the clinic the catheter cover of which he gives an illustration, but he thinks that theoretically it will effectually protect against carrying infection upward into the bladder. A long narrow case, like an umbrella case, fits inside the metal catheter; the end projecting from the tip is fastened to a ring. As the catheter is introduced the ring catches at the mouth of the urethra and as the catheter is pushed farther in the case is drawn out of the tip and turned over backward, thus forming an aseptic covering for the tip and entire length of the catheter in the urethra. When the catheter is to be withdrawn, the case is pulled back inside it by a thread fastened to the smaller end of the case, inside the catheter. The walls of the catheter thus do not come in contact at any point with the walls of the urethra.

Deutsche medizinische Wochenschrift, Berlin

October 3, XXXVIII, No. 40, pp. 1865-1912

111 Acute Circulatory Weakness. (Behandlung der akuten Kreislaufschwäche, insbes. bei akuten Infektionskrankheiten.) A. Hoffmann.
112 Renal Glycosuria in Pregnancy. (Nierendiabetes in der Gravidität.) J. Novak and others.
113 Relations Between Internal Secretions and Diabetes Insipidus. O. Steiger.
114 Technic for Determining of Resisting Capacity of Red Corpuscles. (Fehlerquellen bei Bestimmung der Resistenz der Erythrozyten nach v. Liebermann und v. Fillinger.) E. Schaeffer.

115 *Typhoid Bacillus Carriers. (Zur Bedeutung der Typhusbazillen-Dauerausscheider. Schroeter.
116 Idiopathic Osteopsathyrosis. J. Lewy.
117 Blocking the Brachial Plexus. D. Kulenkampff.
118 Transverse Tracheotomy. P. Rohmer.
119 Liver Utilized to Close Defect in Diaphragm. J. Jankowski.
120 Epidemic Poliomyelitis. (Die spinale Kinderlähmung.) C. Deutschländer.
121 Frozen Meats. (Das Gefrierfleisch.) A. Schmidt.

115. **Typhoid Bacillus Carriers.**—A small epidemic in a country village was finally traced after much effort to a woman who had had typhoid thirty-two years before. The cases of typhoid occurred at long intervals, a year or more. This is explained possibly by the fact that the carrier had comparatively few typhoid bacilli and expelled them only at considerable intervals.

Deutsche Zeitschrift für Chirurgie, Leipsic

September, CXIX, Nos. 1-2, pp. 1-200

122 *Common Bile Duct Made from Drain Tube. R. Brandt.
123 Encapsulated Helminth Ova in Pancreas. (Fremdkörpertuberkel des Pankreas verursacht durch eingewanderter Askariseier.) S. Muroya.
124 Improved Technic for Suturing Vessels of Small Caliber. N. A. Dobrowalskaja.
125 Surgery of Deep Lymph-Nodes in the Pelvis. (Zur Chirurgie der tiefen Beckendrüsen.) O. H. Kotzulla.
126 *Convulsions in Connection with Operations on the Pleura. (Auftreten von Krampfanfällen bei Eingriffen an der Pleura.) D. G. Zesas.
127 Cause of Abdominal Phenomena in Pneumonia. (Lymphgefässe der Lunge.) K. Franke.
128 Malignant Degeneration of Leukoplakia of the Penis. K. Iwasaki.
129 Goring Injury of Abdomen. (Bauchdeckenverletzung durch Hornstich.) Creite.

122. **Artificial Common Bile Duct.**—Brandt reports six cases in which Wilms supplied the place of the missing common bile duct with a rubber drain tube. The measure proved very useful and harmless, but the cases teach that the tube must not project far into the lumen of the intestines and that the tube should be wrapped its entire length in omentum to ensure the best results. The gall-bladder was removed in each case. The ultimate outcome to date, after more than a year, is perfect. The tube was expelled through the wound the twelfth day or vomited up later in three cases, but the interval had been long enough for an adequate outlet for the bile to develop and there has been no trouble since. In all the cases the measure undoubtedly saved the lives of the patients who had been gradually succumbing to their bile fistula or sepsis.

126. **Prophylaxis of Convulsions in Connection with Operations on the Pleura.**—Zesas has encountered a case of this kind, the convulsions following fifteen minutes after puncture and aspiration of about 150 gm. of pleural effusion in a case of primary cancer of the lung on this side. He has found records of fifty-three similar cases, all but sixteen in men. In forty-five cases the convulsions followed immediately on the intervention on the pleura; in the others not until several minutes or hours later. In three cases the convulsions recurred spontaneously a few times. In eight cases the convulsions followed a simple puncture. In two cases an operation for empyema was done under general anesthesia and the patients—boys of 9 and 10—died suddenly, whether from reflex action starting in the pleura or a chloroform accident is open to question. It seems advisable, however, to reduce reflex excitability in the pleura in prophylaxis of disturbance from this cause. Zesas regards this as particularly necessary for very nervous patients. A preliminary injection of morphin seems the best means for the purpose, according to the results of experiments on animals. In his personal case a prompt injection of morphin put an end to the convulsive twitchings in arms and legs and restored the patient to consciousness. He had no remembrance of the attack.

Medizinische Klinik, Berlin

October 6, VIII, No. 40, pp. 1611-1650

130 *Calculi in Kidney or Ureter. (Nieren- und Uretersteine.) L. Casper.
131 *Modern Diagnostic Measures from Standpoint of Life Insurance. (Verwertung diagnostischer Fortschritte in versicherungsärztlicher Hinsicht.) J. Flesch.
132 Prophylaxis of Diphtheria. M. Neisser.
133 Jaundice in Children. (Icterus simplex und seine Behandlung beim Kinde.) A. Niemann.
134 Local Variations in Blood-Pressure. (Verlauf der Druckschwankungen in den Hohlräumen des Herzens und in den grossen Gefässen.) H. Piper.

130. **Kidney and Ureter Calculi.**—Casper declares that it is possible now to diagnose a stone in the upper urinary apparatus in almost every case and in an early stage. He has encountered many cases in which there was not the slightest pain or hemorrhage, and other affections may induce pain from obstruction of the outlet, or hemorrhage or both, and a dull continuous pain may accompany tumors, renal tuberculosis or nephritis. But hemorrhage connected with physical exercise and effort is scarcely ever observed except with stones. Palpation is unreliable but roentgenoscopy seldom fails to disclose stones in the kidney, pelvis or ureter. The only exceptions are small urate stones and sometimes the oxalate stones, but Casper has always detected oxalate stones larger than a pea. He warns against the errors liable in the roentgen-ray pictures with calcified glands and lumps of feces; repeated changes of position and repetition after an interval will generally clear up the case; a catheter in the ureter will cast a shadow superposed on the stone, while there will be a space between with most other objects liable to be confounded with a ureter stone. Negative roentgenoscopy is not absolutely conclusive. Kidney stones sometimes induce reflex colic in the other kidney, and ureter stones may induce the same symptoms as a stone in the kidney. Treatment should aim to relieve the pain and hemorrhage, get rid of the stones and prevent further stone formation. If the patient keeps quiet or stays in bed there is generally no further hemorrhage. If the bleeding is excessive, operative measures are the only resource. A constant dull pain may get transient relief from mild narcotics but glycerin is more effective. He gives a tablespoonful every three hours up to 150 c.c., with a little tincture of bitter orange peel and tincture of gentian to prevent nausea. Some have reported hemoglobinuria, but he has never seen any by-effects except occasionally slight diarrhea. Kidney colic is treated with heat, copious drinking to promote diuresis, and an injection of morphin to combat the contractions of the ureter. Rest in bed and a milk diet is indispensable in the days following the attack of colic; the urine generally shows some albumin at this time, testifying to some slight superficial injury from the stone. To get rid of the stones without an operation, stimulate diuresis by fluids, possibly up to 8 liters a day. If the stones are low down in the ureter, it may be possible to help their expulsion by injection of oil or glycerin around and behind the stone. If the calculus causes no disturbance except colic, at intervals of years, when the urine is limpid and aseptic and the patient suffers only very rarely, operative treatment is not needed. Recurrence is frequent, and consequently the diet should be regulated to counteract this, refraining from meat and internal organs. With oxalate stones, spinach, apples and tomatoes had better be avoided. The larger the amount of urine the more the salts in it are diluted, and the more readily sand is washed out; the kind of food is of less importance.

131. **Modern Diagnostic Methods in Examination for Life Insurance.**—Among the points emphasized by Flesch are the necessity for direct visual inspection of the sigmoid flexure in case of unexplained blood in the stools, also that when the skin is purplish, without a tendency to arteriosclerosis or apoplexy, a drop of blood from the finger should be examined to see whether the patient may not have polycythemia. This brings danger of thrombosis, hemorrhages and albuminuria; the spleen may be enlarged, the blood-pressure high and the hemoglobin 90 or up to 110 per cent. In differentiation of nervous cardiovascular disturbances, he mentions that arhythmia from organic heart trouble is not affected or becomes aggravated by muscular exercise, while nervous extrasystoles are more apt to subside when the individual kneels down several times in succession or pressure is applied to the vagus, or 0.001 gm. atropin injected. Tachycardia of nervous origin can be transformed into bradycardia by injection of physostigmin. Tachycardia from thyroid intoxication is characterized by the pulsation of the large vessels and the tendency to rapid exhaustion; the thyroid may not be enlarged but the blood-pressure is generally low and there is great susceptibility to epinephrin. Flesch remarks that he has found emphysematous bronchial catarrh and asthma an occupational affection in persons working on hides and furs. He warns that amenorrhea before the

menopause should suggest the possibility of some lesion in the hypophysis. If there are other indications of genital dystrophy, such as obesity, pallor, etc., the base of the skull should be examined by roentgenoscopy. He has found the galvanic light reflex (Bumke) and the secondary light reaction (Weiler) useful in disclosing nervous affections for which syphilis is responsible. Both of these reactions disappear on an average in 84 per cent. of the cases before the reflex ocular palsies develop. In diagnosis of pulmonary disease roentgenoscopy is comparatively of little use, but for the gastro-intestinal tract it affords decisive testimony. Serodiagnosis of syphilis is useful on suspicion of a parasyphilitic affection; signs of neurasthenia or of a tendency to neurotic degeneration with a history of old syphilis are always suspicious of a tendency to tabes or progressive paralysis, and a positive Wassermann reaction should exclude the candidate. A negative Wassermann test and a long interval of health without specific treatment may be regarded as testifying to a thorough cure. Flesch adds that the consensus of opinion to date is that salvarsan treatment alone never cures syphilis; the most reliable treatment is early excision of the primary sore and a combined mercury-salvarsan treatment. He regards alimentary galactosuria as identical with insufficiency of the liver. At the same time, he warns that galactosuria may occasionally be found with the liver intact, but in this case there is always accompanying dextrosuria, and these rare findings do not annul the great importance of the alimentary galactosuria test for insurance. Urobilinogen in the urine points to stagnation in the portal circulation. This is particularly liable when the right heart is overburdened from chronic mitral stenosis, chronic emphysema, weakness of the heart muscle, dilatation or with asthma. The urobilinogen is readily detected in the urine by Ehrlich's aldehyd reaction; the reaction ceases as compensation is restored. To distinguish between pentosuria and diabetes, it must be remembered that pentosuria should be suspected when the Trommer test is positive only as the fluid cools, and then by fits and starts. Milk sugar is usually found in the urine of parturients up to the sixth week, especially when they are not nursing, and this gives all the tests for sugar except the fermentation test. He discusses in conclusion chondroitic aciduria (see abstract 85, p. 1330), and commends May's tungstic acid method for clearing up urine before testing for sugar.

Münchener medizinische Wochenschrift

October 1, LIX, No. 40, pp. 2146-2208

135 Transperitoneal Cervical Cesarean Section; Thirty-Three Cases. M. Henkel.
136 Myeloblast Chloroleukemia with Aplastic Hyperchromic Anemia in Boy of S. J. H. Esser.
137 *Wholesale Poisoning from Baked Fish. (Zur Frage der Fleischvergifter.) G. Mayer.
138 *Roentgenoscopy of Constipation. (Ueber hypokinetische und dyskinetische Formen der Obstipation.) G. Schwarz.
139 Traumatic Organic Mental and Nervous Disease. (Organische Geistes- und Nervenkrankheiten nach Unfall.) F. Eichelberg.
140 Harmlessness of Potassium Chlorate in Tooth Pastes. (Ist der Gebrauch der Kalichloricum-Zahnpasten gefährlich?) C. Bachem.
141 Roentgenoscopy in Diagnosis of Hernia of the Diaphragm. E. Scheidemandel.
142 Drug Eruption Under Pantopon. E. Klausner.
143 *Hemophilia Cured by Injection of Defibrinated Blood from Patient's Daughter. H. Rubin.
144 Moving Pictures in Study of Tropical Diseases. G. Olpp.
145 *Nerve Relapses of Syphilis After Salvarsan. (Häufigkeit und Hochgradigkeit der Neurorezidiven nach Salvarsan.) Benario.

137. **Meat Poisoning.**—In the epidemic reported by Mayer the proteus was found in the stools in large numbers but they were soon supplanted by paratyphoid bacteria. If the examination had been postponed a few days, the latter alone would have been found. His experience has been that paratyphoid bacteria are not contagious; in order to have pathogenic importance they have to proliferate in food in which they can generate their toxins.

138. **Constipation.**—Schwarz gives illustrations showing two special types of constipation. In one the feces do not separate into lumps, as in normal conditions, and the colon is seen on roentgenoscopy to be abnormally long. He calls this the hypokinetic type. In the other group the anomaly is the other extreme; the feces are separated into innumerable small lumps and the excessive motor functioning of the colon forces the feces at times backward. He calls this type the dyskinetic with hypersegmentation or hyperrepulsion. One patient was a woman of 50, who for years had been extremely constipated, the bowels not moving at times for eight days; twenty-four hours after the meal the feces still form a solid band in the cecum and ascending colon. In this type the reduction of the motor functioning is most pronounced in the colon.

143. **Injection of Defibrinated Blood in Hemophilia.**—Rubin reports the case of a woman of 50 with a hemorrhagic diathesis and excessive climacteric hemorrhages and extravasation of blood. The general condition was growing rapidly worse when Rubin injected 40 c.c. of defibrinated blood from the patient's daughter. The hemorrhages stopped the same day and there has been no manifestation of the tendency since. Two more intramuscular injections were made to confirm the cure. The rapidity with which the hematomas were absorbed was most striking. This experience suggests that injection of defibrinated blood might prove useful in various gynecologic affections accompanied by much loss of blood. See editorial, p. 1549.

145. **Nerve Relapses After Salvarsan.**—Benario writes from Ehrlich's institute at Frankfort to review the literature on this subject. He agrees with Ehrlich that the nerve relapses are the manifestation of a monorecurrence at a point inaccessible to the medication. The virulence of the local recurrence after salvarsan is due to the lack of all competition. The origin and development of a nerve relapse depends on one hand, he says, on the preceding treatment and the time the process has had to develop—every day of postponement of vigorous treatment reduces the prospect for complete restitution. Not the severity of the case should be accepted as the criterion for mercury or salvarsan treatment—the question is whether it is possible to put through a vigorous course of salvarsan treatment. Unless the patient is able and willing to take the two or three weeks' intensive course, it is better to refrain from salvarsan altogether.

St. Petersburger medizinische Zeitschrift

September 28, XXXVII, No. 18, pp. 263-276

146 Gangrene of Sinus Pyriformis in Scarlet Fever. (Ein Scharlachfall mit seltener Komplikation.) T. Hecker.
147 *Functional Amenorrhea. B. Ottow.
148 *Treatment of Traumatic Meningitis. Schneider.
149 *Fasting as Therapeutic Measure. (Fastenkur.) G. Hermann.

147. **Functional Amenorrhea.**—Ottow was consulted by a woman of 34, a v-para, on account of slight bladder disturbances. She had always been healthy but menstruation had always been suspended during the period from May to September. He found this same anomaly in the case of another healthy woman of 44; menstruation normal at all other times had always been suspended between spring and fall. The women during the winter lived a quiet, indoor existence, but with the spring they went into the fields and worked at farm labor until after the harvest. This complete change in their mode of life and their hard work, he thinks, explain the gap in menstruation. Ellis and Bischoff have reported a similar periodical amenorrhea in the women of Greenland and Terra del Fuego.

148. **Traumatic Meningitis.**—Schneider reports the case of a fracture of the base of the skull; the previously healthy man fell from a height of 15 feet on a stone table. Cerebrospinal fluid dripped from his nose from the fifth day on, but under lumbar puncture the fluid was diverted; it contained innumerable polynuclear leukocytes. The relief from the lumbar puncture was followed by rapid recovery. A fissure can still be felt at the seat of the fracture, and the patient for some time heard a grating sound at the back of his head as he chewed.

149. **Fasting in Treatment of Gastro-Intestinal Trouble.**—A man of 51 had had weak digestion for several years but abstention from meat improved the condition materially. Four years later he resumed the eating of meat and symptoms returned, suggesting duodenal ulcer. Before the contemplated operation, the patient was made to fast for eight days then put on a mostly vegetable diet for five days, and then made to fast for five more days. The result was a complete cure of all gastro-intestinal trouble and rapid gain in weight on a meat-free diet which he still keeps up.

Therapeutische Monatshefte, Berlin

October XXVI, No. 10, pp. 697-768

150 *Results of Gastro-Enterostomy for Malignant and Non-Malignant Disease of the Stomach. P. Janssen.
151 *By-Effects of Hormonal. J. Voigt.
152 Advantages of Equal Parts Alcohol and Glycerin for Dressing Wounds. (Die Anwendung von Spiritus-Glyzerin zu feuchten Verbänden als Ersatz der essigsauren Spiritus- und Essigsäure-Tonerde-Therapie.) F. Dörken.
153 *Minor Hints. (Technisch-therapeutische Bemerkungen). Scheuer.
154 Laws on Trademarks. (Zur Reform des Warenzeichengesetzes.) Wickboldt.

150. **Gastro-Enterostomy.**—Janssen reports the favorable results obtained in Witzel's service at Düsseldorf, and he ascribes this to the technic. No button is used and the gastro-enterostomy is always made at the lowest part of the posterior wall of the stomach, drawing up the walls of the afferent loop of jejunum in such a way that reflux of its contents into the duodenum is impossible. Still more important, he states, is the introduction of a rubber tube through the gastro-enterostomy opening into the efferent portion of the loop, where it is held in place with a stitch of catgut. Through the outer end, projecting through the abdominal wall, the patient can be fed from the start without irritation of the suture by the passage of food. The tube is left for ten days and it serves to keep the passage permeable, when, after the fifth day, feeding by the mouth is resumed. Still another advantage of this tube is that the stomach is suspended by it in its normal site, and thus is counteracted any tendency to downward displacement or dilatation.

151. **By-Effects of Hormonal.**—Voigt made an intravenous injection of 20 c.c. hormonal to relieve post-operative sluggishness of the intestines in a much debilitated woman of 42. A hard chill followed in twelve minutes, the pulse becoming imperceptible at first and then running up to 200 while the temperature was soon 40.2 C. (104.36 F.), but it returned to normal the same evening. Flatus passed eight hours after the injection and the bowels moved freely the next morning and up to twenty times a day during the next five days. This diarrhea was a very unfavorable complication in the case, and a considerable drop in the blood pressure seems to be an indispensable feature in the action of hormonal. This must be taken into account in using it in the clinic, so that it should be reserved for the most serious cases.

153. **Minor Hints.**—Scheuer mentions a number of minor points which he urges the general practitioner to bear in mind, such as, that alcohol does not acquire bactericidal power unless it contains 25 per cent. water. Also that wooden spatulas can be bought for 20 cents per thousand, and thus there is no excuse for using the same metal ones for different patients. Also that tincture of iodin with age loses its odor and color and nearly all its antiseptic efficiency. Also that the edges of the mouths of bottles are very seldom kept covered, while the lack of this is liable to infect the contents as they are poured out. Also that oatmeal gruel and rice gruel are more nourishing and better than the expensive infant foods. Also that physicians are too apt to treat symptoms instead of seeking for and removing the cause.

Therapie der Gegenwart, Berlin

October, LIII, No. 10, pp. 433-480

155 *Tubercle Bacilli in the Blood-Stream. (Tuberkelbacillen im strömenden Blute.) F. Klemperer.
156 *Ileus with Pancreas Disease. A. Wolff.
157 *Causes and Treatment of Falling Out of the Hair. (Pityriasis capitis.) E. Kromayer.
158 *Vegetable Days in Treatment of Diabetes, Gout and Obesity. (Gemüsetage.) Disqué.

155. **Tubercle Bacilli in the Blood Stream.**—Klemperer examined the blood of thirty-nine persons, including fourteen with pulmonary tuberculosis, seven suspects, ten with other affections, and eight healthy persons. Acid-fast bacilli were found in small numbers in nearly all the tuberculous patients, while they were only exceptionally found in the others. He thinks that Kurashige's positive findings in all the tuberculous and healthy persons he examined suggest the possibility of some technical error, especially as inoculation of animals gave positive results only in four cases among the twenty healthy persons infected. It is possible also that some of his apparently healthy subjects were already infected; a number are stated to have developed tuberculosis soon afterward. The diagnosis of pulmonary tuberculosis cannot be based alone on the discovery of tubercle bacilli in the blood, as they are found with other localizations of tuberculosis. The bacilli in the blood have about the same diagnostic importance as the Pirquet reaction, although not all the persons giving a positive response to the Pirquet test have tubercle bacilli in the blood. Their presence permits no conclusions as to the prognosis, as they were found in the mildest as well as in the severest cases. The constant and unchecked penetration of tubercle bacilli into the blood stream—which seems to be an established fact—renders the question of the portal of entry of comparatively little importance. It also shows the comparative harmlessness of the tubercle bacilli, and that special local and general conditions are necessary for them to settle and thrive at any point.

156. **Ileus with Pancreas Disease.**—Wolff remarks that too little attention has been hitherto paid to the disturbances in the bowel with disease in the pancreas. These disturbances may be functional or microscopic or chemically demonstrable or they may be merely subjective; ileus is comparatively frequent. In a typical case reported, the threatening ileus was cured by internal measures each time in succession as it returned in the course of four weeks. Between each recurrence there was a stage of comparative health with regular bowel functioning. The patient was a man of 51 who had complained for a year of gastric disturbances and had been treated for suspected gall-stones; gastric cancer was also considered. Then he had an attack of severe abdominal pains, fecal vomiting and no stools, but conditions returned apparently to normal after rinsing out the stomach and intestines and local application of heat. These attacks returned at intervals of a week or two and steatorrhea was observed. Finally, symptoms of peritonitis developed and necropsy showed three patches of gangrene in the mesentery and a cancer in the pancreas. Several elements must have conspired to bring on the recurring ileus but the main factor was arterial thrombosis.

157. **Treatment of Loss of Hair.**—Kromayer emphasizes that the scalp needs light and air to be kept in good order, and that in our modern civilization the hair is doomed to gradual destruction as it has lost its importance as a protection for the body. The sweat and sebum accumulate and afford a good culture medium for germs, and he says that the physician should examine for pityriasis once in a while, just as the dentist examines the teeth. He has devised a little cleansing brush to run between the hairs to do the same service for the scalp that the tooth brush does for the teeth. When pityriasis is installed, he thinks sulphur is about the best remedy.

158. **Vegetable Days in Diabetes, Gout and Obesity.**—Disqué has found restriction to vegetables once or twice a week an admirable means to regulate the diet without keeping the patients under constant restrictions. He has found this useful not only in diabetes and obesity, but also with gout, giving the preference to the purin-free vegetables and fruit and avoiding spinach, peas and beans, as these contain purins. Green vegetables and salads are allowed at will; this amounts to practical starvation without the patient suffering from hunger. He allows as beverage only tea or lemonade with saccharin. In this way the calories can be reduced by a fourth to a half on an average during the week without the patient's missing them.

Wiener klinische Wochenschrift, Vienna

October 3, XXV, No. 40, pp. 1473-1512

159 Localization in Heart of Cause of Disturbances. (Lokalisation im Herzen.) H. E. Hering.
160 *Sodium Taurocholate Fixation of Complement Test in Diagnosis of Meningitis. D. Danielopolu.
161 *Diagnosis of Cardiovascular Disease. (Zur Diagnostik der Krankheiten des Kreislaufes.) J. Tornai.
162 *Epilepsy. (Zur Aetiologie und Therapie der Epilepsie.) C. Tsiminakis.
163 Fever in Late Stages of Syphilis. (Zur Frage des Fiebers in späten Syphilisstadien.) Bjalokur.
164 Typhoid Bacilli in Mouth of Typhoid Patients. B. Purjesz and O. Perl.

160. **Diagnosis of Meningitis by Hemolytic Test.**—Danielopolu has worked out a diagnostic test from the capacity pos-

sessed by the cerebrospinal fluid to inhibit in dog-blood the hemolysis induced by sodium taurocholate. This capacity is remarkably increased in case of meningitis, as he found constantly in twenty-seven cases, with thirty-seven normal controls. The test is positive long before cytodiagnosis is possible.

161. **Aids to Diagnosis of Cardiovascular Disease.**—Tornai describes a number of minor points he has learned in the course of long experience with cardiovascular disease. Among them is the importance of suspecting syphilis when a person in the twenties has a systolic murmur in the second right intercostal space, brief and rough. This murmur in these conditions is weaker at the ordinary point for aortic murmur, and there is no hypertrophy of the left heart, inevitable with much aortic stenosis. Discovery of this murmur for which no other cause can be found should always call for the Wassermann test. He has found it useful in differentiating cardiovascular affections to dam the circulation in the limbs by applying a tourniquet to arms and legs. This has marked therapeutic efficacy in some cases, giving great relief, and the symptoms of aortic insufficiency disappear while the blood is thus dammed, returning again as circulation is restored. Only when there is a true defect of the aortic valves will the diastolic murmur persist when the limbs are tied off in this way.

162. **Epilepsy.**—In the eight cases reported the epilepsy seems to have been originally started by reflex action from adenoid vegetations, and their removal put an end to the tendency. The author thinks that a reflex origin is far more common than generally suspected, and that careful search for the source of the reflex would cure in many cases if this can be done before the condition has become so chronic that genuine epilepsy is installed. His patients were children between 10 and 15, except one man of 32. The seizures in the latter case have been much reduced in frequency; the operation is of recent date.

Zeitschrift für Urologie, Berlin

October, VI, No. 10, pp. 807-886

165 Dalempazius, 1790. Discoverer of Böttcher's Sperm Crystals. P. Fürbringer.
166 *Cancer of the Testicle. A. Vecchi.

166. **Cancer of the Testicle.**—Vecchi gives ten pages to tabulation of the details of twenty-four cases of cancer of the testicle. Three of the men were between 26 and 30 and twelve between 30 and 40. The growth first attracted attention by its size in all but three cases; in these a trauma first called attention to the region. The pain and discomfort were relatively slight until the growth had reached a considerable size or had involved the spermatic cord; then came the lancinating pains in the testis radiating to the inguinal and lumbar regions. Operative treatment consisted in merely removing the testis, dividing the spermatic cord high up. Recurrence of the growth was generally in the form of metastasis in the lymph-nodes; it is possible that eradication of the connected nodes might give better results, but he doubts this.

Zentralblatt für Chirurgie, Leipsic

October 5, XXXIX, No. 40, pp. 1361-1400

167 *Intratracheal Insufflation after Tracheotomy. M. Tiegel.
168 Auscultation in Diagnosis of Appendicitis. E. Unger.

167. **Intratracheal Insufflation after Tracheotomy.**—Tiegel thus saved the life of a child tracheotomized for extraction of a large bean in the bronchus. Some injury had been done to the mucosa, and in the night the child was suffocating as the deep air passages had become tightly plugged with phlegm. By intratracheal insufflation according to Meltzer's technic, the bronchial secretion was forced out of the remote bronchi. One mass was several cm. long and compact; it lodged in the cannula and was extracted with forceps. After each insufflation, violent coughing helped to dislodge the plugs. It is of the greatest importance for the practitioner to know, he says, that the method in this case extricated the patient from a condition of grave danger in which all other measures had failed. The secretions were evacuated so completely that no nidus for infection was left, and the child recovered without complications. He thinks that this technic may possibly prove useful in diphtheria of the trachea, to aid in removing low-seated false membranes, as the mechanical conditions here are about the same as in the clinical case reported. No complicated apparatus is required, merely an oxygen tank, rubber tube and catheter of caliber small enough to permit the reflux of the oxygen and air between it and the walls of the air passages.

Zentralblatt für Gynäkologie, Leipsic

October 5, XXXVI, No. 40, pp. 1297-1352

169 Primary Sarcoma in Small Intestine. E. A. Björkenheim.

Zentralblatt für innere Medizin, Leipsic

October 5, XXXIII, No. 40, pp. 989-1012

170 Lepra Bacilli in Vaccine Pustule on Leper. L. Merian.

Gazzetta degli Ospedali e delle Cliniche, Milan

October 1, XXXIII, No. 118, pp. 1233-1240

171 Severe Acute Myocarditis Following Tonsillar Infection. G. Vitello.

October 3, No. 119, pp. 1241-1248

172 Advantages of Determination of Uric Acid in Urine by Ruhemann's "Uricometer." A. Vattnone.

October 6, No. 120, pp. 1249-1264

173 *Jugular Pulse. (Sull'impulso al giugulo.) V. Maragliano.

173. **Pulsation in the Jugular Region.**—Maragliano's experience has been that pulsation may sometimes be felt in the jugular vein in persons with sound aortas while it may be lacking in those with marked dilatation of the aorta or even with an aneurysm. In twenty-four persons examined, roentgenoscopy failed to reveal anything wrong in the aorta except in five; in these the aorta was seen to be materially dilated but there was an actual aneurysm in only one of these patients. The pulsation in the jugular region was marked in ten of the twenty-four who were apparently entirely free from arteriosclerosis, syphilis and dilatation of the heart. On the other hand, two persons with aneurysms had no pulsation in the jugular region, their only symptoms being a retrosternal area of dulness and slight subjective disturbance. In other cases the aneurysm caused absolutely no subjective trouble. The retrosternal area of dulness, pulsation in the jugular region and roentgenoscopy are most instructive when combined. The jugular pulse may be observed when the aorta is a little nearer the sternum than usual or the heart beat is exceptionally strong.

Policlinico, Rome

October 6, XIX, No. 41, pp. 1481-1516

174 *Helminths Complicating Operations on Children. (Le complicazioni da ascaridi nella chirurgia infantile.) V. Brun.
175 *Intoxication from Male Fern. (Avvelenamento da estratto etereo di felce maschio.) G. De Poloni.

174. **Helminths Complicating Operations on Children.**—Brun remarks that the articles on this subject in the literature dwell mainly on the mechanical aspect; the general toxic action liable with helminths does not seem to have been studied much. He says that when the preliminary purge before an operation brings ascarides, it is better to postpone the operation until after a systematic course to get rid of the helminths. He removed a sarcoma of the small intestine from a boy of 8 last year and ascarides tore open the suture, with ensuing fatal peritonitis. He cites four similar cases from the literature in which enterotomy had been done for ileus from worms. Railliet recently devoted his inaugural thesis to the subject of helminths in the pathology of children, and reports six cases in which ascarides were found in the pus of an encapsulated peritonitic process or in fistulas. The greatest danger is from the chronic intoxication for which the helminths are directly or indirectly responsible; when the intoxication from the anesthetic is superposed on this there is liable to be serious trouble. This occurred in eight of Brun's cases, with four deaths. The children were apparently healthy and the operation was for hernia, dislocation or adenoid vegetations. In three similar cases the helminthiasis much aggravated ordinary chloroform intoxication. He thinks that it would be a good plan to examine the stools of every child before an operation, but as this is impracticable, he gives santonin with a purge as a routine measure to every child

entering the surgical ward, examining the stools afterward. Dufresne reported 5,000 ascarides passed by one child in the course of three years, 600 coming away in one day; Zotoff found 500 in the bowel of a child dying from peritonitis following obstruction by ascarides; Baginsky found 800 in the stool of a child with supposed appendicitis; Del Lago counted 450 evacuated in ten days, a number by the mouth, and Brun found 122 in a child of 26 months who had died from ascarides toxemia, and 184 in another 5 years old. A number of surgeons have reported cases of suffocation of children by ascarides in the air passages. Magrassi has recently published two cases of the kind the second day after an operation, and Railliet has compiled twenty-five cases independently of chloroform. Brun found an ascaris in the appendix in three cases during a herniotomy.

175. **Intoxication from Male Fern.**—The drug had been given in a dose of 7.2 gm. in twelve capsules, followed by calomel. The chief symptoms of intoxication following the expulsion of the tenia were vomiting, diarrhea, tendency to collapse and cramps and bulbar symptoms on the part of the respiration and heart, the pulse growing very slow and respiration only 14 or 15—actual paralysis, yielding only to caffein, mustard externally and rubbing. These attacks occurred from the fifth to the eight day after taking the drug, when the vomiting and diarrhea had subsided. The patient was a woman of 28.

Riforma Medica, Naples

September 28, XXVIII, No. 39, pp. 1065-1092

176 Blood Findings in Pulmonary Tuberculosis. (Reperti ematologici nella tubercolosi polmonare.) P. Masenti and M. Borgogno.

Brazil-Medico, Rio de Janeiro

September 15, XXVI, No. 35, pp. 361-372

177 Moving Pictures of the Gait in Athetosis. (Nota sobre a marcha na athetose.) A. de Castro.

Medicina Contemporanea, Lisbon

September 29, XXX, No. 39, pp. 305-312

178 Obesity and Genital Dystrophy Probably of Hypophysis Origin. B. Moraes.
179 Prophylaxis of Lead Poisoning from Food. (Portas que se abrem ao saturnismo alimentar.) G. Ennes.

October 6, No. 40, pp. 313-322

180 Typhus in Portugal. (Existe a doença de Brill em Portugal?) A. de Azevedo.
181 Discovery of Surgical Anesthesia. (O Dr. W. Morton e a descoberta da anesthesia cirurgica.) R. dos Santos and A. Mac-Bride.

Semana Medica, Buenos Aires

September 12, XIX, No. 37, pp. 497-548

182 Animal Chlorophyl. (Analogias entre animales y vegetales.) V. Delfino.
183 Measurement of the Will Power. (Medicion practica de la potencia volitiva. Es posible?) V. M. Farré. Commenced in No. 36.

Hygiea, Stockholm

August, LXXIV, No. 8, pp. 849-944

184 *Spontaneous Subarachnoid Hemorrhage. L. Ehrenberg.
185 Toxicity of Organic Preparations of Arsenic. (Några ord om de organiska arsenikpreparatens, särskildt salvarsanets, toxicitet.) C. G. Santesson.
186 By-Effects of Salvarsan. K. Heden.
187 Trachoma in Palestine. (Om trachomets förekomst i Betlehem och erfarenheter om dess behandling, särskildt om den operativa behandlingen af trachomatös trichiasis.) G. L. Ribbing.
188 *Laryngeal Tuberculosis. (Studier öfver struptuberkuloser med särskild hänsyn til dess kirurgiska behandling.) N. Arnoldson.

184. **Spontaneous Subarachnoid Hemorrhage.**—Ehrenberg reports the case of a man of 46 who suddenly developed symptoms of severe acute meningitis with predominant localization at the base of the brain, coming on in the midst of apparent health, except for a chronic catarrhal trouble and a history of mild syphilis two years before. Lumbar puncture, however, explained the trouble as due to subarachnoid hemorrhage, and complete recovery gradually followed as the blood was absorbed. There was nothing at any time to suggest injury of the brain, the symptoms all pointing to meningitis. No cause for the hemorrhage could be detected, nothing to suggest nephritis, hemophilia or arteriosclerosis, and the blood-pressure was not high. There have been no further symptoms since and the man was soon able to resume his work as a bookkeeper. In a second case a woman of 57 developed much the same picture, only with recurring coma and death the second day. Ehrenberg has found twenty-two cases on record in the last ten years with certain spontaneous subarachnoid hemorrhage and seven other cases in which this diagnosis was probable. In all, the clinical picture deceptively simulated extremely acute meningitis only that the onset was more sudden and that the symptoms gradually retrogressed. Two clinicians have reported recurrence of the syndrome. Necropsy in fifteen of the cases showed the hemorrhage of greater or less extent. In five cases the blood was restricted to the base of the brain, promptly fatal in three. Spread of the blood to the convexity of the brain obscures the clinical picture by bringing on coma. In only three of the cases was the source of the hemorrhage discovered in a ruptured artery. In others the findings were merely diffuse congestion of the pia. Two of the patients who recovered were under 20 as also three who died, but 61 per cent. of all the patients were over 40. Admixture of fresh blood with the spinal fluid by injury during the puncture is readily detected by the fact that the blood coagulates. Coma is a bad sign. Repeated lumbar puncture is recommended in treatment but the patient should be reclining. Sergent reported a fatality after lumbar puncture, the patient seated, the procedure causing rupture of an aneurysm in the posterior cranial fossa.

188. **Laryngeal Tuberculosis.**—Arnoldson's monograph fills 240 pages and is accompanied by several plates. He gives the details of sixty-three out of a total of about 600 cases of laryngeal tuberculosis, and discusses the subject from various standpoints. Tuberculosis of the throat is almost invariably secondary, and local medicinal measures have no essential influence on the course of the disease. Treatment to be effectual, he says, must include general hygiene and dietetic measures with a rational active local treatment done by specialists in this line. A spontaneous cure is possible, but so rare that it should never be counted on. Endolaryngeal excision, including amputation of the epiglottis, is liable to induce great functional improvement; it must always be combined with other local measures, cauterization and possibly the two-route Pfannenstill method of giving potassium iodid internally and applying hydrogen dioxid or ozone locally to generate oxygen in the diseased tissues. He discusses further the extralaryngeal methods of treatment in the exceptional cases not amenable to endolaryngeal measures. In one of this kind, the patient improved under endolaryngeal measures but finally required removal of the entire larynx. The operation was comparatively easy and seemed to be successful at first but neglect to drain the incision in the skin entailed complications which proved fatal. Arnoldson urges the installation of a special central station in the city where a tuberculosis specialist and a laryngologist could work together and where all those suffering with laryngeal tuberculosis should be sent for treatment. The results to date of the present methods of treating laryngeal tuberculosis leave much to be desired—too often a curable affection is left to drift into an incurable form from the lack of effective measures in time.

Ugeskrift for Læger, Copenhagen

September 26, LXXIV, No. 39, pp. 1365-1404

190 *Acute Hemorrhagic Nephritis in Course of Pulmonary Tuberculosis. F. Tobiesen.
191 Modified Technic for Wassermann Reaction. (Herman-Perutz' Reaktion.) B. Pontoppidan.

October 3, No. 40, pp. 1405-1432

192 Connective-Tissue Test of Stomach Functioning. (Undersøgelser over Schmidts Bindevævsprøve.) J. P. Gregersen.

190. **Acute Hemorrhagic Nephritis in Pulmonary Tuberculosis.**—Tobiesen has encountered twenty-one cases of acute hemorrhagic nephritis developing in the course of pulmonary tuberculosis as he relates in detail. In ten cases the diagnosis was confirmed by necropsy, in twelve cases the nephritis developed while the patients were in the hospital and the advanced pulmonary lesions amply explained the kidney disease in all but two cases in which the lung process was in the first stage. He reviews the literature on the subject. This secondary nephritis is generally a casual discovery on examination of the urine. The symptoms gradually subsided in most of the cases; in three amyloid degeneration followed, and in one the acute nephritis attacked kidneys already the seat of amyloid changes.

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RECENT ADVANCES IN PLASTIC SURGERY OF THE BONES*

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Plastic or reconstructive surgery has made many advances since its revival in the first half of the nineteenth century by Dieffenbach and his followers in Europe and Muetter and his contemporaries in America. These surgeons were probably preceded many centuries ago in plastic work, for the Egyptian papyrus named after Ebers and attributed to 1500 B. C. is said to mention rhinoplasty performed by flaps. The Hindu specialists made new noses from the frontal tissues before the time of Taliacotius in Italy. They replaced the cartilaginous portion, cut off as a punishment for adultery or for other reasons, by a cellular-cutaneous flap turned down from the forehead. Taliacotius in the sixteenth century made noses and lips from the tissues of the arm. He thus improved the features of European victims of nasal deformity, resulting from misfortune in war or by disease, many years before the time of Dieffenbach.

The history of the development of this branch of our art is as attractive as that of aviation. Both would easily evoke in one's mind a pleasure akin to that responding to the touch of a novelist's pen, had I the skill to mold phrases into the pleasing sentences of the trained essayist.

The modern surgeon was finally convinced that cutaneous flaps with pedicles, given new positions in the body, would live and become integral parts of the surrounding tissues. Doubt remained, however, as to the truthfulness of the occasional reports that sliced-off noses, ears or finger-tips had adhered and lived after being reapplied to the raw surfaces from which they had been severed.

Wolfe of Scotland, however, was able to convince a few ophthalmic and general surgeons that a free flap or graft of skin cut from a distant region could be successfully used to correct eversion of the eyelid. His method of dissecting up the ectropion, replacing the eyelid and filling the raw gap with a piece of detached skin was often tried; but the operation failed too frequently to become a standard procedure. It only occasionally happened that the graft lived, became united with the surrounding skin of the cheek or forehead and relieved the deformity. It remained for another Scot, Lord Lister, who has only recently died, to show that the failures in Wolfe's method usually occurred when the operator did not preclude septic contamination of the wound. It was Krause of the continent of Europe, however, who developed and increased the usefulness of the free flap, or graft, of Wolfe by utilizing it in general surgery and subjecting it to the safe surroundings of an aseptic technic.

During the last forty years thoughtful men of broad mental grasp have pondered on the facts that skin would survive when its blood-supply was cut off partially, as in pediculated flaps, or entirely, as in Wolfe grafts, and when planted in a new site would live. As a result, experimental research and clinical observation proved that other tissues are governed by physiologic laws similar to those regulating the cell life and cell death of skin.

Hence it is now known that teeth, tendon, blood-vessel, fascia, nerve, cartilage and bone may be shifted from one spot to another with comparative certainty of a preserved vitality. The essential is that septic infection be absent until the pediculated flap or the graft has time to become physiologically one with the surrounding living structures. Under some circumstances even a mild infection may be tolerated without causing entire failure of the plastic reparation. It is better to use the patient's own tissues for these operations than those of another person; and tissues of the young answer better than those of the aged. It is possible, however, to get success with tissues taken from another human being, from an amputated limb, or even from the body of a person who has recently died. Carrel has found that aseptic tissue preserved by cold storage may be successfully used for grafts weeks after removal from the parent body. It maintains its latent life for a long period. Under these circumstances, therefore, the employment of grafts from the lower animals, which do not answer as well for man as human grafts, has gradually been discontinued.

It apparently has been established that the cells of aseptic animal tissue may continue to grow even when detached entirely from the body. This is accomplished by placing small sheets or blocks of tissue in a suitable aseptic medium, which is contained in a sterile tube and subjected to a required temperature. Horticulturists will see the similarity of these physiologic facts with what they have long known and utilized in plant life.

Our interest to-day, however, is to be restricted to a discussion of the plastic surgery of bones. The preceding remarks were necessary as a preliminary to this discussion, because bone surgery and the surgery of the soft parts are in essence the same.

Bone is hard, to be sure, because of its inorganic constituents, which are required to give it the resistance and permanent shape that make the skeleton the protector of viscera, the framework on which organs and other structures hang and the levers through which efficient movements and locomotion are performed. The lime salts, which give the desired contour and the necessary rigidity to bones, are extracted by a selective influence from the blood; but otherwise the vital processes of growth, repair and inflammation are similar to the same changes in soft tissues. Osteogenesis resides in the lower layer of the periosteum, the marrow and the soft structures within the haversian canals and lacunæ. The inorganic portion may be likened to a trellis or a filigree mold on which or in which the osteoblasts which create bone are supported and protected. To Ollier of Lyons should be given the greatest honor in the field of osteoplastic surgery, because it was his work and the stimulus which he gave to his immediate colleagues that established the possibility of using bone in plastic procedures. It is about thirty or forty years since Ollier first gave special attention to this branch of surgery. His interest continued until his comparatively recent death. The great development now seen in bone reparations is merely the march of progress found in all plastic operative work. The early methods of Ollier have been modified as a result of increasing knowledge; but his labors were those of an earnest, sincere, successful and far-seeing pioneer. He has had worthy followers in Tomita, Grohe, Morpurgo, Laewen, Murphy, Janeway, Albee, Hibbs, Axhausen and others in bone surgery.

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* The Address in Surgery at the meeting of the Michigan State Medical Society, July 10, 1912.

When a piece of bone is transplanted, its raw surface should be placed and maintained in contact with living bone. This is said to make the probability of its living and growing much more certain than if such permanent contact is not secured. The actual contact of the two portions without the intervention of the fibrous periosteum may be kept up by nailing or suturing. This phase of the desired osteogenesis resembles the regenerative process in cerebrospinal nerves after suture, grafting or degeneration.

While the new osseous tissue is being deposited after bone grafting, the old bony tissue in the graft probably is being absorbed. Consequently, when the gap has been completely filled by new bone, as a result of what may be termed molecular deposit, the model or framework has really been removed by a molecular absorption. The latter process has gone on contemporaneously with the former. The result is a new model replacing the old but retaining the original contour.

Osteoplastic procedures are strategic and reconstructive. The former term describes those operations in which bone is displaced temporarily, in order that the surgeon may gain access to organs behind a bony wall or an obstructing barrier. When a rectangular section of the cranium is cut and turned outward on a musculocutaneous hinge, like a trap-door, to permit the removal of a subdural clot or a brain tumor, and is replaced after that task has been accomplished, a strategic osteoplastic operation has been performed. Such also are the temporary resections of the zygoma to permit excision of the sphenopalatine ganglion for neuralgia of the second division of the trifacial nerve, and of the squamous portion of the temporal bone to obtain access to the gasserian ganglion or the sensory root of the same cranial nerve.

Some nasopharyngeal tumors are removable only after temporary displacement of the halves of the hard palate or of the bones and cartilages of the nose. Suture of the pericardium and heart may demand for its proper and rapid performance a strategic trap-door displacement of the cartilages of several ribs, with perhaps some part of the ribs also. A temporary costal resection is needed to permit operation on the thoracic esophagus.

A similar displacement of the lamina of the vertebra is at times adopted as a step in the removal of a tumor of the spinal marrow or its membranes.

These operations are, as is readily seen, of the nature of the pedunculated flap method of using cutaneous tissue for the repair of deficiencies in the skin. They therefore were found to be practical aids in surgical interventions and were accordingly given a place in the technic of bone surgery earlier than the use of free bone flaps, or grafts, to remedy actual loss of bone.

The reconstructive plastic use of bone differs from the strategic in that the object of the operator is to repair or build again a bony region, which has had its efficiency lessened or destroyed by injury or disease. The most familiar illustration of this surgical activity is the treatment of fractures. Its application to open comminuted fractures is probably as old as surgery itself. It is likely that in the earliest ages a bone broken into several pieces and exposed to view had its fragments readjusted by the would-be curer of the injury in the manner suggested by experience as effectual in remodeling shattered pottery or a broken branch of a tree. It was seldom that success was obtained, for septic contamination, suppuration and necrosis were until late years the fate of open fractures. The axiom of treatment therefore prior to the antiseptic period was that fragments devoid of periosteum should be removed, and that those with adherent periosteum might be retained, though there was but small hope of preventing death of these pieces.

Success in combating septic infection of wounds soon led Lister to apply his methods to open fractures; and the osteoplastic cure of fractures was founded. Thus came the impulse which made bone-grafting a reasonably certain operation and has made possible almost incredible bony reparations.

An early step in this direction was the replacing of the disk of bone cut from the cranium after exploratory trephining. With what doubt many surgeons still in practice first dropped the button of bone into the hole made in the skull and sewed the scalp over it! How delightful it was to discover that in a few weeks the brain case was as solidly repaired as before perforation, instead of being left with a fibromembranous imperfection at the seat of operation! A succeeding step was replacing fragments after relieving depressions from comminuted fracture of the cranium. Later, when the surgeon needed to work behind bony impediments or wished to replace loss of bone so as to gain a requisite stability or rigidity, bone flaps and bone grafts were tried.

Probably the latest application of osteoplasty in brain operations is McArthur's successful attack on the hypophysis, as the pituitary body is now called, by a strategic osteoplasty of the frontal bone. He cuts out a section of that bone in the region of the eyebrow, including a part of the roof of the orbit, operates aseptically on the hypophysis and then replaces the bone. The patient subsequently shows only a slight scarring in the middle line of the forehead and within the eyebrow.

This epitome of the history of osteoplastic surgery brings us to a point where it is proper to mention illustrations of other conditions amenable to osteoplastic therapy.

Deformities of the nose due to congenital defects, injury or syphilitic necrosis may require rigidity in the tegumentary flaps used for the rhinoplasty. This can be given by pedunculated osteoplastic flaps cut from the forehead, by cartilage or bone grafts taken from the ribs, or by bone grafts chiseled from the tibia. If this choice does not satisfy the operator, he may use a finger of the patient to make the new nose firm, or he may graft a toe on the patient's hand and then repair the nose by placing the hand against the face and inserting the transported toe into the nasal defect, where it will become attached in two weeks.

What shall be done for a deep ugly cicatricial furrow in the frontal region, caused by previous necrosis of the anterior wall of the frontal sinus? Open the skin with a sharp knife, set a properly shaped piece of the tibia in the frontal pit and sew up the skin. A smooth comely forehead with but a slight linear scar is the result. A similar procedure may be used to fill the depression left behind the ear by a complete mastoid extirpation. Suppose a surgeon is obliged to remove much of the upper jaw for tumor, and must excise the bony floor of the orbit. How will he give support to the eyeball? He may saw a piece of bone from the coronoid process of the lower jaw and, leaving some of the temporal muscle attached, twist the bone flap around under the eye, so as to act as a substitute for the orbital floor.

After removal of the ramus of the mandible for tumor or the loss of a portion of that bone from a gunshot wound, a new section of jaw may be obtained by transplanting a piece of tibia, rib or clavicle into the gap. If the clavicle is employed, it may be cut as an osseocutaneous flap with a pedicle. A piece of ivory of the proper length imbedded in the aseptic scar tissue may answer perhaps to hold the two portions of jaw in position; but living bone from the patient himself would be more likely to cause the formation of a new jaw.

Almost a miracle seems to have been accomplished by Esau, who operated on a patient with deficient prominence of the chin, due to temporomandibular ankylosis in childhood. First, he made new joints by the ordinary arthroplastic methods. Then he sawed the lower jaw into two halves at the symphysis. At the point of section he pulled the two halves apart and inserted 20 cm. of rib, abutting at each end against the sawed surfaces of the lower jaw. The piece of rib was fractured so as to bend at its middle to give the curved mental prominence. This bone graft restored the lower part of the woman's face to the normal shape in a fair degree.

The reference to ankylosis and its cure by arthroplasty in Esau's case brings to mind the restoration of the larger joints possible by osteoplastic methods. Surgeons now treat stiff knees, hips and elbows, resulting from fractures or osseous inflammations, by chiseling away the bony adhesions or irregularities and turning fibrofatty flaps in between the ends of the bones. Thus an almost normal mobility is secured and a much more stable joint made than by the former resection method.

Lexer in Europe and Vaughan in America have detailed cases showing that whole knee-joints may be taken from amputated limbs and placed between the sawn ends of the femur and tibia, after a total excision of the knee, with a fair prospect of obtaining a movable articulation. The hinge-joint from the limb of a person who has recently died is nailed or wired in position, and acts as a mold for the deposit of new bone derived from the blood by the action of the bone-forming cells in the living bone.

When a flail-like knee-joint is useless for locomotion, it may be made rigid by mortising the patella denuded of periosteum and turned on its edge into the joint like a dowel. This solidifies the joint and gives the stiff and firm synostosis desired.

Habitual dislocation of the patella may be prevented by stitching the detached tendon of the semitendinosus to a strip raised from the inner border of the patellar ligament.

The necrotic and infected bone in osteomyelitis, destroying the shaft of the tibia or radius, for example, may be removed by scraping, and a long graft, cut from the other tibia or a fibula, may be inserted between the two epiphyses. A new tibia will thus be formed. If the tibial shaft is lost by fracture or otherwise, the surgeon may utilize the fibula as a substitute. It will, if compelled to bear the weight of the patient in walking, become hypertrophied to bear the strain.

In a case of congenital absence of the shafts of both radii seen a couple of years ago, I have proposed to use the fibula to take the place of the radius. This could be done by using a piece of the fibula as a graft or taking a graft from the tibial crest. A fibular pediculated flap might be used instead of a graft.

In a few cases a finger has been supplied by grafting the great toe on the hand. Many fingers, as the result of accidental wounds in factories, are undoubtedly sacrificed by inexperienced operators, because of the non-use of plastic or osteoplastic methods in an effort to preserve portions of these digits.

One of the latest novelties in this line of surgery is making the posterior portion of the vertebral column rigid in tuberculous spondylitis by producing a continuous synostosis of the spines and lamina. This osteoplastic operation is better than supporting the bending spine with external gypsum jackets or spinal braces.

Hibbs does this by fracturing the spinous processes in the diseased region at their bases and bending them downward to bridge the gaps between the successive vertebræ. Albee has accomplished a similar result by using strips from the tibia laid in grooves previously channeled down the back of the spinal column. This procedure resembles the inlaying of furniture.

Plastic methods have done a great deal to improve the results in fractures, as is well illustrated in the technic of fixation by screws, nails and plates. Recently Murphy has reported a case in which he nailed the aseptic head of the humerus into place after its removal in a bad fracture and made practically a graft of it. Murphy also tells of having reconstructed the hip-joint by cutting a section of the great trochanter off and nailing it in the position of the femoral head to act as an efficient substitute for that part of the articulation.

These various uses of bone flaps, bone grafts and bone substitutes are a rich development of the art of surgery. Pirogoff's osteoplastic amputation of the foot was a forerunner of these operations. The names already mentioned were worthy followers of that Russian surgeon.

Will man like a crab ever be able to reproduce on his body an entire limb? Perhaps so. Morgan thinks that man does not regenerate an arm or leg, as crabs and some vertebrates do, because his tissues regenerate with different degrees of rapidity. The bones, which are important in such complex reformations, generate very slowly, but the vessels, nerves, muscles and skin generate rapidly. There is, therefore, no tendency to synchronous reproduction of the lost limb. The lizard can reproduce a tail, but not legs. Morgan, who has studied these physiologic questions with care, has occasionally seen an imperfect foreleg in an adult frog.

May not the time come when the surgeon will regulate these processes in the same manner as the other human functions which gradually have come under control?

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OBSTETRICS IN GENERAL PRACTICE

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The demands made on the general practitioner in obstetrics to-day make it one of the most arduous, painstaking and sacrificial branches of the healing art.

At times the work requires patience, technical skill and poise of nerve that is seldom exceeded in any other department of medicine. This is not recognized or appreciated by the laity, partly because of the time-worn belief that child-bearing, including labor and the puerperium, are natural processes, and need but little and ordinary care to bring them to a successful termination. Most non-medical persons believe that the many unfortunate happenings and untoward results are inevitable, and cannot be forestalled or successfully coped when encountered.

The comparatively small remuneration of the present day for obstetric services has its foundation largely in the same prevalent notion, to which we, as a profession, only too often lend encouragement by rendering only such limited services as we make ourselves believe will suffice for the case in hand. We too often do not wish to put forth any more personal effort or time on the case than will justify an ordinary fee, frequently much to the detriment of the patient, and to the discredit of the physician and the profession. The patients who especially require the closest supervision from the practitioner are the primiparas, who must be watched from the very beginning, through pregnancy, labor and the puerperium. It is in these cases that departures from the normal must be recognized and treated, in order that the results may be as good as possible.

Emergencies such as hemorrhage, serious symptoms of toxemia, eclampsia, dystocia and others may be encountered under circumstances giving no opportunity for preparation to do aseptic surgical work, such as can be done in cases set for operation at some future definite time, with trained assistants and operating-room environments.

Sometimes this work must be done single-handed, under the most trying circumstances. This, coupled with the popular notion held by many, not only among the laity but among physicians and midwives as well, that "anything is good enough for a confinement case" in the way of supplies, accommodations and assistance is, in part, the reason why the mortality and morbidity in obstetrics in private practice has not improved materially in the last twenty years. A conservative observer[1] states that "6,000 women die annually in the United States from puerperal infection," that "7 per cent. of the deaths of women between 20 and 40 years of age are caused by puerperal infection," and that of "every 200 women who become pregnant, one dies." Think of the legion of women who survive with more or less permanent invalidism, as a result of going through the ordeals of pregnancy and confinement. Most of this invalidism dates back to the period of the primipara, to the "first confinement" as it is called, and whoever has had the care of this first confinement bears the greater part of the responsibility for the patient's woes, whether due to injury to the pelvic organs, to the pelvic outlet, to permanent kidney lesions, to edema of the lower limbs or to other after-effects more or less avoidable.

It seems beyond belief that such conditions prevail to-day and have existed during the very period in which so much has been accomplished in surgery, through the discoveries of Pasteur and the practical application of his discoveries by Lister in the development of asepsis and antisepsis. In obstetrics, asepsis is the ideal method to be followed in the management of a case. But antisepsis must be practiced as well, because in all labor cases we have to deal with a field immediately proximal to the birth-canal that cannot be sterilized and often cannot be kept clean all the time. The vaginal canal cannot be sterilized and commonly contains virulent bacteria, yet in spite of our modern possibilities of doing clean, good work, teachings are forgotten and the laws of asepsis ignored in the management of cases, with the unfortunate results just quoted, in spite of the fact that a maternity case is and should be managed as a strictly clean surgical case from the inception of labor until the completion of the puerperium.

Of utmost importance to the future welfare of a patient is the ability to make a proper diagnosis of position and presentation of the infant. An accurate knowledge of the relation of the size of the infant to that of the mother's pelvis and of the general conditions of both are prerequesite to the proper procedure in artificial delivery. Unskilful artificial delivery is a most potent cause of injury and death to the infant and lacerations of the maternal birth canal. Obstetric diagnosis is of far greater importance and far more worthy of serious study than would be inferred from the amount of attention given it by either the school, the hospital or the physician in general practice. Accurate diagnosis often requires patient study and a grouping together of all findings on examination, both internal and external, under anesthesia if necessary. If these requirements could be complied with, the damage done to infants and mothers would be greatly minimized. Although infant mortality is placed at 7.7 per cent., the rate would be much higher if all infant deaths from artificial delivery were reported. This unenviable condition of obstetrics in general practice can probably be best improved by sending every patient who presents one or more complications such as malpresentation or malposition, dystocia, placenta prævia, symptoms of toxemia, or nephritis, to a properly conducted maternity hospital, not as a last resort but in ample time. This can be done only when an early and correct diagnosis is made, early enough to permit the removal of the patient to the hospital. This means that our patients must be kept under observation, especially the primiparas. The common prejudice of the public against the hospital can be overcome by a concerted effort on the part of the profession to teach the people that, for good results, hospital care is as important in a certain class of obstetric cases as it is in most surgical cases. It would be an advantage if maternity hospitals were built and furnished to conform to the atmosphere of the home and could go by some other name. Such an institution must have all modern equipment necessary to do aseptic operative work. It must have graduate trained interns and nurses who have been trained in a good general hospital before taking up this special work. Such conditions would raise materially the standard of obstetric work. It would vastly increase the number of skilled men in this important, though much-neglected, field. It would mean a higher grade of obstetric work in general practice in obstetrics and would impress on every physician the fact that only the best kind of obstetric work would be acceptable to the public.

As it is practiced to-day, many physicians take obstetric engagements solely to retain the family practice; and as a result many do not appreciate the responsibility assumed. Lack of knowledge brings with it a lack of apprehension or fear; therefore many are led to proceed with a case until some unforeseen condition or complication suddenly presents itself, demanding presence of mind, skill and technic far beyond that possessed by the average practitioner.

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[1] De Lee: Obstetrics for Nurses, Ed. 3, 1911

We have all met conditions that were trying in the extreme, and have found it necessary to do the best we could, sometimes single-handed. We have often looked back at some of our cases with considerable regret. Much of this self-reproach can be eliminated by better preliminary obstetric training, better compensation for good work, and access to good hospital facilities.

Dr. J. Whitridge Williams[2] of Johns Hopkins Hospital has said:

> After eighteen years' experience in teaching what is probably the best body of medical students ever collected in this country . . . I would unhesitatingly state that my own students are unfit on graduation to practice obstetrics in its broad sense, and are scarcely prepared to handle normal cases.

He incidentally mentions the lack of a wholesome equipment for the proper training of students in the practical work, and cites teachers of obstetrics in colleges who claim fewer than a hundred cases for their practical experience. It is evident that the cause of incompetent midwifery, with its concomitant train of infant and maternal mortality and morbidity is as much due to inadequate training at our schools and hospitals as it is to the carelessness and indifference of physicians and midwives. It is yet a question whether the midwife, with her dilatory and unscientific methods, is not better fitted to be trusted with the interests of the mother and child than a physician who is ever ready to apply forceps. If she would practice only cleanliness and watchful expectancy without meddling, I believe that the balance would be in her favor. This is especially true of one class of cases—the occipitoposterior positions, in which so much patience is required—since in most of them there will be anterior rotation if we will only wait long enough and can persuade the patient and relatives to wait and persevere. In such cases, especially in primiparas, the too early and improper application of the forceps causes injury to the mother and infant, which no surgical skill can entirely remedy. Practical bedside training of students and physicians in diagnosis and management of cases during pregnancy, labor and the puerperium will familiarize each one with abnormal conditions. To this end training in obstetric maneuvers should be given in small classes with frequent post-graduate rehearsals on the manikin.

My aim in making a report of obstetrics in my own private practice is to present a statistical review, as nearly accurate as possible, of a consecutive series of 1,116 cases, from January, 1896, to December, 1911. The cases are such as are encountered in general practice. This record, therefore, is in contrast to the usual method of compiling reports and statistics from textbooks and journals, from reports from large hospitals and lying-in institutions where thousands of cases are attended according to a routine method of aseptic technic, carried out by physicians, trained assistants and nurses whose work strictly conforms to the rules established by the particular institution with which they are associated. By strict routine they have been able to reduce the maternal mortality of from 10 to 20 per cent. found in some hospitals a few centuries ago, to less than 0.05 per cent.; but in general private practice conditions have not materially improved. I wish in this paper to show that, with careful observance of our modern aseptic and antiseptic methods, we can come close to the best statistics on record, even under the most varied circumstances. The cases reported have been cared for amid surroundings such as every general practitioner has to contend with. They have been found in private homes with trained help, with lay help and at times no help, except such assistance as is often more in the way than otherwise. Some were taken care of in the general hospitals, many of which do not give obstetrics the importance it rightfully deserves and must have in order to accomplish the best results. None of our general hospitals is properly equipped for obstetric work. Besides, obstetrics does not belong in a general hospital, for manifest reasons.

In practice, it has been my custom to have it understood that a woman expecting confinement must make her arrangements some time during pregnancy; my patients usually do this, often but a few weeks after the suspected pregnancy has begun. When the patient is a primipara, or a multipara with a doubtful history, she is always measured and examined, her past and present history gone over, and the urine is examined at the first opportunity, the twenty-four-hour quantity measured twice a week, and reexamined every three weeks. When the case is apparently normal, the patient is requested to report every three or four weeks in person. Each patient is instructed with reference to clothing, diet, exercise, bathing, bowels and whatever else calls for attention at the time. Each one is instructed in the care of the breasts and nipples during the last three months of pregnancy.

During the last two or three weeks, the patient comes in for a reexamination for position, presentation and for any abnormal or unusual conditions that may be present. At one of these visits each patient receives a list of articles for use at the confinement, which must be purchased and kept in a package, unopened. The nurse is selected some weeks before the expected date. I always urge a trained nurse whenever possible, and insist on a trained nurse during labor, at least in every case of a primipara being taken care of at home. When home surroundings are inadequate I always urge the hospital, for it is very difficult to do operative or any repair work in most homes with poor light and inadequate facilities and assistance. I make a second visit within the first twenty-four hours after delivery. This is very important, sometimes necessary. One daily visit is made afterward for three or four days, as indicated, until the patient is up and out of bed. At each visit the patient's general record is gone over since the last visit, and present condition noted, with inquiries into the bladder and bowel function. Diet is prescribed according to each individual case. After the puerperium the mothers are always instructed to take the knee-chest position three times daily for at least three months. Whenever necessary, patients are requested to come in for examination within three months after delivery.

In the series of 1,116 cases, the maternal results are summarized in the accompanying tabulation.

There was one cesarean section. The child is now 8 years old and well; the mother is well and strong. There were nine pairs of twins. The following abnormalities were observed: two cases of cleft palate with hare-lip. Three cases of spina bifida, located in each infant in the lower dorsal region, with two deaths shortly after birth; the child that lived was recently operated on by Dr.

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[2] Williams, J. Whitridge: Medical Education and the Midwife Problem in the United States, THE JOURNAL A. M. A., January 6, p. 1.

Ryerson for spina bifida, double club-foot and double retroverted knees; complete recovery followed except impaired function of one leg, which is improving. One case of complete exstrophy of the urinary bladder in a female child with absence of the pubic arch; this child died soon after birth. Three cases of facial paralysis, one congenital; this child died when about 2 years of age probably from a cerebral growth; the remaining two children, in whom the facial paralysis was caused by forceps, recovered.

There were seven cases of hemorrhage of the newborn. Sterile horse-serum was used in one of these, after a large bowel hemorrhage. The child recovered. Of the six that died, one lived about eight months.

There was one case of anencephalus, and one case of imperforate esophagus, in which the child died of starvation on the tenth day after birth. A catheter would pass 4½ inches from gums to the end of the proximal portion. From the stomach the esophagus led upward into the trachea.

SUMMARY OF MATERNAL RESULTS IN 1,116 DELIVERIES

	No.	Per Cent.
Normal	953	85.4
Artificial	163	14.6
Lacerations:		
No perineal lacerations	676	60.5
Lacerations of the first degree	56	5
Lacerations of the second degree	388	34.8
Lacerations of the third degree	10	.9
Maternal classification:		
Primiparas	404	36.2
Multiparas	712	63.8
Presentations:		
Head	1064	95.3
Breech	36	3.2
Transverse	5	.44
Face	5	.45
Positions: Head and Transverse:		
Left occipito-anterior	802	71.8
Right occipito-anterior	211	18.8
Right occipito-posterior	53	4.7
Left occipito-posterior	3	.26
Breech:		
Left sacro-anterior	22	1.9
Right sacro-anterior	14	1.2
Face:		
Left mento-anterior	3	.27
Right mento-posterior	2	.18
Convalescence:		
Good	..	99.82
Death from puerperal sepsis	1	.08
Post-partum hemorrhages	16	1.43
Adherent placenta	7	.6
Placenta prævia centralis	2	.18
Eclampsia in labor	3	.27
(These three cases were: one ante-partum, one intra-partum, and one post-partum).		
Phlegmasia alba dolens, severe type	3	..
Phlegmasia alba dolens, mild type	4	..

In 1905 just prior to this series I had a rare specimen in a primipara. Following the birth of a normal infant, came a "fœtus amorphus anideus" a little over 4 inches long and 2½ inches thick, with no head or extremities. It had a mass of black hair like that of a scalp, which covered about one-quarter of its surface. Dr. J. Clarence Webster reported this specimen and stated that it was the second of the kind he had studied.

The total number of infant deaths was thirty-eight, or 3.4 per cent. Of the deaths eleven occurred ante partum, eighteen post partum, and nine intra partum.

The care of this series of cases has required more sacrifice of time, labor, patience and comfort than a similar series would have required in a maternity hospital, and probably more than is generally given. But since most cases must be attended in the home, it is imperative that the profession should provide as high-grade care for the parturient woman and her child as any department of medicine can give, in order to save lives and unnecessary illness.

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BLOOD-CHANGES CAUSED BY THE HYPODERMIC ADMINISTRATION OF THE CANCER PROTEID *

J. WALTER VAUGHAN, M.D.
DETROIT

During the past six years, over two hundred cases of recurrent or inoperable malignant disease, which have come under my observation, have been treated by some method of vaccine therapy. Two forms of vaccine have been used in this work — namely, cancer residue and a vaccine made of the cancer-cell in its entirety. The preparation of cancer residue has been described in previous articles, so that it is sufficient to state that this is the water-soluble portion of the cancer-cell which is left after splitting off the toxic radical by means of heating the cancer-cells in a 2 per cent. solution of sodium hydroxid in absolute alcohol.

Cancer-cell vaccine is prepared by grinding cancer-tissue finely in a meat-grinder, after which it is rubbed up as a suspension in alcohol in a sterile mortar. Next, it is rubbed through a very fine-meshed wire sieve, the alcohol filtered off, and the collected cell substance air-dried. This is weighed and then placed in normal saline solution, making a 2 per cent. cell suspension. To this 0.5 per cent. phenol is added for the purpose of rendering it less likely to become contaminated. In the preparation of both residues and vaccines it has been found that satisfactory results can be obtained only when the tumor is of firm consistency and without necrotic or infected areas. The average injection of a 1 per cent. residue is from 5 to 20 minims; that of a 2 per cent. cancer-cell emulsion is from 5 to 10 minims.

When this work was first begun, it was based on the belief that it is possible to compel the human body to form specific ferments for the splitting up of any given proteid by the introduction of that specific proteid, as such, in a dead form, within the human body.

The most natural place to look for the formation of such a ferment is in the white blood-cells. For this reason daily differential leukocyte counts were made from the beginning of the work. Over 20,000 such counts have been made by my assistants and myself so that conclusions drawn from this portion of the work cannot be much in error. In the early stages of this work it was ascertained that those cases in which there was a marked decrease in the percentage of polymorphonuclear leukocytes, with a corresponding increase in the percentage of large or small mononuclear leukocytes, received benefit from vaccine injections, while cases in which the percentage of polymorphonuclear cells remained high, or were influenced but little, were but slightly benefited, or not at all. All cases treated were inoperable or recurrent after operation, so that by far the majority were absolutely hopeless at the start. In approximately 20 per cent. of these cases all visible signs of malignant tissue disappeared. This disappearance, however, has not always been permanent and in my cases treated by the vaccine method, which have been without treatment for from two to four years, the percentage of non-recurrences is reduced to ten. A review of these cases shows that the disappearance of evidences of tumor-cells depended, first, on the relative proportion of mononuclear leukocytes present, and sec-

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* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Chase Cancer Research Fund, Harper Hospital.

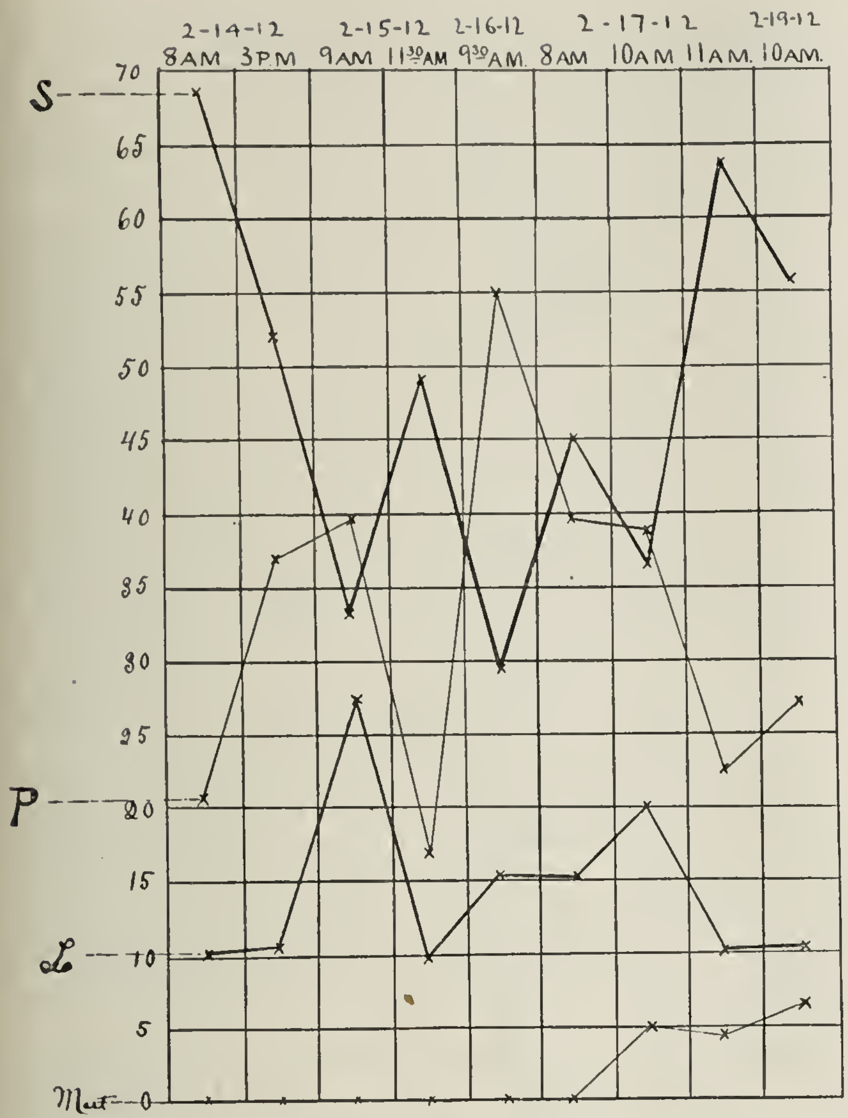

Chart 1.—Rabbit, Cage 346; 5 minims of 1 per cent. sarcoma residue injected subcutaneously at 8 a. m., 9 a. m. and 10 a. m. The line designated as P indicates, in this and the following charts, count of polynuclears; S indicates small and L large mononuclears.

ond, on the amount of cancer-tissue present. No estimate of the value of the use of a vaccine could be given by the microscopic picture of the tumor-cells. In other words, the malignancy of any given tumor is dependent on the bodily resistance of the patient to the growth of cancer-cells, and not on the nature of the growth itself. Time is too short to permit my going into this interesting branch of the subject in detail, but other experiments, which I shall mention later, tend to corroborate this view; suffice it to state that, in animal experiments, the chemical nature of the tumor-cells must have some influence, since a tumor can be trained to "take" almost invariably. My contention, however, is that the pathologist is not always able to state the degree of malignancy of a given tumor by an examination of it, but that a differential leukocyte count will give more accurate information on the subject.

Since a vaccine treatment would benefit only a very small percentage of cancer sufferers the next step was to see if it was possible to produce an active ferment for the splitting up of malignant cells in the bodies of animals, which, in turn, might be available in the treatment of the cancer patient.

For this reason sheep and rabbits were injected intravenously, intra-abdominally and subcutaneously with both cancer residue and cancer vaccine and frequent blood-counts made. All told, over 500 animals have been used, and the blood changes have been the same in all except about ten animals. Of these two were proved to be pregnant at the time of injection, which may have had some influence on the usual reaction. A glance at the accompanying charts will show that while the percentages of polymorphonuclear and small mononuclear leukocytes are not affected with any degree of regularity,

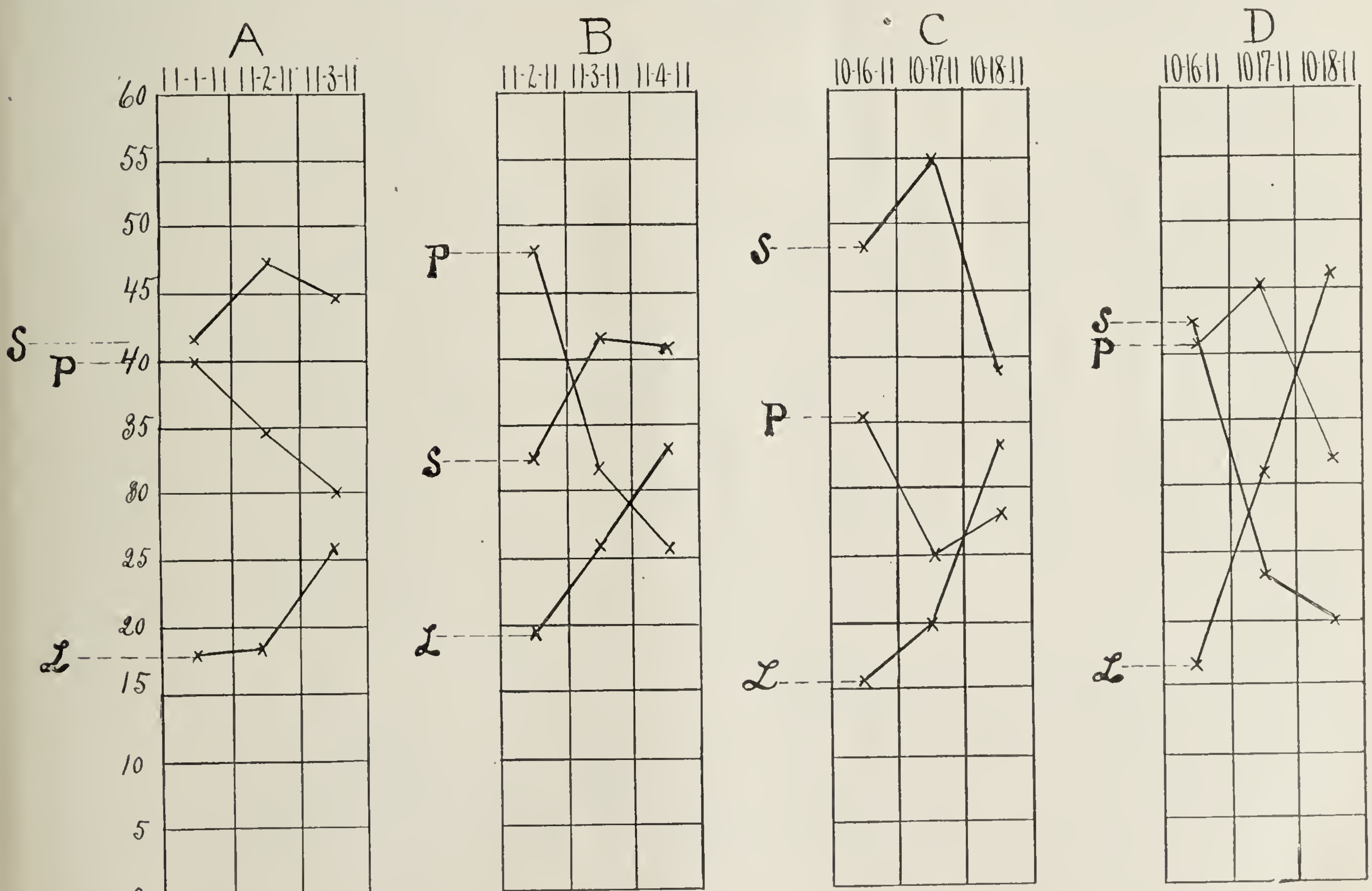

Chart 2.—A, rabbit given subcutaneous injection of 0.5 c.c. rectal adenocarcinoma (Morris); B, rabbit injected with 0.5 c.c. small round-celled sarcoma; C, rabbit given intraperitoneally 0.5 c.c. rectal adenocarcinoma (Morris); D, rabbit given intraperitoneally 0.5 c.c. rectal adenocarcinoma (Morris).

the proportion of large mononuclear cells is invariably increased from 100 to 400 per cent. within from twenty-four to forty-eight hours. This increase, however, is of short duration and recedes with rapidity after reaching its height.

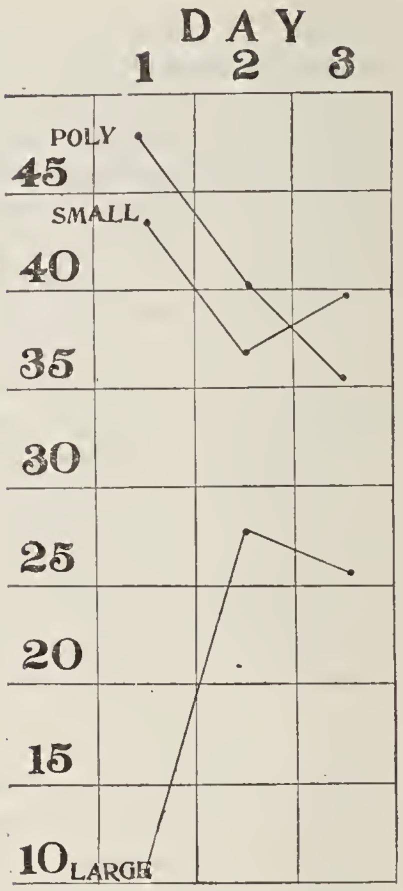

Chart 3.—Sheep injected with 0.5 c.c. sarcoma residue.

Chart 1 shows the average blood change obtained through the injection of an active residue. The preparation used was made from a small round-celled sarcoma of the mediastinum. Three subcutaneous injections of 5 minims each of a 1 per cent. residue were given at hourly intervals, the first blood-count being made before the injections were commenced. The second count made seven hours later, showed an increase in polymorphonuclear cells from 21 per cent. to 37 per cent. and a corresponding decrease in small mononuclear leukocytes. The third count made twenty-five hours after the first showed the characteristic increase of large mononuclear cells which are here registered at 27 per cent. with a normal at the first injection of 10 per cent. Two and one-half hours later the percentage of this form of cell had returned to normal, which was again followed by a slight increase. It is probable that the highest registration of large mononuclear cells occurred between the second and third counts.

Chart 2 represents four rabbits which were given 0.5 c.c. each of cancer-cell vaccine by different methods. The first was given a single subcutaneous injection of rectal adenocarcinoma. The fourth represents the same amount of the same tumor given intraperitoneally, as does also the third. The second shows the injection of vaccine made from a rapidly growing round-celled sarcoma of the neck. From these charts it can be seen that the intraperitoneal method of injection gives a more rapid reaction than the subcutaneous.

Chart 3 represents the blood changes occurring in a sheep following the injection of 0.5 c.c. of sarcoma residue.

Chart 4 shows more frequent differential counts following repeated subcutaneous injections.

Chart 5 illustrates daily counts following a single intraperitoneal injection of cells from a breast adenocarcinoma. This is rather an extreme reaction inasmuch as the proportion of large mononuclear cells is increased from 6 per cent. to 35, about 500 per cent.

Chart 6 shows a very slight reaction following the injection of a breast-cancer residue which has almost lost its activity.

Chart 7 and A in Chart 8 illustrate two rabbits giving the average reactions. B in Chart 8 represents

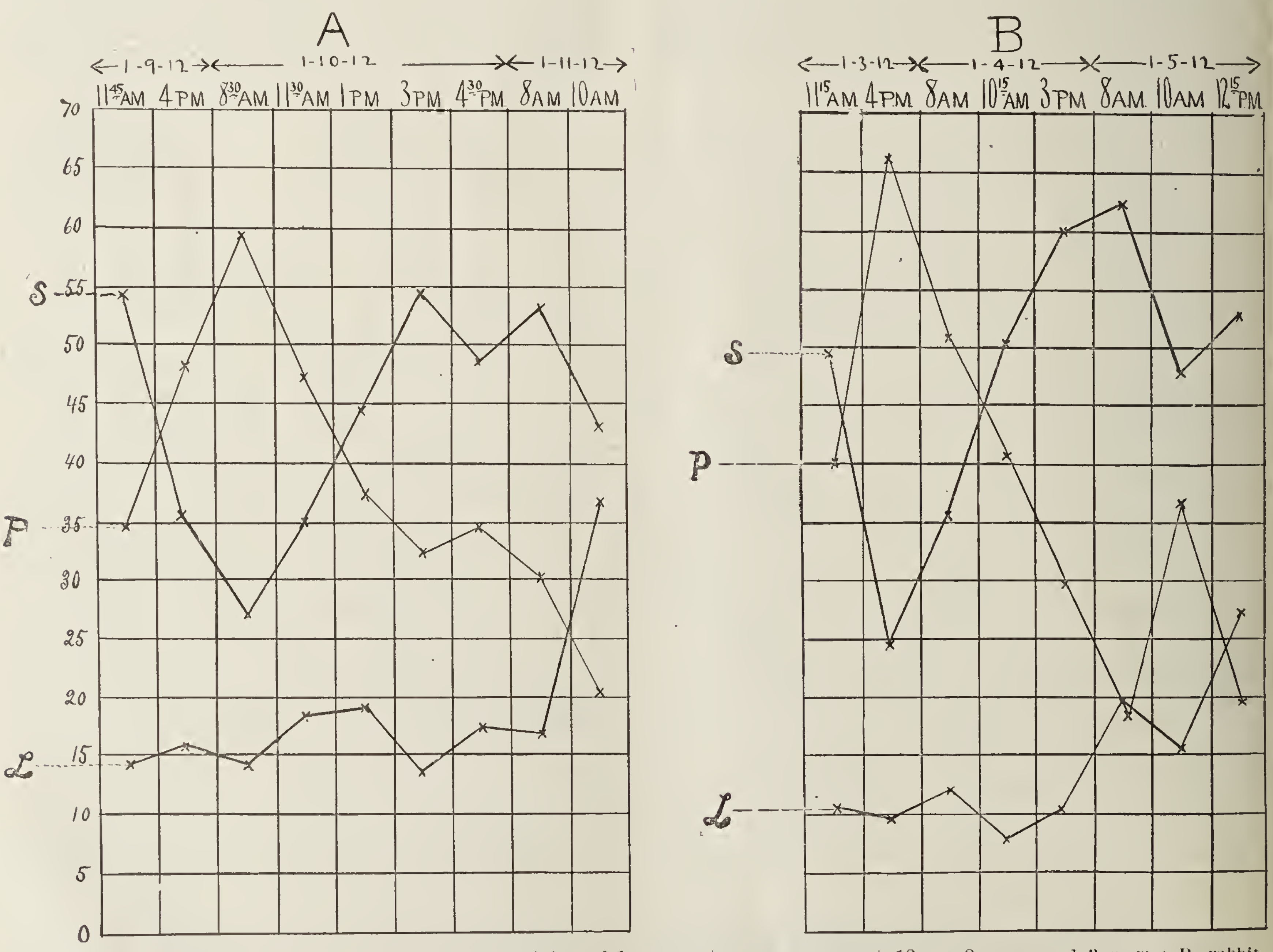

Chart 4.—A, rabbit injected subcutaneously with 5 minims of 1 per cent. s. r. sarcoma at 12 m., 2 p. m. and 3 p. m.; B, rabbit injected subcutaneously with 0.1 c.c. of 2 per cent. mixed residue at 12:15 p. m., 2 p. m. and 4 p. m.

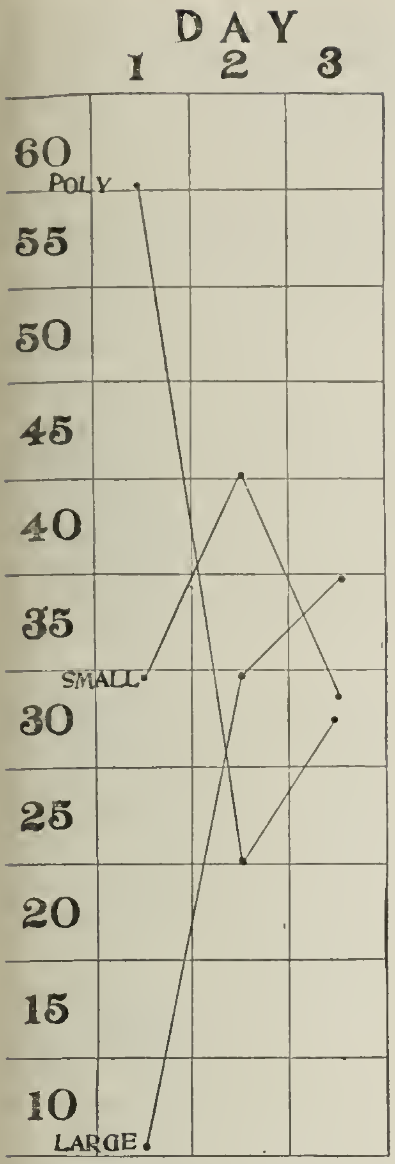

Chart 5.—Rabbit given a single intraperitoneal injection of cells from a breast adenocarcinoma.

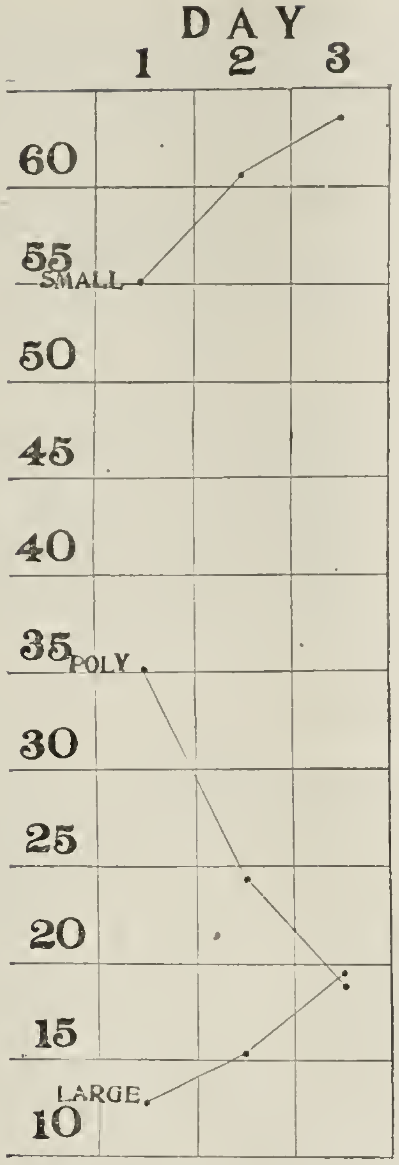

Chart 6.—Rabbit injected with a breast-cancer residue which has almost lost its activity.

the effect of giving an intraperitoneal injection of 10 c.c. of breast-carcinoma cell-emulsion into a rabbit sensitized to sarcoma vaccine, the injection being given when the percentage of large mononuclear cells was at its highest point.

In order to ascertain just what bearing this change in percentage of large mononuclear leukocytes had to the formation of a specific ferment, several rabbits were sensitized to the cancer-cell and then at varying percentages, 10 c.c. of cancer-cell emulsion were injected intravenously into the animals. In unsensitized rabbits there was no noticeable effect. Rabbits with a percentage of above 30 of large mononuclear cells usually died within one to three hours, and rabbits with a lower percentage but with a marked increase were made very sick, but recovered.

Sickness is immediate after injection; the animal at once falls on its side and begins violent scratching. The respiration is labored and, when death ensues, always stops before the heart-beat. Rabbits which die from a dose after being sensitized, however, usually have a stage of apparent rest from one-half to three hours after the first stage of excitability, which lasts for from three to five minutes. A possible explanation of this, in view of work that I shall mention shortly, is that the first stage of excitement is due to the destruction of cancer-cells and consequent liberation of their toxic radical by the specific ferment present in the blood-serum, while the fatal result which follows later is due to the reaction between the cancer-cells and the large mononuclear leukocytes.

The increased percentage of large mononuclear leukocytes is but a transitory affair, however, which usually lasts from four to ten hours, and it is impossible to produce fatal results in rabbits by intravenous injections of cancer-cell emulsion after this stage is passed. Consequently, I have applied the term "transitory sensitization" to this phenomenon.

If we bleed a rabbit at the height of this transitory sensitization and obtain the serum, this, when mixed with cancer-cell emulsion and incubated for one hour, will produce marked symptoms of poisoning when injected intravenously into a normal rabbit. The severity of symptoms depends on both the amount of cancer-cell emulsion and the serum. Given 5 c.c. of cancer-cell emulsion and 10 c.c. of the serum, a rabbit of from 500 to 1,000 gm. will be very sick but will invariably recover.

With this experiment in mind injections of both sheep and rabbit serum were given in twelve cases of inoperable carcinoma, the serum being obtained when the percentage of large mononuclear cells was at its highest point following injections of small amounts of cancer proteid into the animals. Of these twelve cases, eight were given rabbit serum and four sheep serum. Injections of from 1 to 5 c.c. were made every second or third day. Of the patients treated with sheep serum, one became sensitized after three weeks. Two others developed an acute nephritis.

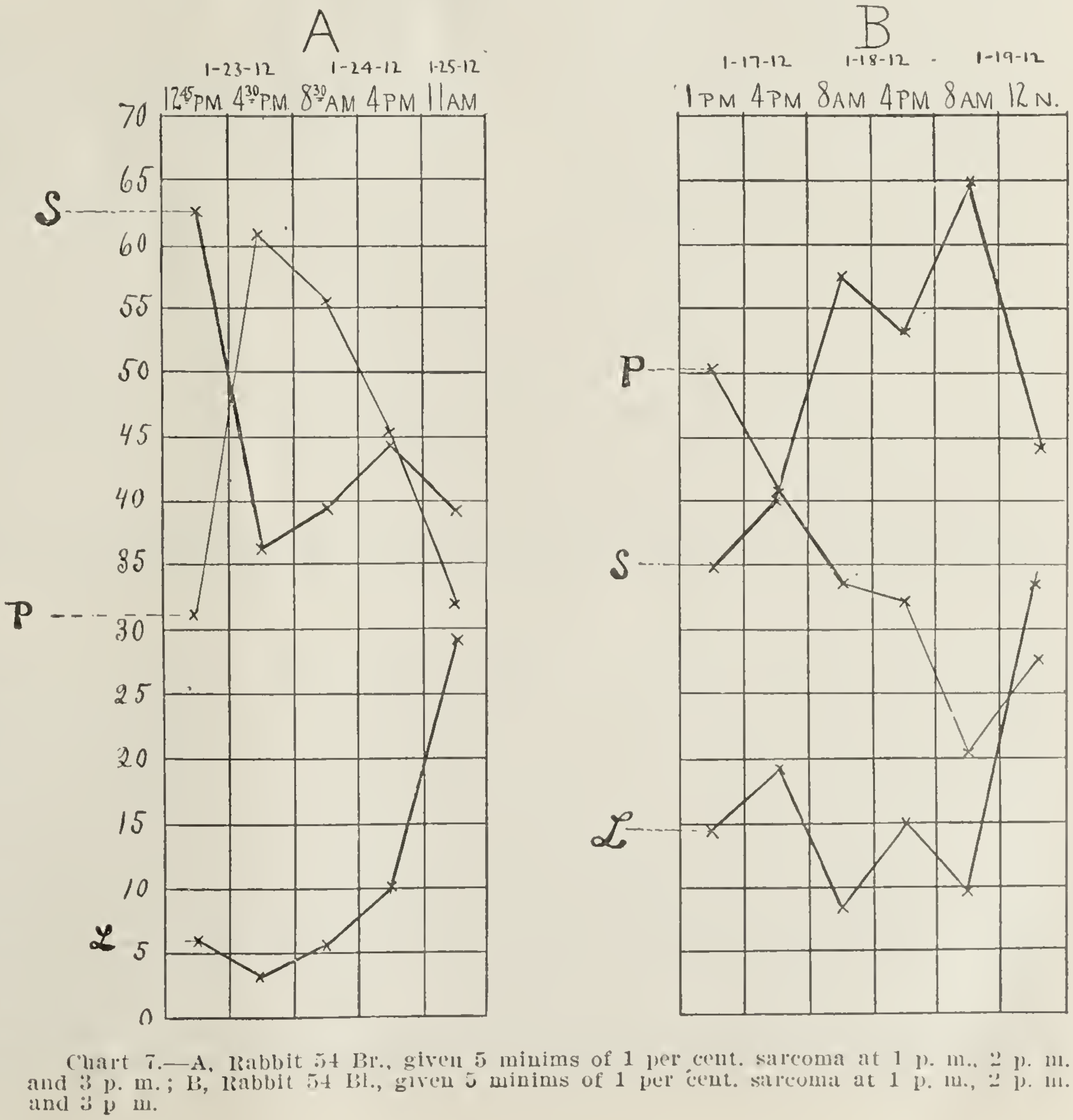

Chart 7.—A, Rabbit 54 Br., given 5 minims of 1 per cent. sarcoma at 1 p. m., 2 p. m. and 3 p. m.; B, Rabbit 54 Bl., given 5 minims of 1 per cent. sarcoma at 1 p. m., 2 p. m. and 3 p. m.

Of the eight given rabbit serum four developed acute nephritis with blood and albumin in the urine at the end of four weeks. While in all cases there seemed to be an improvement in the condition of the malignant growth, yet the use of the serum was discontinued, since in over 50 per cent. of the cases in which it was tried the serum complications rendered it impracticable.

The next step was to ascertain whether the specific ferment could be removed from the large mononuclear leukocytes in such a way as to be free from the dangers which were attributed to the serum. For this purpose rabbits were sensitized to the cancer-cell and, when the percentage of large mononuclear leukocytes was at its highest point, the blood was collected under sterile conditions in 0.33⅓ per cent. acetic acid. This was next centrifugated until the leukocytes were thrown down and the supernatant fluid decanted. The remaining leukocytes were next placed in a sterile mortar and mixed with a sufficient quantity of sterile quartz sand to cover. This was then ground up with vigor for fifteen minutes with the frequent addition of sterile normal salt solution until five times the volume of the leukocytes obtained had been added. Next, this normal saline extract was separated by passing through a Berkefeld filter, and tests were made for the presence of the specific ferment by adding varying amounts of the leukocyte extract to cancer-cell emulsion, incubating for one hour and then injecting intravenously into rabbits. Through repeated experiments it was ascertained that 5 c.c. of 2 per cent. cancer-cell emulsion, plus 10 c.c. of leukocyte extract, which was obtained when the percentage of large mononuclear leukocytes was 25 or above, would, when injected intravenously into a rabbit of from 500 to 1,000 gm., kill within from one to five minutes. This is well illustrated in the accompanying table.

TABLE SHOWING RESULTS OF INJECTING INTRAVENOUSLY INTO RABBITS CANCER-CELL EMULSION PLUS LEUKOCYTE EXTRACT INCUBATED ONE HOUR

Animal	Weight, Gm.	Rabbit Leukocyte Extract	+ Vaccine	Result
343 G.	646.5	10 c.c. carc. 100.....	5.0 c.c. 100	Died, 1 min.
167 G.	750	10 c.c. sarc. 51 res..	5.0 c.c. 100	Died, 1 min.
157 W.	1,500	10. c.c. sarc. 100.....	5.0 c.c. 100	Very sick one-half hr.; rec.
53 Bl.	1,050	7 c.c. sarc. 51 res..	5.0 c.c. 100	Died, 5 min.
96 G.	1,317	7 c.c. sarc. 51 res..	2.5 c.c. 103	Died, 4½ hr.
251 W.	645	10 c.c. sarc. 51 res..	....	Not sick.
251 Br.	842	15 c.c. carc. 100.....	....	Not sick.
167 W.	700	10 c.c. normal saline.	5.0 c.c. 100	Not sick..

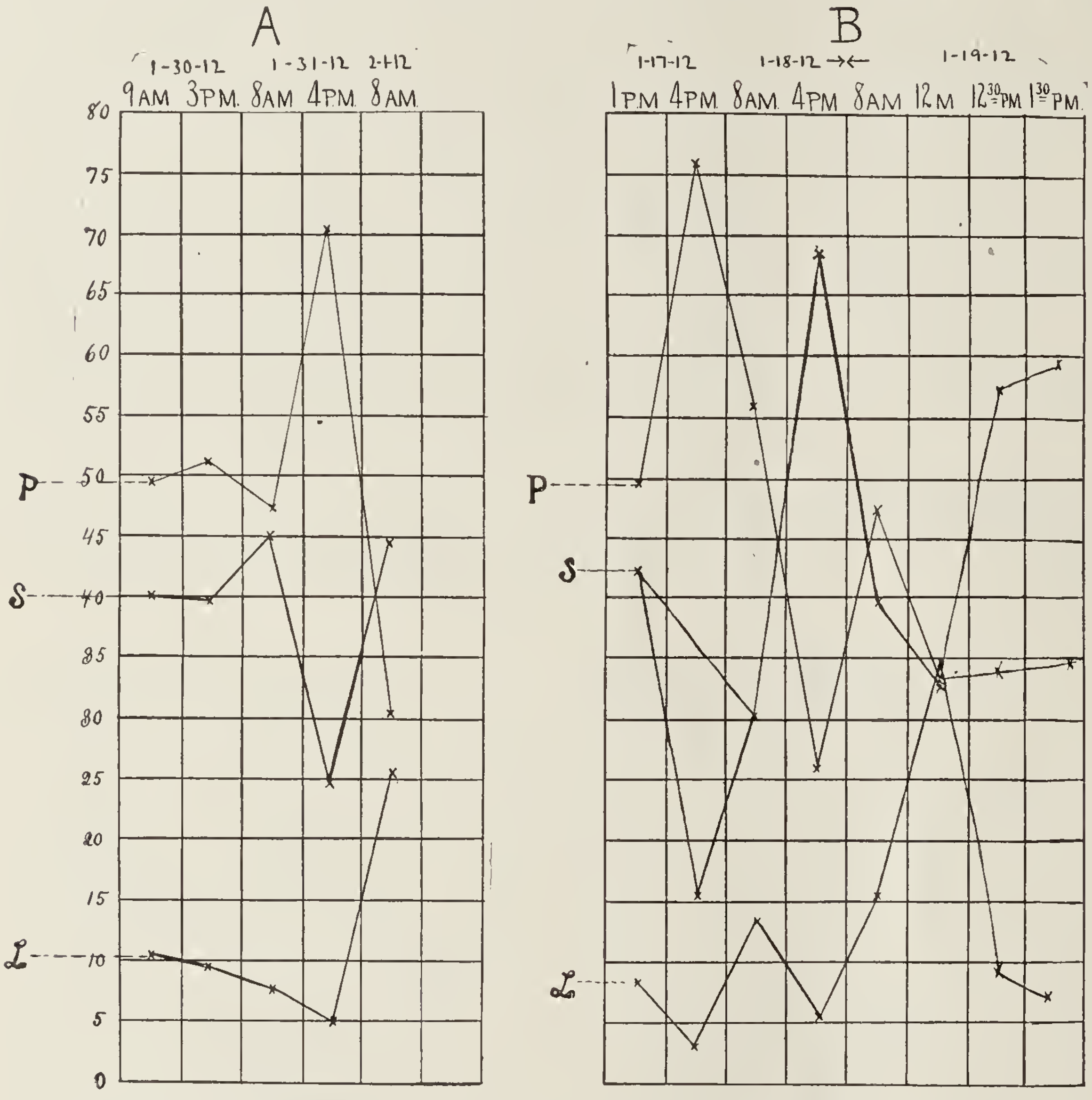

Chart 8.—A, Rabbit 167 W., given 5 minims of 1 per cent. sarcoma at 8:30 a. m., 9:30 a. m. and 10:30 a. m.: B, Rabbit 54 T., given 5 minims of 1 per cent. sarcoma at 1 p. m.. 2 p. m. and 3 p. m.; at 12:15 p. m. 10 c.c. of breast carcinoma-cell emulsion (Mel.) was injected intraperitoneally; rabbit died. 8-10 hours.

The entire mass of leukocytes, when removed from the filter and mixed with 5 c.c. of cancer-cell emulsion and incubated one hour, failed to have any effect on a rabbit when injected intravenously, thus showing that most of the specific ferment was soluble.

Again, 10 c.c. of the leukocyte extract, prepared in the same manner, from a normal rabbit which had not been sensitized, added to 5 c.c. of cancer-cell emulsion and incubated one hour, produced no effect when injected intravenously into a normal rabbit. This would tend to show that the sensitized animal possesses some specific chemical substance which reacts with cancer-tissue which the normal rabbit does not possess. That this substance is specific is further shown by the fact that 10 c.c. of leukocyte extract from a sensitized animal, plus 5 c.c. of a 2 per cent. normal-skin vaccine, incubated one hour, produced no effect when injected intravenously into a rabbit of 450 gm.

The same chart shows that sarcoma residue or vaccine sensitizes to carcinoma as well as sarcoma, and vice versa, so that the probable conclusion is that the chemical change within the cell is the same for both sarcoma and carcinoma.

While it is not my intention at the present time to make mention of the use of leukocyte extract in the treatment of cancer, yet, because of the added danger to the patient and also because of the added proof of specificity, attention should be called to one fact that tends to show the presence of a specific ferment.

Even as small an amount as 1 c.c. or more of leukocyte extract when injected directly into the tumor may cause sudden and severe symptoms. In four cases, when this procedure was adopted, I have had the patient complain within from one to five minutes of difficulty of respiration. Next, he would lose consciousness, which would be accompanied by rather violent muscular twitchings and lowered pulse-rate. This stage would last from five to ten minutes and would be followed by a period of rest, from fifteen minutes to one hour in duration, which in turn would be followed by a violent chill, and temperature ranging from 103 to 106 F. This would last from one to six hours and would be followed by from twenty-four to forty-eight hours of extreme exhaustion. At no time have I obtained such a reaction, even with doses of 5 c.c., when given subcutaneously away from the tumor, although a chill from one to three hours after injection has been observed.

It is my desire now, however, to call attention only to the animal experiments as described above. These have occupied two years' time and appear to throw some light on the cancer problem. I do not wish to create an impression that I advocate the use of sensitized leukocyte extract in the treatment of malignant disease, or that its use will be of any benefit to the sufferers from cancer. I have used it only in absolutely hopeless cases and only over a period of six months; consequently, any report of the subject from this point of view must be reserved for another year at least.

The report of the animal experiments is given, however, with the hope that those who are interested in this branch of cancer study will either corroborate or disprove the work, since it is only through the help of many that the truth will eventually be found.

In addition, I would state that a residue or vaccine remains active only as long as it is capable of producing blood changes in the animal injected. I have had a residue remain active for three years. The vaccine made from the cell in its entirety is not so stable, lasting from one week to six months. As a consequence I prefer to keep my cancer-tissue in alcohol and prepare only small amounts of vaccine at a time.

Washington Arcade.

ABSTRACT OF DISCUSSION

DR. J. W. MCCONNELL, Philadelphia: What does Dr. Vaughan mean when he speaks of the impossibility of pathologists telling much about the activity of the tumor—does he not refer to the mitotic figures? The general opinion is that these are present in large numbers, and do not necessarily indicate the activity. What effect on the individual is produced by injecting this leukocytic extract?

DR. L. J. HIRSCHMANN, Detroit: I have observed some of Dr. Vaughan's work since he started; and, in answer to the inquiry of Dr. McConnell, I wish to state that in a number of cases of carcinoma of the bowel there has been a uniform regularity in the decrease of the polymorphonuclears and in the increase of the large mononuclears, when the leukocytic extract and residue have been injected. One could read the blood-picture without seeing the patient, and get a pretty good idea of the clinical condition of the patient on that day. It is merely suggestive, but it is uniform. After reading the blood-picture, it was not necessary to see the patient to tell whether he was improving or not.

DR. G. W. MCCASKEY, Ft. Wayne, Ind.: Two points of especial interest occurred to me during the reading of the paper. The first has reference to the biologic significance of the large mononuclear leukocytes. It appears perfectly clear from the leukocyte curves, that there is a very definite reaction on the part of these cells to the injection of the cancer residue. This fact would seem to me to point to the conclusion that these cells play a very definite rôle, and probably should not be regarded as transitional in any sense. It would seem to indicate that they form a class by themselves just as definite as the small mononuclears or polymorphonuclears.

The other point has reference to the bearing which this work might have on the embryonic theory of neoplasms. This theory seems to be predominant at the present time, and yet these investigations point, it seems to me, very clearly, to some sort of specificity in malignant neoplasms. It would, of course, be quite possible that a specific toxin could act in conjunction with embryonic tendencies. I believe that this actually occurs in various pathologic conditions, as I have endeavored to point out in the pathology of pernicious anemia. We clinicians are greatly indebted to the pathologists for work such as this, so suggestive in its bearings, even if it does not as yet lead to definite and final conclusions.

DR. ISAAC LEVIN, New York: How much necrosis and sloughing was there in these tumors that Dr. Vaughan was handling? Were the differences in the leukocytes going parallel with clearing up of this sloughing and necrosis? Does Dr. Vaughan mean by that the clinical improvement of the cases, or was he handling solid tumors without any central softening, necrosis or sloughing? This matter seems of great importance from our knowledge and understanding; whether there is a real specificity in that difference in the leukocytes of the blood, whether there is a specific relationship with cancer, or whether it is due to an amount of dead tissue present in the body.

DR. J. W. VAUGHAN, Detroit: In reply to Dr. Levin, lately I have used an active ferment in a few cases with small tumors, when operation was absolutely refused, on condition that the patients would agree that, if benefit was not observed within two weeks, they would submit to operation. Among these cases were some breast tumors, which were not ulcerated at all. These tumors, when the ferment is injected, will swell up and soften, and afterward gradually contract down and harden again. At this time, it is proper to inject again; and they go through the same process again. An open tumor, one that is ulcerated, will do the same way after injection, and there is apt to be considerable bleeding for twenty-four hours afterward. This shows an increased vascularity following the injection of the specific ferment.

In reply to Dr. McCaskey's question with regard to the significance of this work in connection with the function of the cells, it is my belief that just as polymorphonuclear cells protect the body against outside infection, so the large mononuclear leukocytes protect the body against broken-down body tissue cells, and against autogenous growths or cancer cells. We are constantly having local injuries and broken-down tissue cells, and I believe that it is the function of the large mononuclear leukocytes to take care of these. I have invariably noticed that when a vaccine is used, the betterment in the patient ran in accordance with the increase in large mononuclear cells. For example, in one case which maintained 27 per cent. of large cells for weeks, which is a higher count than you usually are able to get, the tumor disappeared with rapidity. Transitional leukocytes I usually class as mononuclear leukocytes.

The question concerning the effect of the ferment on the human individual, was covered in my answer to the questions of Dr. Levin. If cancer vaccine is injected into a man who has cancer an increase in the large mononuclear leukocytes results. I have had cancer vaccine injected into myself; and I have found that I get a higher increase, when the vaccine is active, in such a case than I would in the case of a person who had cancer. In other words, there is a much higher increase in a normal individual. Concerning the prognosis in cancer through a study of the microscopic sections of any tumor, I believe that it is customary to estimate the malignancy by the presence or absence of mitotic figures. In our work, Dr. Sill, who is our pathologist, has run closely along with me in this work. We found that there apparently is no relationship between the percentage of large mononuclear leukocytes and the presence or absence of mitotic figures so far as we could estimate.

The Importance of Open-Air Exercise to the Gouty.—In the case of middle-aged men in affluent circumstances it is difficult to get them to moderate their appetites and regulate their diet, but they will often accede to the suggestion of taking more exercise. Motoring is good, but a long walk in the country every Sunday will do more to keep down their gouty proclivities. Exercise in a stuffy gymnasium is irksome and monotonous, and is soon abandoned.—William Murrell in *Clin. Jour.*

ADHESIONS AND CONSTRICTIONS OF THE BOWEL: THEIR DEMONSTRATION AND CLINICAL SIGNIFICANCE *

G. E. PFAHLER, M.D.
PHILADELPHIA

The importance of adhesions and constrictions of the bowel is being emphasized by the large number of writers on this subject. Throughout the medical world surgeons, roentgenologists and internists are realizing that many of the obscure abdominal symptoms, usually of a chronic nature, may be explained by the recognition and demonstration of adhesions or constrictions of the bowel.

Judged by the frequency with which Virchow found these adhesions, one must conclude that they are present often without producing symptoms, but that when symptoms are present and no satisfactory cause can be found, the possibility of adhesions or constrictions of the bowel must be carefully investigated.

The frequency of the adhesions has been further emphasized by the recent investigation of Mollison and Cameron[11] in fifty consecutive autopsies at Guy's Hospital, the age of the subjects varying from 3 weeks to 68 years, cases of generalized peritonitis being excluded from the series. They found that peritoneal adhesions were present in all adults and older children, and in eleven of the seventeen children under 5 years, including one of 3 weeks, they were more numerous, stronger and denser in adults than in children and in the six fetuses examined adhesions were entirely absent. They were sometimes found around the pylorus and gall-bladder, but more frequently in connection with the large intestine. The small intestine was never involved, with the exception of the last few inches of the ileum. Adhesions were frequently found in connection with the cecum, but only twice with the appendix. In fourteen cases there were well-marked bands passing from the ascending colon to the transverse colon, so as to fix the flexure at a very acute angle. Otherwise the transverse colon was generally free from adhesions, which were also infrequently in the splenic flexure and in the descending colon. The iliac and the pelvic colon were sometimes the seat of dense adhesions, but less often than the cecum and ascending colon.

My observations with the *x*-ray correspond roughly with the relative frequency in the respective locations described by Mollison and Cameron.[11] except that the evidences of adhesions were more frequently seen or recognized about the duodenum and gall-bladder regions, and in the colon the most frequent seat of stagnation or fecal retention has been in the cecum and ascending colon. On the other hand, Hertz[12] says: "With the *x*-ray I have rarely found even in the severest cases of constipation any prolonged stagnation in the passage of the intestinal contents before the middle of the transverse colon is reached." I cannot explain this difference in our findings.

CONSTRICTIONS DEMONSTRABLE BY ROENTGEN RAY

The value of the Roentgen rays for the demonstration of the effect of adhesions and constrictions of the bowels is being recognized more and more each day. With the increase of skill I feel that in all cases in which adhesions or constrictions give rise to symptoms the Roentgen-ray method should serve to demonstrate them.

Adhesions can be demonstrated by means of the Roentgen rays when they cause distortion, displacement, constriction or immobility of sections of the bowel. These adhesions may be benign or malignant. A general survey of the patient's history and other clinical evidence in conjunction with the Roentgen-ray findings will usually serve to differentiate. In some cases the Roentgen-ray evidence alone is practically conclusive.

Constrictions of the bowel may be temporary or permanent. The temporary constrictions may be spasmodic or due to kinks, intussusception, volvulus or pressure effects of loops filled with gas.

The permanent constrictions are due to adhesions or malignant growths.

In general, their effects are recognized by the administration of bismuth mixtures by mouth or by rectum, and the patient then studied both fluoroscopically and radiographically. Repeated examinations and examinations in several positions are usually necessary to avoid errors. The temporary constrictions may or may not be present at the time of the examinations, but if present they can be demonstrated. At least in most cases the conditions which would lead to temporary constrictions can be shown even in the absence of actual constrictions, such as malpositions, abnormal loops of the bowel, excessive length and mobility. The effects of such constrictions may at times be shown by local dilatations. Colonic dilatation is more apt to be shown by injections by rectum than by food given by mouth. In fact, I believe that excessive dilatation of the colon will not be shown by bismuth food followed from the mouth so long as the muscular tone remains good.

The temporary constrictions are more apt to be complete and very badly defined, while the permanent ones are seldom complete and extend over a larger area.

All of the various types or causes of constriction of the bowel have been demonstrated, roentgenologically, by myself, and most of them have been reported on by others, particularly Rieder,[13] Haenisch,[14] Koehler,[15] Hertz,[12] Groedel,[16] Stierlin,[17] Grashey and Brugels.

In the small bowels, the three locations in which constrictions and adhesions are most likely to occur are in the first portion of the duodenum, at the terminal portion of the duodenum and at the terminal portion of the ileum. I have been struck particularly by the frequency with which I have been able to demonstrate the effects of duodenal adhesions in the gall-bladder regions. They were clearly shown in at least seventy patients who were sent for examination. So far as I have learned only sixteen of these patients have been operated on, but in every instance the adhesions were present. In these cases, the hepatic flexure of the colon was also frequently involved, as diagnosed by the *x*-rays, and at times other organs. At times the adhesions were found to be very slight, while in others they were quite firm. The accuracy with which they have been recognized makes this means of diagnosis most important. The details of this examination and the errors to be avoided have been published previously in The Journal.[18]

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* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* Because of lack of space this article is slightly abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section.

[11] Mollison and Cameron: Guy's Hospital Reports, 1908, lxii, 143, Ref. Hertz.

[12] Hertz: Constipation and Allied Intestinal Disorders, London, 1909

[13] Rieder: München. med. Wchnschr., 1906, iii, Fortschr. a.d. Geb. d. Röntgenstrahlen, x, No. 4, p. 207.

[14] Haenisch: München. med. Wchnschr., 1911, No. 45.

[15] Koehler: Lexikon der Grenzen des pathologischen und Röntgenbilde, Hamburg, 1910, 164.

[16] Groedel: Atlas und Grundniss der Röntgendiagnostik in inneren Medizin, München, 1909, 218.

[17] Stierlin: München. med. Wchnschr., No. 36, 1911.

The chief evidences of these adhesions, as first described by Schurmeyer[19] and confirmed by myself, are a retraction of the duodenum and pylorus upward and to the right, in the gall-bladder region or the under surface of the liver, and at times constrictions and dilatations of segments of the duodenum. The chief symptoms associated with this condition are those which suggest gall-bladder or duodenal disease (in several cases duodenal ulcers and in a few gall-stones or definite gall-bladder disease was found to be associated). Pain, often of a burning nature, in the epigastrium and extending to the gall-bladder region or at times to the left, is a common symptom. It usually occurs only at intervals, and when present is felt particularly several hours after a meal. I believe that it is most likely to be present at the time when there is an associated inflammation of the duodenum or gall-bladder, and during the times when gastric peristalsis is most active. Tenderness over the gall-bladder region and in the epigastrium is common.

The constrictions at the terminal portion of the duodenum as described by Jordan,[20] I have seen only three times. This is a kink produced by the terminal attachment of the duodenum, occurs particularly in connection with exhausted or enfeebled states, or associated with duodenal disease and is recognized by the distention of the duodenum with the bismuth mixture as it passes through. It is usually a temporary constriction and may be missed during an examination.

"Lane's kink," or a constriction in the terminal portion of the ileum, I have recognized only a few times. This is difficult because in this class of cases there is so much overlapping of the small and large bowel. It can, however, be shown by separating the folds of the bowel (protected) by fluoroscopic palpation or by change of posture (knee-chest or Trendelenburg), which will separate the overlying folds and show the distention on one side of the kink. It can be shown at times by following food from the mouth and examining six hours after its administration. At times a distinction of the terminal ileum is seen twenty-four hours after the bismuth meal. On one occasion I recognized it by the passage of a bismuth enema through the ileocecal valve to the "kink," which was located 3 inches from the valve. I believe that with increased skill we should recognize most of these, when they are sufficient to give rise to symptoms.

The constrictions of the colon are most liable to occur at the hepatic, splenic and sigmoid flexures, though they may occur anywhere. Carcinomas are especially apt to occur at the sigmoid flexure, cecum and rectum. The permanent constrictions, such as are produced by new growths and adhesions, are best recognized by the technic described by Haenisch,[14] by which one watches fluoroscopically a bismuth mixture (bismuth subcarbonate 75 gm., kaolin 300 gm., water 1,000 c.c.) flow into the large bowel and notices any constriction, its degrees and whether it is permanent or only a temporary muscular contraction. After examining a patient in the recumbent posture as Haenisch does, I also examine him in the erect posture. This will often clear up doubtful points. Carcinoma may be recognized in this way quite early. At any time during the procedure plates may be made for record and for closer study.

If a carcinoma be present, the constriction will be permanent, can be recognized both during the inflow and outflow of the mixture, is usually limited to a comparatively small area when early, or associated with a distinct tumor mass when seen late, cannot be obliterated by any manipulation and is likely to be associated with localized tenderness. A meal given by mouth will often be checked at the same point.

The classical clinical symptoms associated with carcinoma of the bowel are familiar and need not be repeated here, but the early symptoms are often overlooked. The passage of a slight amount of bloody mucus, in the absence of hemorrhoids or benign rectal lesions, should at once arouse suspicion. Pain along the course of the colon, rather definitely localized in a patient past 40, should make one think of carcinoma, and a careful *x*-ray examination should be made.

Constrictions due to adhesions are more likely to be extensive and to be associated with folds of the bowel, or they may produce definite kinks with no actual obliteration of the lumen. This latter point may be determined by manipulating the bowel until it becomes completely distended after a temporary obstruction. When associated with the constriction the bowel is likely to be drawn out of position or fixed. These latter points are likely to be absent early in carcinoma.

Intussusception is usually acute and rarely chronic. It can be recognized by the same method as described above.

Twists in the bowel are likely to occur in patients who have an elongated colon and are usually associated with visceroptosis. They may be acute, may recur and produce a long series of intestinal disturbances which occur periodically, and are associated with gastric, intestinal and toxic symptoms. They should be demonstrated by a colonic injection, and when vomiting is not a prominent symptom they may be confirmed by food passed by mouth. In one very chronic case with symptoms extending over a period of twenty years the splenic flexure was twisted on itself and had locked up a collection of gas which gave the patient a sense of distention and pain in the left hypochondriac region. The enema will often release these twists, and an obstruction may be present at the beginning of the injection, but as the pressure is increased the obstruction disappears.

PRESSURE EFFECTS OF GAS LOCKED IN THE SIGMOID LOOP

This is a condition which, I believe, is not uncommon, and yet it is strange that it seems not to have received much, if any, recognition. It is a condition that occurs in connection with a large sigmoid loop. I am not yet clear as to whether the large sigmoid loop is the cause and primary condition, or whether the loop has been stretched by repeated distention with gas and thus elongated. This sigmoid loop may extend up to the under surface of the liver or to any height below this point. When this loop becomes distended with gas, it displaces the stomach, may obliterate the transverse colon by pressure and stop the colonic contents, may block the descending colon or both the transverse and descending colons, or may become twisted on itself. There may also be several loops or twists which will produce similar results, but to a lesser degree. Hertz[12] refers to congenital kinks of the intestines and explains this by the relatively excessive length of the pelvic colon. He says: "Where it is unusually large it becomes bent on itself once, twice or three times, and the flexures may be so sharp that obstruction to the passage of feces occurs." Jacobi[21] first drew attention to the subject and he subsequently came to the conclusion that an abnormally long pelvic colon was one of the most common causes of constipation in infants. Natural recovery from constipation occurs between the fifth and seventh years, owing to the fact that the growth of the pelvic colon is relatively slow. In only severe cases the obstruction produced by the kinks may be complete, so that no meconium is discharged even with the aid of enemas until several days after birth.

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[18] Pfahler, G. E.: The Journal A. M. A., June 17, 1911, p. 1777.

[19] Schurmeyer: Fortschr. a.d. Geb. d. Röntgenstrahlen, xv, 6.

[20] Jordan: Brit. Med. Jour., May 20, 1911.

I have found no cases recorded in which this excessive loop of the sigmoid (or pelvic colon) was given as a cause of temporary intestinal obstruction in an adult, nor any evidence of such condition being shown by the *x*-rays. I can explain this only by a failure in interpreting incomplete studies, or by the fact that patients of this group have not frequently been sent for examination, since they are usually regarded as neurotics and therefore not worthy of serious study.

The patients in whom I have recognized this condition suffer from headache, nausea and often vomiting, abdominal distress and a sense of gaseous distention. These conditions occur usually periodically but may be more or less constant. Drugs have given only temporary relief, and both the patients and physicians become discouraged. Looking at this group in the light of a temporary intestinal obstruction (without acute symptoms) due to a twist of or pressure by an elongated sigmoid loop distended with gas, one can understand why the attacks occur at irregular intervals and why they follow fatigue and the eating of gas-producing foods, since these are the conditions which will be associated with intestinal fermentation which distends the loop with gas.

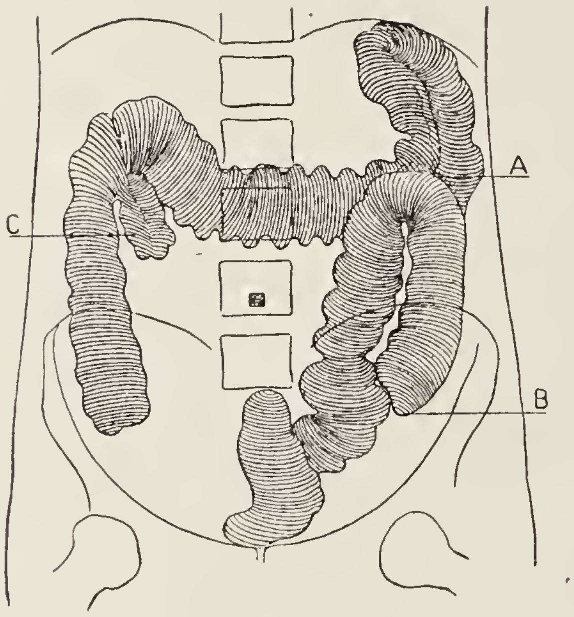

Fig. 1.—A, Top of sigmoid loop. B, Kink at junction of descending colon and sigmoid. C, Reduplication in first part of transverse colon.

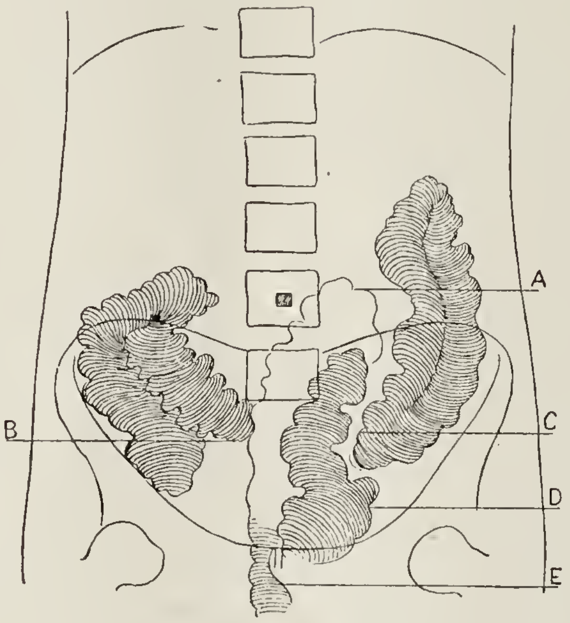

Fig. 2.—A, Top of sigmoid loop filled with gas. B, Transverse colon compressed. C, Descending colon compressed or kinked. D, Feces in first portion of sigmoid. E, Feces in rectum.

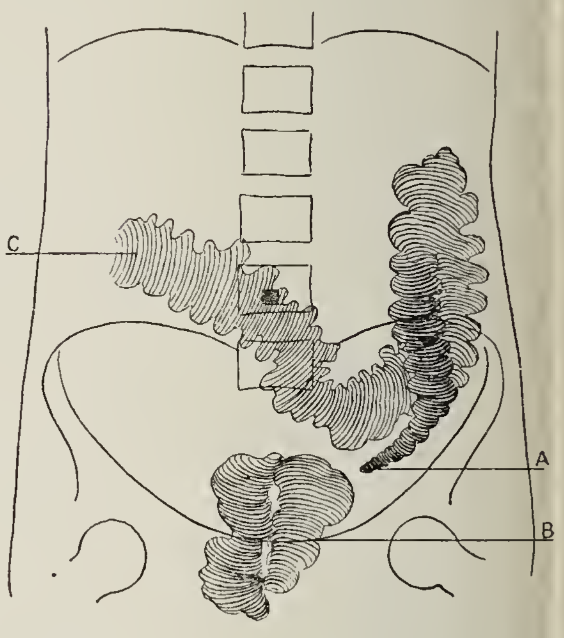

Fig. 3.—A, Blocking of descending colon at end of forty-eight hours. B, Feces in rectum. C, Ascending and first part of transverse colon empty.

One can also understand why a purgative will often abort an attack, and why vomiting or assuming the recumbent posture will give relief, since these are the conditions which will assist in moving the gas from the loop and permit the colonic contents to move onward.

There are a large number of patients suffering from the above-mentioned group of symptoms, and while I have examined comparatively only a few of this group, I have been able to find an explanation of the symptoms so often that I feel that we shall be able to understand this group better in the future and hold out new hopes for them.

The length of this paper will not permit the report of even illustrative cases of all the conditions that I have described, but since most of them are already well recognized by the profession and since sufficient evidence is on record to show that all the conditions described can be demonstrated earlier and better by the *x*-rays than by any other anti-operative method, I shall confine myself to a brief report of a few cases illustrating the obstructive effects of colonic loops. The figures are tracings made from some of the reductions from the original plates which were used to illustrate the paper and are therefore true representations of the conditions as found in these cases.

CASE REPORTS

Case 1.—Mr. E. K., aged 34, a mechanic, consulted me Oct. 2, 1911, for an *x*-ray study of his gastro-intestinal tract. During ten years he had suffered from "bilious attacks" which had been growing worse, but he was able to continue his work. During these attacks he was constipated and had nausea, vomiting, headache and abdominal pain and distentions.

Roentgen Examination.—Figure 1 shows an excessively long sigmoid loop which rises at least 2 inches above the umbilicus and moves freely. During the colonic injection a kink at the junction of the descending colon with the sigmoid prevented the free flow of liquid. Figure 2 shows how this loop had blocked both the transverse colon and the descending colon at the end of forty-eight hours. After a bismuth meal had been taken this remained absolutely stationary during at least nine additional hours. At the end of seventy-two hours the colonic contents had passed the middle of the transverse colon but were blocked in the descending colon (Fig. 3). This loop may rise high enough to compress the pyloric end or displace the stomach. This occurs in this case and is shown in Figure 4, in which instance it passed back of the transverse colon, showing that only at times does it cause compression of the colon.

Case 2.—Mrs. E., aged 54, referred by Dr. J. C. Heisler, for twenty-five years had had periodical attacks of severe headache associated with severe vomiting, abdominal distention and constipation. These attacks usually recurred every two weeks, but at times she would be free from them for six weeks. Originally they lasted only a day, but at the time of examination lasted three days. The patient was chronically constipated and was much distressed by the pressure of gas after eating.

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[21] Jacobi: New York Med. Jour., 1894, xlv, 613.

Roentgen Examination.—I found a sigmoid loop that extended up to the liver (Fig. 5). This high position of the sigmoid remained even in the standing posture and seemed to be held up by the gas at its upper pole, while the transverse colon dropped down in front of it (Fig. 6). It is easy to understand how the taking of food into the stomach, lying in front of this loop of the sigmoid, gave the patient a sense of gaseous distention which could not be relieved by belching. Figure 7 shows how this same gaseous loop blocks the contents of the transverse colon at the end of twenty-four hours after a bismuth meal. Figure 8 shows that the transverse colon is displaced downward and gives freedom at the end of forty-eight hours, but the contents are now blocked at the end of the descending colon.

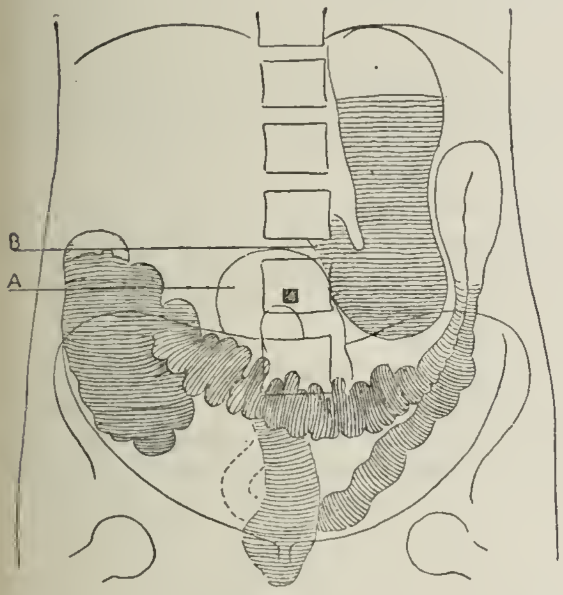

Fig. 4.—Showing sigmoid loop causing compression and displacement of the stomach. A, Gas in sigmoid. B, Compression of pyloric end of stomach by the gas in the sigmoid.

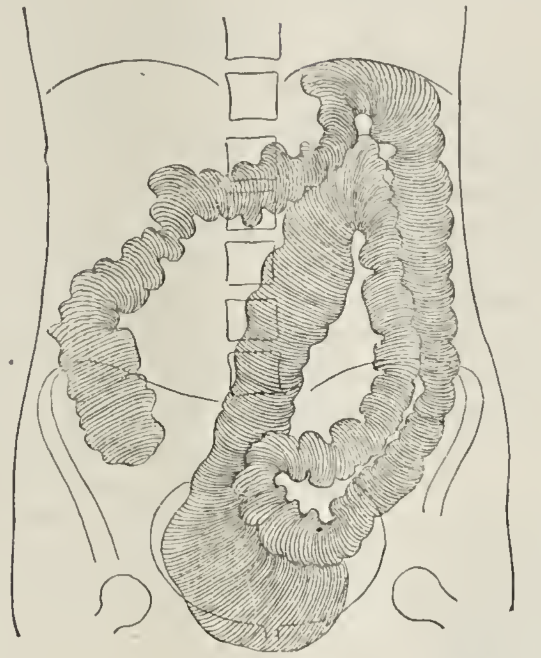

Fig. 5.—Colonic injection showing the outline of the sigmoid loop, which rises to the under surface of the liver; also a dilated ampulla of the rectum. Supine posture.

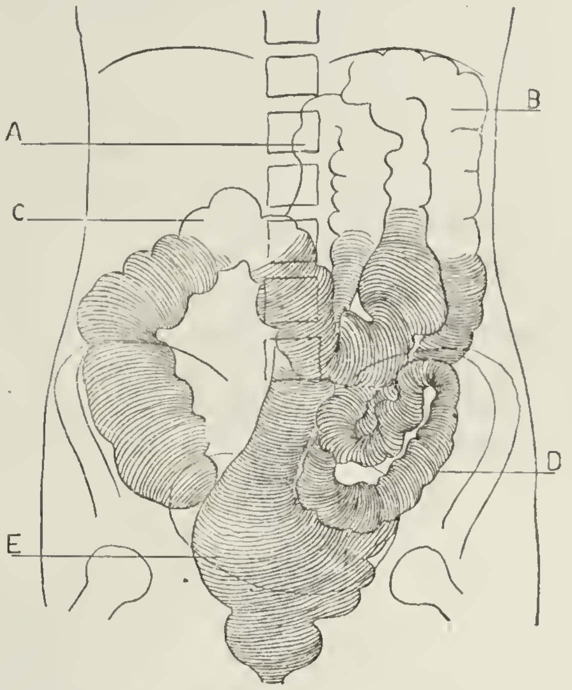

Fig. 6.—Standing posture after colonic injection, showing double sigmoid loop, with gas at the top. A, Gas in top of second sigmoid loop. B, Gas in splenic flexure. C, Gas at top of hepatic flexure. D, First sigmoid loop. E, Dilated rectal ampulla.

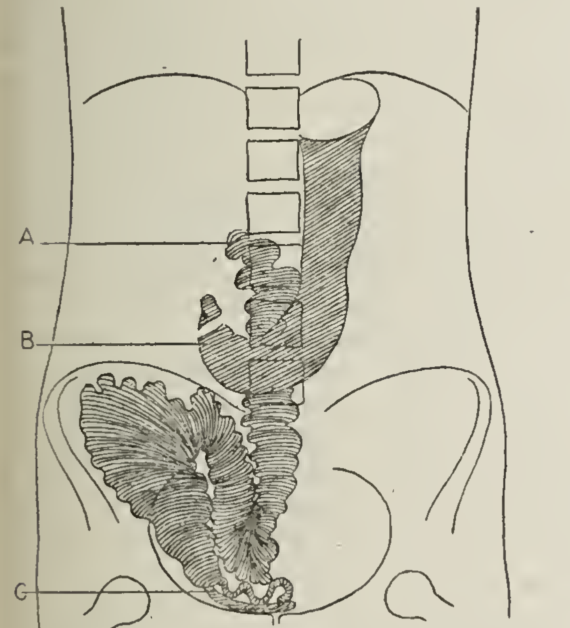

Fig. 7.—Showing obstruction of the transverse colon by the sigmoid loop distended with gas, at the end of twenty-four hours after a bismuth meal, with the stomach hanging over the top of the transverse colon. A, Top of obstructed transverse colon. B, Stomach. C, Coils of the ileum still filled at the end of twenty-four hours.

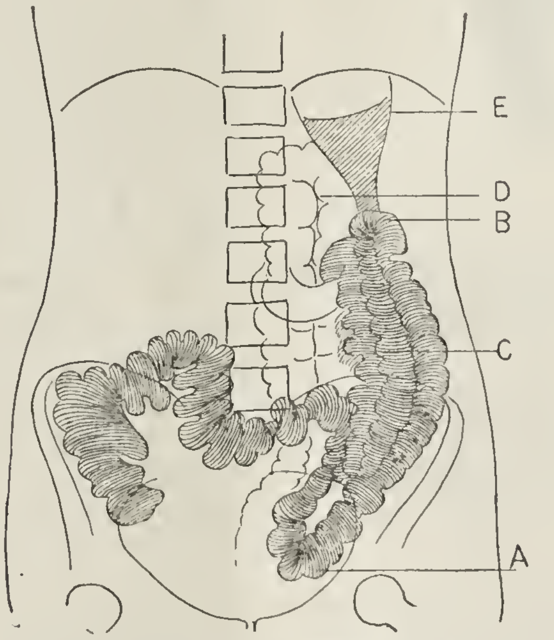

Fig. 8.—Showing compression and displacement of the body of the stomach to the left by gas in the sigmoid loop. A, Transverse colon dipping into the pelvis and passing to the other side of the descending colon. B, Splenic flexure. C, Ascending portion of the sigmoid loop filled with feces. D, Top of sigmoid loop filled with gas. E, Stomach only partially filled and displaced to the left.

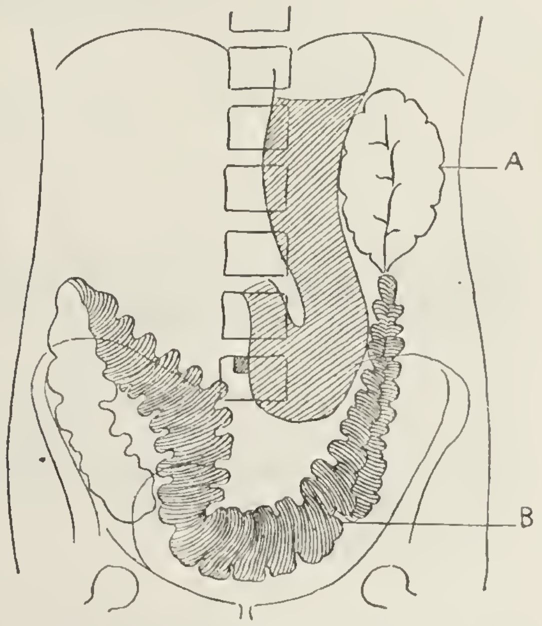

Fig. 9.—Obstruction caused by splenic loop filled with gas. A, Gas in loop. B, Lower end of descending colon blocked by the sigmoid loop.

These are extreme cases with extreme symptoms, and yet a less extensive loop may give actual symptoms of acute intestinal obstruction, such as occurred in a case of which Dr. Anthony Bassler has sent me a lantern-slide, in which the patient was prepared for operation, when an enema gave relief, and subsequent dietetic and medicinal means brought about a complete recovery.

Case 3.—Mr. C. F. B., aged 59, referred by Dr. William Martin, for four years had suffered from severe headache, associated with indigestion, abdominal distention and distress, and constipation.

Roentgen Examination.—I found a large sigmoid loop, a generally elongated colon, reduplication and twisting of the first part of the transverse colon with abdominal retention in the cecum and ascending colon, with other evidence of interference with the passage of the colonic contents of the sigmoid.

Case 4.—Miss A., aged 20, referred by Dr. M. P. Warmuth, had suffered from constipation, a sense of gaseous distention of the abdomen and "bilious attacks."

Roentgen Examination.—I found a large sigmoid loop associated with evidence of adhesions and localized areas of retention in the pelvic colon. These were confirmed by operation.

I have seen a number of cases in which a loop at the splenic flexure seemed to be the cause of the symptoms. The following will illustrate:

Case 5.—Mrs. S., aged 40, referred by Dr. L. Napoleon Boston, for eighteen or twenty years had been troubled with pain and aching in the left hypochondriac region. She had been gradually getting worse. She was generally constipated.

Roentgen Examination.—I found a loop at the splenic flexure which seemed to be distinctly twisted, and locked in it was a collection of gas (Fig. 9). One can understand how the gas would accumulate in this loop and the symptoms continue until the oncoming colonic contents were sufficient in force to release this twist.

The treatment of these obstructive loops will demand a diet that will reduce fermentation to a minimum, associated with abdominal exercises, massage and, when symptoms arise, an enema to remove the contents of the colon and release the twist. Finally surgical interference may be necessary either when acute symptoms arise or for the radical relief of the condition.

I have also examined a number of patients in whom the origin of the symptoms was obscure, who complained of pain and distress in the left hypochondriac region and in whom I found the cause to be extensive adhesions about the splenic flexure. In the future it should not require years for physicians to think of an x-ray examination to clear up the diagnosis of such cases. A single case will illustrate.

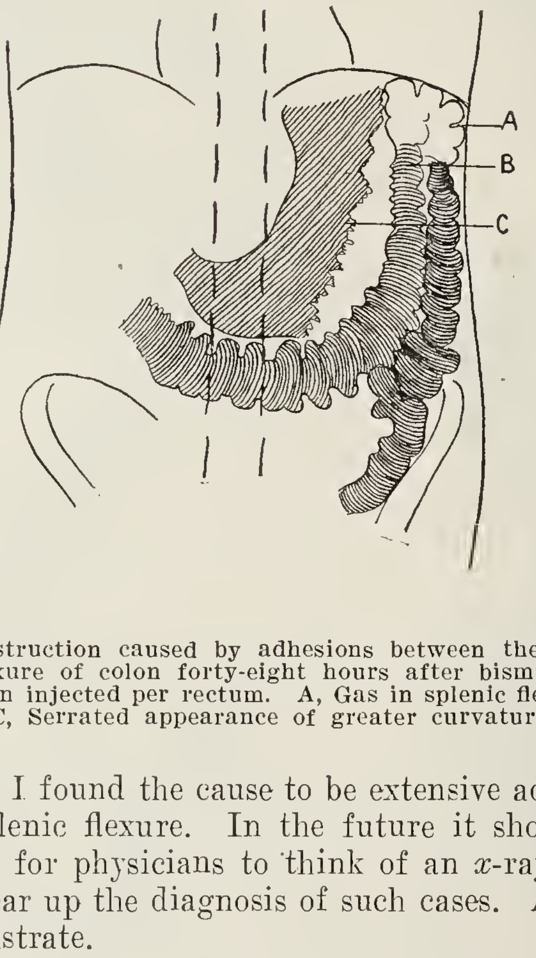

Fig. 10.—Obstruction caused by adhesions between the stomach and splenic flexure of colon forty-eight hours after bismuth meal. Descending colon injected per rectum. A, Gas in splenic flexure. B, Constriction. C, Serrated appearance of greater curvature.

Case 6.—Mr. S., aged 29, had suffered for five years with severe pain in the left hypochondriac region. At first it occurred at intervals but during nine weeks had been constant day and night. The pain was not influenced by food, and his bowels moved regularly daily. He had been in three different hospitals and had consulted at least three of our best internists, with no relief and no diagnosis. In general he had been regarded as a neurotic. He came to me on his own account and begged for an x-ray study.

Roentgen Examination.—I found evidence of extensive adhesion at the splenic flexure which was shown by constrictions involving the last part of the transverse and the first part of the descending colon, as though one had passed a band around the two portions choking off a collection of gas resulting in dilatation of the splenic flexure above. These adhesions were shown to involve the stomach also by the serrated border on the greater curvature (Fig. 10). These findings were confirmed in every detail by Dr. Ernest Laplace at operation, and the patient recovered with complete relief from his symptoms.

CONCLUSIONS

1. Localized peritonitis resulting in adhesions is a common condition, and while it must often be present without producing any symptoms it is a pathologic condition that should be considered in all obscure abdominal cases.

2. Constrictions of the bowels may be permanent or temporary. The permanent constrictions are liable to be due to adhesions or carcinomas and have been demonstrated in many cases by a number of roentgenologists.

3. Temporary constrictions may or may not be present during an examination, but the condition which would give rise to such obstructions will be present and can be demonstrated.

4. Colonic loops, particularly affecting the sigmoid, may produce repeated temporary symptoms and have been found associated with the group of periodical "sick-headache" cases.

5. The cases of "colonic loop" that I have been able to study so far have been too few to enable me to draw definite conclusions, but point the way to the relief of many chronic cases.

I wish to thank the physicians who have made it possible to study the cases on which this paper is based and particularly Drs. Boston, Heisler, Warmuth and Martin who have permitted the brief reports of their cases, and Dr. Anthony Bassler who has loaned me lantern slides of some of his cases for study.

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ABSTRACT OF DISCUSSION

Dr. Judson Daland, Philadelphia: I think that this paper is most valuable in showing the aid that the x-rays are able to give in making diagnoses hitherto impossible regarding pathologic conditions of the alimentary tract. The diagrams presented showed obstructions from kinks. We have been able by means of the x-rays to diagnose obstructions caused by adhesions alone. A point of interest relates to the topography of the colon; we can see not only the presence of a coloptosis, but also its extent. This line of work must be supplemented by a study of the normal redundancy of the colon and its relationship to surrounding parts. In most instances a stricture of the colon can be shown by means of the x-ray after the introduction of a bismuth meal by mouth; the point of constriction is thus brought out accurately; a thorough and careful study of the plates is necessary to show exactly where the constriction is. By means of colonic injections we may determine the lower border of the constriction. I have not been able, however, to measure with accuracy the extent of these strictures. We must all recognize as an important point that a large experience is required on the part of the roentgenologist to interpret the findings. Each case must be dealt with by itself. Often a large series of plates must be studied and the greatest care taken. The time consumed is often considerable.

Dr. Anthony Bassler, New York: We should be grateful to Dr. Pfahler for introducing loops as a means of constriction of the colon. In the examination of the normal individual through the side of the abdomen, the x-rays show that the cecum occupies a central position. Continuing up, the ascending colon and hepatic flexure are posterior; the intestine then runs forward, coming in contact with the anterior abdominal wall at the flare of the costal arch. It then runs across the abdomen to a corresponding point on the opposite side and dips posteriorly again, running upward to the back of the abdomen under the spleen where the splenic flexure is made. The splenic flexure and descending colon, like the ascending, are posterior and take slightly forward courses at the upper end. When the sigmoid is reached, the colon runs forward from the back of the abdomen to the anterior abdominal wall, is in contact with the wall for a few inches, and then bends backward to join the rectum. Therefore the ascending and descending colons are posterior; only a small portion of the transverse colon and a small portion of the sigmoid are anterior, and the rest of the large intestine runs forward and backward. It is in these forward and backward courses that loops occur.

A plate of mine that Dr. Pfahler showed was from a man who had been constipated for many years. One morning he was seized with nausea which gradually developed into vomiting; this continued until the third day, when it was stercoraceous in type. There was marked abdominal pain in the lower left side and general abdominal distention. There being little doubt as to the diagnosis, he was prepared for operation, because purgatives and enemas did not prove successful and no flatus had been observed for several days. It occurred to me when I saw him that there might be a looping of the sigmoid, because of the situation of the pain and the general distention of the intestines above it. Surrounded by surgeons ready to operate on him, we tried another enema in the knee-chest position, at which a hard mass of feces came away, followed by fluid and gas with a subsidence of pain and the distention; of course there was no further concern about the case. A week or two afterward I made the *x*-ray plate you saw, disclosing the vertical loop in the sigmoid.

In dealing with these loops, particularly of the sigmoid, we should take into consideration postural methods to untwist them. As they twist in the upright and prone-dorsal position, to untwist them the patient must be placed head and abdomen down. In these cases the feces from the proximal portion come in contact with the feces of the distal portion overlapping the intestine, and then the feces in the distal portion dam back the contents in the upper section.

Dr. Franklin W. White, Boston: There is another side of this *x*-ray work that is not generally appreciated, even after one has seen the set of pictures that have been presented to us—the difficult technic, the long series needed to prove a point, the frequent artefacts, the difficulties of interpretation. A great many do not appreciate these points; many are too busy to study them carefully. All these cases show the value of this method, which requires great care. When we compare the present *x*-ray method with the old methods of outlining the stomach and intestines we see a great difference. Nothing can compare with the present *x*-ray methods in detecting constrictions of the large intestines, and in separating the medical from the surgical cases of constipation. This is a method which should be used in all gastro-intestinal cases that are difficult of diagnosis. In obstinate cases of constipation which do not yield to thorough treatment the *x*-rays will frequently tell us more than all the rest of the examination put together.

Dr. G. E. Pfahler, Philadelphia: As Dr. Daland has said, there is a great deal of work to be done in each case, and one can seldom make a diagnosis from one or two pictures. Those that I have presented to you were picked out. It is customary for me to make six or twelve or more plates and many repeated fluoroscopic examinations before I make a diagnosis in a given case. When I began the examination of these cases I did not know really how much work there was to do; considerable expense is incurred and much time consumed in every examination. This work is not necessarily a part of the routine work, however, but is used only in the chronic cases and those that have resisted all other means of diagnosis. It should be borne in mind that the sigmoid loop is only one place where constriction can occur; considerable stress has been laid on this because it has been so frequently overlooked. Dr. Jacobi called attention to the condition eighteen years ago as occurring in children and infants, and as being one of the causes of chronic constipation and at times of intestinal obstruction.

Industrial Disease.—Industrial disease is a misleading term, used for convenience only, or through ignorance, to indicate certain pathologic states, the results of insanitation in industry. Industry itself is never necessarily unwholesome. Industrial processes, it is true, are objectionable and crude oftentimes, but bad industrial conditions are always remediable.—W. Talbot in *Am. Jour. Public Health.*

THE STUDY OF THE URINE IN NERVOUSNESS *

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At the Washington meeting of the American Neurological Association in 1910, I read in part a paper on this subject. But on account of the press of papers it was greatly curtailed and never published. Since that time analysis of a larger number of cases has deepened the conviction that the simple test there suggested has a definite value in the physical examination of patients in all cases of nervousness not dependent on organic disease. For the past nine years accurate notes of this class of cases have been kept and certain features having a definite bearing on the causation of functional disorders of the nervous system have been noted, to which I shall refer later.

For the past twenty years it has been my habit to make routine examination of the urine of practically all patients under my care and this examination is repeated at each office visit. I had already noted and even recorded at an earlier date the frequency of the reaction to which I call your attention.

TOXEMIA INDICATED BY A PIGMENT RING

In testing these urines with nitric acid, I noticed frequently a dark pigment ring in place of the well-known white ring, known as Heller's albumin ring. As you know, Heller's test consists of underlaying the urine with strong nitric acid. The albumin, if present, appears as a white ring at the point of contact between the urine and the nitric acid. It is at the same point that the pigment ring is found, a reaction which doubtless has been noticed by most of those present. The pigment ring varies from a dark brown to a bright red color. When pronounced it is very distinct and, in my experience, of definite value as a laboratory aid in diagnosis. In making this test the easiest method is to take a test-tube partly filled with the suspected urine and plunge a pipet loaded with pure nitric acid to the bottom of the urine in the test-tube. The finger covering the top of the pipet is then slowly released and the acid gradually replaces the urine at the bottom of the test-tube. By this method the procedure is both expeditious and certain. The contact line between the urine and acid is sharp and well defined.

The chemical nature of this ring I cannot explain. The chemistry of the nitrogen compounds of the urine is very difficult of determination. That it is due to the oxidization by the nitric acid of some of the aromatic constituents of the urine through degradation of the albumins is most probable. It has sometimes been confounded with indicanuria, but in my experience it is another reaction entirely. The presence of indican in the urine has been noted in conjunction with this reaction, but in the large majority of my patients indican was absent. Indicanuria may be associated with this condition, but it certainly is not the cause. The same is true also of the biliary reaction. Bile is present in the urine of these patients at times, but, as can be shown by standard tests, is more frequently absent. This pigment reaction may be associated at times with either indican or bile, or indeed with both, but certainly is dependent on neither one. This is well exemplified in the illustrations which I shall shortly bring to your attention. Nor can it be due to the ordinary color of the urine, inasmuch as the deepest reaction may occur in the palest urine. Usually the urine in these patients is persistently acid and relatively of a high specific gravity. The acid urine is found not only in the morning but also during those periods of the day when the normal condition of the urine should be alkaline. A similar color ring even more pronounced is seen in the urine of patients taking potassium iodid. This reaction, however, is so characteristic that it is not likely to be confused with the one I am demonstrating. I have also noticed a marked color ring in the urine of patients with exophthalmic goiter. Whether this indicates any relationship between the perversion of the thyroid secretion and the disturbance in metabolism to which I am calling your attention, I cannot say. It might be well to note that uric acid has no influence whatever in causing this pigment ring.

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

Physiologically it can be stated that this urinary reaction is due to some disturbance of metabolism, particularly of the protein metabolism. Its presence in the urine is in no way pathognomonic of nervousness. It is constantly present in febrile urines associated with excessive muscular waste; in acute digestive disturbances, or so-called biliousness; indeed, in all instances in which there is a perversion of nitrogen metabolism. It is almost invariably present in the urine of people who overindulge in protein foods. On the contrary, it is not found in the urine of persons who use protein foods in moderation or only rarely. Furthermore, the correction of the dietary will cause it to disappear, or at least reduce it to the normal reaction—a faint yellowish contact line. In truth, this pigment ring is simply an indication of toxemia. Whether this toxemia is due to auto-infection from intestinal putrefaction or to suboxidization of the nitrogen end-products of metabolism is as yet undetermined.

This pigment ring, whatever its cause, I have uniformly found in the urine in all nervous cases.

ANALYSIS OF A THOUSAND CASES

This class of nervous cases, covering my office records for the past nine years, embraces eighty cases of neurasthenia, thirty of general nervousness including hysteria, 102 of intestinal dyspepsia and 922 which I regarded purely as lithemic. It is proper to say that I do not regard my proportion of neurasthenics or hysterics to the total as an indication of their relative frequency, inasmuch as this series of case records is made up almost wholly of office cases. I am satisfied, however, that true neurasthenia is a much less common disease than is generally considered. In many of my cases, due to toxemia purely, the patients were referred to me as "neurasthenics" by their attending physicians. True neurasthenia is a far more serious and intractable disorder of the nervous system. In all these 1,200 cases a careful examination was made of the nervous system for the exclusion of organic disease.

SYMPTOMS FOLLOWING DISTURBANCE OF METABOLISM

The symptoms of which these patients complained are familiar enough to those who have to do with nervous people. The commonest subjective symptoms, in order of their frequency, are weariness, irritability, marked depression of spirits, constant tendency to introspection and loss of will-power. Over half of the patients suffered from constant fear of loss of mind, of death or other disaster. Nearly as large a proportion were emotional, complained of backache in the lumbar region, and had a dull, heavy feeling in the legs. One of the common symptoms mentioned was "loss of memory" and "inability to fix the attention"—a mental state significant of toxemia. I usually found the following physical conditions: Seventy-five per cent. of my patients had a coated tongue, usually brownish or yellowish; in over 60 per cent. the skin was sallow, particularly at the folds of the axilla and over the abdomen; about one-half of these were troubled with constipation and about 60 per cent. had abdominal distention from intestinal gas. It is a striking circumstance that a large proportion, practically 90 per cent., live indoors or follow indoor occupations. Just half of my patients gave a family history indicating neurotic inheritance; about 30 per cent. gave a history of arthritic ancestry. Curiously, almost 85 per cent. normally possessed a cheerful disposition, although mental depression was so constant a complaint; while only 50 per cent. could be regarded as having a nervous temperament. Unexpectedly my statistics disclosed that nervous women only slightly exceeded the number of nervous men. Certainly there were less than 100 more women than men in this series.

The urine was carefully examined in all but 116 of these cases. In over 800 cases the urine, when tested with nitric acid, showed the distinct color line I referred to. It was absent in less than 200, so that this urinary reaction to which I have called attention was present in over 80 per cent. of this class of cases. The reaction of the urine was acid in 66 per cent. of the cases and my examination of the urine was usually of a specimen which should normally be alkaline or neutral. Over one-half of these patients admitted overfree use of protein food. I can state that indican was present occasionally, but probably not in 10 per cent. of the cases recorded.

The frequency with which this pigment reaction in the urine is associated with the depression, worry and apprehension in persons who are "just nervous" is striking, to say the least.

When, however, the underlying toxemic condition is corrected by a proper dietary; and elimination through the kidney is increased—for it is the kidney that removes the nitrogen waste of the body—through the free use of a salicylate and an alkali, such as the bicarbonate of soda, the change is striking. The complexion gradually clears up, the patient forgets many of his most aggravating symptoms, his mind becomes clear, his "nerves" no longer trouble him, and the pigment reaction disappears from the urine.

In conclusion, cases of the class which demonstrates the presence of this reaction are frequently encountered in the office of the consultant. The characteristic symptom present is one of depressed nervous action. A patient complains of dull headache, restlessness, sleeplessness, vertigo, backache, numbness and a general good-for-nothing feeling. He lacks initiative and fears that he is losing his memory, while his self-consciousness and self-attention are generally exaggerated. He is weary, especially after a good night's sleep, his legs feel heavy, he is irritable and peevish, complains of cold hands and feet, lacks will-power, and is emotional and at times apprehensive, fearing that he will lose his mind or die. His tongue, particularly at the base, is usually coated with a yellowish-brown fur; his skin is sallow, his abdomen distended and his expression somewhat anxious. Indeed, I see such persons frequently on the street. The dull sallow complexion, the far-away look, as though the individual were thinking of himself rather than of what he saw, and the expression of tension and gloom suffice to indicate the depression of a morbid mind.

They are the patients whom the general physician calls "just nervous," lectures roundly for "not having more will-power" and finally sends to the specialist with "nervous prostration."

At times, indeed, the subjective symptoms simulate the more grave organic maladies, such as brain tumor, meningitis, dementia, etc., of all of which I have had several examples. A thorough examination of the nervous system discloses no indication of organic mischief, such examination being the needful counterpart of the urinary investigation to insure diagnosis. It is wholly a functional disturbance and one seldom associated with true neurasthenia. But no class of patients is more miserable or more deserving of sympathetic assistance.

Furthermore, from a large experience in the so-called traumatic neuroses, I am convinced that the nervous symptoms that are more or less remotely connected with the accident are in reality due to the same causes. The plaintiff's "bill of particulars," luridly paraded before the jury by his attorney, is made up of a list of these same subjective complaints. The neurologic examination discloses no structural change, no lesion. The case is built on a foundation of "nervous feelings" following some accident, often trivial in nature, which are in reality due to digestive disturbances, induced either by sudden cessation of healthful occupation or by overfeeding due to the mistaken anxiety of a sympathetic family.

Treatment, to be efficient, must be rigid and persistent. Sometimes two weeks suffice to bring entire relief, but usually two months or more are required. In obstinate cases a year of adherence to this regimen was necessary before the patients became absolutely well. But sooner or later the skin will become clear, the coating will fade from the tongue, the pigment ring disappear from the urine, the mind of the patient be freed from his burden of apprehension and his attention directed into channels of normal activity.

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CONVULSIVE SEIZURES ASSOCIATED WITH POSTMENSTRUAL GASTRO-INTESTINAL DISORDERS *

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That the diagnosis of the nature of convulsive seizures under our present classification often presents great difficulty no careful student of medicine can deny; and it is to emphasize this fact that the description of this condition is presented.

Four well-marked cases of this kind have come under my observation during the past ten years, and in three I have fortunately been able to observe the convulsive seizures. The family histories of two of the patients seem to be negative; the mother of the third was hysterical and the father of the fourth a "peculiar man." The previous personal history was that of good health in two cases, neurasthenia in the third and hysteria in the fourth.

In all four the condition developed after the age of 20; in one it followed an acute indigestion from playing basket-ball after a hearty meal, in another it followed the shock of a mastoid operation, and in the other two there was no obvious exciting cause beyond the usual bowel troubles so common in women.

In all the bowels were fairly regular until the close of the menstrual period, which was followed by a period of from one to four days of constipation. During this period the patient often appeared to be in good health, or, at other times, there was a coated tongue, headache, depression and disturbances of vision. Then suddenly, most often in the morning but usually at any time during the day, and occasionally during sleep at night, the patients developed a sense of terror, abdominal pain, and would have one or more large fecal movements, often followed by diarrheal movements containing mucus. During this period there were marked eructations and passages of gas. The pulse became rapid and feeble, the extremities cold, a fine rapidly increasing tremor developed in all the voluntary muscles, and vertigo and telescopic vision were at times present. Many of the seizures, especially toward the end of the disease, did not pass beyond this stage; and in every instance it was of sufficient duration for the patient to seek or summon assistance.

When the epileptiform stage followed, consciousness became clouded or lost and a marked general tonic spasm developed, causing clenching of the fingers over the thumb, flexion of the forearms, adduction of the arms, extension of the thighs, legs and feet, opisthotonos, rotation of the head and eyeballs to one side, distortion of the mouth, and at times, a harsh cry from the expulsion of the air from the thorax. The eyes were at times open and at others closed. The facial pallor gave place to cyanosis; the pupils dilated but, as a rule, responded to light, though in some seizures they were immobile. The duration of this tonic phase was, as a rule, longer than is seen in cases considered to be classically epileptic.

A clonic phase always followed the tonic, beginning with repeated tremors followed by marked general clonic contractions which often showed the coordinate type of hysteria rather than the irregular jerking which is described as epileptic. In some seizures the tongue was badly bitten; but in no case, even when the patient voided large quantities of urine after the attack, did she do so during the seizure. The cyanosis of the face was replaced by flushing as the respiration became rapid and irregular. The clonic spasms, like the tonic, lasted a longer time than is usually found in epileptic cases and were at times intermittent. The tendon reflexes which could not be obtained in the tonic phase, on account of the marked spasm, were present both during and after the clonic phase. Some of the seizures terminated in delirium but deep coma was the rule. In all cases marked polyuria usually followed the attack. Following the seizures there was at times a period of depression, headache, muscular soreness, diarrhea and abdominal pain.

Examination of the patients during the menstrual interval failed to disclose any abnormal conditions of the abdominal or pelvic organs or any stigma of hysteria or other nervous disease. The clinical picture presented by these patients fully sustains the opening contention of this paper and it is a grave question as to the nature and consequent prognosis. That these seizures would be classified as epileptic by many physicians — and two of the cases were so considered by men of eminence — is not a matter of surprise.

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

In attempting to sustain the contention of the epileptic nature of these seizures, we are confronted with the situation that, though the term "epilepsy" has been used by physicians for about two thousand years and until the last few decades was believed to represent a distinct pathologic entity, it is now recognized as representing a condition or symptom complex. This situation has arisen from the facts that no one can give an undisputed definition for the epileptic condition, that the various groups of cases included under this term often vary materially, and that symptoms once held to be diagnostic of epilepsy are now known to occur in convulsive seizures of other conditions. The confusion which now exists concerning the class of cases which should be considered as typically epileptic is made worse by the use of the term "true epilepsy" by writers who do not designate what cases they would class as such.

The evidence which we now possess as to the nature of epileptic seizures would indicate that its phenomena are due to organic disease of the cerebral cortex, either from inherited or acquired causes, producing a weakness of the inhibitory functions of its neurons, and it is also held by some that it is by the accumulation of certain toxins in the system that the seizure is produced. That this is true of certain types of epileptic seizures may be fairly assumed, but that it is true of all types is rather theoretical for the reason that in many cases, such as are due to gross organic cortical disease, no one has demonstrated any such toxin and therefore the question must remain open until further investigation has determined its status.

It seems to be established that many toxic bodies may act as such exciting causes and that these may be introduced into the body from without or may originate within the body from disturbances of metabolism. This latter group is of especial importance in relation to the etiology of the cases now under consideration. As stated by Spratling, derangements of the gastro-intestinal canal are of greater etiologic importance than is generally supposed, and the gastro-intestinal cases are due to toxins which are absorbed into the blood directly or which act on the gastro-intestinal nerves.

There can be no question, I think, but that the convulsions in these four cases were due to gastro-intestinal disturbances; this fact alone, however, does not establish a diagnosis of epilepsy, as such factors are also recognized as exciting causes for hysterical seizures.

The difficulty of distinguishing between epileptic and hysterical convulsions is often complicated by the fact, as stated by Dejerine, that the two conditions may occur in the same seizure, or, as stated by Dejerine and Bailey, the two conditions may replace each other in different seizures. The entire absence of any of the constant stigmata of hysteria during the interval between the seizures is presumptive but not conclusive evidence that the convulsions were not hysterical. It is admitted that such stigmata may be absent in some cases of hysteria or, in the words of Dejerine, "the absence of all stigmata makes the diagnosis impossible."

The marked and long prodromal period which occurred in these cases favors the hysterical theory of the nature, for, as Bailey says, the prodromal period and aura "are not necessary in epilepsy and constant in hysteria;" Ziehen holds that "both may be absent in hysteria."

Biting of the tongue in hysteria is denied by Bailey and Janet, but admitted as a rare condition by Oppenheim and Church, and thus no positive opinion can be based on its occurrence.

Oppenheim and Ziehen assert that the pupils always contract to light in hysteria and not in epilepsy; Bailey states that they usually do contract, and Dejerine speaks of an immobile pupil in hysteria. Thus all that can be said for this sign is that a pupil which always reacts to light indicates hysteria, while one that does not is of doubtful value as a diagnostic symptom.

It seems to be unquestioned that the knee and foot reflexes are lost after an epileptic attack and always present after a hysterical one. This sign, then, is of real diagnostic value, and it is to be noted that they were never absent in my cases.

Nocturnal occurrence is frequent in epilepsy and exceptional in hysteria, as stated by Bailey and Dejerine, with the result that this symptom is unfortunately of little value.

Evacuation of the bladder during the spasm is denied by Bailey but claimed as a rare symptom by Dejerine and Church. This did not occur in my cases even when the bladder was distended, which favors the hysterical character of the seizures.

The face in the hysterical convulsion is described by Church as pale and then congested; as congested but not cyanosed by Janet; Dejerine, Ziehen and Oppenheim admit the occurrence of cyanoses and thus its occurrence is not unquestioned evidence of epilepsy.

The long duration of the tonic and clonic spasms speaks in favor of the hysterical character of the seizure, as also does the marked postural positions in the tonic phase and the coordinate character of the movements in the clonic.

The initial harsh cry of epilepsy was absent in my cases though its occurrence in hysteria is recognized by Church.

In epilepsy the patient is usually exhausted after the seizure, with a marked desire to sleep, while in hysteria recovery is usually immediate; it may, however, be gradual with delirious or somnolent phases. Both of these latter conditions occurred at times after the seizures in my patients, but certain of the seizures were followed by deep coma and subsequent impaired mental states closely resembling epilepsy.

In both hysteria and epilepsy, though the period of invasion may be remembered, there is no recollection of the convulsive phases as a rule, but at times there may be less complete amnesia, as was the fact in my cases. It is evident then that with such a conflict of evidence as to the diagnostic differences between hysteria and epilepsy the nature of such seizures as these cannot be asserted even with reasonable certainty until medical science has settled the differences between the two, but from the evidence before us, its weight would seem to indicate a hysterical nature.

Against such a hysterical classification it can be urged that there is no evidence of the existence of any psychical trauma in any of the cases, and that their course was uninfluenced by any form of suggestion, which should be the case with the so-called pithiatic symptoms of the most recent classification, but to accept this latest classification of the Paris school would be to deny the occurrence of such symptoms as nausea or vomiting from disgusting sights or the diarrhea or disturbed heart action of fright. Toxic bodies, as already appears, can originate epileptic phenomena; they also can originate that emotional mental condition with constricted conscious field which forms the basis of all hysterical manifestations, and thus if we admit that these seizures were of intestinal origin, it is not fatal to the theory of their hysterical nature.

The confusion already shown as to the nature of epilepsy is made worse by classing convulsive seizures of recognized toxic origin as due to such origin, when they occur only a few times, and as epileptic when they are chronic. The fact that a mixed form of convulsion is recognized further complicates the situation and certainly offers a haven of refuge from our want of real knowledge. I am not willing to accept this theory, however, for the obvious reason that some observers would declare certain symptoms in an attack as epileptic, while others would be equally positive of their hysterical character. That these convulsive seizures, whatever may be the name which we apply to them, were due to auto-intoxication seems a well-founded belief, and my theory of their production is as follows: These patients had a previously existing weakness of the cerebral cortex and the function of menstruation produced a condition of exhaustion of the pelvic and abdominal nervous mechanism; the consequent disturbance of the functions of the abdominal viscera led to the production of toxic substances, which by their action on the cortex produced the convulsions.

Treatment based on this theory has in my cases proved most satisfactory. If my cases are to be classed as epileptic, the results have been much more favorable than are usually obtained in the cases grouped under that title. During the menstrual interval no means were employed beyond the ordinary ones of rational hygiene. When menstruation appeared, rest was ordered and brometone in 5-grain doses, four times a day, was ordered. This form of bromin was chosen because it has little or no tendency to disturb the gastro-intestinal function which is a frequent result with the bromids containing an inorganic base. When constipation appeared the bowels were at once opened by small repeated doses of castor oil or calomel in fractional dose, as the more powerful drugs, salines or cascara (rhamnus purshiana) produced violent evacuations, usually associated with a seizure. Suppositories and enemas also acted in the same unfortunate way.

The pale cold skin and rapid feeble pulse during the period of invasion of the seizures indicate the use of stimulants and none proved so satisfactory as inhalation of strong ammonia water which, even at first, arrests the seizures. Weak chloroform vapor also had a decided action in aborting them. By the use of these two agents it soon became possible for the patients themselves to abort the attacks which terminated in loud eructations and passages of gas. The knowledge that these agents would act in this way had great influence in removing the state of fear which was so prominent, and therefore the element of suggestion was unconsciously employed. Under this plan of treatment, these patients have had practically no trouble for over a year, and the relief to the patients and their families, after being told that the patients were suffering from that dreaded disease, epilepsy, has been very great.

29 South Portland Avenue.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BRUSH AND ANGELL

Dr. Charles W. Hitchcock, Detroit: I have frequently observed this brown ring in the urine of my neurasthenic and other patients. The ring has been equally frequent of occurrence in the urine of patients who have rejoiced in the most abundant good health and have come to me for other reasons than illness; in patients who were quite as cheerful as a normal man could be expected to be. Most urine will show a marked dark pigment-ring such as Dr. Angell speaks of, so I have naturally been unable to correlate it with any definite nervous condition.

Dr. George A. Moleen, Denver: I have been observing the changes in the urine coexistent with neurotic states evidenced by nitroso-nitric acid. While these color reactions are very uncertain, the interpretation of them may likewise lead to erroneous conclusions, especially when they are observed from such little understood groups as the alloxan, as well as the bile-pigments. It has been my plan to boil the upper layer of urine in a long, narrow test-tube and to underlay the urine by the passing of cold nitric acid along the side of the tube, thereby passing through the upper heated portion. This partially reduces the nitric acid to nitroso-nitric; the cloud in the upper heated portion is cleared if phosphates are present while if albumin is present the coagulum is increased. The oxidation of nitric acid on pigments, mostly derivatives of the aromatic series, is the cause of the color reaction; this oxidizing power is increased when nitric acid is partially reduced; Gmelin's and Pettenkoffer's color reactions are due to this fact. At the point of contact of the acid and urine, if the urates be in excess, there will be a red, granular line; while a deep scarlet line or a bright green line of almost pencil-mark thickness is caused by the bile-pigments. My interpretation in reference to the appearance of the reaction is in accordance with the experience of Dr. Angell. In addition, I have noted that above the line of contact a dark smoky cloud in urine, showing as indicated by other tests the presence of indican, has been quite common in the depressed neurasthenic cases and when present will usually show indican by the chloroformic method. I have always believed these reactions to be of importance and I mention this process as one simple in application and confirmatory, one point with the other, while at the same time it is indicative, by reason of the increased oxidizing power, of the presence of a good many of the pigments.

Dr. Tom A. Williams, Washington, D. C.: I am in accord with one of the previous speakers who said that the tests which Dr. Angell has devised are by no means invariable, and that they fail to show disease in patients in whom one sees a clinical picture which one believes to be a toxicosis, but a toxicosis in which patients recover on treatment in the manner spoken of by Dr. Angell, namely, marked reduction of the proteins. I wish to ask Dr. Angell if he himself has made control observations on individuals who did not show the extreme symptoms of depression which seem to characterize the stage that gives us reactions according to his observations. I, too, am at a loss to estimate quantitatively the degree of the reaction in some cases in which it does occur, and cannot say that the reaction is more than occurs in quite a number of normal individuals. So I have given it up as a guide to diagnosis and to treatment, and have resorted again to the empiricism of regulating the diet in such cases.

I have seen convulsive seizures of the same type as those described by Dr. Brush come on as a consequence, apparently, of a lack of exercise and excessive consumption of food, more especially proteins. I have noticed the condition in young men who had been taking athletic exercise or who had been at work and who suddenly ceased and lived an idle life for several weeks. Such patients are all cured, as regards the convulsive seizures, by an appropriate regimen in which the diet is regulated and in which exercise is made to play a part too. I have four or five such cases now; it would seem that the cases may not be directly associated with the menstrual epoch: but be coincidental with a metabolic phase which is really determined by another cause, namely, excesses in diet. The diagnosis between such seizures and those of hysterical type is very easy if one can see the seizure. The hysterical seizure is always one in which the lower neuron reactions, the pupillary reaction, and the deep reflexes are present; whereas in chemically determined convulsions the knee-reflexes and pupillary reflexes are generally absent during the convulsion.

Dr. Arthur C. Brush, Brooklyn: As soon as the menstrual period occurs, the patient is put on small doses of bromid. When constipation appears, the bowels are gently moved by small repeated doses of castor oil. Large doses of castor oil and the use of saline enemas invariably precipitated an attack.

By this method it was possible to abort the attacks, and all the patients have now gone two years without having any seizures or any trouble. If this be an epilepsy, as pronounced by two men for whose opinion I have the utmost respect, then it is the most curable form of epilepsy I have ever seen. The object of my paper was to show the great conflict in opinion and authority of men on the question of differential diagnosis; this very point, however, is reacting favorably on the profession and on the neurologists. If we tell such a patient that she has epilepsy, the patient accepts that as a fact. Thereupon very likely both the patient and the patient's family are thrown into the utmost consternation. If this patient falls into the hands of a quack or some other irregular practitioner and recovers it does not react favorably on us. The suggestion as to the psychic reaction is a very valuable one, and should as far as my knowledge of it goes, work out as a careful differential point.

Dr. Williams misunderstood me. I did not mean that these seizures were directly due to the menstrual epoch, but to that peculiar bowel condition and associated glandular condition which we find in women after the menstrual epoch. A well-known gynecologist said that the only difference he ever knew in a woman during and after the epoch was that she was absolutely different. I believe that the cause of the seizures is a toxemia; they are not epileptic.

Dr. Angell, in speaking of the digestive disturbance in these patients with traumatic neuroses, did not, I think, take into consideration the fact that they are very much depressed by the unfavorable opinions given to them by physicians directly interested in the outcome of the case. Even a normal man's digestion is knocked out by prolonged sorrow and grief; and when a patient is told that he has a terrible organic nervous disease and must go to bed, it is no wonder that his intestines are upset.

Dr. Edward B. Angell, Rochester, N. Y.: The pigment ring does occur in normal health. I tried to show in the first ring what I would call the normal pigment line. My attention was first called to the value of this reaction, because it so rarely is found in health. In my earlier practice I made a great many examinations for life-insurance, and I was struck with the fact that in testing for albumin with nitric acid I did not find this marked pigment line in normal cases. It is not the presence merely of the pigment line, to which I called attention, but its pronounced character, the very deep red or brown, that is important. It simply indicates that most of these nervous patients have definite symptoms due to disturbances of metabolism, which can easily be remedied. I once spoke to Dr. Weir Mitchell about these reactions and he recalled the fact that it was his custom to put neurasthenics on a diet of skim-milk. He was quite interested in the fact that these cases cleared up when the excess of protein food was taken away from them. Furthermore if the acidity of the urine is corrected and the pigment line cleared up by the use of some salicylate and limitation of the diet for a sufficient time, the symptoms gradually disappear. This occurs uniformly. Nearly all the 800 or 900 patients whom I called toxemic have recovered. Of course, it is understood that the condition may recur, because, being a disturbance of metabolism, it may occur from time to time in the same individual. I am speaking rather of the possibility of controlling it.

Dr. Williams asked me about my control experiments. I thought that my cases of life-insurance examinations were sufficient. Furthermore, this disturbance in metabolism may be present, but is not made manifest subjectively until the individual meets some accident, business worry or family trouble that upsets him. The persistence of nervous symptoms is in reality dependent on the disturbance of metabolism. When that is corrected the symptoms disappear and gradually normal feeling is reestablished. Dr. Brush's remarks regarding the traumatic neuroses are all right, so far as the depression is concerned; yet the underlying condition in these cases, even though the neurosis is traumatic, is frequently not always due to this disturbance of metabolism. I have constantly found business men who have attributed their depression to some business trouble. But just as soon as this disturbance in metabolism, as indicated by the pigment ring in the urine, was cleared up the business worry passed away. The symptomatology depends very much on the temperament of the individual. Some patients are depressed, because they have a tendency to self-introspection. Others present more of the physical signs, such as I have mentioned, rather than the psychic symptoms.

Dr. Tom A. Williams, Washington, D. C.: Skim-milk is an unbalanced diet as regards proteins. It contains 40 per cent. of protein as against 60 of carbohydrates. How do you account for the improvement of cases under that diet?

Dr. E. B. Angell, Rochester, N. Y.: It is the limited amount of skim-milk given. If a person is not taking more than six or eight glasses of skim-milk a day, there is not very much protein taken into the system.

THREE CASES OF BUBONIC PLAGUE IN HAVANA

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The recent outbreak of plague in Havana is fruitful with epidemiologic and clinical lessons. The success so promptly attained in stamping out the disease was mainly due to the immediate public declaration of the conditions existing; not only of the actual demonstration of the infection, but even of the suspicions that preceded such demonstration. Work was commenced at once with all the vigor, the precision and the public support that can only be obtained after a frank statement of the situation.

I have contended for the following fundamental rule in sanitary practice: Work must be done in the broad daylight; the people should know what we are doing, and what to expect. If we never deceive them, they will believe what we say; we obtain their cooperation, we minimize panic, and we can begin active operations at once. All this is the most elemental common sense; but, strange to say, the general acceptance of this golden rule has been slow and difficult. Only last year the presence of cholera was concealed in several communities. Such deception was dangerous to the infected region, and, to the uninfected neighbors, it was cruel and inhuman.

Books on epidemiology and bacteriology are wont to accumulate a number of tests and proofs which health officers must verify before the diagnosis of an epidemic disease is accepted. I wish to protest against carrying these precautions too far and against the throwing out of clinical observation and circumstantial evidence. With respect to plague, for instance, the experimental proof of the inoculation of guinea-pigs is insisted on. This often produces considerable delay, for which there are many who are not displeased to find an excuse. The experimental test presents some dangers; one may not have at hand the utensils necessary to minimize this danger, and time is lost in the search for them. On the other hand one may have such cumulative evidence as will satisfy completely without the necessity of more specific proofs, which might be required under other circumstances.

It is not necessary to have an expert's familiarity with the disease for its clinical recognition. A large experience has taught me that in the diagnosis of initial cases of epidemic diseases, it is often the man who is not acquainted with the disease who is the first to recognize and to give notice of the unexpected apparition. A careful observation of the infectious diseases normal in the community will prepare the physician for the prompt recognition of what is abnormal.

I do not wish to belittle the importance of the laboratory as a necessary aid to diagnosis in many of these diseases, but the successful sanitarian should be able to decide, in each individual case, how long he may wait for the complete bacteriologic confirmation.

Let us take, for instance, the recent outbreak in Havana, and consider the events from this point of view.

On June 20, we, in Havana, heard of the outbreak of plague in Porto Rico, an island with which we have close commercial relations. On the same day we heard of an unusual mortality of rats in a district of the city, limited to three blocks of houses consisting principally of wholesale stores of foodstuffs close to the wharves. Careful investigation into this rat-mortality showed that the district was very generally rat-proof; that the rat population was comparatively small, and that the mortality reported had commenced earlier in the month, and that, at the time of the report, the mortality had practically subsided. Orders were given, however, for the capture and destruction of rats, and none was found to be plague-infected.

On July 2 we heard that a man, who lived in one of these stores and on June 27 had left it, had died on the 30th. On inquiry we found that the physicians in charge at the private hospital where the patient was treated, on being informed of the suspicions aroused by the rat-mortality, revised the history of the case and diagnosed an acute and rapidly fatal septicemia with an enlargement of the right subinguinal glands; they expressed their belief that the case may have been one of plague.

The secretary of public health, Dr. Varona Suárez, and myself, who were making this inquiry, decided on the immediate examination of the cadaver, and the body was exhumed on the same day by Dr. Agramonte and myself. The exhumation was done forty-eight hours after death; the coffin had burst and the body was enormously bloated with a general dark discoloration. There was a bandage over the right groin. The general swelling impeded the detection of a bubo, and the place and manner of the exhumation precluded an autopsy. Punctures were made in the suspected region and some fluid obtained by aspiration. The direct and cultural examination of the fluid failed to demonstrate the presence of plague bacillus. The cadaveric flora was exuberant. Under these circumstances the cutaneous inoculation of a guinea-pig would have been indeed desirable, but we were not prepared for it.

Rat-proofing and rat destruction were continued in the circumscribed district. A thorough fumigation of the house, No. 8 Oficios Street, and also of No. 1 and No. 6 was ordered, together with frequent washing of the floors with a disinfectant solution. The same treatment, without the fumigation, was applied to the other stores in which dead rats had been reported.

Under these circumstances, a case (Case 1) suspicious of plague was reported on July 4 in our general hospital. The patient was in the fifth or sixth day of the disease; he came from a house, Mercaderes 2, three squares away from the suspected blocks. Puncture of a large purplish swelling of the left subinguinal region at a point where there appeared to be some softening brought forth a small amount of a sanguinopurulent fluid, which, on examination, revealed the presence of a small, Gram-negative, bipolar organism and irregular degenerative forms, which were in every respect morphologically characteristic of plague.

Inoculation on agar and broth gave exclusively pure cultures of a bacillus corresponding in cultural characteristics with *Bacillus pestis*. They were recognizable on the following day, July 5, and the features were distinct on the 6th. A complement reaction was made which excluded the glanders bacillus. On these findings the case was pronounced plague, and notice of the fact was given to the neighboring governments.

In my opinion, to wait any longer would have been a mistake.

Cases 2 and 3 came from the originally infected zone, No. 2 Baratillo Street (Fig. 1). The patients were taken sick on the 8th and 14th respectively. No other case occurred.

The diagnosis was made in these two cases as soon as a local lesion could be found to furnish material for a bacteriologic examination. Pure cultures of *B. pestis* were obtained from a slightly enlarged subinguinal gland in Case 2, and a mixed culture in Case 3. I believe that no further procedure was necessary for our guidance in the work of extinction of the focus.

After the subsidence of the immediate danger of spread of the epidemic, we carried out the cutaneous inoculation of guinea-pigs with cultures from the three cases and obtained the characteristic lesions, the buboes and the speckled spleen, and found the bacillus in the organs.

I believe we should look on the infection in Case 1, which occurred outside of the district, as accidental. A focus was never created at No. 2 Mercaderes Street. Dead rats were never found. The man was in charge of a small stable; his habits were uncleanly, and he lived in the stable close to the forage he used for his animals. He was very sure that he had not recently visited the infected area. It is reasonable to believe that a plague rat had been carried in the forage and had become the source of the infection. At any rate, no other evidence of contamination appeared in that house, a large building with many offices, and rooms occupied by families, either before or after the invasion of the first case.

Figure 1 gives an outline of the infected area and adjoining blocks. The shaded portion indicates the area of rat-mortality. The numbers correspond to the street numeration and are indicated only for the houses in which events of interest are recorded.

REPORT OF CASES

CASE 1.—*History.*—The patient, V. M. G., Spaniard, aged 47, stablekeeper, lived in a small stable at Mercaderes 2. He was thin and bony and was taken sick June 29 or 30 with fever, vertigo, vomiting and heaviness and pain in the legs. He lay in the stable until July 2, when he was sent to the general hospital. He had high fever of remittent type. There was no evidence of venereal disease or of ulcer or excoriation in the limb. On July 4 suspicions were aroused in the resident physician, Dr. Mignagaray, by the discovery of a painful bubo in the left subinguinal region. The swelling had appeared, to the patient's knowledge, on the day of admission. The pulse was weak and frequent. The face was pale, but the eyes were somewhat injected. The tongue was white. There was an extensive area of infiltration in the femoral region, which extended somewhat into the inguinal; the surface was distinctly raised and purplish; to the touch the mass was doughy, though not soft, something like the hard edema of myxedema. The glands were scarcely distinguishable one from the other and the whole indurated area faded into the surrounding tissue with borders that were not very distinct.

The results of the bacteriologic examination have already been given.

The patient was transferred to Las Animas Hospital, our isolation hospital, and placed under my care on July 4. His condition was grave. There was considerable excitement and active delirium; he was pugnacious, struggling to get up and away. The pulse was very weak. These symptoms were benefited by the use of small doses of laudanum. No other medication was given and the patient was kept on a milk diet.

The femoral bubo was opened on July 13, the sixteenth day of the disease, when a slight secondary fever began to show itself. No plague bacilli were found at this time in the pus, by the direct examination or by cultural methods. Subsequently the inguinal bubo had to be opened. The healing was not completed until August 20 and was accompanied with frequent daily elevations of temperature, not exceeding 0.5 C. The patient was discharged on August 24; there was still some induration left, and he was given some light work about the hospital.

Treatment.—The patient was treated in an ample room with large windows screened against mosquitoes and flies. The windows were kept constantly open. Blankets, wet with mercuric chlorid solution, were spread on the floor about the bed. The cement floor was also kept moist with a disinfecting solution. A large tub, half filled with mercuric chlorid solution, close to the bed, received all clothing from the bed and from the patient. Dressings from the wound were thrown in a hand basin half filled with the same solution. The excreta were mixed with a disinfectant. The actual dressing of the wound was done with rubber gloves.

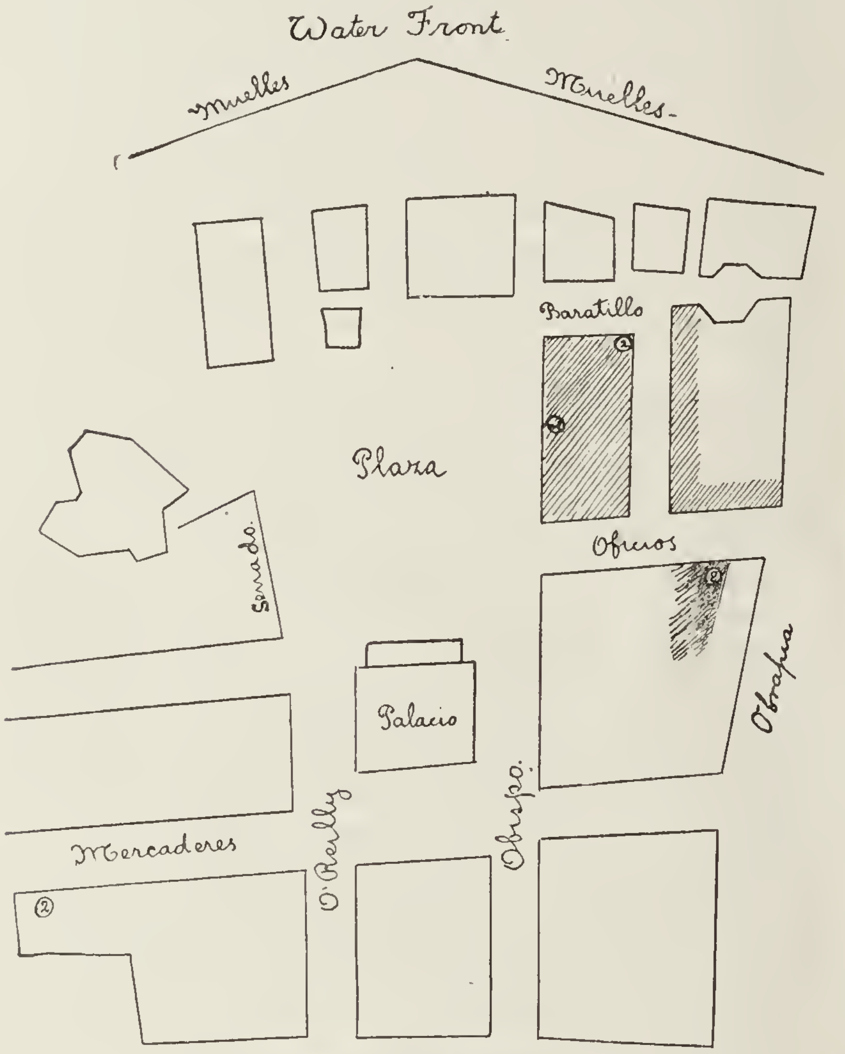

Fig. 1.—Outline of infected area and adjoining blocks. The shaded portion indicates the area of rat-mortality. The numbers correspond to the street numeration and are indicated only for the houses in which events of interest are recorded. No. 8, Oficios Street, probably the first case (cadaver exhumed); No. 2, Mercaderes Street, first case confirmed; No. 2, Baratillo Street, second and third cases; No. 7, Obispo Street, barber-shop in which the rat-mortality was most striking.

The nurses and attendants wet their hands in bichlorid solution when entering the adjoining room; they put on white gowns and then wet their hands again before and after attending the patient. On leaving the room the gowns were thrown into the tub. After washing their hands, which had been kept constantly wet, such attendants could mix with the others, and they were even permitted to visit their friends after changing their clothing. Caps which opened behind and fell over the head to the shoulders, with a celluloid window in front, had been prepared.

Case 2.—C. H., Spaniard, aged 28, of robust constitution, lived and was employed in handling merchandise at No. 2 Baratillo street. He was taken sick July 8 in the morning with chilly sensations, headache and vomiting. He was admitted to a private hospital on the 9th and was placed at once in the isolation ward. He was seen by the health commission on the 10th. We found the face congested, the expression dazed and the lips slightly livid. He answered questions well, did not complain of any pain and did not appear to be very ill. The tongue was pointed and red at the borders and center; the coating over the rest of the surface was very white. There was slight enlargement and tenderness of one of the subinguinal glands on the right side. The pulse was soft and dicrotic. On the morning of the 11th, although there was a fall in temperature there was no marked change in the general condition except that the patient was nervous and ataxic. The gland was enlarged to the size of a small walnut; it was hard, movable and distinct from the others; there was slight redness of the skin. By puncture of the gland with a hypodermic syringe we obtained on the 11th a drop or two of liquid containing a few leukocytes, and a very large number of bipolar bacilli, corresponding morphologically with the plague bacillus. There was no venereal affection of any kind, or any lesion of the skin. The diagnosis of plague was made. The patient died at 6:30 p. m. rather suddenly, with high fever, dyspnea and cyanotic discoloration. The mind was clear to the last. When seen in the morning we had found nothing that could suggest this early collapse. The blood had not been examined with a view to find the plague organism. Cultures made from the small amount of fluid obtained from the gland were found forty-eight hours later to be pure cultures of *Bacillus pestis*. A guinea-pig, inoculated by the cutaneous method with these cultures some weeks later, died on the seventh day, showing the characteristic lesions of plague. The bacillus was recovered from the body of the pig.

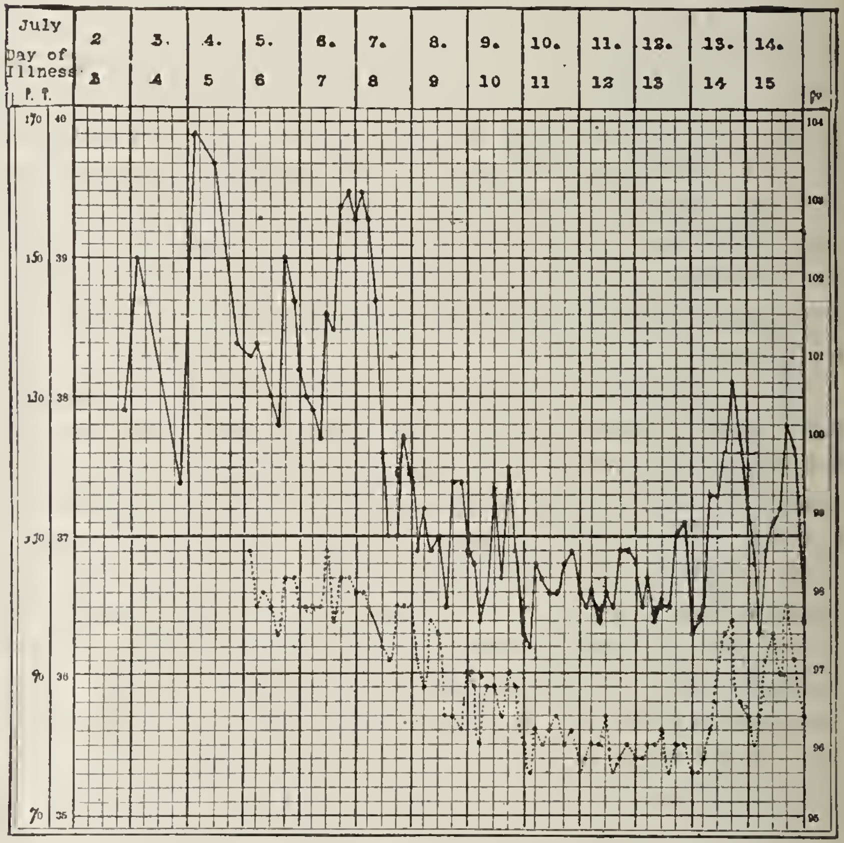

Fig. 2.—Temperature and pulse chart of Case 1.

Case 3.—J. E., Spaniard, aged 21, of robust constitution, lived and was employed in handling merchandise at No. 2 Baratillo street. He was taken sick on July 14 with vomiting, fever and vertigo. He was admitted to the private hospital July 15. The general appearance, the tongue, the injected eyes were very similar to the conditions found in Case 2. The patient complained of severe headache and some pain in the limbs. The mind was clear. He did not seem to be seriously ill. The groups of glands were slightly enlarged in both groins, a little more on the right side perhaps, but not more than is generally found in men who work hard on their feet. He was seen by the health commission on the 15th, 16th, 17th and 18th. The glands became rather smaller; the other symptoms continued about the same. The blood did not agglutinate the typhoid bacillus. If we except the appearance of the tongue, which was pointed and covered by a fine, but very white coating, the case resembled one of mild typhoid fever. There was no distention of the abdomen and no diarrhea. During the first six days there was some evidence of bronchitis. The spleen was enlarged. On the 18th the commission made a negative diagnosis of plague; the patient was kept under observation in the isolation ward. On the 19th there was some delirium, and on the 20th I had a second examination of the blood made for plague and for the typhoid agglutination. Both were negative. On the 21st there was adynamia and delirium. The subinguinal gland, which had been slightly enlarged at first, became somewhat larger, about the size of a large filbert, though still hard. On the following morning the gland was punctured with a hypodermic syringe. Later in the day a small dark-colored boil was detected below the left popliteal space. The direct examination of the fluid obtained from these lesions revealed the presence of a characteristic bipolar bacillus, much more numerous in the small carbuncle. A red spot near the right elbow indicated the formation of another small carbuncle. Mixed cultures were obtained from both lesions with some characteristic colonies of *Bacillus pestis*. Some weeks later this diagnosis was further confirmed by the cutaneous inoculation of a guinea-pig. On the 22d, the 23d and 26th, the attending physician administered antiplague serum of Yersin. The swollen gland grew somewhat larger, but there never was any evident extension of the inflammatory process to the periglandular tissues. A polymorphous eruption, with formation of some pustules, appeared on the 23d. The patient died in an adynamic state on the 27th.

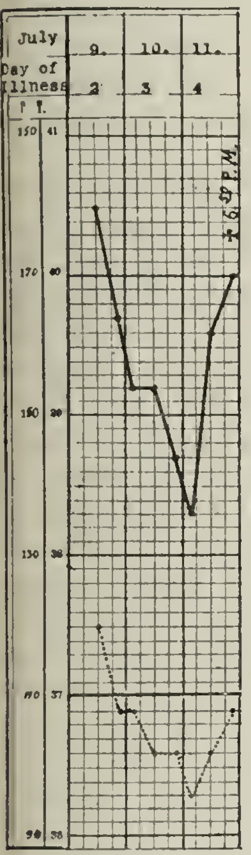

Fig. 3.—Temperature and pulse chart of Case 2. Patient died at 6:30 p. m. on the fourth day of the disease.

While Cases 1 and 2 may be considered as exemplifying different types of the disease, Case 3 is very instructive as an anomalous type. It shows that a fatal case of plague may develop slowly during several days without any alarming symptoms and without any sufficiently evident local manifestations.

The health commission several times mentioned in the course of this paper is a permanent board, originally appointed for the diagnosis of cases of yellow fever, which, at present, is called for the determination of cases of infectious diseases of doubtful nature. During the present epidemic the commission examined all cases which were reported as suspicious of plague. Our experience has been of great interest. We were accustomed to see chiefly cases of gastrohepatic disturbances and infectious jaundice, as well as imported cases of malaria. The picture displayed before us at the present time was quite different. We had cases of lymphangitis and erysipelatous inflammations with involvement of the lymphatic glands; cases of filaria with fever; pustular and purpuric eruptions; grave cases of staphylococcic infection; gonococcic infection; one case of rapidly fatal malignant edema, following vaccination; and several cases of typhoid and paratyphoid with enlarged inguinal and subinguinal lymphatic glands. These are frequent in the laboring classes, especially among men who work in ditches and excavations for our new sewer system.

The value of the experience acquired by a permanent and carefully selected board of this kind cannot be too highly appreciated in public health work against epidemic diseases.

At present, September 4, it may be assumed that the plague infection has been completely extinguished in Havana. This rather unexpected and unusual success may be attributed to other causes besides the one mentioned in the beginning of this paper, namely, the prompt and frank declaration of the situation with the consequent facilities for the most energetic action from the start.

Second to, if not even more important than, this factor of success, is the new sewer system. All the establishments, stores, etc., in the suspected area, were connected with the modern, closed, sewer system. This change, with the new block pavement of the streets, and the establishment of modern sanitary plumbing, had reduced very decidedly the rat population of the district; in fact, rats were scarce where a year ago they were a serious pest. A portion of the old sewer is still used as a rain-water drain, but it extends from the water-front along Obrapia Street only as far as Oficios Street, where it is closed. The rats, therefore, could not be driven by our sanitary measures into other portions of the city. Probably they were mostly driven toward a vacant lot full of rubbish and ruined walls opposite No. 2 Baratillo Street. This lot was carefully screened and inundated during several days.

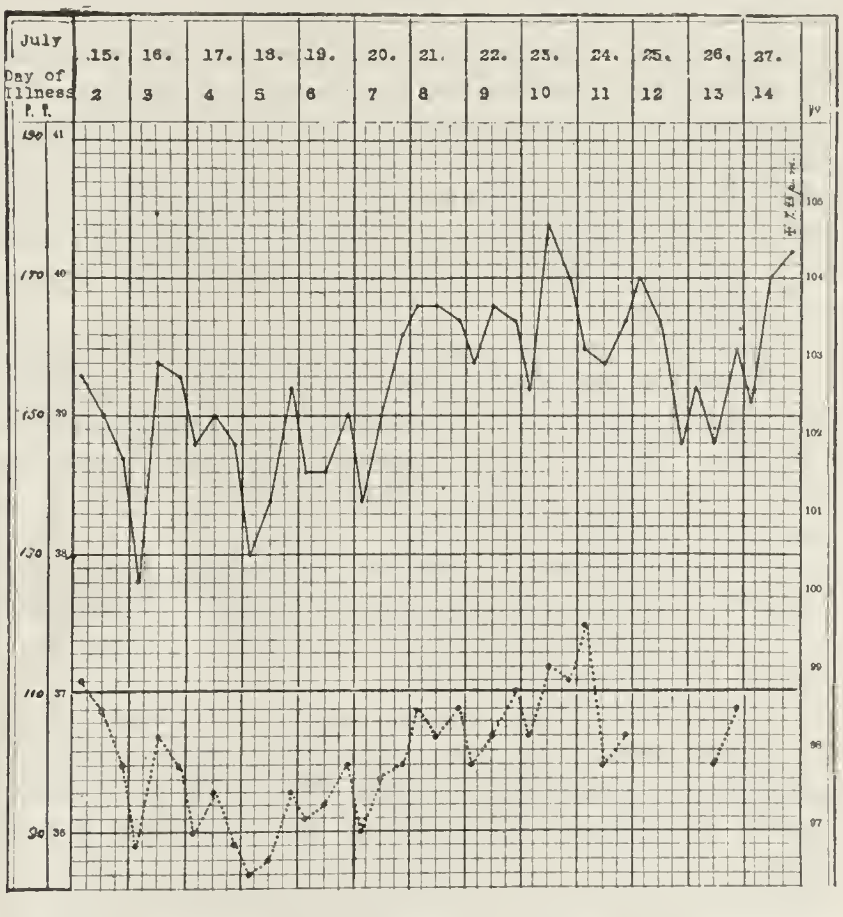

Fig. 4.—Temperature and pulse chart of Case 3. Patient died at 7:45 p. m. on the fourteenth day of the disease.

On June 25 the examination of rats was commenced. On July 2 we had started active operations against rats in the district, by poisoning, trapping, closing rat-runs, washing floors and fumigating with sulphur. It is probable that we destroyed the infected rats which were left from the limited epizootic.

The infected fleas which produced the two cases in Baratillo 2 were soon destroyed by thorough and repeated sulphur fumigations of the premises.

Many of the stores in question were first-class establishments, with cement floors. The personnel occupied excellent quarters in the second stories. They were cleanly in their habits, and took a daily shower-bath after working hours. They were all subscribers to the same private hospital and we were immediately informed by our inspectors of every case of sickness.

Our system of inspection and reporting of all suspicious cases throughout the city was very thorough. We had the best support from the profession and we were well prepared by our past campaigns against yellow fever.

The same kind of preparation was reflected in the response of the people to our exigencies. I doubt if there ever was such activity displayed by property-owners as was shown here in Havana to render an extensive business section rat-proof. More slowly but surely we have been improving our system of household disposal of garbage by enforcing the ordinances as to the use of metallic, covered containers.

Flaws may be found here and there in the work, but its general effectiveness was exemplary. A general order was given to clear all premises of rubbish, refuse and used-up material. For many days the amount of such stuff, including street sweepings and garbage, carried out to sea in lighters, was increased from the normal daily output of 450 to 2,000 tons a day, with an average of 1,500 tons.

The orders to wash out the floors daily with phenol solutions for the destruction of fleas were cheerfully obeyed, not only in the infected district, but throughout the city. In the more exposed localities they were carried out by the disinfection brigades, whose work cannot be too highly praised.

A deratization service and rat brigades for the poisoning and trapping of rodents were created. A premium of five cents was paid for each rat. Up to September 3 we had destroyed 17,974 rats.

Of the 8,909 rats which have been examined in our laboratory, none has been found plague-infected. Kitasato has called attention to the fact that it is not rare to have summer epidemics of plague without finding plague rats. This was also in our favor. The flea population of rats is at its lowest in the tropics during the month of June. I have been cultivating the *Loemopsylla cheopis*, the common rat-flea in Havana, in my laboratory at Las Animas Hospital for several years, and I have shown the decrease of their population during the summer months.

A detailed report of the bacteriologic work in connection with these cases will be published by Dr. M. G. Lebredo, who was in charge of that part of the work. The reports of other heads of departments will be published also in *Sanidad y Beneficencia,* the official organ of the Department.

Award of Nobel Prize to a Vivisector.—What have the antivivisectionists, those sentimental and insatiable liars, to say of the award of the Nobel prize to Dr. Alexis Carrel, of the Rockefeller Institute? A year or so ago they were attacking Dr. Carrel with their heavy artillery, accusing him of all sorts of incredible cruelties and bringing up charwomen and elevator men as expert witnesses against him. But now he gets $39.000 for his successful experiments in suturing blood-vessels and transplanting organs—*all of which experiments were performed on animals.* Can it be that the trustees of the Nobel fund are also scoundrels? Or can it be that they refuse to believe the balderdash of silly old women, male and female?—Baltimore *Evening Sun.*

THE TREATMENT OF PAPILLARY TUMORS OF THE URINARY BLADDER WITH THE HIGH-FREQUENCY CURRENT (OUDIN)[*]

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My object in writing this paper is to call attention once more to this new method of intravesical treatment and to bring together many of the facts that surgeons working along these lines have acquired. To prepare an up-to-date report I have resorted to the old expedient of sending letters to all the surgeons who might be using this method of treatment. A large number have answered my questions and I take great pleasure in thanking them publicly.

I. EXTENSIVE USE OF THE NEW METHOD

All the answers that I received I have tabulated. Almost all the answers were enthusiastically favorable to the new method. One or two answers were favorable, but not particularly enthusiastic, as can readily be seen by consulting the tabulation. One answer was far from favorable, but in view of the fact that the surgeon in question had never used the method, I think we can pass over his remarks.

About 183 cases have been treated. These were cases of intravesical papilloma. In addition, more than twenty cases of urethral papilloma (not included in the tabulation) were treated by the surgeons. Thus their opinions are based on more than 200 cases in which they have tried this new therapy. This naturally represents more than 200 tumors, as in many cases there were multiple growths.[1] I shall not analyze the table in detail. I should like to call attention, however, to the answers to Questions 5 and 6. The unanimity of opinion that this new method is simpler and superior to previous methods is most striking and surely speaks well for the high-frequency current treatment of vesical papillomas. While over 200 cases have been treated in the United States, surgeons have begun to use the method in France, Germany and Austria. Up to date I have heard of twenty-eight cases treated in Europe (Heitz-Boyer of Marion's clinic, R. Kutner, R. Bachrach of Zuckerkandl's clinic). All are enthusiastic about their results. Heitz-Boyer uses a slight modification of the original technic, which I believe is less effective. The others use the same technic as we use in America.

II. TECHNIC

In previous papers[2] I have described the simple process under discussion and shall not repeat the details. Certain points in the technic I would, however, like to touch on.

The electrode which is purchasable at present is not so satisfactory as the original electrode, and I have been trying to persuade the Wappler firm to have the original wire manufactured again. This was firmer and of smaller caliber than the present output. It was very durable. Some of it I am still using, fully three years having elapsed since it was made. I have the impression that copper wire is a more efficient electrode than steel. The extensive necrosis produced by using copper electrodes I have failed to see when using the steel electrode. Whether or not this is accidental, I cannot definitely state.

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[*] Read in the Symposium on Treatment of Tumors of the Bladder in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[*] Because of lack of space this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter including the table referred to in the text will be sent by the author on receipt of a stamped addressed envelope.

[*] From the Mount Sinai Hospital, Genito-Urinary Surgical Service.

[1] In my twenty-five cases I had to treat more than forty papillomas.

[2] Beer, E.: Removal of Neoplasms of the Urinary Bladder, THE JOURNAL A. M. A., May 28, 1910, p. 1768; Die Behandlung von gutartigen Geschwülsten, etc., Centralbl. f. Chir., 1910; Treatment of Tumors of the Urinary Bladder, etc., Ann. Surgery, 1911, N. Y. State Jour. of Med., October, 1911.

I am inclined to think that development along these lines of therapy will be in two directions. Experiment may demonstrate that other metal electrodes will be more effective than the original copper one. Experimentation with different mediums may evolve a medium which is better than distilled water. To what extent the use of the bipolar current will displace the unipolar, we must reserve final judgment. In view of the fact that the D'Arsonval current has much less cauterizing and electrolytic action than that shown by the Oudin current in experimental work on organic tissues, I doubt whether it will displace the Oudin current to any degree.

III. NATURE OF THE GAS PRODUCED DURING THE TREATMENT

According to Oudin (Heitz-Boyer, Fifteenth Session of the French Urologic Association, 1912) this current produces no electrolytic phenomena. This categorical statement does not harmonize with the facts that we observe. Gas is regularly produced when contact with tissues is effected. No gas is produced when the current runs off into water. The production of this gas is evidence of electrolytically induced chemical change. As I have stated before, this gas appears to be hydrogen when produced outside of the body. I have never been able to collect it from patients during treatment. By accident, however, I happened to obtain a reaction within the patient's bladder which leads me to think that the same gas is produced in the cases under discussion. In a patient with papilloma of the anterior wall of the bladder I noticed a sharp explosion while the current was running. The explosion, which did no harm, was similar in every way to the detonation that takes place when the gas collected over a treated piece of meat in a test-tube is ignited with a match. The oxygen in the air-bubble which was close to the papilloma probably combined, under the influence of the heat engendered by the current, with the hydrogen produced by the treatment.

The observation that the copper electrode seems more effective than the steel suggests that, in addition to cauterization by heat, and in addition to the electrolytic action, there is a possible third factor underlying the phenomena that we are studying.

IV. PAPILLOMAS IN CYSTITIS

A fourth point to which I wish to call attention is the existence of a type of papillomatous growth that is very difficult to treat successfully, even though the growth is readily accessible. I refer to those cases associated with very severe cystitis. In those the papillomas are often in part necrotic and Nature seems to be unable to throw off the more or less completely necrotic villi. Why this should be I do not know. These may be cases of pseudopapilloma or proliferative papillomatous cystitis, and until the cystitis or its cause is done away with, a cure by the high-frequency current is not obtainable. These cases I have found the most obstinate.

V. SELECTION OF CASES FOR HIGH-FREQUENCY TREATMENT

A fifth and last point that I wish to emphasize is most important, namely, the selection of cases of bladder growth that should be treated by the high-frequency current method. I am convinced, after careful trying out, that no malignant growth[3] will be cured by this method. Consequently we must determine as soon as possible whether we are face to face with a benign or a malign growth. At times this is fairly easy, but usually it is very difficult. Of eighteen cases that I have been able to study microscopically, only six showed carcinoma and judging from the microscopic and clinical behavior of the other twelve, I feel certain that the reliability of the microscopic test cannot be impugned.

To obtain specimens for microscopic study I have used different methods. Often at the first examination and treatment a fair-sized piece of tumor can be burned off and removed attached to the electrode or recovered from the washings. Straining of the urine after treatment has in three cases given me pieces of adequate size to make a positive diagnosis of malignancy. In some cases one can evacuate through the cystoscopic sheath, at the first examination, large amounts of tumor tissue which suffice for microscopic study. When all these methods fail, I regularly use Young's rongeur at the second sitting and bite out a large piece which is always satisfactory for microscopic study. Recently I have determined the presence of carcinoma four times by specimens so obtained. If all these methods of obtaining tissue fail, a careful and experienced worker will be able to decide from the lack of clinical result that he is dealing with a growth that does not respond; in other words, he is dealing with a malignant growth. This delay, I am convinced, should be avoided, as early operative excision alone can cure such cases. Early diagnosis of the nature of the growth is therefore absolutely necessary.

Having put aside all the malignant cases, I believe we should try out the high-frequency current in all cases unless the tumor is inaccessible or the patient too intolerant. The size of a growth or the multiplicity of primary growths (non-recurrent) I consider no contraindication. There are, however, recurrent multiple growths in which the whole bladder wall is studded and in these no therapy short of complete cystectomy will lead to a cure. In this type of case the patient will have to decide, as the surgeon offers him but little.

In closing I would like to emphasize these points:

1. The results of operation up to date, in many hands, have been most satisfactory.
2. All cases should be studied microscopically and all malignant cases excluded from the therapy in question.

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[3] The only exception I might make would be very small growths that are superficial.

Extermination of Flies in Bohemia.—The United States consul at Prague, Bohemia, reports that the common fly has been practically exterminated from Bohemia. "Screen doors to keep out flies and other insects are unknown. The buildings are all constructed of brick, stone or concrete. The docks along the river front are of granite. The pavements and sidewalks are made of granite blocks. There are no wooden sidewalks, stairways or buildings. Decayed matter is not exposed, and the streets are frequently cleaned each day. There are no open drains in the city to attract and breed flies. I can only ascribe the absence of flies to the lack of breeding-places."

CANCER OF THE BLADDER *

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A year ago I published an account of an early case of carcinoma of the bladder which Dr. Chute and I removed by the transperitoneal route. The so far successful outcome of this case has encouraged me to present a brief summary of this condition in order to bring up several points for discussion in regard to cancer of the bladder; also to endeavor to sum up the results so far obtained by the transperitoneal operation.

In this presentation the term "cancer of the bladder" is intended to apply to that type of new growth which is early infiltrating and which requires the resection of a greater or less portion of the bladder wall for its removal; it does not apply to that form of prostatic growth which may simulate so closely cancer of the bladder.

Cancer of the bladder occurs as a primary sessile growth which originates in the mucous membrane and is infiltrating from the start, or as the degeneration of the base of a more or less pedunculated papilloma. It is with the first condition only that I shall deal. The secondary involvement of the bladder from the extensions of a carcinoma from a neighboring organ should not be considered in this connection.

PATHOLOGY

The bladder mucous membrane being normally free from glands, the commonest form of carcinoma is one made up of solid atypical masses of epithelial cells infiltrating the bladder wall. Occasionally, however, the carcinoma takes the form of an adenoma; it being evident that an adenoma cannot develop from a mucous membrane in which there are no glands, this unusual form of tumor must arise from strayed urethral or prostatic glands or from an embryologic occlusion of a portion of rectal mucous membrane. The rare type of mucous cancer of the bladder which has been described a few times is supposed to arise in this way. Microscopically this form of cancer corresponds exactly to the mucous cancer occurring in the rectum. The cells, instead of appearing as solid masses, take the form of alveoli. The epithelial cells lining these alveoli are typical mucous cells. These alveoli which become distended with mucus occasionally rupture and pour their contents into the adjacent tissue. Clinically this form of cancer does not differ from the ordinary carcinoma, but it is of interest in that it has been so rarely described, the only one reported so far in this country to my knowledge being a case in which Dr. Chute and I operated, which was reported before the New England Urological Society by Dr. A. H. Crosbie of Boston. Most of the other cases have been reported by German observers.

Cancer of the bladder occurs most often in men over 50, is generally situated at the base of the bladder, often in close relation with the ureter openings, and is the most common form of bladder growth.

METHOD OF EXTENSION

The method of extension in carcinoma generally occurs as an infiltration of the various coats of the bladder, which later penetrates into the adjacent structures. This extension sometimes occurs to an amazing extent in advanced cases. Extension also takes place through the lymphatic channels, but is notably slow, the iliac and lumbar glands becoming involved. The process seldom goes beyond these. Remote metastases are rarely seen. That extension by contact takes place is shown by the recurrences of the neoplasm at the site of previous operation wounds and by the development at points of contact of the mucous membrane and the growth when the bladder is empty. These methods of extension are of importance in relation to the operative treatment.

SYMPTOMS AND DIAGNOSIS

There is nothing in the symptomatology to distinguish this type from any other neoplasm in the bladder. Hematuria is said in general to be less copious in these infiltrating growths; this is purely relative, however, and no dependence can be placed on it in any individual case. Pain, although a common symptom of this type of growth, is by no means constant, as extensive involvement without infection of the movable portion of the bladder may occur with practically no pain. The most striking thing here, as in other forms of bladder growths, is the great irregularity in the symptoms. Cases at times present a perfectly typical train of symptoms of terminal painless hematuria, uninfluenced by rest, etc., while others present symptoms which vary to a marked degree, there often being long intervals between the attacks of hematuria, which may be slight and of short duration. Thus, the time between the appearance of symptoms and the first observation by the surgeon is variously reported as between the extremes of six weeks (as in my own case) and thirty-two years. Another interesting point in this connection is the comparatively long time that may elapse between the appearance of the first symptoms and the extension of the growth outside the bladder.

Accurate diagnosis as to the size, number and position of these growths can be made only by cystoscopy. In general, the early cystoscopic appearance of a bladder carcinoma is that of a slightly elevated tumor of a more or less papillary appearance with elevated indurated edges and a central ulceration of a greater or less extent. The more advanced picture of the more prominent fungating growth with secondary changes of necrosis and ulceration incrusted with urinary salts is characteristic. The question of maligancy, however, cannot be definitely decided by this means; in general, a flat sessile appearing growth is more than suspicious of malignancy as is also any induration by rectal or vaginal palpation. Persistent pain is more common in the advanced stages and suggests that the process has advanced beyond the bladder.

In order to bring out certain points that I wish to make it may be well to state briefly the history of the case mentioned at the beginning of this paper. The patient was a man of 46 with no venereal or other illness of importance. Six weeks previous to operation he began to pass urine more frequently during the day and had to get up once or twice at night. After one week of this increased frequency he noticed a few drops of blood at the end of micturition. This occurred each time, was painless and uninfluenced by rest or motion. Cystoscopic examination showed a slightly elevated area, with a granular or papillary appearance, covered more or less with what seemed to be a yellowish white slough. This was excised with a good margin of healthy tissue by the transperitoneal route, the entire thickness of the bladder wall being included in the resection. The

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* Read in the Symposium on Treatment of Tumors of the Bladder in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

pathologic examination showed ulceration of the mucous membrane in the central portion of the specimen; only in a few places had the basement membrane disappeared and the epithelial cells begun to infiltrate the submucous layer, and in no place had the process gone beyond this layer. Cystoscopic examination made a few days ago, thirteen months after operation, showed a perfectly normal bladder with a small smooth white scar at the sight of removal of the growth. There were no symptoms. The urine was clear. From the pathologic report in this case it may be inferred that there was a time when this growth was not malignant. Of course, it is impossible to estimate how long it had been present before the symptoms were brought on by secondary ulcerative changes. Still, the time elapsed is unusually short.

In a series of eighty-nine partial resections of the bladder for cancer,[1] there were but eight in which the time from the beginning of the disease was as short as from one to six months. Other cases of short duration of symptoms previous to operation are reported from the Mayo clinic; one case of five, one of six and one of seven weeks. The amount of infiltration present in my case was also remarkably slight. Whether we shall ever be able to recognize these growths in a precancerous stage, or rather recognize bladder conditions which may give rise to them, remains to be seen; certainly it is a strong incentive for early investigation of urinary symptoms.

TREATMENT

At present, the only treatment is surgical; in the early cases, complete removal, in the more advanced, some form of palliative operation. The intravesical operations are unsuited to this type of growth with the exception that relief from hemorrhage and other symptoms has been reported in some of the advanced, fungating cases by use of the high-frequency current.

The results of surgical treatment of the bladder by means of the suprapubic route have been notably unsatisfactory and disappointing in the past. Rafin reports ninety-six cases of partial resection for cancer by this method with a mortality of 21.8 per cent. In fifty, in which the end-results were known, there were but five reported cures of over three years' duration, only 10 per cent., and a high mortality. In regard to this seemingly high operative mortality, I think we may safely infer that this series probably included cases which on account of their advanced, local or poor general condition were poor operative risks. Of course, the increased difficulties of operating through a small space may have contributed no little to the mortality.

Transperitoneal cystotomy is now on a well-recognized basis, having been performed a number of times for various types of bladder tumor with excellent immediate operative results, occasionally in the presence of an acute bladder infection. This latter condition, while not a definite contra-indication, is, of course, undesirable and must increase the gravity of the operation. A moderate bladder infection is undoubtedly present in the great majority of the cancer cases.

As yet there have been but few cases of transperitoneal cystotomy for cancer reported. I am indebted to Dr. J. G. Thomas for the following figures from the Mayo clinic. They have operated on twenty-nine patients by this route since 1907 with the following results: There were three operative deaths, one from nephritis, one from extravasation after an extensive resection and one from intestinal paresis. There were nine remote deaths, the time varying from two to forty-seven months in six of them; in the other three the time was not stated. One patient was not heard from. Sixteen are reported as being well at the present time; of these, three were operated on five years ago; two, four years ago; two, three years ago; three, two years ago, and six, one year ago. In this series, which included a case of extensive resection, it will be seen that the operative mortality is almost 10 per cent.

That transperitoneal cystotomy is the operation of election for all cases of cancer of the bladder in which radical cure may be attempted, except those so extensive as to require total cystectomy, is borne out by the following facts:

1. The bladder may be freely opened. As the majority of these growths occur at the base and on the lower lateral walls they are more readily accessible.
2. If the ureteric orifice is involved, which is not infrequently the case, reimplantation of the ureter can be more easily accomplished.
3. The entire thickness of the bladder wall may be resected without handling the growth.
4. The operative mortality is low.

The technic of transperitoneal cystotomy is well known. In this connection there are but one or two points that I wish to make. One of them is the advantage of placing three or four sutures about the growth in such a way that the landmarks will be preserved and the bladder wall steadied and that the growth may be excised between these points with a good margin of healthy tissue without being handled. If the growth is in close relation to the ureteric orifice, a ureter catheter *in situ* will be of great assistance. If the resection has been extensive it is my opinion that the bladder had better be put at complete rest for a while. This is, I think, best accomplished by extraperitoneal suprapubic drainage. Infection, which is particularly undesirable in these malignant cases, is much less liable to occur by this method than when urethral drainage is used, although the in-lying catheter may have to be employed later on to hasten the closure of the suprapubic wound. With proper technic in walling off the intestines and careful suture of the bladder, drainage of the peritoneal cavity is not necessary.

A patient recently operated on in the genito-urinary service at the Massachusetts General Hospital illustrates very well some of these points. The only drainage employed, with the exception of a small rubber tissue wick in the prevesical space, was a suprapubic tube, which was removed on the fifth day. On the twelfth day a catheter was put into the urethra, which remained three days. After the fourteenth day there was practically no leaking from the wound. The patient left the hospital twenty-three days after the operation.

Should the growth involve both ureters or be so extensive as to require total cystectomy, the two-stage method proposed by Watson should be employed. This consists of a preliminary bilateral nephrostomy, thus permanently diverting the urine, the cystectomy being performed at a later date.

There is another class of patients, however, who at the time they present themselves for treatment are clearly unfit for an attempt at radical cure, either because of the extent or immobility of the growth or because of their poor general condition. Just what form of palliative treatment should be adopted must be decided by the individual indications.

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[1] Rafin: Tr. French Urological Assn., 1905.

Dr. H. Cabot[2] divides these cases into two general classes:

1. Those in which operations can be undertaken early before infection has taken place and in which, therefore, there is the possibility of prolonging life.

2. Those in which operation is undertaken after extensive infection has occurred and in which operation is purely for the relief of symptoms.

In Class 1 it would appear that palliative treatment is of value and will prolong life under the following conditions:

1. When the disease is in a comparatively early stage, although the location or depth of infiltration makes radical cure impossible.

2. When infection of the bladder is slight or entirely absent.

3. When infection of the upper urinary tract is absent.

Cases in which the disease has extended beyond the bladder will not be benefited. In general, the operation consists in the removal of the mass by curet and cautery, and in an attempt at a prompt closure of the suprapubic wound.

In Class 2 the treatment consists in simple suprapubic drainage, which will relieve the distressing symptoms of the later stages of the disease.

Cases will occur at times in which it will be impossible to tell previous to operation whether or not a radical removal can be attempted. Under these circumstances an exploratory suprapubic cystotomy should be done and the growth examined as to its extent and mobility; then if radical excision seems advisable it can be done by extending the operation to the transperitoneal route. It is evident that the only hope of obtaining good results in the treatment of this condition lies in early diagnosis.

Notwithstanding the fact that the symptoms of bladder tumor are exceedingly irregular much may be accomplished by attention to early, and to some seemingly, trivial symptoms. The importance of these early urinary symptoms is well recognized by genito-urinary surgeons, but that their importance is not generally recognized is shown by the long-continued treatment of the bladder for "cystitis," so often seen in cases of renal tuberculosis and a variety of other extravesical lesions.

When we know that a slight hematuria of short duration may mean so serious a condition as cancer of the bladder, it is our duty to point out as strongly as we can the importance of investigating all cases of symptomless hematuria. Then, and then only, may we hope to attain better results in the operative treatment of cancer of the bladder.

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RESULTS IN THE TREATMENT OF TUMORS OF THE URINARY BLADDER *

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The surgical treatment of tumors of the bladder is surrounded by a host of difficulties. Chief among these are to be mentioned, first, the importance of preserving the anatomic relationship; second, the complications arising from the multiplicity of tumor types, and third, the inaccessibility of the lesion.

The anatomic relationship must be preserved in order to maintain function. It is necessary to preserve the orifice into the bladder for the ureters and, if one or both of them be destroyed, one or both of the ureters must be transplanted so as to enter the bladder at some other point. It is also necessary to maintain the normal outlet with its muscular mechanism and power of urinary control.

While most tumors of the bladder are papillomas, they occur frequently in multiple form. Usually there are one large and several small tumors. The large tumor is apt to overshadow the smaller tumors, one of which may easily escape notice. Recurrence of papillomas is seldom local, but is often seen in a different quadrant of the viscus. Cells brushed off in removing the tumor are prone to engraft themselves on any tissue with which they come in contact. Recurrence as a fringe about the orifice of the urethra is also common, and this is probably explained by cells which have been left free in the bladder and which were forced against the mucous membrane at this point by the contractions of the organ. Too much emphasis cannot be laid on the importance of a careful search of the entire floor of the bladder for minute papillomas after the large tumor has been removed, and of the importance of the complete removal of all cells adjacent to the large and small areas of neoplasms.

A large percentage of the tumors of the bladder occur in the base or on the wall close to the base at or near one of the openings of the ureters or of the urethra. These positions render the lesions extremely inaccessible to the surgeon, and make their treatment most difficult with a high percentage of recurrences.

Up to the present we have examined in our clinic 114 cases of primary tumors of the bladder. Eighty-four were in males and thirty in females. One patient was under 10 years of age, and one over 80. The greater number were between the ages of 40 and 70; the average age was 53.1 years.

We have classified these tumors, according to the clinical course, into benign and malignant. In the group of benign cases are included fibromas and myomas. Only two of the 114 cases in our series belonged distinctly to this group, and these were fibromyomas. In the group of malignant cases we have included papillomas and carcinomas.

Estimated from a clinical point of view, all papillomas are malignant, though one type of papillary tumor may be histologically malignant at the onset while another type may early show no evidence of invasion of the surrounding tissues. All types of papilloma have the power to recur and also to destroy life, in the same manner as the recognized malignant tumors. In all probability if the patient lived long enough all papillomas would become histologically malignant.

In twenty-two of our cases more than one-half of the bladder was involved and in four it was completely filled with the tumor.

METHODS OF TREATMENT

The method of operative procedure and treatment must be determined (1) by the general condition of the patient, (2) by the cystoscopic findings. Arteriosclerosis, renal insufficiency, myocarditis, etc., are factors contra-indicating radical procedures. Bimanual examination by vagina in the female and by rectum in the male is most important in the diagnosis, as thus we may be able to determine the presence and extent of induration. Many times cases will be eliminated in which otherwise operation might be attempted.

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[2] Cabot, H.: Tr. Am. Assn. Genito.-Urin. Surg., 1907, ii, 301.

* Read in the Symposium on Treatment of Tumors of the Bladder in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912

The cystoscopic examination is most important not only in determining the number, location and extent of the lesions but also in helping to differentiate a bleeding hypertrophied granulating surface from a true neoplasm. This benign granulating surface is often seen in prostatic hypertrophy, cystitis and particularly in tuberculosis. It is also present in cases in which tumors and inflammatory masses are pressing into the bladder from the outside. A stone in the lowest point of the ureter will sometimes force the mucous membrane at the meatus out into the bladder, thus giving the appearance of a tumor. An *x*-ray picture will usually differentiate this condition.

TABLE 1.—GROUP 1: PATIENTS WITH COMPLETE DATA, NOT OPERATED ON

No.	Age.	Sex.	Duration Symptoms When First Seen, Months.	From Beginning Symptoms to Death, Months.
1	62	M	16	17
2	83	M	180	181
3	61	M	12	17
4	66	M	24	27
5	64	M	8	11
6	58	M	12	13
7	73	M	24	25
8	61	M	8	21½
9	41	M	3	16
10	44	M	2	2½
11	58	M	60	66
12	72	M	24	26
13	50	F	9	25½
14	65	M	18	19½
15	38	M	5	6
16	75	M	4	6
17	69	F	72	76
18	49	M	½	1
19	54	M	3½	7½
20	58	M	12	18
21	58	M	10	13
22	70	M	30	33
23	7½	F	84	84

Summary: Males 20, females 3.
Average duration of life from beginning symptoms to death (twenty-three patients), thirty months.

When possible it has been our custom to excise, through the cystoscope, a specimen of the growth large enough for a microscopic examination. This procedure is valuable in differentiating cases of benign hypertrophies and inflammations of the mucous membrane from the vesical tumors.

If there be palpable metastases or considerable induration in the base of the bladder the case should be considered inoperable. If there be no induration, but a bladder apparently completely filled by the tumor, the case may still be operable, since the pedicle of the large tumor may involve but a small part of the mucosa of the bladder.

Lymphatic involvement and visceral metastases occur but rarely.

One of the chief advantages in the transperitoneal operation is that it affords an opportunity to observe the pelvic lymph-nodes and the abdominal viscera. In two cases, because of glandular involvement (one because of extension to the peritoneum and omentum) and in one case because of metastatic nodules in the liver, we have been deterred from removing otherwise operable tumors of the bladder.

The prostate is rarely involved except in the late stages. Should there be any question regarding such involvement, however, the gland should be removed with the tumor. In five of our cases a prostatectomy was necessary.

RESULTS OF TREATMENT

In order that the results of treatment may be studied to the best advantage, the 114 cases have been divided into three groups. The first group includes all cases in which no operation was done, (*a*) because of the extent and location of the tumor, (*b*) because of the

TABLE 2.—GROUP 2: TRANSPERITONEAL OPERATIONS

No.	Age.	Sex.	Duration Symptoms When First Seen, Months	From Operation to Death, Months	From Operation to Last Heard From, Months	From Beginning Symptoms to Death, Months	From Beginning Symptoms to Last Heard From, Months	Condition When Last Heard From
1	39	F	24	..	60	..	84	O. K.
2	50	M	14	..	59	..	73	O. K.
3	49	M	1	36	..	37	..	Dead.
4	22	M	11	..	54	..	65	O. K.
5	54	M	24	47	..	71	..	Dead.
6	62	M	12	44	..	52	..	Dead.
7	45	M	12	23½	..	35½	..	Dead.
8	37	F	24	..	48	..	72	Recurrence.
9	61	F	10	2	..	12	..	Dead.
10	17	F	60	21	..	71	..	Dead; int. condition
11	70	M	4	13	..	17	..	Dead.
12	29	F	2	..	43	..	45	O. K.
13	58	M	36	..	39	..	75	O. K.
14	62	M	60	7*	..	60	..	Dead.
15	56	M	2	17	..	19	..	Dead.
16	54	M	12	..	35	..	47	O. K.
17	35	F	5	(No other data)........				
18	50	M	12	..	28	..	40	O. K.
19	34	F	36	..	26	..	62	O. K.
20	51	M	3	2	..	5	..	Dead.
21	46	M	24	..	33	..	57	O. K.
22	49	M	6	..	16	..	22	O. K.
23	50	F	48	..	8	..	56	O. K.
24	52	M	32	..	15	..	47	Recurrence.
25	44	F	24	..	15	..	39	Prob. recurr.
26	57	M	14	..	13	..	27	Prob. recurr.
27	65	M	1	5*	..	1	..	Dead.
28	45	F	4	..	7	..	11	O. K.
29	31	F	16	..	3	..	19	O. K.
30	49	M	24	2*	..	24	..	Dead.

* Days.

Summary:
Males 19, females 11.
Average duration of symptoms when first seen........18.5 months.
Average duration of life from beginning of symptoms to death or until last heard from........41.5 months.
Patients who have lived 5 years........3
Patients who have lived 3 years........10
Operative mortality........10 per cent.

poor general condition of the patient or (*c*) because the patient did not remain for treatment. Thirty-eight of the 114 cases are in the first group—thirty males and eight females. Counting all the cases of this group which we have been able to follow (twenty-three: twenty males, three females), we found that the average duration of life from the beginning of any symptoms was thirty months. One patient lived one month and another two and one-half months from the beginning of symptoms and then died apparently of the disease. This would indicate that the trouble had existed for some time before any symptoms appeared. On the other hand, we have had one inoperable case in which the patient lived 181 months (fifteen years) from the beginning of symptoms. Here the early symptoms may have been due to some process other than the neoplasm. If these two cases of short duration and the one of long duration be omitted in estimating the remaining cases, the average duration of life from the beginning of symptoms to the time of death is twenty-six months.

The second group (thirty cases: nineteen males and eleven females) includes all cases in which a transperitoneal operation was done. This type of operation was chosen because the neoplasm was malignant and on a sessile base, which made it necessary thus to resect the entire thickness of the wall of the bladder. In nine of the thirty cases it was necessary because of the site of the lesion to transplant one ureter into another quadrant of the bladder. The prostate was involved and removed in two of the cases. Three of the thirty patients died in the hospital. The findings in these three cases were as follows:

Case 1.—Man aged 62 years. Left quadrant of bladder removed and ureter transplanted. Pathologic diagnosis, carcinoma. Patient died on seventh day. Autopsy showed acute nephritis in right kidney, with chronic hydronephrosis and functionless kidney on left side.

Case 2.—Man aged 65 years. Carcinoma, involving considerable of base, removed. Left ureter transplanted. Impossible to close base of. bladder. Patient died on seventh day. Autopsy showed extravasation and infection extending behind the peritoneum on both sides. No infection in peritoneum.

Case 3.—Man aged 49 years, alcoholic, bad risk. Carcinoma involving base between ureters. Patient died on the third day. Autopsy showed general intestinal paresis, fatty degeneration of liver and chronic nephritis. No infection.

Of the remaining twenty-seven patients, nine are reported dead and seventeen living. One has not been heard from. Three patients have lived five years and are free from symptoms at present. Ten have lived three years, though one probably has recurrence at this time. Of the seventeen patients living at this time, four have been operated on for recurrences. Two had secondary transperitoneal operations, one suprapubic and one was treated with the high-frequency current. In one case, because of involvement of the wall of the bladder in the region of the sphincter muscle, the entire bladder was removed and the ureters were transferred to the loins. This patient has lived two and one-half years and is comfortable with no evidence of recurrence at present. One of the ureters ceased to drain at the end of the first year.

The average duration of symptoms in the patients on whom the transperitoneal operation was performed was 18.5 months. The average duration of life since the operation is 24.4 months and the average duration of life from the beginning of symptoms up to death or to the present time is 41.5 months. Figuring the duration of life without operation to be twenty-six months, we find that these patients have gained an average increase of life of 15.5 months each.

The third group includes the cases in which a suprapubic operation was done without opening the peritoneum. This operation was performed in thirty-three

TABLE 3.—GROUP 3; SUPRAPUBIC OPERATIONS

No.	Age.	Sex.	Duration Symptoms When First Seen, Months	From Operation to Death, Months	From Operation to Last Heard From, Months	From Beginning Symptoms to Death, Months	From Beginning Symptoms to Last Heard From, Months	Condition When Last Heard From
1	20	F	24	12	..	36	..	Dead.
2	29	M	12	50	..	62	..	Dead.
3	69	M	54	41	..	95	..	Dead.
4	43	M	48	..	70	..	118	O. K.
5	56	M	24	..	72	..	96	O. K.
6	43	F	12	..	72	..	84	O. K.
7	37	F	12	63½	..	75½	..	Dead.
8	69	M	12	..	32	..	44	O. K.
9	54	M	12	..	70	..	82	O. K.
10	42	M	24	15	..	39	..	Dead.
11	57	M	144	31	..	175	..	Dead.
12	27	M	15	(No other data)........				
13	41	F	24	24	..	48	..	Dead.
14	60	M	8	..	37	..	45	O. K.
15	33	M	36	..	36	..	72	O. K.
16	66	M	36	3	..	39	..	Dead.
17	69	M	12	..	31	..	43	O. K.
18	69	M	12	..	2	..	14	O. K.
19	72	F	24	2	..	26	..	Dead.
20	66	M	18	8½	..	26½	..	Dead, pneu.
21	62	M	12	19	..	31	..	Dead.
22	60	M	24	1	..	25	..	Dead.
23	38	F	12	10	..	22	..	Dead.
24	47	M	24	..	6	..	30	Recurrence.
25	71	M	24	..	5	..	29	O. K.
26	50	M	36	..	4	..	40	O. K.
27	70	M	3	¾	..	4	..	Dead.
28	61	M	1	(No other data)........				
29	60	M	12	..	1	..	13	O. K.
30	63	M	24	..	1	..	25	O. K.
31	44	M	42	..	¼	..	42	O. K.
32	59	M	5	..	33	..	38	O. K.
33	47	M	24	(No other data)........				

Summary:
Males 27, females 6.
Average duration symptoms when first seen........24.4 months.
Average duration of life from beginning of symptoms to death or until last heard from........ 46 months.
Patients who have lived 6 years........ 4
Patients who have lived 3 years........ 8
Operative mortality........ 3 per cent.

of the cases (twenty-seven males and six females) and was chosen because the tumor was on a pedicle and not infiltrating into the wall of the bladder or because the patient's general condition would not warrant a more radical procedure. One patient, a man aged 73, died at the end of three weeks. The autopsy showed marked general arteriosclerosis and nephritis, with no evidence of healing in the bladder.

In this series the prostate was removed with the tumor in three cases. The average duration of life from the beginning of symptoms to time of death or to the present in these suprapubic cases is forty-six months. This indicates that these patients have gained the difference between forty-six months and twenty-six months (the average duration of life without treatment), or twenty months, by having the operation performed. The greater duration of life in this series than in the transperitoneal series is probably due to the fact that the transperitoneal series is composed of the cases of indurated, infiltrating tumors, while the suprapubic were mostly those of pedunculated tumors which were either benign or early malignant neoplasms.

Four patients operated on suprapubically are living without any evidence of recurrence more than six years after the operation. Eight are free from symptoms three years after operation. Three of the thirty-three patients have returned and have been treated for recurrence.

The technical points in the various types of operations for tumors of the urinary bladder have changed very little in the past few years. We believe that in these operations as well as in operating on any other malignant tumor, the tumor should either be excised with the cautery, or the cut edges remaining after the tumor has been removed should be thoroughly cauterized. This is especially important in all papillomas.

The employment of the high-frequency current is one of the most useful adjuncts in the treatment of these tumors. We have used this method of treatment in seventeen cases. This number includes eleven cases of recurrence after previous operations done in our clinic and elsewhere. The patient longest under observation since treatment by the high-frequency current was seen after fifteen months. In this case there is no evidence of a return. Five patients have been examined one year after treatment and in none was there any sign of recurrence. No original non-papillomatous growths have been treated by this method, though in several instances recurrences of these tumors have been treated with considerable satisfaction, at least in relieving symptoms. We have found the villous growths on small pedicles the most favorable type for treatment by the high-frequency current.

Knowing the great tendency to recurrence and the possibility of considerable progress in the growth before the appearance of symptoms, it has been our custom to examine these cases by the aid of the cystoscope every three to six months after operation for at least two years. In this way recurrences are discovered and treated early with the high-frequency current. While the results in our cases are not so encouraging as we would like, they are not altogether discouraging. We believe that if patients can be seen a little earlier and technic can be improved so that a more radical excision may be done with a greater degree of safety, the results in the treatment of tumors of the bladder may be made to compare favorably with the results in the treatment of malignancy in other organs.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BEER, O'NEIL AND JUDD

Dr. C. M. Harpster, Toledo, Ohio: I think the technic presented by Dr. Beer represents an advance in the treatment of these conditions. I have had considerable difficulty with the electrodes that I have secured. The electrode that is impregnated with small strands of copper wire is too pliable, and in working through the water medium it becomes very soft, so that it is difficult to operate with it. The latest electrode sent to me from Wappler is impregnated with a solid steel wire. I am of the opinion, as expressed by Dr. Beer, that copper seems to be the best conductor of the current. The electrode that I have prepared consists of a strand of copper wire, which is a little thick, and is insulated with a black metallic paint. The copper is inserted through a Porges urethral catheter which is cut off straight across at the end, so that in using this solid piece of copper wire you can readily remove the wire through the catheter and in that way dislodge fragments which collect on the end of the electrode. I find this a distinct improvement over any other electrode that I have been able to secure.

To my series of cases as presented by Dr. Beer I would like briefly to add another case which I have recently treated. The patient was a woman 62 years of age, very anemic and cachectic. Hemorrhage had been very profuse. I examined the bladder with a Nitze cystoscope and found a papilloma nearly as large as a hen's egg. The sphincter was very flaccid, and the bladder was able to retain only 2 or 3 ounces, so that it was very difficult to use the high-frequency current through this small amount of fluid. After the first treatment the hemorrhage ceased entirely. I saw this patient on June 7, 1912. The mass had been considerably reduced—I think, over half; the patient had improved greatly in health; the necrotic tissue which came away was calcareous and seemed to collect salts from the urine in the base of the bladder; passage of these masses caused the patient considerable pain. The most difficult feature of this case was a small papilloma, as well as the large one, which surrounded the vesical neck. I have found in these cases that the most difficult point to reach is the vesical neck. Those cases I have submitted to suprapubic cystotomy with the use of the Oudin current at the time of the operation or immediately following the operation, and the use of the high-frequency current through the suprapubic wound, which is kept open for from thirty to sixty days, and then the use of the high-frequency current through the urethra.

Dr. B. A. Thomas, Philadelphia: In connection with one of my cases which Dr. Beer reported, I would like to add that there was a recurrence a little over a year after the apparent cure. It was the first case which I had treated. The growth was very large, almost 2 inches in diameter. The point which I think is of paramount consideration in this method of therapy is the recurrence of these growths. That it is possible to destroy them, I think there is no question, but their recurrence is a matter which is not yet settled. If the conditions do recur their destruction so far as the superficial growth is concerned is, of course, a matter of simple repetition. But providing the recurrences continue indefinitely, may not the pedicle in some cases undergo malignant degeneration? Would not some of these cases be better treated by excision to avoid that possibility? In the present state of our knowledge, however, my own belief is that all tumors of the bladder which are considered benign should be treated by the high-frequency current. If the growth is reasonably considered to be carcinomatous, the only operation to be considered is the transperitoneal operation advocated by Dr. Charles Mayo.

Dr. W. E. Lower, Cleveland: My experience consists of fifty-two cases of bladder tumors, twelve women and forty men. Exactly one-half of this number were malignant: six were inoperable and two were cauterized with the actual cautery after opening the bladder suprapubically. It was impossible to remove the tumors. All the rest were excised by the suprapubic route. In the operative cases there were two deaths, both in extensive malignant cases. Eight died from recurrence in less than one and a half years. Seven are still living, only one after five years and the rest under three years. There is a recurrence in two of the cases. There were twenty-nine excisions in twenty-six patients with papillomatous growths. There were recurrences in three cases and no operative deaths. The longest time since operation is eight years. Whether there have been recurrences in some of the patients who have gone elsewhere I do not know. I have been in communication with at least twenty of them within the last year but have had no report within the last four months.

My experience with the high-frequency current has been limited; I have had but two cases of papilloma treated by this method and no recurrence in either case. The longest time since the last treatment is four months. One of the most interesting cases has been a malignant growth treated by this method. The patient was operated on a year ago and the growth recurred in three months. I cauterized the recurrence with the high-frequency current and the growth disappeared in three or four weeks. The last cauterization was done six weeks ago; I examined the patient less than one week ago and found no evidence of recurrence at that time. The man has gained considerably in weight, is perfectly comfortable and has no vesical symptoms. How long we will be able to hold this in check remains to be seen. It seems to me that by excision of these tumors, if we are careful not to manipulate the tumor, the results ought to be better than heretofore. My method has been to excise a considerable part of the bladder at the base of the tumor and unite the edges with 00 chromic catgut. I instal a catheter through the urethra for drainage and always close the bladder wound. In one of the cases in which I used the actual cautery I was able to close the bladder wound and there was no leakage. The patient was comfortable for many months afterward.

Dr. A. L. Chute, Boston: I have usually employed the technic advocated by Dr. Hagner. I do not use so large a catheter; I use a No. 20. In one of my cases, while I was out of town, the catheter plugged up. Luckily there was a rubber drain in the perineum, but a suppuration started which lasted a long time. I think that patients will recover more quickly if we do suprapubic drainage rather than try to close the wound with a retention catheter after intraperitoneal operations.

Dr. A. G. Rytina, Baltimore: I would like to report one case in connection with Dr. Beer's statement that the high-frequency current is inapplicable in all cases of carcinoma of the bladder. The patient was a man 65 years of age, who gave a history of bleeding for four years. He had been seen by a competent genito-urinary surgeon who, on cystoscopic examination, made a diagnosis of carcinoma and considered the case inoperable. He was then referred to me; I found the whole bladder carcinomatous, as proved by a section taken from the bladder. On account of his condition, the marked anemia and cachexia, the great loss of weight and the probability that metastasis had occurred, operation was considered inadvisable, and we began to use the high-frequency apparatus. At present the patient has regained his normal weight; he works every day, which he was unable to do before the treatment, and on cystoscopic examination the bladder is seen to be entirely free of the tumor with the exception of one or two small areas which are still being treated. On that account I feel that in some of these cases, more than for palliative reasons, we may use the treatment. Dr. Beer said that the treatment ought to be carried out only in benign cases. I believe if that is true that the treatment will be restricted to a very few cases, as it is the view of a great many competent pathologists that the great majority of all papillomas of the bladder are carcinomatous.

Dr. E. O. Smith, Cincinnati: Surgery of the bladder, of course, has advanced greatly in recent years. A few years ago it was not considered good surgery to attack the bladder transperitoneally. Now we know that that can be done satisfactorily and in some cases the tumor can be removed more satisfactorily by this route than extraperitoneally. I have found that in inoperable tumors of the bladder, in which the bladder was extensively involved, it is not wise to attempt to remove the tumor; one should simply make a suprapubic drainage. This can be done under a local anesthetic. A self-retaining catheter is introduced, and the patient will get along very nicely. Many of the patients, from being bedridden, have improved until they were able to be up and about their homes. I have one patient who has been wearing a drainage-tube suprapubically for several months. He is comfortable, but every now and then there is some hemorrhage from the bladder. There is always a discharge of more or less pus and mucus, but by wearing a rubber container strapped to his waist he gets around comfortably. He sleeps five or six hours at night. In this particular case the urethral drainage was absolutely intolerable. The patient could not endure the catheter in the urethra. Therefore I believe that in such cases it is more advisable to introduce suprapubic drainage under local anesthesia, than to attempt a complete bladder extirpation. Dr. Judd included in the first group inoperable cases, and in the second and third groups selected cases. Taking the cases as they come perhaps the operative statistics would be not quite so favorable. It would seem that the difference is not exactly what is represented by the figures.

Dr. Edwin Beer, New York: It is incorrect to call the treatment fulguration. Desiccation is also a misnomer, because it is almost impossible to dry anything under water. I think we should stick to the name of high-frequency treatment with the Oudin current until somebody develops a better name which will describe it accurately. According to the teachings of Guyon and Rokitansky papilloma of the bladder is always potentially carcinoma. I believe that five years from now every one of us will be agreed that that is a misstatement of the facts. I believe that if we do not get a specimen at the first sitting with the method which I described, we should use Dr. Young's instrument at the second; we can invariably make the diagnosis of carcinoma of the papillary type or papilloma of the benign type. At the fall meeting in New York I have arranged to show about forty specimens under the microscope which will demonstrate how easily the diagnosis between malignant and non-malignant growths of the bladder can be made.

Dr. R. F. O'Neil, Boston: I tried to make it clear that I considered urethral drainage disadvantageous on account of the very undesirable feature of having a urethrocystitis occur on top of a fresh wound in the bladder, particularly in cases of malignant disease; I think that the suprapubic drain, which need only stay a few days, until the wound has begun to granulate, is much better; the ultimate recovery will not be seriously retarded. The method which I generally employ to fasten a catheter in the urethra is to pass a silk stitch through the lower edge of the meatus and the catheter and tie it lightly.

Dr. E. S. Judd, Rochester, Minn.: I do not think that we shall be able to prove anything more by these statistics than can be proved by statistics ordinarily. The only way we had of getting at the probable duration of life from the beginning of symptoms in these cases of tumors of the bladder was to consider the cases that had not been treated. This group, of course, naturally included the inoperable cases. The fact that they were inoperable at the time we saw them had nothing to do with the time the patient lived after the symptoms began. It might be well also to call attention to the fact that seventeen patients out of thirty, which formed the second group, are still living, so there will be more time to add in each of these cases.

Fat Formation in Diabetes.—It has been stated that a large amount of sugar can be transformed into and stored as fat, but that there is a limit to this fat formation. It is apparent that very obese individuals are living close to this limit, since a slight excess of carbohydrate in the diet frequently gives rise to glycosuria. On the other hand, there are individuals who have very great powers of combustion, and they store fat only with considerable difficulty. In advanced cases of diabetes, patients have lost not only the power of burning sugar but also the ability to store fat. Occasionally there are encountered diabetics who become very obese, such individuals having apparently retained the function of forming fat although their sugar-burning powers are reduced to a minimum.—V. C. Myers and M. S. Fine in *Post-Graduate.*

A FILTERABLE AGENT THE CAUSE OF A SECOND CHICKEN-TUMOR, AN OSTEOCHONDROSARCOMA *

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The demonstration of the cause of a transplantable spindle-celled chicken-sarcoma[1] led us last winter to a further study of tumors of the fowl. Spontaneous chicken-tumors are far from rare, and several excellent descriptions of them exist.[2] In the course of ten months we obtained without difficulty about thirty various tumors in the living fowl. None of the growths was quite similar histologically to the sarcoma just mentioned, which is caused by a filterable agent, but there were two that, like it, proved transplantable,[3] namely, a tumor producing true cartilage and bone (Chicken-Tumor 7) and a curious spindle-celled sarcoma (Chicken-Tumor 18). We wish here to report experiments showing that the osteochondromatous tumor is caused by a filterable agent.

The original osteochondroma appeared as a discrete mass on the breast-bone of an adult fowl. It was very hard, appeared to be of long standing, and projected symmetrically to either side of the sternal keel. Microscopically as well as clinically it seemed benign. That it grew on transplantation was surprising, but the less so since several mammalian growths of character apparently benign have proved transplantable, notably a chondroma of the mouse (Ehrlich) and a fibroma of the dog (Ribbert). Murray[4] has described a "chondro-osteoidsarcoma" of the mouse which retained on transplantation its ability to produce bone and cartilage. In the case of the chicken-tumor the growths derived from transplantation consist, like the original tumor, of large cells of connective tissue about which cartilage is soon laid down, followed, in many instances, by true bone containing red marrow. The neoplasm is now in its eighth transplantation generation. In some instances its growth is continuous, though often very slow, and as the mass of cartilage and bone becomes large the host emaciates and finally dies. In other instances the tumor sooner or later becomes stationary and may so remain for months. Recently metastases showing cartilage have been noted in the case of two of the most rapidly growing tumors. There is now prominent in the growth a spindle-celled element and it must be regarded as an osteochondrosarcoma. The general characters of the tumor are described in full in a paper by Dr. Tytler forthcoming in the *Journal of Experimental Medicine.*

Our attempts to determine a cause for the osteochondrosarcoma were not begun until after it had been several months under observation, and in numerous hosts. During this time its general character had altered little. The sarcomatous element was not noticeable and the growth appeared benign. Differential filtration was the method used. Sound portions of the tumor tissue were ground with sterile sand and taken up in a considerable bulk of Ringer's solution; shaking was done in a machine for from twenty to thirty minutes; centrifugalization followed; and then the supernatant fluid was passed through a filter of fine texture (Berkefeld) that held back all tumor-cells. A few cubic centimeters of the clear filtrate were injected into the trunk or leg muscles of a number of normal fowls. Sterile infusorial earth was in many instances added to the filtrate previous to its injection, since the tissue derangement caused by this foreign body has been found to favor the action of the agent engendering Chicken-Tumor 1,[5] the spindle-celled sarcoma.

For a first experiment a large Berkefeld filter (No. 8, V) was employed, without bacterial control as to its permeability. Of the ten fowls inoculated with 10 c.c. of the filtrate in each breast, one had developed thirty-eight days later a mass 0.3 cm. in diameter in the muscle at one of the inoculation sites. At the end of another month, when the fowl died of intercurrent causes, this nodule measured 0.5 cm. It was very hard and consisted of the characteristic, cartilaginous tumor tissue, which, in this instance, contained no bone. At the present date, four months after the injection, the remaining fowls have not developed tumors.

In the later work Berkefeld filters of demonstrated impermeability to *Bacillus fluorescens liquefaciens* have been used. The development of malignancy in the chondroma, as shown by the production of metastases, has furnished a material which *a priori* would seem more suitable for the work. That it is indeed more suitable has been proved by the prompt development of swiftly growing tumors after the injection of the filtrate. For the experiment that follows there was taken the metastatic ovarian tumor of a fowl which carried in both pectoral regions large bony tumors as the result of implantation, and had in the ovary two hemorrhagic, cartilaginous metastases, each nearly as large as a hen's egg, together with diffuse implantation growths of the cartilage-forming connective tissue over visceral and parietal peritoneum.

EXPERIMENT

Cartilaginous tumor tissue to the amount of 11 gm. from the ovarian metastases of Fowl 352, sixth Generation A, was ground in a mortar with sterile sand. The resulting mass was taken up in about 350 c.c. of Ringer's solution warmed to body heat, and the whole was shaken in a machine for twenty minutes and briefly centrifugalized to sediment the tissue fragments. The cloudy supernatant fluid was passed through a Berkefeld filter V, size No. 3, which was tested both before and after the experiment under conditions similar to those obtaining in it, and was found to hold back *B. fluorescens liquefaciens* out of a suspension obtained by shaking. The tumor extract passed readily through the filter. The fluid thus procured was limpid and reddish-yellow (owing to hemorrhages into the cartilage).

Two portions of the filtrate, one with, and one without a little sterile infusorial earth *(Kieselguhr)*, were injected into each of six normal fowls of the breed in which the spontaneous tumor was found (Plymouth Rock). Of the filtrate plus *Kieselguhr* 4 c.c. were used for each injection; of the filtrate alone 6 c.c. The pectoral and thigh muscles were employed as sites.

Eighteen days later the first examination was made. In four of the fowls tumors were found where filtrate plus *Kieselguhr* had been injected. The growths measured from 1 to 3 cm. across and were evidently due to the coalescence of numerous smaller nodules. In two of the four fowls a small, discrete nodule was palpable where the filtrate alone had been injected. It lay in the track of the injecting needle. All the growths were very hard. One of these fowls was at once killed and the growth looked at. Macroscopically cartilage could be seen in it. Microscopically it consisted of cartilage and a tissue, composed of numerous spindle-shaped or stellate cells, which was undergoing a cartilaginous change.

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* From the Laboratories of the Rockefeller Institute for Medical Research, New York.

[1] Rous, Peyton: THE JOURNAL A. M. A., Jan. 21, 1911, p. 198.

[2] Ehrenreich and Michaelis, Tyzzer, Wernicke.

[3] Rous, Murphy and Tytler: THE JOURNAL A. M. A., June 1, 1912, p. 1682.

[4] Murray, J. A.: Third Scientific Report of the Imperial Cancer Research Fund, 1908, p. 78.

[5] Rous, Murphy and Tytler: THE JOURNAL A. M. A., June 8, 1912, p. 1751.

Twenty-five days after the injection the tumors were even harder than before and were growing rapidly. One now measured 4.7 cm. across. In two of the fowls the findings were still negative.

SIGNIFICANCE OF THE FINDINGS

The experiments show that the osteochondrosarcoma, like our spindle-celled sarcoma, can be produced in fowls hitherto normal, by an agent separable from the tumor cells and capable of passing through a Berkefeld filter which holds back *B. fluorescens liquefaciens.* Furthermore, the action of the agent appears to be dependent, like that producing the sarcoma, on a cell-derangement brought about by accessory factors. The addition to the filtrate of sterile infusorial earth to bring about a reactive tissue proliferation resulted in a high percentage of successful inoculations, each tumor arising from numerous local points; whereas the filtrate when injected alone in the same fowls caused a tumor much less frequently and then as a single discrete nodule in the track of injury from the injecting needle.

Despite these points of similarity the agents causing the chicken sarcoma and chondroma can hardly be identical. They give rise to widely different tumor forms. Previous to the experiments here related we had supposed it possible that a single filterable agent by its localization in cells of different potentiality might give rise to different tumors; to test the point we had made numerous attempts to obtain a localization of the agent causing Chicken-Tumor 1 in other cells than those which it usually influences. These attempts were all unsuccessful. And now it appears that the histologic character of the osteochondrosarcoma is due to a peculiarity of the causative agent which is retained when the latter is separated from the tissue of the growth. Thus the agent, when brought into contact with the connective tissue in voluntary muscle, produces not an ordinary spindle-celled sarcoma, but a growth that elaborates cartilage and finally bone. That an extracellular agent should cause a reversion of connective tissue to the so-called embryonic type would not appear strange from what is already known of the changes that connective tissue undergoes in wounds, or when cultivated *in vitro;* but that such an agent should bring about a differentiation ordinarily foreign to the tissue is very remarkable. Yet in this connection it should not be forgotten that bone and, much more rarely, cartilage are sometimes laid down in connective tissue under relatively simple pathologic conditions.

The nature of the agent causing the osteochondrosarcoma cannot at present be stated. The agent causing the spindle-celled sarcoma is probably a living virus.[5] The demonstration that extrinsic agents are the cause of two connective-tissue growths of the fowl which are characteristic malignant tumors renders it necessary to suppose either that such tumors of the fowl have an entirely different etiology from mammalian tumors, or else that the latter are of similar origin. In any case the findings with the chicken tumors largely demolish the theoretical basis on which objections to an extrinsic cause for cancer have been built up.

MACROPHAGOCYTES IN THE SPUTUM OF A PATIENT WITH CHRONIC HEMOPTYSIS *

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Aside from the appearance of macrophagocytes in artificially induced effusions in animals, little has been written on their presence in the human body.

Metchnikoff[1] called attention to the presence of these elements in the peritoneal cavity of a guinea-pig into which had been injected the red corpuscles of a goose; the macrophagocytes seemed to be the chief factor in the resorption of the foreign corpuscles.

Van Nuys[2] reported the case of a patient whose blood contained large numbers of mononucleated and multinucleated basophilic cells, ingesting the white corpuscles. At times they numbered as high as 40 per cent. of all the white cell elements of the blood. Actual measurement showed them to average 23 by 16.9 microns.

Bartlett[3] reported a case exhibiting the same character of cell in the lobes of the ear, which were markedly cyanotic. The tops of the ears and the general circulation did not contain them at all.

The leukocytes in both these cases were extremely numerous. No particular cause could be ascribed for their presence, although Van Nuys speaks of a certain likeness to leukemia in his case. To certain of the cells were attached long streamers of protoplasm.

Weidenreich[4] found, in the peritoneal exudate of a guinea-pig which had been injected with typhoid bacilli, the macrophagocytes ingesting the eosinophils and neutrophils present in the exudate.

The following case seems to me to be of unusual interest. The patient, W. S. H., was admitted to the sanatorium Sept. 4, 1909, having given a positive Moro reaction. He had had a slight pneumonia nine months before, followed by a continuous hacking cough and bloody expectoration. There was some pain on inflating the lungs. The maximum temperature was 99 F. The weight, 235 pounds, was normal. The patient did not tire on exertion, his appetite was good and his condition generally fair. He had had syphilis previously, for which, supposedly, he had been successfully treated, although in June, 1911, he wrote us that a positive Wassermann had been made. Physical examination showed a slight dulness and infiltration in both apices with a few large moist râles.

LABORATORY FINDINGS—BLOOD

	Sp. Gr.	Hb.	W.B.C.	Arneth's Class					General Differential					
				I	II	III	IV	V	Neu.	Eosin.	Baso.	Lymph.	Mono.	Trans.
9/ 7 /09	1070	90	9800	17	45	31	7	0	67.1	13.6	0.2	16.1	0.5	2.5
10/ 2 /09	1068	90	9800	18	45	31	6	0	60.8	8	0	25.4	0.8	5
2/19/10	1072	95	4900	5	34	50	9	2	65.2	8.2	0.2	21.8	0.4	4.2

The eosinophilia was the striking feature in the blood-picture. Directing attention to its cause, neither asthma nor parasitic skin disease was evident. The examination of stools showed neither ova nor parasites.

As the patient had traveled in China and Japan, distomiasis was considered and search was made for ova in the sputum. The twenty-four-hour quantity of sputum was usually about 5 c.c., 10 c.c. being the maximum for any one day. It was mucopurulent and frothy. Repeated search for tubercle bacilli resulted in negative findings. The blood element always present, varied on different days from a slight tinge to a quantity sufficient to mask the purulent character. With the low power, fresh specimens showed numerous round or oval bodies, suggesting ova. With a high power, these bodies presented broadly wavy outlines. No ameboid motion was observed. The usual cellular elements of the sputum were included within the protoplasm of these cells. Curschmann's spirals occasionally and Charcot-Leyden crystals usually were present, the latter in some specimens in great numbers. In specimens stained with Hastings' and Giemsa's stains, free eosinophils were numerous and an occasional atypical basophil was seen. The granules of the latter cell stained a very much lighter purple than they commonly do when fresh from the blood-stream. Here also the true character of the large cells was determined. There were one or two to a field (× 900), 30 by 50 microns in size. The cells were mononucleated and multinucleated, the former predominating with rich basophilic protoplasm in which were held neutrophils, eosinophils, lymphocytes and occasionally bacteria in various stages of digestion. In some, the captive elements were practically intact. In others, the entire protoplasm had been digested and only the nuclear fragments remained. Surrounding such fragments a clear area was frequently seen in the protoplasm of the macrophagocyte, representing the zone of digestion. The illustration, drawn from cells observed, shows the beginning (A) and the advanced stage (B) of digestion. In the latter stage the protoplasm of the macrophagocyte took on a dark greenish tinge, often mottled, undoubtedly from the absorption of iron pigment.

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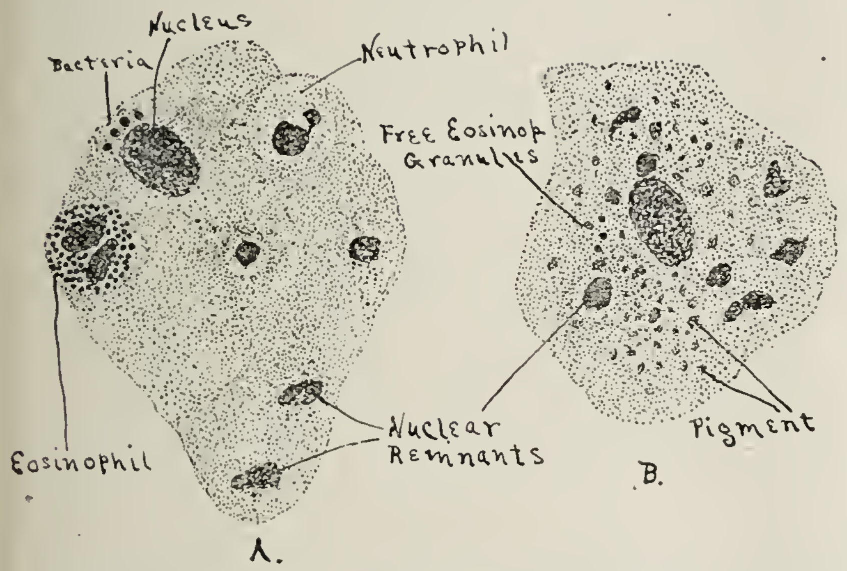
* From the Laboratory of the Pottenger Sanatorium

[1] Metchnikoff: Ann. de l'Institute Pasteur, Paris, 1899, xiii, 742.
[2] Van Nuys: Boston Med. and Surg. Jour., March 28, 1907.
[3] Bartlett: Boston Med. and Surg. Jour., May 16, 1907.
[4] Weidenreich: Arch. f. mikr. Anat. und Entwicklungsgeschichte, May, 1908.

In the peripheral circulation none of these cells was observed. The urine examinations showed nothing unusual.

The parasitic nature of the patient's trouble has not been determined. He was directed to Dr. George Dock, then of New Orleans, who confirmed our findings and considered the possibility of distomiasis. He was unable, however, to find any ova or parasites.

Thinking that these macrophagocytes may previously have been overlooked by observers, I have studied about thirty cases, showing more or less eosinophils in the blood and sputum, with negative results.



A, macrophagocyte showing beginning stage of digestion; B, showing an advanced stage.

The patient wrote us in February, 1912, that his general health is fair and his weight normal, but that the bloody expectoration has continued and is more profuse than when under our observation and that the wheezing sounds in the chest are very annoying. He has been taking salvarsan and potassium iodid. Parasites have not been found in the sputum.

FATAL HEMORRHAGE FROM A SMALL BRANCH OF THE VENA SAPHENA PARVA

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Profuse hemorrhages from injuries of peripheral veins are not uncommon. Fatal hemorrhages from such veins are also on record, but are comparatively rare. Most of the cases of that kind have been hemorrhages from ruptured varicose veins, large distended branches of the long saphenous veins of the lower extremities.

As coroner, I was recently called on to attend a case of fatal bleeding from a very small branch of the small saphenous vein, or vena saphena parva, in a most unusual position, which I have never heard of before, nor have I been able to find a similar instance in the medical literature.

History.—Eliza C., colored, aged 50, was always a healthy woman. There was nothing remarkable in the family history. There was no history of tuberculosis, malignant disease, nervous or mental degeneration or hemophilia.

Her past history was also not remarkable. She never had had typhoid, pneumonia or rheumatism. She gave birth to five healthy children and had had no miscarriages. There was no history of lues. She was not a hard drinker but indulged in alcohol.

On September 5, the patient retired at night as usual in good health. About 12:30 a. m. she had to get up from bed, and in doing so she struck the calf of her right leg against the edge of a trunk standing in her bedroom. The blow broke the skin over the calf of the right leg and ruptured a vein; she began to bleed very freely. She called to her son, who found her in a pool of blood with blood gushing from the wound as from "a spigot," he said. Not knowing what to do he sent one of the other children after a physician; but when the physician arrived about 1:15 a. m., or forty-five minutes after the injury, the patient had bled to death.

Examination of the body revealed a small hole at about the middle of the right calf, not more than an eighth of an inch in diameter, from which blood was still oozing. Had the body been found in the street, the first thought which the nature of the wound would have suggested would have been that the woman had been shot; the aperture was no bigger than that produced by a 22 caliber bullet. In this case the circumstances of the accident, and the victim's own account of it before she died excluded any such possibility. To clear up this most unusual case I ordered an autopsy.

Autopsy.—Performed by Dr. N. G. Keirle at the City Morgue. The wound on the right leg was found to be nearly round in shape and from about one-eighth to one-fourth inch in diameter. A probe passed into it slid for the distance of half an inch or so below and parallel to the surface. After making a semicircular incision and flapping the skin back, we found that the wound entered a small vein lying close to the surface, which continued for the distance of about half an inch and then dipped into the subcutaneous fat, which was rather abundant, and joined a larger vein. There was no sign of any stab or gunshot wound. The only injury found was the ruptured vein not more than an eighth of an inch in diameter. A most interesting feature about the vein was the marked rigidity of its walls. The opening in the lumen at the place of rupture stood gaping, owing to the calcification and sclerotic changes in the walls, and this probably accounted for the profuse and fatal hemorrhage.

The only other interesting features about the post-mortem examination were the marked general arteriosclerosis and atheromatous changes in the aorta, and the extreme pallor of the intestines and liver. The deceased was simply exsanguinated to death. The kidneys showed an adherent capsule and moderate interstitial nephritis. The heart and lungs were normal, and the brain showed nothing remarkable. There were no visible varicose veins on either leg or thigh.

I rendered a verdict of accidental death due to a most unusual fatal hemorrhage from a branch of the small saphenous vein, or vena saphena parva, caused by rupturing that vein through knocking the leg against the edge of a trunk.

1511 Madison Avenue.

Therapeutics

DISTURBANCES OF THE HEART

MYOCARDIAL DISTURBANCES

(Continued from page 1719)

III. FATTY DEGENERATION

Fatty degeneration of the heart muscle may be caused by acute poisoning (as phosphorus, arsenic, etc.), by serious infections, or it may follow fibrosis of the heart or coronary artery disease. The symptoms are those of serious circulatory weakness, which does not seem to improve under any ordinary management. It is difficult, if the heart is enlarged, to determine whether there is more or less serious acute dilatation or whether the heart muscle has suffered fatty degeneration. Prolonged rest in bed and then a slow convalescence followed by graded exercise will help the dilated heart; it does not do much for real fatty degeneration.

The treatment of such a patient requires the best of judgment as to the amount of food and liquid that should be given and as to the regulation of the administration of laxatives, the sponging of the body, and the means of producing sleep if there is insomnia, and how much reading, conversation or amusements should be allowed, how much stimulation by strychnin or other stimulating drug should be given, and to decide whether or not very small doses of digitalis should be tried. These are all matters for individualizing, and are matters for the best medical judgment that we are called on to give. How much repair can take place in a heart muscle when fatty degeneration has started we do not know. Such treatment will give the heart the only chance it has to recuperate, but the prognosis is bad.

IV. FATTY HEART

The cause of deposits of fat around the heart or in between its chambers is the same as the cause of general obesity. These patients are likely to be obese, or at least to have large abdomens with large deposits of fat around the abdomen. This fat in itself will interfere somewhat with abdominal respiration. This tends to cause dyspnea and the heart tends to be disturbed from these causes, if much fat is not really in the pericardium. The symptoms are those of imperfect heart action; the patient is dyspneic on exertion or on leaning over, the heart acts rapidly on such exertion, the patient puffs, perspires easily, becomes leg-weary and becomes sedentary in his habits and more or less incapacitated for work. He may not be a large eater; if he is, and his eating habit is corrected, the prognosis is better than if he is putting on weight in spite of eating sparingly.

The general treatment is that for obesity, and if the heart muscle is intact various depletion methods may be inaugurated. More and more exercise, sweatings from Turkish baths, electric-light baths, body baking, vigorous massage and more or less purging are all valuable. Anything that reduces the general weight will help the heart. The prognosis is often good.

ENDOCARDITIS

It should be understood that especially in acute conditions a positive separation of endocarditis from myocarditis is incorrect. Acute endocarditis can probably not occur without some myocarditis, and myocarditis probably does not occur without some endocardial disturbance and perhaps some pericardial irritation. This is especially true in endocarditis that occurs during any acute infection, even in rheumatism. The greater the amount of pericarditis, the more serious is the acute condition. The greater the amount of myocarditis, the more doubtful is the heart strength in the near future. The greater the amount of endocarditis, the greater the doubt of freedom from future permanent valvular lesions.

Endocarditis may be divided into: acute mild (simple) endocarditis, acute malignant (ulcerative, infective) endocarditis, chronic endocarditis and valvular disease.

ACUTE MILD ENDOCARDITIS

This inflammation of the endocardium is generally confined to the region of the valves, and the valves most frequently so inflamed are the mitral and aortic. There may be a slight inflammation or actual ulceration and loss of tissue. Vegetations more or less constantly occur on the inflamed surfaces, with more or less danger of particles becoming loosened and movng free in the bloodstream, causing embolic obstruction in different parts of the body. There is also more or less probability of serious adhesions or contractions occurring from the healing of the ulcerated surfaces. In other words, the future health and welfare of the valves depends on the fact that the inflammation has healed without contractions or adhesions.

It is often difficult to decide when acute endocarditis has developed, but with the knowledge that the endocardium often becomes inflamed during almost any of the acute infections, the physician should repeatedly examine the heart for murmurs, for mufiled closure of the valves, or for other evidences of endocarditis or myocarditis during the acute infective process.

It has been shown positively that acute endocarditis is due to microorganisms, generally streptococci, staphylococci or pneumococci, and, more frequently than once believed, gonococci. The most frequent causes are acute rheumatic fever, diphtheria, pneumonia, cerebrospinal meningitis, scarlet fever, erysipelas, influenza, chorea, gonorrhea, sepsis and typhoid fever. It may also follow a follicular tonsillitis which is rheumatic in type but has not caused arthritis. Tuberculosis may also occasionally cause an endocarditis. Organisms may be found in a terminal simple endocarditis due to a chronic disease, as tuberculosis or cancer; such inflammations may have been caused by circulating toxins.

It will be noticed by the above classification that the terms "mild" and "malignant" endocarditis are used. It is to convey the fact that there may be no etiologic distinction between the two forms, and it is impossible to decide clinically in the beginning of an endocardial inflammation which form is present. In the malignant form the infection is probably more serious or the infective germs are more active, the ulcerations deeper, and the likelihood of emboli and the seriousness of such embolic infarcts more serious and more dangerous. In other words, the difference in inflammation in the two cases is really one of degree, and the classification is made to coincide with this probable fact. It is of course clinically recognized that endocarditis following certain diseases, especially rheumatism, is of the simple or mild type, while that termed ulcerative endocarditis may occur apparently as a primary or general infection and the causative bacteria are generally readily discovered in the blood.

Mild endocarditis is rarely a primary affection, and is almost invariably secondary to one of the diseases named above. Nearly 75 per cent. of secondary endocarditis occurs as a complication of acute articular rheumatism and chorea, or subsequently. On the other hand, about 40 per cent. of all patients with acute articular rheumatism develop endocarditis, sometimes perhaps so mild as to be hardly discoverable. This complication is most likely to occur during the second or third week of rheumatic fever. It is not sufficiently recognized that a subacute arthritis, recurring tonsillitis, and even a condition of the system with acute, changeable and varying joint and muscle pains may all develop a mild endocarditis, even with subsequent valvular lesions. Therefore in all of these conditions the decision can be made only as to how much rest the patient must have or how serious the condition is to be considered by careful examination of the heart in every instance.

Children are more liable than adults to this complication, especially with rheumatism. Therefore acute mild endocarditis with future valvular lesions occurs most frequently during childhood and adolescence, and if one attack has occurred, a subsequent infection, especially of rheumatism, is likely to cause another acute endocarditis.

The part of the heart most affected is the part that has the most work to do — the left side of the heart — and of this side the left ventricle and therefore the mitral and aortic valves; the most frequent valve to be inflamed and to suffer permanent disability is the mitral valve, the valve which in its inflamed condition is subjected to the greatest amount of pressure and therefore irritation. Not infrequently soft systolic murmurs are heard at the pulmonary and tricuspid valves during acute endocarditis. It is rare, however, that these valves are so affected during childhood or adult life as to be permanently disabled.

Whether a diminished alkalinity of the blood in rheumatism has anything to do with the cause of the frequent complication of endocarditis has not been determined. Whether the administration of alkalies to the point of increasing the alkalinity of the blood is any protection against the complication of endocarditis has also not been positively demonstrated, although clinically such treatment is believed by a large number of practitioners to be wise.

A chronic endocarditis with permanent lesions of the valves may become an acute inflammation with an infectious provocation.

It has been shown that even in a few hours after endocarditis has started little vegetations composed of fibrin, white blood-cells, red blood-pigment and platelets may develop. Practically in all instances such vegetations develop, and later become more or less organized into connective tissue. These little vegetations, generally minute, perhaps not exceeding 4 mm. in height, are irregular in contour like a wart. Some of these may have small pedicles, and as such, of course, are more likely to become loosened and fly off into the blood-stream. It is of interest to note that these little vegetations are more likely to be on the left side of the heart than the right; more likely to be on the valves than any other part; and more likely to be on the mitral valve than on the aortic. The consequence is a more frequent permanent disability of the valves of the left side of the heart, and of these more frequently the mitral. Although these little vegetations and excrescences sooner or later become mostly connective tissue, still fibrin and white blood-cells may form thin layers over them, more or less permanent. In this fibrin are frequently found bacteria, even when there has been no recent acute inflammation. The deeper layers of the endocardium during acute inflammation may become infiltrated with young cells, with resultant softening and destruction of the intercellular substance. This softening and some swelling of the lower layers of the endocardium allow the pushing up of these extravasated blood-cells which, being covered with fibrin, makes the little vegetations above described; and as just stated, the fibrin may form a more or less permanent cap. If this cap is disintegrated or lost and the cells under it washed away in the blood-stream, ulceration takes place, which may be more or less serious, even to the perforation of a valve or actual erosion of one of its cusps, and the parts of the valves most seriously affected are the parts that strike against each other on closure: in other words, as previously stated, the parts subjected to the greatest strain and the greatest amount of friction during the inflammation are the parts most seriously affected afterward.

If a perforation has occurred, it may make a permanent leak. If an erosion of the edge of the valve has occurred, it may make permanent insufficient closure. If the valve has become thickened and stiffened during the cicatricial healing it may not only be incompetent, but may not open perfectly, and a narrowed orifice be the consequence. During the healing of these granulating ulcers there may be thickening of the part or shrinking of the tissue, and the valve may become shortened by adhesion to the wall, or the cusps of the valve may adhere together so that the valve becomes permanently unable to open properly or to close properly, or to do either.

Not infrequently, and probably more frequently than we recognize, recovery without any of the pathologic lesions just described follows mild endocarditis. The occurrence of simple endocarditis is undoubtedly frequent during acute disease and is unrecognized because there are no lesions of the heart at the time or subsequently; but valvular lesions only too frequently follow the endocarditis that occurs with rheumatism. Occasionally the ulcerations become serious and ulcerative endocarditis or malignant endocarditis develops on the mild inflammation. In this form the little vegetations are likely to become loosened, fly off into the blood-stream, and cause emboli in different parts of the body.

Recently Fraenkel[1] concluded that the microscopic nodules which occur in endocarditis in the myocardium, and which consist of the several varieties of white blood-corpuscles first referred to by Ashoff in 1904, are characteristic only of acute rheumatism. Fraenkel found these nodules in the myocardium in a case of chorea, showing the close relationship between it and rheumatism.

While repeated careful examination of the heart during acute infections will generally show signs of endocarditis if it is present, even if there are no subjective symptoms, the disease may be so insidious as not to be noted until a valvular lesion occurs. Often, however, during the course of the disease, especially in rheumatism, there is a slight increase in fever and there is a discomfort complained of in the region of the heart, frequently accompanied by slight dyspnea. Real pain is seldom present unless the pericardium is affected. If the myocardium is much inflamed at the same time, the heart becomes more rapid and the blood-tension lowered, the apex-beat diminished in intensity and perhaps not palpable. If there is pain, with or without pericarditis, it is often referred to the epigastrium, especially in children. The patient is often nervous, restless and sleepless. In simple endocarditis emboli rarely occur. If they do, of course the signs will be in the part where the infarct occurs. Besides the diminished intensity of the apex-beat and its greater diffusion, the valve sounds may be muffled, and sooner or later there may be systolic murmurs over the different orifices. Of course systolic murmurs may be due to a disturbed condition of the blood, but if they occur with the above-mentioned symptoms and signs, endocarditis should be diagnosed. If the heart becomes seriously weak and the patient suffers much dyspnea, myocarditis should be known to be present with the endocarditis. If there is a diastolic murmur, there can be no question of serious endocarditis having occurred. Unexplainable palpitation during acute illness has been thought to be a distinct symptom of endocarditis.

(To be continued)

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[1] Fraenkel: Beitr. z. path. Anat. u. z. allg. Path., 1912, iii, 597.

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[*For other information see second page following reading matter*]

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INSECTS AS CARRIERS OF INFECTIOUS DISEASES

Scarcely second in causative importance to bacteria, the primary agents in infectious diseases, are parasites and other insects, the active and often indispensable mediums in the spread of such diseases. This phase of epidemiology has not been exhaustively studied, and it is possible that scarcely more than a beginning has been made in determining what insects may act as carriers. Mention need hardly be made of the two species of mosquito, the house-fly, the flea, the tick, etc., as well-known carriers. M. F. Gales[1] states that on shipboard roaches, to which hitherto little attention has been paid as carriers of disease, are responsible for the continuance and spread of typhoid, diphtheria, tonsillitis and tuberculosis. He does not state this as a result of experimental demonstration, but as a conclusion arrived at through experience in epidemics in the Navy. If this is possible on board ship it is no less possible in the congested quarters of cities, tenements, rooming-houses and especially hospitals. Gales reports pulverized sodium fluorid used as an insect-powder as the most satisfactory method thus far tried by the Navy for ridding the ships of roaches. W. M. Kerr[2] seems to have found evidence which incriminates the bedbug as a carrying agent in leprosy and sustains the opinion that it is responsible for the transmission of that disease in a large number of cases. In a series of experiments in which numbers of different insects were allowed to feed on the infected areas of leprosy patients and were afterward examined, the flies, fleas and mosquitoes were found to contain very few acid-fast bacilli, but these were found in considerable numbers in a large percentage of the bedbugs. No acid-fast bacilli were found in control insects, which were examined in large numbers. The difficulty of cultivating the lepra bacillus and the inexpediency of experiments on human subjects make further experimental evidence difficult to obtain.

The experiments of M. J. Rosenau, recently reported before the International Congress on Hygiene and Demography,[3] indicate that anterior poliomyelitis may be carried by the common biting or blood-sucking stable-fly. Previous experiments have seemed to demonstrate that the disease is also communicable by the secretions of the nasal mucous membranes and digestive tract. Rosenau's demonstration consisted in allowing flies which had fed about the faces of infected monkeys to bite healthy monkeys. The resulting infection of the latter with anterior poliomyelitis seems to prove that these flies are capable of acting as carriers, and the later experiments of Anderson and Frost,[4] to which reference was made in our editorial November 2, apparently confirm Rosenau's work.

Communities must perforce depend largely on medical men and boards of health for proposing and directing measures looking to the prevention of the spread of disease by carriers. Therefore medical men and boards of health are under obligation to know not only what agents may act as carriers, but also what means may be of service in exterminating the pests.

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[1] Gales, M. F.: U. S. Nav. Med. Bull., 1912, vi, 212.

[2] Kerr, W. M.: U. S. Nav. Med. Bull., 1912, vi, 316.

[3] Recent Work on Poliomyelitis—The Biting Fly as an Intermediary, editorial, The Journal A. M. A., Oct. 12, 1912, p. 1380.

[4] Pub. Health Rep., Oct. 25, 1912, p. 1733.

SOME NEW EVIDENCE ON THE TOBACCO QUESTION

The consideration of tobacco and its dangers[1] has heretofore been largely based on the amount of nicotin contained in the smoke. The list of the alleged toxic components is not exhausted, however, with the mention of the familiar volatile alkaloid. Other known products of the combustion of the tobacco remain to share a possible responsibility for any untoward symptoms which may be charged to smoking. Among these products are carbon monoxid gas, prussic acid, furfural and some other aldehyds. Although all of these compounds admittedly belong to the category of noxious products, the dangers which they harbor depend on the quantities in which they are taken. The appreciation of the truth that adequate dosage is requisite for the manifestation of toxicity has served in more than one instance to lessen the instinctive dread attached to any compound whose name is familiarly associated with the word poison.

Recently investigations have been made of some of these toxic products, and the results are of considerable interest. The fact that the action of certain decidedly toxic kinds of tobacco has been attributed in part to the supposed content of hydrocyanic acid in their smoke has induced the Würzburg hygienist, Prof. K. B. Lehmann,[2] to investigate the charge. He has found that the amount of this compound produced depends somewhat on the rate at which the tobacco is smoked; that is, on the conditions attending the combustion process. The slower the current of air through a cigar, the smaller is the amount of hydrocyanic acid formed. The content of the latter in cigar smoke rarely exceeds 0.025 per cent.; and if allowance is made for the observed fact that not more than half of the inhaled acid gas is absorbed, the absolute amount residual in the body after smoking several cigars will scarcely amount to more than 4 or 5 mg These analytic details need not concern us further than to exclude prussic acid as the cause of malaise in connection with tobacco smoking; for Lehmann has found that 8 mg. of prussic acid ingested at once in water are without noticeable physiologic response in man. An estimation of the prussic acid yield of certain leaves which sometimes supply the place of tobacco in the smoking practices of youth has likewise excluded that component as the cause of the unquestionable symptoms which are familiar to many.

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[1] This subject was discussed at some length by The Journal, May 8, 1909, p. 1495, and has since been treated editorially as follows: The Pharmacology of Tobacco Smoke, Jan. 30, 1909, p. 386; The Use of Tobacco, July 2, 1910, p. 32; The Effects of Tobacco on Body and Mind, Oct. 1, 1910, p. 1206.

[2] Lehmann, K. B., and Gundermann, K.: Neue Untersuchungen über die Bedeutung der Blausäure für die Giftigkeit des Tabakrauchs, Arch. f. Hyg., 1912, lxxvi, 98.

So far the burden of the blame for the ill effects of smoking would appear to rest on nicotin. This being admitted, the injury possible from tobacco would be to a large extent in proportion to the susceptibility of the individual, the amount of nicotin in the smoke from the particular variety of tobacco, the method and extent of indulgence and the practice of inhaling the smoke.

Investigations made by the London *Lancet*[3] would indicate that the ordinary cheap cigaret contains the least nicotin in the smoke and the pipe the most, the cigar occupying an intermediate position with regard to the amount of nicotin contained. Assuming, then, that nicotin is the essentially injurious substance in tobacco, the cigaret would appear to be the least harmful form, provided that the amount of tobacco consumed was no greater in this form than in others.

The general impression, however, is that cigaret smoking is the most pernicious form of indulgence in tobacco. This might be accounted for in part by the facts that the form of the cigaret makes it possible for young persons to indulge in it when they would not smoke cigars or pipes, that in older persons it lends itself to overindulgence and that the smoke may be inhaled with less irritation and, therefore, that more of the products may be absorbed into the system. Apart from these considerations, moreover, some reformers, notably Miss Lucy Page Gaston, founder and secretary of the Anticigaret League, have maintained that the cigaret habit presented peculiar and distinctive features not to be accounted for on the theory that the cigaret was merely a small and mild cigar. If the observations from which this deduction is drawn are correct, they throw doubt on the theory that nicotin is the most harmful factor in tobacco smoke, and furnish a problem for scientific investigation, just as clinical observations of disease not explained by previous scientific theories demand investigation by laboratory workers.

Further investigations by the *Lancet*[4] indicate that the most injurious forms of smoking are not those in which the narcotic nicotin prevails but those in which there is a larger proportion of the irritant aldehyds, particularly the aldehyd furfural, a substance to which many attribute the injurious effects of cheap liquors[5] and which is commonly distinctive of the smoke from the cheap Virginia cigaret. The *Lancet* calls attention to the fact that furfural is about fifty times as poisonous as ordinary alcohol and concludes that there is a probability that the least harmful tobacco will turn out to be that which yields a minimum of furfural and other aldehyds in the smoke. Although the amount of nicotin present in the cheaper grades of cigarets is practically negligible, the amount of furfural appears to be sufficient in itself to account for the bad effects attributed to cigaret-smoking. The smoke of a single Virginia cigaret, according to the *Lancet* experiments, may contain as much furfural as is present in 2 ounces of whisky. It would be premature, especially since furfural is practically absent from the smoke of Turkish cigarets, to assert now that this substance is accountable for all of the ill effects of excessive cigaret-smoking, but it is at least significant that it is always present in considerable proportions in the smoke of the cheap and popular Virginia cigaret, of which carbon monoxid is another poisonous constituent.

The use of tobacco in its various forms is so general that the subject is of almost universal interest. The smoker may not be willing to give up his indulgence, but he is entitled to know its dangers and safest methods, while educators and all who have anything to do with the young, whether by example or by precept, will appreciate scientific facts with which to back up wise deductions from experience.

"DOES GOD FIX THE DEATH-RATE?"

A broad-minded clergyman in his Tuberculosis Day sermon propounded this question and reached a conclusion decidedly negative. "God does not fix the death-rate." Who does then? We all do.

Those theologians aid high death-rates who ignore the demonstrated facts of preventable disease and seek to perpetuate the medieval superstition that infections are the Almighty's merited scourge. Laymen who flout the scientific proof that tuberculosis is curable and can be eliminated from human experience, or who disparage a tuberculosis propaganda as of no personal concern to them, help to cause the death of a consumptive every three minutes in the United States. Councils and legislatures which will not appropriate funds sufficient for the fight which health boards would wage against the Great White Plague are largely responsible for the death of ten thousand a year, twenty-seven deaths every day, in one city alone. Those who disregard antispitting ordinances and the like help to send the death-rate upward. Housewives whose culinary efforts produce dyspeptics directly and drunkards indirectly give far more impetus to the upward trend of the death-rate than most of us imagine. Venders of "patent medicines" and consumption cures who fleece their victims until the latter have passed far beyond the incipient stage in which physicians could have helped them — such nostrum-fakers have a full share of responsibility for the thousands on thousands of deaths from tuberculosis throughout the country. Those who draw profit from feeding the poor on adulterated food, "rots and spots," and fowls dead in storage several years back, have a similar responsibility for a high death-rate.

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[3] The Toxic Factor in Tobacco, Lancet, London, 1912, i, 944.

[4] The Toxic Factor in Tobacco, Lancet, London, 1912, ii, 547.

[5] See reference to experiments of Brunton and Tunnicliffe in Billings' Physiologic Aspects of the Liquor Problem, Boston, 1903, ii, 326.

A "league for medical freedom" organized to prevent the wise centralization and coordination of health activities and to oppose the inspection of schools and schoolchildren likewise helps to keep the death-rate high. Those who overwork women and children in factories have a heavy share of responsibility for holding the death-rate at a high level; so also do those employers who require men to work at dangerous trades under intolerable conditions, such as those which in some trades hold the consumption-rate above 80 per cent. House-owners who provide dark, insanitary, pest-ridden tenements have no little part in increasing the death-rate. The Christian Scientists and other faith "healers" who close their eyes to the possibilities of material aid, that may often so potently be added to the psychotherapy they are employing, swell the death-rate. Well-meaning mothers, who believe that they are able to bring up their children in defiance of the new-fangled notions of hygiene spread by physicians and visiting nurses, help to keep the death-rate high. Most important of all, incompetent and careless doctors swell the death-rate. For these we as a profession are directly responsible, whether they are untrained men turned out by low-grade medical schools, or members of the profession who have failed to keep up with scientific progress and who have become incompetent through inertia and laziness. All these, by their carelessness, indifference and ignorance, jointly increase the death-rate, which competent and conscientious physicians, sanitarians and reformers are fighting to lower.

We have not the right to blame a cruel deity for deaths which are actually due to crass stubborn ignorance, inhumanity and the refusal to exercise the "common sense which is also an inspiration from the Almighty." A weeping mother told a famous physician that it had pleased Providence to take her baby from her. "Providence had nothing to do with the matter," replied the physician; "it was bad milk that killed your baby." We cannot escape some share of the joint responsibility of fixing the death-rate, but we can choose to be on the side of the forces that are bringing it down instead of those that are sending it up.

CHEDDAR CHEESE

Cow's milk, salt and rennet furnish the materials from which a great variety of so-called American, or cheddar cheese is made. The differences which the diverse products exhibit involve the texture, flavor and aroma of the resultant food. How these pronounced variations are accomplished by the use of almost identical raw materials is a question for which the casual observer and the delighted consumer find it difficult to formulate an answer. Science has established the importance of microorganisms in the ripening of cheese; and bacteriologists have bestowed much attention on the subject.

Hitherto it has been largely a matter of tradition and locality that has maintained the distinguishing character of the types of cheese which are sold under the various familiar designations. It is, indeed, rather remarkable that an industry which depends so largely on subtle biologic factors should have been continued so successfully during all the years that the technical operations have been carried out solely by rule-of-thumb methods. The fact that microorganisms play the dominant rôle in the production of the desired decomposition changes emphasizes the importance of an adequate knowledge of the essential biologic agents involved. Nevertheless some of the methods of cheese manufacture developed in a wholly empiric way are centuries old and thus antedate by many generations the science of microbiology.

The factors that determine whether a cheese prepared out of milk, salt and rennet is to be of one kind or another are found in the methods of the cheese-maker. He is able to vary in one way or another the composition of the cheese, with the result that conditions are established favoring or retarding the growth of the groups of microorganisms which must be the determining elements between the different kinds of cheese. A comparable situation exists in the fermentation industries in which the preparation of the desired wine or beer calls for the presence of the particular variety of yeast that has been found by experience to form a product with the properties sought and the absence of harmful forms.

In studies recently conducted at the University of Wisconsin in collaboration with the U. S. Department of Agriculture[1] it is pointed out that no single form of life is supposed to be responsible for the complex chemical changes that occur in the ripening of any particular variety of cheese, but rather that a considerable number are involved. The methods of manufacture, empiric though they may be, result in an environment that causes certain of the organisms constantly present in milk to develop in a definite sequence. A typical balance between the various forms of life concerned is essential for the normal ripening of cheese, otherwise the product will not be representative. Each of the great commercial varieties of cheese thus presents a distinct problem for the bacteriologist and mycologist; and the Bureau of Animal Industry has been engaged for some time in cooperation with various other scientific laboratories in determining and demonstrating the constant presence of the essential groups of biologic and chemical agents involved in the different cases.

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[1] Hastings, E. G., Evans, A. C., and Hart, E. B.: Studies on the Factors Concerned in the Ripening of Cheddar Cheese, Univ. Wisconsin Agr. Expt. Sta., Research Bull. 25, July, 1912.

In cheddar cheese the *Bacterium lactis acidi* group is constantly found present in great numbers. The work of the Wisconsin investigators has now shown that another group of bacteria — the so-called *B. bulgaricus* group — develops after the first, and that they reach approximately equal numbers. Each of these groups of organisms initiates certain changes in the cheese mass, consuming the same class of substances and producing the same by-products. The *bulgaricus* group takes up the work of decomposition at a certain stage of the ripening, and brings about its own peculiar changes which possibly prepare the cheese mass for still other types of organisms, and so on to the end of the ripening. Both of the distinctive groups designated above represent names that have lately become familiar terms to medical audiences in connection with the widely heralded sour-milk therapy. It is interesting, therefore, to find that representatives of this popular race of organisms are so prominently identified with a food that is yearly winning a larger place in the dietary of American homes.

THE SUPPOSED SIGNIFICANCE OF PHOSPHORUS COMPOUNDS IN THE DEVELOPMENT OF POLYNEURITIS AND BERIBERI

Analogy may be both useful and misleading in science. The danger lies in the encouragement which is offered to the promulgation of incorrect or illogical inferences. This has been exemplified in some of the deductions which have been the outcome of the active investigation of the etiology of beriberi and its experimental duplicate, peripheral polyneuritis. Schaumann, to whom we are indebted for some of the classic studies in this domain, arrived at the conclusion that these diseases are occasioned by a deficient supply of certain organic phosphorus compounds in the diet. He assumed a consequent impoverishment of the organism in phosphorus as the foremost etiologic factor. There were numerous indisputable facts in apparent confirmation of this view. The foods, notably polished rice and maize, which tend to provoke symptoms of malnutrition, are poor in phosphorus, whereas other dietary components like meat, yeast, the bran of rice and wheat, etc., which are known to alleviate the symptoms of polyneuritis, contain a more liberal supply of organic phosphorus.

Other investigators have pursued a similar line of argument; and for a time the phosphorus content of purchased rice was used in the Philippine Islands as an index of the safety of any sample of the cereal for human consumption. It has since been duly pointed out that the argument applied to phosphorus might equally well be extended to potassium, which is likewise largely removed with the pericarp in the milling processes. Neither potassium salts nor phosphorus compounds have yet found acceptance as curative agents in the malnutrition which their alleged deficiency was supposed to be responsible for.

An added method — perhaps it might be called a crucial test of the phosphorus hypothesis — obviously consists in examining the actual store of phosphorus in the tissues of individuals showing pathologic manifestations. Funk[1] believed that he observed a slight decrease in the phosphatid content of the brain of polyneuritic pigeons. Wieland[2] has analyzed the entire bodies of mice fed until death on polished rice. His data do not justify the conclusion that the slight decrease in phosphorus content occasionally noted was the cause of death. Similar decreases have been found in inanition, so that any low phosphorus findings, in so far as they are at all to be regarded as abnormal, are undoubtedly of secondary moment. In any event the original hypothesis of Schaumann and some of his successors has become highly improbable, if not actually untenable, now that a few phosphorus statistics of the body are available along with analyses of the defective diets. Add to this the further fact that the various curative extracts which have lately been investigated are reported to be essentially phosphorus-free,[3] and the evidence in favor of the original phosphorus theory, which at one time seemed so plausible, is still further shattered.

THE ELIMINATION OF FEEBLE-MINDED STRAINS

After four years' investigation among the population of England and Ireland the Royal Commission compiled statistics[4] which make it evident that the feeble-minded mothers of Great Britain have proportionately twice as many children as the normal. Field workers in this country encounter a similar condition. In the history of the Kallikak family, to which we recently referred,[5] it is stated that there are Kallikak families all around us and that they are multiplying at twice the rate of the general population.[6] This is largely accounted for by the fact that feeble-minded men and women are lacking in sex control. The result of research work by the Department of Public Charities in Philadelphia[7] also confirms the opinion that the rate of propagation of the feeble-minded is far greater than that of the normal, taking all classes together, though probably not so much in excess of the rate among the poorest and most irresponsible classes of the population taken by themselves. It should be noted, of course, that the birth-rate among the very poor and the feeble-minded is not an accurate index of permanent increase, since the low mental or financial status of the parents lessens the children's chances of survival. The infant death-rate in the illegitimate Kallikak line, for instance, was about six times as great as in the legitimate line.

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[1] Funk, C.: The Effects of a Diet of Polished Rice on the Nitrogen and Phosphorus of the Brain, Jour. Physiol., 1912, xlv. 50.

[2] Wieland, H.: Beiträge zur Aetiologie der Beriberi, Arch. f. exper. Path. u. Pharmakol., 1912, lxix. 293.

[3] Compare Chamberlain and Vedder: A Contribution to the Etiology of Beriberi, Philippine Jour. Sc. (B), 1912, vi, 251. Funk, C.: Chemical Nature of the Substance Which Cures Polyneuritis in Birds Induced by a Diet of Polished Rice, Jour. Physiol., 1912, xliii, 395.

[4] Report of the Royal Commission on the Care and Control of the Feeble-Minded, viii, Part 6, p. 189.

[5] A Natural Object-Lesson in Heredity, editorial, THE JOURNAL A. M. A., Oct. 26, 1912, p. 1544.

[6] Goddard, Henry H.: The Kallikak Family, p. 71.

[7] The Degenerate Children of Feeble-Minded Women, Philadelphia Department of Public Health and Charities, 1910.

Still, the fact that such defective lines are able to increase at all and to perpetuate themselves for generations is sufficiently disquieting. It is notorious that the offspring of feeble-minded parents are especially liable to inherit the defective mentality. According to Goddard,[5] about 65 per cent. of all the feeble-minded owe their condition to heredity. It thus becomes apparent that the one great problem in the prevention of feeble-mindedness is the prevention of reproduction by those who are thus afflicted.

Many tentative experiments have been made along the line of sterilization. Indiana, Washington, California, Connecticut, Nevada, Iowa, New Jersey and New York have all passed laws which provide for some form of sterilization of feeble-minded and certain criminal types. Pennsylvania is prevented from having such a law only by the governor's veto of the bill. Kansas and Nebraska have both made experiments with this method of dealing with sexual offenders. For political reasons both of these states have had to abandon the practice at least temporarily. The New Jersey law, though far-reaching and carefully planned to avoid abuse while lending itself to the aid of scientific research, has not been in effect long enough to warrant conclusions as to its practical outcome. Indiana has given the sterilization plan the most thorough trial of all. In that state the practice of vasectomy on certain criminal types has been legalized for the last seven years. In the reformatory at Jeffersonville about three hundred men have been thus operated on.

The fact that the operation was not looked on with disfavor by those who were subjected to it has been urged as an argument against its practice. It has been contended that libertinism and venereal disease would be greatly increased if the liability of parentage were entirely removed while the desire and ability to cohabit remained the same as before the operation. While this argument at first sight appears to be reasonable it fails to take into account the fact that the sense of moral responsibility does not exercise a restraining influence on the conduct of the feeble-minded. Although their sex control would be no better after vasectomy than before, it would be no worse for the simple reason that persons of this class have no idea of sexual morality at any time. Therefore it follows that, however strong the moral argument may be against vasectomy when performed on men of normal mentality, it is not valid when applied to the feeble-minded. The objection has also been urged that any sterilizing operation would fall under the head of cruel and unusual punishment, and on this account the practice is at present in abeyance in more than one state pending the outcome of supreme court decisions on the constitutionality of the laws which have provided for such operations. The supreme court of the state of Washington has declared constitutional the law of that state providing for the sterilization of criminals.

When the whole subject is viewed from a practical point of view the arguments for sterilization of the mentally defective seem greatly to outweigh the sentimental reasons advanced against it. Many inmates of institutions for the feeble-minded could be kept safely at their homes and at least help to earn their own living, were it not for the opportunity to reproduce their own kind which such liberty would give them. Although segregation of this class during the whole of the reproductive period is effective in its results, it carries with it a financial burden which seems unnecessarily large. Considered in all its various aspects it would appear that the most practical plan for the elimination of the feeble-minded strains should judiciously combine the methods of segregation and sterilization.

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[5] Goddard, Henry H.: The Menace of the Feeble-Minded, Pediatrics, June, 1911.

Current Comment

CRIPPLING THE FOOD AND DRUGS ACT

When The Journal discussed the McCabe-Wilson-Dunlap conspiracy to oust Dr. Wiley from the Bureau of Chemistry, it was shown that the Food and Drugs Act was seriously crippled both by the inadequacy of the punishment meted out to its violators and by the interminable delay in bringing cases to trial. Good examples of the law's delay are found in the abstract of two notices of judgment published in the Propaganda for Reform department of this issue. One of these records a case in which an offense committed in January, 1910, finally came to trial in April, 1912. The public document giving information about this case was not issued until Sept. 27, 1912. The other case described was one of misbranding committed in August, 1910, and brought to trial in April, 1912. The public was given information about this case Sept. 27, 1912. Both of these were clear-cut cases of misbranding. In one, the defendant declined to contest the charge, and was let off with the mere payment of costs; in the other, a plea of guilty was entered and a fine of five dollars was imposed. How much of a deterrent is a law which is so enforced that it may take two years or more for a given case to come to trial and when finally brought to trial results in a mere nominal fine? One of the best preventives against law violation is newspaper publicity. Many firms of the "large and respected" type which, under present conditions, do not hesitate to misbrand or adulterate foods and drugs, would think twice about doing so if they found that the newspapers of the country would give wide publicity to their trial and conviction for such misdemeanors. But the average live newspaper does not want to deal with facts that have become ancient history before they reach the public. "There are more ways of killing a cat than by drowning it;" and there are more ways of killing a law than by failing to enforce it.

STARCH DIGESTION IN INFANTS

The age at which, in the alimentary tract of infants, the various digestive ferments first make their appearance has an obvious bearing on the possibilities of artificial feeding at early ages. There has been a widely prevalent, though frequently contradicted view, that the starch-digesting enzymes do not manifest themselves in the early days of infancy—hence the obvious proscription of starch-containing food materials from the dietary at this period. Jacobi and Heubner have both long contended that food containing starch can be utilized during the first month of an infant's life. The earlier contrary conclusions have been based on post-mortem search for diastatic ferments in the appropriate glands of the digestive apparatus, as well as an examination of the feces for evidences of residual amylases and other enzymes. The ingenious method of Dr. Alfred F. Hess of New York, whereby intestinal contents can be removed by the use of the duodenal catheter,[1] has made it possible to obtain data regarding the pancreatic and intestinal secretions which have hitherto not been accessible to direct examination *intra vitam*. It is of decided interest and physiologic import to learn through the application of the new experimental and diagnostic procedure, that even before new-born infants have been put to the breast, that is, before there is any food factor to incite secretion, the three familiar pancreatic ferments are found in the intestine. Dr. Hess[2] reports that, although the amount of pancreatic secretion is still very scanty during the first week of life, it contains the starch-digesting enzyme with increased regularity. In older infants, a month or more of age, there is a decided augmentation in the amylolytic power of the pancreatic juice. Without attempting to interpret the functional significance of the occurrence of an enzyme at a period when, in normal nutrition, it can scarcely be called on for participation in the digestive process, it is apparent that the findings quoted must modify the point of view of those who still debate the digestibility of starch in early infancy.

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BIOCHEMISTRY IN ENGLAND

During the past year a movement toward the organization and closer social affiliation of those biologists and chemists who are interested in the investigation of problems common to the two branches of science has resulted in the formation of the Biochemical Club of England. The names of many on the committee for the present year are familiar in the field of scientific medicine, including Prof. H. E. Armstrong, Prof. W. M. Bayliss, Mr. J. S. Ford, Dr. H. H. Dale, Dr. J. A. Gardner, Dr. W. H. Hurtley, Dr. A. Harden, Dr. F. G. Hopkins, Mr. F. Keeble, Prof. B. Moore, Dr. W. Ramsden, Dr. E. J. Russell, Prof. J. Lorrain Smith and Dr. R. H. Aders Plimmer.[3] The movement cannot fail to lead to meetings which will be stimulating and full of interest, if one may judge by the success which has attended the similar organization, the American Society of Biological Chemists, since its organization six years ago. Chemical points of view are rapidly gaining a preeminent position in the biologic and medical sciences. The closer association and cooperation of investigators in medicine with scientists who are attacking allied problems in other fields, such as agriculture, plant physiology and pathology, microbiology in its industrial applications, etc., is certain to afford advantages of mutual value. In the United States, compared with Germany, for example, there has always been less tendency for the student of chemistry in medicine to hold aloof from the biochemist proper. The consideration of medical problems from a more strictly biologic point of view is a timely attitude, and the new English organization with its broad affiliations is a commendable one.

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SUIT THE PRESCRIPTION TO THE PATIENT

It is amusing to note how literally and blindly some recommendations from European sources are quoted on this side of the ocean. As we have remarked before, some foreign medicines cannot be obtained in this country, and when a physician is led to prescribe them by seeing them recommended in some medical periodical, the druggist often has to delay the filling until he can ask the physician to substitute an American equivalent. Another instance of the same mechanical tendency is observed in the recommendation to American readers of a certain foreign diet outline, which includes a glass of light wine with meals. The American writer who cites this outline, without reflecting that the glass of wine is merely a concession to local foreign custom, similar to the cup of coffee permitted with an American breakfast, has solemnly reproduced the item as if it were an essential part of the diet. Such unqualified recommendation may lead a patient to unaccustomed indulgence in liquor. The light wines so commonly used abroad, moreover, are not easily obtained in this country. One who undertakes to adapt foreign prescriptions to American use ought to bear in mind national customs and conditions and exercise common sense as well as linguistic knowledge.

Medical News

ARKANSAS

New Officers.—Phillips County Medical Association at Helena, October 5: president, Dr. W. C. King; secretary, Dr. W. R. Orr, both of Helena.——Third District Medical Society at Wynne, October 31-Nov. 1: president, Dr. W. H. McKie, Wynne; secretary, Dr. B. L. Hill, Stuttgart. The next meeting will be held in Cotton Plant.

Hospital Appointments.—On recommendation of the health officer, Dr. O. K. Judd, the mayor of Little Rock has made the following appointments for a consulting staff for the city hospital: medicine, Drs. Milton Vaughan and A. E. Harris; surgery, Drs. C. E. Bentley, M. D. Ogden and A. Watkins; ophthalmology, Dr. Frank Vinsonhaler, and otolaryngology, Dr. J. G. Watkins.

CALIFORNIA

New Officers.—The thirty-third annual meeting of the San Joaquin Valley Medical Society at Merced, October 8: president, Dr. Henry Hildreth, Delano (reelected); secretary, Dr. R. O. Ross, Fresno (reelected).

Lane Library Dedicated.—The Lane Medical Library of the Leland Stanford, Jr., University at Sacramento and Webster Streets, San Francisco, was formally dedicated November 3.

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[1] Hess, A. F.: Arch. Int. Med., July, 1912, p. 37.

[2] Hess, A. F.: The Pancreatic Ferments in Infants, Am. Jour. Dis. Child., October, 1912, p. 205.

[3] These facts are taken from the Biochemical Bulletin, 1912, i, 484.

Dr. Emmet Rixford gave a historical review of the library, and addresses were delivered by Mr. Timothy Hopkins, president of the board of trustees of the university, and by Dr. David Starr Jordan, president of the university.

Personal.—Dr. Mary Fulton, for twenty-eight years a medical missionary in Canton, China, has returned to the United States and is spending the winter in Pasadena.——Dr. C. A. Phelan, Ferndale, has gone abroad.——The house of Dr. W. J. Murphy, Barnville, was destroyed by fire, believed to have been of incendiary origin, October 9.——Dr. W. F. Snow, Sacramento, secretary of the State Board of Health, has returned from Europe.——Dr. J. Hamilton Todd, Oakland, was painfully injured October 8, by being struck by a motorcycle.——Dr. T. L. Blanchard, Campbell, has started for Europe.——Dr. Gustavus S. Simmons, Sacramento, has returned from abroad.

ILLINOIS

New Hospital for Milford.—The Milford Hospital, which has been built by Dr. H. D. Junkin, was opened to receive patients the last week in October. The building is a two-story frame structure with accommodation for ten or more patients.

New Officers.—Aesculapian Society of the Wabash Valley, sixty-fifth annual session at Paris, October 3: president, Dr. L. J. Weir, Marshall; secretary-treasurer, Dr. H. N. Rafferty, Robinson.——Wabash County Medical Association at Mount Carmel, October 29: president, Dr. P. G. Manley; secretary, Dr. E. R. Lescher, both of Mount Carmel.

Sangamon County Bulletin.—Sangamon County Medical Society has commenced the issue of a bulletin, of which Dr. J. H. D. Griffiths, Springfield, is editor. In the November issue the bulletin shows the deadly parallels between hog cholera with an $80,000 appropriation and cholera infantum from which 5,373 deaths occurred in the state during 1910 without an appropriation, and concluding with this pertinent question: "Is it not time that your baby had your pigs' protection?"

Ill and Injured.—Dr. Veda C. Murphy, Cuba, who is under treatment at the Graham Hospital, Canton, is reported to be convalescent.——Dr. W. D. Humphrey, Virginia, who was seriously injured in a runaway accident, October 29, is under treatment in a hospital in Jacksonville.——Dr. Robert A. Noble, Bloomington, fractured his left arm October 30, while cranking his automobile.——Dr. B. E. LeMaster, Bushnell, was painfully injured in an automobile accident near Canton, October 23.——Dr. E. J. Higgins, Joliet, county physician of Will County, fractured his wrist while cranking his automobile, October 26.——Dr. T. W. Shastid, Pittsfield, is said to be seriously ill in a hospital in Chicago.——Dr. W. H. Fitch, Rockford, who fractured his leg in September, in Colorado, has resumed practice.——Dr. W. G. Wallace, Mattoon, who has been ill for several weeks, is said to be improving.——Dr. A. G. Kessler, Manhattan, is suffering from an infection of the hand due to an operation wound.——Dr. W. W. Honn, Champaign, who was operated on at the Burnham Hospital, November 3, is reported to be doing well.——Dr. J. M. Bartholow, Urbana, fell from his automobile, November 1, spraining his wrist.——Harry Bennett, Litchfield, who has been ill with typhoid fever, is reported to be convalescent.——Dr. E. J. Cole, Rockton, who has been seriously ill, is said to be improving.——Dr. James Tweddale, Washburn, is reported to be seriously ill.

Chicago

Hospitals Sued.—It is announced that Health Commissioner Young has ordered suit started against the National Emergency Hospital, Eastern Emergency Hospital, American Hospital and Columbus Hospital for failure to comply with the ordinance relative to fire protection.

Personal.—Dr. and Mrs. Arnold C. Klebs, who have been visiting in Chicago, sailed for their home in Switzerland, October 31.——Dr. Frank K. Bartlett has been appointed an instructor in the department of pathology and bacteriology in the University of Chicago and will be connected with the investigation of the chemical phases of tuberculosis.

MARYLAND

New Officers.—Worcester County Medical Society, October 15: president, Dr. J. D. Dickerson, Stockton; secretary-treasurer, Dr. J. L. Riley, Snow Hill.

Faculty Meets on Eastern Shore.—The semi-annual meeting of the Medical and Chirurgical Faculty of Maryland was held at Cambridge, Eastern Shore, November 13. Through the courtesy of the president, Dr. Hugh H. Young, Baltimore, a special steamer was placed at the disposal of the Baltimore members. Meetings were held in the morning and afternoon and in the evening the first of the public health meetings was held, at which the governor spoke. The faculty was entertained a lunch by the Dorchester County Medical Society at the hom of Dr. B. W. Goldsborough.

County Commissioners Clash with State Board.—A disput has arisen between the commissioners of Baltimore Count and the State Board of Health. The commissioners have pur chased a sewage disposal plant for $600,000 and the stat board has filed an injunction against this action alleging i was contrary to the law in not having the approval of th board, and having been taken after the board had disapprove The board also claims that the plant will contaminate th waters of Jones' Falls so as to menace the health of the cit and county of Baltimore, and also that the price paid was to high, and that a suitable plant could have been built at a muc less expense.

Baltimore

Society Thanks Councilman.—The Baltimore City Medica Society has passed a vote of thanks to Dr. Timothy Heatwole a member of the city council, for his services in securing th passage of the law suppressing all noises in the vicinity o hospitals.

Commissioner Asks Increased Appropriation.—Health Commissioner Bosley has asked for an increase of $20,000 in th appropriation for the department of health, to be used for th employment of additional members of his staff and fo increases in salary.

New Officers.—Baltimore City Medical Society, November 1: Dr. George A. Fleming, chairman, and Dr. John Staige Davis, secretary, of the section of clinical medicine and surgery; Dr. A. P. Herring, chairman, and Dr. G. Lane Taneyhill, secretary, of the section on neurology and psychiatry.

MISSISSIPPI

Supreme Court Upholds State Board.—The Supreme Court of the state has rendered a decision that the State Board of Health is clothed with police power to regulate and prescribe rules for the practice of medicine. The rule which was brought before the court on appeal was that no person should be permitted to practice medicine in the state without having passed an examination by the board. The case in point was that of J. N. Tucker of Lauderdale County, indicted for practicing without a license and in which a demurrer was filed by the counsel for the defendant.

NEW YORK

New Officers.—Medical Association of Central New York, forty-fourth annual session at Batavia, October 24: president, Dr. L. F. O'Neil, Auburn.——Binghamton Academy of Medicine, October 22: president, Dr. George S. Lape; secretary, Dr. S. B. Blakely.

Health Week in Albany.—Special exercises were given on October 23, at which addresses were made on "A City Beautiful" and "A City Clean." October 24 was set apart as Medical Day. The exhibit of the state at the International Congress on Hygiene and Demography was shown at the State Education Building during the week.

Medical Reserve Corps Organized.—The New York Division of the Medical Reserve Corps, U. S. Army, was formally organized in New York City, November 7, with an initial membership of forty-five. Col. L. Mervin Maus, M. C., U. S. Army, chief surgeon of the eastern division, presided and read a paper on the history and purposes of the Medical Reserve Corps. First Lieutenant Henry Clark Coe was nominated president for 1913; First Lieutenant Harold Hays, secretary. The next meeting will be held on December 5, at Fort Jay, Governor's Island.

Personal.—Dr. Henry T. Dana, Cortland, is about to start the erection of a three-story business block for the use of physicians and lawyers.——Dr. A. T. Kerr, Ithaca, has declined reelection as president of the City Hospital.——Dr. Henry S. Foltz, Cortland, was seriously injured by an accidental gunshot-wound while hunting, October 17.——Dr. W. H. Beattie has resigned as school medical inspector for Utica and will study abroad.——Dr. Robert G. Cornwell, Riverhead, has been elected coroner of Suffolk County.——Dr. H. Ketcham, Auburn, was painfully injured in an automobile collision, October 31.——Dr. Archer D. Babcock, Syracuse, who has been ill with pneumonia at the Hospital of the Good Shepherd, has recovered and returned home.——Dr. A. T. Kerr has been elected vice-president of the Ithaca City Hospital Association.——Dr. and Mrs. D. C. Twichell, Saranac Lake, have sailed for Europe.

New York City

Harvey Society Lecture.—The fourth Harvey Society Lecture will be given at the New York Academy of Medicine

November 23, by Prof. G. N. Stewart of Western Reserve University, Cleveland, on "The Rate of Blood Flow and the Vasomotor Reflexes in Disease."

Memorial to Dr. Roosa.—On November 7 a memorial tablet to the late Dr. D. B. St. John Roosa was unveiled in the corridor of the New York Post-Graduate Medical School and Hospital, which was founded by Dr. Roosa in 1882 and of which he was president until his death four years ago. The tablet is four feet wide and six in height and is the work of H. M. Shrady. At the top of the tablet, above the half figure in profile of Dr. Roosa, are the words, "Every man's work shall be made manifest."

Anti-Vivisectionists Line Up for Battle.—A meeting was held at the Hotel Savoy on November 7, which was called a Conference of Societies Opposed to Vivisection or to Cruelty in the Practice Thereof. The societies represented were the New England Anti-Vivisection Society of Boston, the Society for the Prevention of Abuse in Animal Experimentation of Brooklyn, the National Society for the Humane Regulation of Vivisection of Boston, the Theosophical Anti-Vivisection League of New York, the American Antivivisection Society of Philadelphia and the Vivisection Investigation League of New York.

Mental Hygiene Conference.—The first Mental Hygiene Conference was opened at the College of the City of New York on November 8 and continued to November 15. The conference is being held under the auspices of the National Committee for Mental Hygiene and the Committee on Mental Hygiene of the New York Charities Aid Association. In addition to the scientific sessions the exhibit which was shown at the International Congress on Hygiene and Demography held at Washington is a feature of the conference. A laboratory was fitted up for demonstrating the Binet-Simon tests for estimating the mental development of children and moving pictures showed the methods of examination and treatment of insane patients followed in the various state hospitals. Parties were conducted through the exhibit every hour from 9 a. m. until 10 p. m. by physicians who explained the various exhibits.

Personal.—Dr. Abraham Jacobi tendered his resignation as trustee of the New York Academy of Medicine, November 7. There were many objections raised to accepting the resignation, but his wishes were finally acquiesced in, and the following resolution passed: "Resolved: That the resignation of Dr. Abraham Jacobi as trustee of the New York Academy of Medicine, an office which he has filled as president of the academy ex officio and as trustee by election together since 1885, nearly twenty-eight years, with great ability and fidelity, and with invaluable benefit to the academy, be accepted with sincere regret and the heartiest wishes for his good health and happiness in the future."——Among the organizers of the China Society of America which was incorporated recently and which has as its object "to promote friendly relations between the United States and China and to disseminate among the American and Chinese peoples a correct knowledge of the ideals, culture and progress of the two nations," are Dr. Louis Livingston Seaman, president of the society, and Dr. Ramon Guiteras.——Dr. S. Adolphus Knopf has been elected honorary president and consulting physician of the medical board of the Bruchesi Antituberculosis Hospital, Montreal. The institution is doing work among the French-Canadian population and in addition to a well equipped dispensary has a fine preventorium near Montreal.

OHIO

Physicians Building in Columbus.—A ninety-nine year lease has been closed for the new physicians' and surgeons' building at 677 North High Street, Columbus.

Emergency Fund Provided.—The city council of Dayton has provided $3,000 to be used by the board of health for the continuance of the fight against diphtheria.

Wants Separate Building for Inebriates.—Superintendent H. C. Eyman, of the Massillon State Hospital, advocates that a separate building should be erected in connection with each state hospital for the treatment of dipsomaniacs.

Manchester Professor at Cleveland.—Thomas Wingate Todd, M.B., Ch.B., F.R.C.S., lecturer in anatomy at Victoria University, Manchester, England, has been appointed Henry Willson Payne professor of anatomy in the medical department of Western Reserve University, Cleveland, and will take up his duties about December 10.

State Hospital Overcrowded.—Dr. E. A. Baber, superintendent of the Dayton State Hospital, has filed a request with the Hospital Board of Administration for an appropriation of $80,000 for two new buildings. The institution has at present 1,236 patients and is overcrowded and the proposed additions will accommodate 200 additional patients.

Ill and Injured.—Dr. C. Flint Kline, Portsmouth, who has been ill for six months, is reported to be improving.——Dr. Louis Kahn, Columbus, injured his shoulder recently while cranking his automobile.——Dr. William R. Dabney, Marietta, is reported to be seriously ill in a sanatorium in Cincinnati.——Dr. L. A. Lemmon, East Liverpool, who sustained a fractured skull and other injuries in a collision between his automobile and a street car a few weeks ago, is improved and has returned to his home.——Dr. H. W. Nelson, Steubenville, was knocked down by a motorcycle recently and painfully injured.

Personal.—Dr. Harold N. Cole and A. Graham, Cleveland, have returned after a year abroad.——Dr. J. J. R. MacLeod, Cleveland, has returned from abroad. While in London he delivered eight lectures on "Carbohydrate Metabolism" before the University of London.——Dr. Henry S. Upson has resigned as professor of neurology and has been appointed senior professor of neurology in the Western Reserve University, Medical Department.——Dr. Silas Schiller, Youngstown, has been appointed a member of the State Board of Medical Registration and Examination, vice Dr. Joseph N. Stevenson, Chillicothe.——Dr. David W. Steiner, Lima, has been appointed trustee of the District Tuberculosis Hospital.——Dr. Don C. Hughes, Findlay, captain, M. C., O. N. G., assigned Fifth Infantry, has resigned.

Cincinnati

Health Department Physicians Organize.—The district physicians of the health department have organized an association to discuss health problems. Dr. O. M. Craven has been elected chairman and Dr. Charles A. Stammel, secretary.

Personal.—Dr. William Frederick Jelke, Cincinnati, has been adjudged insane and committed to the Longview State Hospital.——Dr. J. C. Mitchell, assistant food inspector, has resigned.——Dr. Samuel E. Allan has succeeded Dr. John D. Miller as a member of the State Board of Health.

Clinics for School Children.—Medical and psychologic clinics for school children have been established in Cincinnati. The medical clinic is under the direction of the Board of Health and is located in the city hall. The psychologic clinic is at the University of Cincinnati and is under the charge of Dr. Breese and will be held on Tuesday morning of each week.

PENNSYLVANIA

Diphtheria in Allentown.—Over 100 cases of diphtheria have been reported to the Health Department of Allentown, but there are many cases that have not been reported and because of the laxity of physicians in this matter, Dr. N. C. Guth, Allentown health officer, has issued a threat to start wholesale prosecutions, and has stated also that any person violating quarantine by visiting an infected house shall become an inmate until the quarantine is lifted, when the matter will be taken to court and the maximum fine of $100 or imprisonment will be demanded.

Typhoid in the State.—No new cases of typhoid fever have recently been reported from Troy and the revised list of certified cases shows only 200 names. No deaths have occurred since November 3, and physicians are encouraged. Of the 200 patients, 69 are school children, 94 are not more than 20 years of age and 45 are between the ages of 20 and 45. Carelessness and ignorance of milk dealers were responsible for the epidemic of typhoid at Norristown and Paoli, Montgomery County; Findland, Bucks County, and Yeagertown, Mifflin County (where there have been 151 cases of the disease and numerous deaths) according to State Health Commissioner, Dr. Samuel G. Dixon, who made the following statement: "One of these recent epidemics was traced to the refilling of bottles which had been taken from a house where typhoid fever existed. These were passed on for other customers along the line, without being sterilized. Ignorant dealers assumed that because the bottles appeared clean, they were safe to serve milk in to other customers. Another of these epidemics was traced to the water in which the dairyman washed his cans and bottles."

Philadelphia

Personal.—Dr. E. G. Abbott, Portland, Maine, assisted by Drs. H. A. Pingree and F. W. Lamb, of the same city, gave a clinical demonstration of his method of rapid correction of rotary lateral curvature of the spine, at the Jefferson Hospital, November 12.

Portraits for the College of Physicians.—Three portraits were presented to the College of Physicians October 6. One was the Sargent portrait of the late Dr. John H. Musser. A portrait of Dr. Isaac Hays was presented by the family of that eminent ophthalmologist and one of the late Dr. Wharton Sinkler, by his family.

Children's Crusade for Hospital.—Commemorating the children's crusade of 1212, when thousands of little ones perished in their luckless attempt to reach Palestine, a new crusade of children, who wish to help others, has been inaugurated in this city by men and women who are interested in the new children's hospital at Eighteenth and Bainbridge streets. The only requirement for membership in this army is the payment of one penny to be used to endow beds in the new hospital. The head of this movement is Miss B. Hodges, who has interested Mrs. Kate Douglas Wiggin and others in this crusade.

Health Department Issues Scarlet Fever Bulletin.—On account of the great increase of the number of cases of scarlet fever, the Department of Health is issuing a bulletin, warning the public to take every precaution to stop the spread of the disease. The number of deaths from scarlet fever for the first ten months of this year has been less by 81 deaths, or 49 per cent. than for the same period last year and less by 36 deaths, or 30 per cent., on the average number for the same period each year, during the preceding five years. The number of cases, however, has increased for the first ten months of this year by 367 or 22 per cent. over the same period of last year and by 241 cases, or 13 per cent. over the average number of cases reported for the same period each year for the last five years. With the above record the health bulletin urges the public to consider every case of sore throat, especially in children, as a possible source of danger, and to keep such patients away from other people until after examination by competent physicians.

GENERAL

New Officers.—Eleventh annual meeting, Association of Seaboard Air Line Railway Surgeons, Tampa, Fla., October 30-31: president, Dr. John M. Miller, Cross Hill, S. C.; secretary-treasurer, Dr. J. W. Palmer, Ailey, Ga. (reelected.)

Embezzler Captured.—The sharper Maynard, whose exploits were noted in The Journal, October 5, page 1303, has been captured under another name at Lincoln, Neb., and is said to be fighting extradition to Michigan. He had been carrying out similar tactics in Lincoln, and was ready to make his getaway when arrested.

Personal.—Dr. and Mrs. Francis M. Shook, U. S. Navy, have recently returned from abroad and have located in New York City.——Dr. Paul Preble, U. S. P. H. Service, has been directed to investigate the prevalence of tuberculosis, trachoma, smallpox and other contagious diseases among the Indians of North and South Dakota.

Infectious Diseases.—Cases of dengue were reported, October 31, from Tampa, Gainesville, Miami and Key West, Fla.——Seven-day fever, a disease previously reported only in India and in ports of Southeastern Asia, has occurred in the Canal Zone during the past summer. The Public Health Service warns physicians to be on the lookout for it in the differential diagnosis of malaria, typhoid, dengue and other fevers. No fatal cases have been noted.——An investigation by the Public Health Service covering 4,000 people in the mountain region of Kentucky discovered 500 cases of trachoma, or 12½ per cent., and it is believed that similar conditions exist in the other Appalachian Mountain states. It has also been found to prevail extensively among the Indians on the reservations in the West and Northwest.——One plague-infected rat was found at Arecibo, Porto Rico, October 30.——A plague-infected ground squirrel was found in Contra Costa County, Cal., October 8. No additional cases of plague have been reported in human beings.——A few cases of poliomyelitis continue to be reported from various sections of the country. The epidemic at Buffalo has entirely subsided.

FOREIGN

Yellow Fever in Mexico.—Cases of yellow fever continue to be reported from San Juan Bautista and Merida up to November 3 and 4.

Roentgen Rays and Radium in Gynecology.—To aid him in preparing a paper on this subject for the International Medical Congress at London next August, Dr. Foveau de Courmelles, 26 Rue de Chateaudun, Paris, IX, France, appeals to all confrères to send him as soon as possible their observations in detail on this important question.

Cholera in Other Countries.—Cholera continues to spread in Japan in a number of important ports and has appeared in the interior.——Cholera is epidemic in a number of South China ports.——In Turkey in Asia, cholera has been epidemic during the past summer over wide stretches of territory.——Cholera was reported from Italy to the end of September. No reports have been received since the first of October.

Cholera in the War Zone.—Cable reports from Constantinople state that the outbreak of cholera in that city and among the troops in the war zone near the city is assuming serious proportions. Twenty-three cases had occurred among the troops along the Tchataija lines up to November 6, with many more suspected cases among the wounded. The disease appears to be getting a firmer hold on account of the massing of troops, lack of proper food and complete absence of sanitary arrangements. Cases have been reported among the refugees in Constantinople.

LONDON LETTER

(From Our Regular Correspondent)

London, Oct. 26, 1912.

The National Insurance Act: Great Advance in the Terms Offered by the Government to the Physicians

The determined and united action of the profession in breaking off negotiations with the government and refusing to work the national insurance act has produced a great effect. The original offer by the government of a capitation fee of $1.50 for medical attendance and drugs has been increased to $2.25. Mr. Lloyd-George, Chancellor of the Exchequer, in stating the new proposal to the advisory committee of the insurance commissioners (a committee consisting of physicians and representatives of friendly societies and employers formed to advise the commissioners), gave a remarkably able survey of the situation. Medical attendance on the industrial classes, he said, was at present of three or four different characters. There was, first, private practice, which applied to only a fourth of the population. The greater number of the remainder were attended under contract practice, which was of two forms: First, there was the contract practice of the friendly societies, under which a capitation fee of anything from $.50 to $2.50 was paid. This covered about four million workingmen and, as a rule, did not cover their dependents. The average capitation fee was sometimes very low and averaged about $1, including drugs and everything except major operations. The other form of contract practice, which was very popular in large industrial districts, was the "works doctor." A certain sum of money was charged on a percentage principle ranging from six to twelve cents on every $4 of wages, and covered attendance on the workingman and his family. These two forms together provided for more than half of the working population of the country. The remaining fourth were attended by charitable institutions, such as hospitals or the poor-law doctor. (The latter is only available to destitute people.) But a substantial proportion of the working class received no medical attendance at all, until it was too late to be of any value. It could not be denied that the present position was unsatisfactory So far the working class had found that the only plan by which they can cope with the problem of the treatment of disease was by a form of insurance. The only alternative was for the state to undertake their treatment. In the act the government had chosen the method of insurance. How was it to be made effective? The cardinal defect of contract practice had been that it was inadequate because it was underpaid. Many physicians had assured him that they had given their best services without regard to pay and that there was nothing left after supplying the best drugs. The work was simply charity. The revolt of the profession against contract practice did not begin with the insurance act, though this brought it to a point. In 1905 the British Medical Association inquired into it and correspondence took place in the columns of the *British Medical Journal.* A summary of this showed that 165 physicians engaged in contract practice were satisfied; 458 considered the rate inadequate; 393 stated the amounts to which they considered the rates should be raised. In view of recent events it was interesting to examine their suggestions. Thirty-one suggested a capitation fee of $1; 145 suggested $1.25 or less; fifty-two suggested between $1.25 and $1.50; seventy-eight suggested $1.50; twenty-two claimed $2; twenty-three $2.50, and twenty-nine sums ranging from $2.50 to $4. Thus the vast majority regarded $1.50 as adequate. Moreover, this included the treatment of tuberculosis, which was very expensive. Therefore, when the government suggested $1.50, apart from the treatment of tuberculosis, it was not a mean and meager suggestion, having regard to the facts then known.

THE PHYSICIANS' "SIX POINTS"

After the introduction of the bill the medical profession presented a number of demands—the famous "six points." Most of them had been conceded either in the act or in the regulations. Some of them could not be conceded in any national settlement; for instance, the income limit of $10 a week. It was impossible for the government to lay down any income limit which would exclude large sections of the industrial population from the provision made for their medical attendance. Supposing the $10 income limit was fixed. In some districts it would be too high; in others, too low. Large sections of the working-classes would be cut out in prosperous times, while in times of depression they would be entitled to treatment. If the working population and the physicians in any given area, however, liked to make arrangements of that kind they had a perfect right to do so within the terms of the act.

THE PROFESSION'S DEMAND FOR REMUNERATION

The physicians demanded $2 for their services apart from drugs and extras. Drugs in the act were calculated as costing about 32 cents. The extras demanded by the profession (for night visits, minor operations, etc.) would cost 50 cents at the least, and unless some system of checking those extras, which he had never been able to devise or discover, could be found, it would be much nearer to 75 cents or even $1. Thus the demand of the profession was equivalent to a demand of over $3 per head of the insured population. By agreement with the profession an eminent actuary, Sir William Plender, examined the books of physicians in six representative towns and found that their incomes for attendance and drugs amounted to about $1 per head of the total population. (Discussed in previous letters to The Journal.) As this included persons above the insured class who paid higher fees it followed that the cost of treating the insured class was lower than $1 per head. An allowance had to be made, however, for two important considerations. First, poverty and thrift reduced undesirably the amount of attendance and treatment obtained at present by this class, and under the act better attendance would be provided.

THE NEW PROPOSALS

The government had decided to increase substantially the amount available for medical attendance, but would require some guarantee for an improved medical service. The proposal to form a national medical service was alluring. This could be done with the increased money now provided for medical service and would have many advantages. It would be worked somewhat as follows: . Take a town of 200,000 inhabitants. At the head of the service would be a principal medical officer responsible for its working, not only a skilled clinician but a highly efficient administrator. Immediately under him would be a staff of specialists who would help the general practitioner in any case of difficulty. Then would come the general practitioners of the service, of whom some would be junior and others senior of wide experience. These would work on an organized system, proper provision being made for night calls and other emergencies. They would be assisted by an efficient staff of nurses. Their work would be done under competent supervision and they would be able promptly to secure skilled assistance in case of difficulty. Such a service would naturally work in close cooperation with the public health and the educational authorities. It would discourage malingering, for no physician would have any inducement to give a certificate unless there were real need for it. That was not the case under the insurance act. A physician who refused certificates was not likely to make himself popular with those who had a free choice of physician. Before resorting to such a sweeping change, however, an attempt would be made to work the act. The government would increase the capitation fee from the original $1.50 for drugs and attendance. First they would add 12 cents for the domiciliary treatment of tuberculosis. It had been proposed to pay fees per attendance, but this would give the physician an interest in keeping the patient at home instead of sending him to a sanatorium. In addition, 60 cents would be added to the fee, making the whole fee about $2.25; 50 cents of this would be allotted for drugs, and this sum might be reduced by 12 cents, which would pass into the doctors' pockets, if they exercised economy in prescribing. This would check a tendency to extravagance which might exist if the physicians had not to pay for drugs. Thus, in any event, the physicians would receive a minimum fee of $1.75 which might be increased to nearly $2. On the other hand, by providing a minimum of 36 cents for drugs there would be no inducement to the physician to cut down the drug bill at the expense of efficiency. Finally, there would be a still further provision for medical services—a central fund for meeting the abnormal cost of drugs in cases of epidemics.

AN IMPROVED SERVICE

For this increased remuneration the government would ask for an improved service. First, the physicians would supply without charge all the certificates which an insured person required. Secondly, they would have to keep simple records of the cases they treat, a new feature in the industrial practice of this country. Thirdly, a proper standard should be maintained not only in regard to the number of visits paid to patients but also to the amount of time given. Finally, when necessary, the physician must resort to those modern means of exact diagnosis, the importance of which was increasing.

THE COUNTRY PHYSICIAN

In the country the drug problem between physician and chemist did not arise, as the chemist was seldom available. Therefore, the physician would provide his own drugs and obtain the whole of the $2.25. This would be some compensation for the increased distances he had to travel to see patients.

The chancellor concluded by claiming that his proposals were not only fair to the medical profession but also liberal; but he did not suggest that he was proposing anything more than physicians deserved. He recognized that unless the physicians felt that they were adequately paid, a good and effective service could not be secured.

Sir Clifford Allbutt, in thanking the chancellor for the lucid and sympathetic way in which he had brought his proposals before the commissioners, said that he believed that the proposals would prove acceptable to the profession. The chancellor had aroused the profession to see that there was something more to be done than to cope with sickness. The crusade against tuberculosis was only a beginning; there were other crusades to come. The great work of prevention would go forward and the example of Panama would be emulated.

PARIS LETTER

(From Our Regular Correspondent)

Paris, Oct. 25, 1912.

Thirteenth Meeting of French Internists

This meeting, which was held in Paris, October 13-16, was the first organized by the Association des médecins de langue française, the formation of which I reported in a preceding letter (The Journal, Dec. 2, 1911, p. 1849). In addition to French physicians, among those who took part in this meeting were Sir Dyce Duckworth of London, Professors Henrijean and Nolf of Liége, d'Espine of Geneva, Maragliano of Genoa and Lanctot of Montreal. Little time was devoted to miscellaneous articles; apart from the main subjects considered, oxalemia and oxaluria, acute infections of the colon and the therapy of hemorrhagic syndromes, two other subjects of present interest, anaphylaxis and antityphoid vaccination, were discussed.

ANAPHYLAXIS

Professor Achard of Paris reported the case of a patient who had cirrhosis with ascites. A first intravenous injection of 500 c.c. of his own ascitic fluid was made without incident and without causing any other result than a slight elevation of temperature; three weeks later a second injection was made of the same fluid preserved aseptically, sterilized at intervals and controlled for sterility; when only 115 c.c. had passed into the vein there were sudden symptoms of anaphylactic shock with chills, acute dyspnea, pain, laryngeal constriction, cyanosis and a rapid and small pulse. The injection was at once stopped and after ten minutes the symptoms disappeared. This seems all the more remarkable as it is generally understood that serum and albumin from an individual cannot cause anaphylaxis in that individual or in any other of the same species. Nevertheless, Professor Widal of Paris and Abrami and Brissaud have been able to obtain in man injected intravenously with human serum a true general anaphylaxis and they have proposed to term this phenomenon "serum auto-anaphylaxis." This anaphylactic reaction is obtained at the first injection. It is not necessary to make preparatory inoculation. The anaphylactic shock which is produced does not seem to cause immunity, for successive injections are able to make it reappear with the same intensity. These new facts can hardly be explained on any other supposition than that there are constantly present in the circulation heterogeneous albumins which play the part of preparatory injection within the organism.

Dr. Louis Martin of Paris reported statistics obtained at the Paris hospital which show that in more than 5.000 patients receiving injections of serum, chiefly antidiphtheritic, the phenomenon of general serum anaphylaxis was not observed in one. Of twenty patients treated with antimeningococcus serum, two showed signs of serum anaphylaxis. In the first, death occurred with classical symptoms of anaphylactic shock (respiratory troubles, arterial tension and coma); in the other there were signs of pressure on the brain which could not be explained by a fault in technic or by any anatomic condition, but which was due to an immediate and large effusion of cerebrospinal fluid into the subarachnoid cavity; the symptoms disappeared almost at once on copious lumbar puncture to lessen the intracranial hypertension. Martin does not advise a prophylactic use of rectal injections of serum which are of doubtful value in diphtheria, tetanus and cerebrospinal meningitis and which may be dangerous, as they delay for at least twenty-four hours subcutaneous, intravenous and intraspinal serum injections, which alone have therapeutic value. He suggests that the susceptibility of the patient should be tested by the subcutaneous injection of a small amount of serum (5 c.c.) as slowly as possible, the injection being interrupted at once if any unusual symptoms appear, no matter how slight. Fifteen minutes or half an hour after the trial injection, the therapeutic injection may be given slowly, using the same precautions as in the trial injection, especially if the injection is made intravenously. In case the intraspinal injection is to be made into a sensitized patient, it is necessary to make the trial injection intravenously instead of subcutaneously.

ANTITYPHOID VACCINATION

I have already spoken of the discussions on antityphoid vaccination in France (The Journal, July 13, 1912, p. 130). In place of the sensitized virus of living bacilli advocated by Metchnikoff and Besredka, Professor Chantemesse prefers cultures killed by heat and Professor Vincent (of the Ecole d'application de médecine et de pharmacie militaires du Val-de-Grâce) prefers a polyvalent vaccine resulting from the mixture of several strains of bacilli; those derived from the country in which the vaccinations are made are to be preferred, and they should be sterilized by the addition of ether. Both Chantemesse and Vincent consider vaccination by means of a sensitized vaccine of living bacilli as dangerous. Nevertheless in more than 800 persons inoculated by Metchnikoff and Besredka, not a death was reported and not a single carrier of the bacillus of Eberth was observed. It has been said that if a vaccination happens to be made while the patient is in the incubation period of typhoid fever it cannot help but aggravate the disease, the typhoid bacilli contained in the vaccine being added to those which are already circulating in the organism; but Professor Ardin-Delteil of Algiers reported thirty-seven observations tending to prove that sensitized vaccine injected during the course of typhoid fever exerts a favorable action on the disease: it shortens the duration, prevents relapses and lowers the death-rate. Metchnikoff and Besredka believe it hardly likely that sensitized vaccine, which has a favorable action during the course of a disease that has already declared itself, can be harmful during the incubation period.

THE MEETING AND THE PHYSICIANS OF CANADA

At the closing session a letter was read from 4.000 Canadian physicians asking affiliation and inviting the association to meet at Montreal. No immediate action was taken but a desire was expressed to act favorably on the request. The two questions will be given consideration.

The next meeting will be held, not in 1913, owing to the International Medical Congress at London, but in 1914 at Brussels, under the presidency of Professor Henrijean of Liége.

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, Oct. 25, 1912.

Personal

Wilhelm Ebstein, the gifted Göttingen clinician and medical historian, died October 24, aged 76. Ebstein's scientific works cover almost the whole field of internal medicine. Besides this, Ebstein wrote many fine medico-historical works, occasionally also hygienic studies. The index of his works shows moreover contributions to general literature. His name is essentially connected with the pathology and therapy of metabolic diseases, in which he made pioneer investigations. Ebstein was born Nov. 27, 1836, and after his graduation took first a position as assistant in the Allerheiligen Hospital of Breslau; afterward he became connected with the faculty at Breslau. In 1874 he was called to Göttingen as director of the medical policlinic, and in 1877 was appointed director of the medical clinic (as successor of the clinician Hasse, who, it is said, resigned his position prematurely for political reasons, as a result of pressure from the Prussian government). The first great work that Ebstein wrote was a treatise on kidney diseases, in Ziemssen's "Handbook of Special Pathology and Therapy," in the seventies. In the field of his chief investigations there appeared in 1882 a treatise on "Gout," which was followed in 1884 by a monograph on "Urinary Calculus." Of still more importance was his publication on "Obesity and Its Treatment," which in 1887 had reached its seventh edition. Both constitutional diseases were treated by him in various other scientific as well as more popular monographs, and the great number of editions they reached shows what an interest they awakened in the widest circles. The same is true of the description of the third constitutional disease, diabetes, on which he published in 1887 a treatise and in 1896 a somewhat more generally intelligible pamphlet on the "Diet in Diabetes." The number of his other scientific works is so large that the enumeration of only the most important would make a very long list. I will call attention only to his cooperation in the five-volume "Handbook of Practical Medicine," published by him and J. Schwalbe, which reached its second edition in the course of three years. Further there is the monograph "The Plague of Thucydides," published in 1899, and the notable treatise on "The Diagnosis of Incipient Pericardial Effusion," published in 1892. His latest comprehensive description of the diseases of the kidney in old age, which appeared in the textbook on "Senile Diseases," published by J. Schwalbe, belongs to the field with which he began his scientific career.

Ebstein was an excellent clinician with a marked diagnostic and therapeutic insight. On account of his broadness of mind and kindly disposition he was beloved by his patients, students and colleagues. His interest and understanding of literature and fine arts carried him beyond his special field of work to associate with men of the most various circles, and probably it is due to this circumstance that Ebstein nearly up to his death retained his rare intellectual vigor. He will always occupy an honorable position in the history not only of German but of universal medical science.

October 23, Surgeon-General Düms of Leipsic died at the age of 62. He had gained a considerable reputation in the field of military sanitation, but performed especially great services in the development of the first-aid service.

October 22 the distinguished physiologist of Heidelberg, Prof. A. Kossel, celebrated the twenty-fifth anniversary of his professorship.

Professor Hermann, the distinguished Königsberg physiologist, will resign his position next year on account of his age.

October 14, the former professor extraordinary of internal medicine at the Strassburg University, Professor Kohts, died at the age of 69.

Priv.-Doz. Dr. W. Fischer, assistant at the pathologic institute at Göttingen, has been called to the newly established position of dozent for general pathology and pathologic anatomy of the German medical school at Shanghai.

Substitutes for Physicians Absent on Vacation

As the Sunday-rest provision for physicians will soon be established in Berlin, a short time ago physicians of the east section of Berlin made arrangements for the regulation of physicians' vacation substitutions at first for one year, following in this as their model the arrangements in Leipsic which have been in force for several years. The occasion for this is the lack of substitutes for the vacation time, which has become constantly more marked in recent years, and the often exorbitant fees demanded by the substitutes. Moreover, patients do not like to be treated by strange physicians, who, as a rule, are quite young. Certain physicians of the east, northeast and southeast sections and of Lichtenberg have agreed on a written contract to remedy this. The contracting parties are divided into groups of eight to ten physicians. Each such group forms a complete circle of substitutes for itself, so that when any physician of the group wishes to take a vacation all the other participants in that group act as substitutes, not only for the longer vacation tours but also for a short absence or in case of sickness. If one of the participants goes on a journey, he informs his clientele by a printed notice, which he places in his waiting room or on the door of his dwelling, naming the physician who will substitute for him. When a patient calls, the house servant gives him a card of similar import with a special notice to give to the substitute, as an indication that they come from the physician who is away. After the return of the physician, the substitutes place a notice in their waiting room, in which it is announced that Dr. X has returned from his journey and the patients are requested to call on their old physician. In order to avoid conflicts in the taking of vacations, a preliminary vacation calendar is arranged at the beginning of the year. The remuneration of the substitutes is so arranged that only a part of the fees goes to them. This sort of vacation substitution is of great advantage both to the physicians and the public, so that it may be expected that this arrangement will soon be extended to other parts of the city.

Marriages

Albert Lansing Fagan, M.D., Herkimer, N. Y., to Miss Henrietta Virginia MacNeil of River Bourgeois, Cape Breton, N. S., in New York City, October 17.

Wallace Eugene Hubbard, M.D., Ancon, C. Z., to Miss Florence H. Plimpton of Somerville, Mass., at Ancon, recently.

Walter Smith Ferguson, M.D., Lynchburg, Va., to Miss Nannie Thomas Twyman of Charlottesville, Va., October 22.

George Elliott Chamberlain, M.D., Newbury, Vt., to Miss Edith Louise Stevens of Malden, Mass., October 22.

Samuel Logan Owens, M.D., Washington, D. C., to Miss Clara Millikin Weems of Winchester, Va., October 23.

George Thomas Lukens, Conshohocken, Pa., to Miss Anna E. Brockie of Germantown, Philadelphia, October 23.

William C. Fisher, Jr., M.D., Galveston, Tex., to Miss Mary Bessie Bragg of La Junta, Colo., October 23.

John B. Sherbon, M.D., Hartley, Ia., to Miss Minnie V. Updegrove of Pottstown, Pa., at Hartley, recently.

Edward Maupin Gayle, M.D., to Miss Annie Erwin McDowell, both of Morganton, N. C., October 23.

John Gaston Ryan, M.D., New Sharon, Ia., to Miss Flora Canaday, at Vermilion Grove, Ill., September 26.

Harry G. Ford, M.D., M. C., U. S. Army, to Miss Mary Edith Pickering, at St. John's Chapel, Del Monte, Cal., October 7.

Harry Lander Jones, M.D., Kansas City, Mo., to Miss Winnifred Reid, both of Kansas City, Mo., October 19.

William J. Broome, M.D., Doyle, Cal., to Miss Beatrice B. Wilson of Toronto, Ont., at Reno, Nev., September 26.

Sylvester M. Lambert, M.D., Rochester, N. Y., to Miss Eloisa Tays of San Blas, Sinaloa, Mex., recently.

Chester Orville Shepard, M.D., Winnebago, Ill., to Miss Adelaide Louise Hobbs of Chicago, October 28.

Arthur Frederic Beifeld, M.D., Chicago, to Miss Ellen Abbott of Marshalltown, Ia., November 12.

Prosper Joseph Boudart, M.D., Chester, Pa., to Miss Florentine Bannon of Trenton, N. J., October 25.

Guy Graham Shaw, M.D., Tarry, Ark., to Miss Rena Belle Atkinson of Star City, Ark., October 17.

John Vosburg Stevens, M.D., Chicago, to Miss Isabelle Strawser of Janesville, Wis., October 31.

Marcus Solomon Oliver, M.D., Chicago, to Miss Nan Schwyn of Grand Island, Neb., recently.

Edward A. Supple, M.D., Boston, to Miss Claire A. MacDonald of Newton, Mass., October 30.

Arthur Seymour Vosburgh, M.D., to Miss Elsie Rodman, both of New York City, November 2.

Richard Joseph Gorman, M.D., New York City, to Miss Elsa Dierkes of St. Louis, October 30.

Samuel J. Morris, M.D., Sugar Notch, Pa., to Miss May Cohen of Scranton, Pa., October 27.

Deaths

John Harrison O'Donnell, M.D. Victoria College, Coburg, Ont., 1861; died at his home in Winnipeg, Man., October 26, aged 68. Dr. O'Donnell was a pioneer of Winnipeg. On the formation of the Province of Mountain in 1870, he was called to the legislative council and remained a member of that body and was for a portion of that time speaker. He was elected president of the College of Physicians and Surgeons of Manitoba and occupied the position until 1887. He was also president and senior consulting physician of the staff of the Winnipeg General Hospital until 1882, and a member of the medical board of examiners from 1882 until his death. In 1891 he was elected president of the Manitoba Medical Association; he was first president of the Manitoba Board of Health; a member of the first council of the Manitoba University and of the university board of medical examiners. For several years he was professor of sanitary science at the Manitoba Medical College. He also represented the province officially at the Sanitary Inter-Provincial Conference in Ottawa, at the World's Sanitary Conference in Chicago in 1893 and at the meeting of the British Medical Association in Montreal in 1897.

George Montgomery Tuttle, M.D. College of Physicians and Surgeons, New York City, 1880; a member of the Medical Society of the State of New York and New York Academy of Medicine; formerly physician-in-charge of the New York Emergency Hospital; attending physician at Bellevue Hospital from 1883 to 1889; attending gynecologist at Roosevelt Hospital; consulting physician to the New York Infirmary for Women and Children; professor of gynecology in his alma mater from 1885 to 1893; one of the collaborators of the "American Text-Book of Gynecology" and a frequent contributor to gynecologic literature; died at his home in New York City, October 29, from angina pectoris, aged 56.

Ralph Sherwood, M.D. Berkshire Medical College, Pittsfield, Mass., 1863; a veteran of the Civil War and during a portion of that time surgeon of volunteers; formerly president of the Franklin County (Vt.) Medical Society; a member of the staff of St. Albans Hospital; for two terms medical director of the Department of Vermont, G. A. R.; a member of the first city council of St. Albans and a member of the legislature from Fairfield in 1876; town superintendent of schools of Fairfield for two years; died at his home in St. Albans, October 19, aged 71.

Theoron Woolverton, M.D. Harvard Medical School, 1861; medical director U. S. Navy, retired; died at Grimsky, Ont., October 25, aged 73. He entered the Navy in 1862 and was retired on account of physical incapacity resulting from an incident of service, Nov. 13, 1891. From 1903 to 1908 Dr. Woolverton was on duty at the Navy Recruiting Rendezvous, New York City, and after termination of that service went abroad on leave, and later returned to Grimsky, where he died.

Frederick N. Ogden, M.D. Tulane University, New Orleans, 1883; for several years a surgeon in the United States Navy and later surgeon in charge of the Inter-Continental Railroad Exploration Party and a member of the medical commission to examine into yellow fever conditions in Panama; afterward a practitioner of Colombia, South America, and for several years past a resident of Costa Rica; died in Port Limon, October 10, from heart disease, aged 51.

William Jones, M.D. Cooper Medical College, San Francisco, 1878; president of the Oregon State Medical Association in 1897; formerly president of the Portland City and County Medical Society; for twenty years professor of clinical surgery in the University of Oregon, Portland, and since 1911, emeritus professor; at one time a member of the city board of health; senior surgeon to St. Vincent's Hospital; died at his home in Portland, October 20, aged 59.

Anna Mary Longshore-Potts, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1852; for several years a practitioner of Philadelphia and Adrian, Mich., then in the lecture field for about twenty-five years as a lecturer to women on the laws of health, and afterward a resident of San Diego, Cal.; one of the founders of the Paradise Valley Sanitarium; died at her home in San Diego, October 24, from senile debility, aged 83.

Harry B. Leavitt, M.D. St. Louis College of Physicians and Surgeons, 1896; a member of the Indiana State Medical Association; formerly of Worthington; superintendent of the Indiana State Tuberculosis Hospital, Rockville, since January, 1911; died in the Methodist Episcopal Hospital, Indianapolis, October 29, from bronchial pneumonia, complicated by postpharyngeal abscess and kidney disease, aged 47.

John Edmund Toner, M.D. University of Georgetown, Washington, D. C., 1891; a member of the Medical Society of the District of Columbia; for sixteen years a member of the staff of the Government Hospital for the Insane, Washington, and since 1907 in the employ of the United States Pension Bureau; died at his home in Washington, October 30, aged 52.

William Herbert Pattee, M.D. University of Vermont, Burlington, 1877; a member of the American Medical Association; for a short time a practitioner of Pelican Rapids, Minn., and president of the village; since 1880 a practitioner of Manchester, N. H.; a member of the consulting staff of Eliot Hospital; died at his home, October 22, aged 57.

Oliver Boyer Campbell, M.D. University of Michigan, Ann Arbor, 1875; a member of the American Medical Association; and for three terms president of the Clinton County (Mich.) Medical Society; prominent as a surgeon and banker of Ovid, Mich.; died suddenly at his office, in Ovid, October 28, from cerebral hemorrhage, aged 60.

Charles S. Lower, M.D. University of Tennessee, Nashville, 1884; a member of the Arkansas Medical Society; a practitioner of Hot Springs, Ark., since 1884; died suddenly in a drug store in that city, October 27, from cerebral hemorrhage, aged 58.

Eugene A. Benton, M.D. University of Vermont, Burlington, 1866; a member of the American Medical Association and formerly physician of Merrick County, Neb.; local surgeon for the Union Pacific System at Central City; a veteran of the Civil War; died at his home in Central City, November 1, from heart disease, aged 73.

George Arthur Bevington, M.D. Starling Medical College, Columbus, O., 1898; formerly a member of the American Medical Association; a member of the Nebraska State Medical Association; district surgeon of the Burlington System; died at his home in Schuyler, October 24, from tuberculosis, aged 37.

Rufus Yancey Powell, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1864; for two terms coroner of Macon County, Mo.; a Confederate veteran; for several years postmaster of College Mound, Mo.; died at his home in Macon, October 25, from general nervous breakdown, aged 73.

Charles R. Harden, M.D. Kansas City (Mo.) Medical College, 1891; a member of the Medical Society of the State of California; formerly of Chehalis, Wash., and coroner of Lewis County; later a practitioner of Los Angeles; died suddenly in a church in that city, October 20, aged 44.

William I. Hamlen, M.D. Michigan College of Medicine, Detroit, 1883; a member of the Michigan State Medical Society; formerly secretary, vice-president and professor of chemistry in his alma mater; died at his home in Detroit, October 26, from pneumonia, aged 57.

D. H. Ramsaur, M.D. Vanderbilt University, Nashville, Tenn., 1861; a surgeon in the Confederate service throughout the Civil War; for many years a practitioner of Rome, Ga.; died at the home of his daughter at Inman Park, Atlanta, Ga., November 1, from nephritis, aged 73.

John William Woods, M.D. New York University, New York City, 1892; of New York City; a member of the Medical Society of the State of New York; visiting physician to the Northwest Dispensary; died in the Policlinic Hospital, October 30, from pneumonia, aged 52.

Caleb S. Evans, M.D. Medical College of Ohio, Cincinnati, 1863; a life member of the American Academy of Ophthalmology and Oto-Laryngology and a well-known specialist of Randolph County, Indiana; died at his home in Union City, October 16, aged 70.

John Duncan McPherson, M.D. University of Michigan, Ann Arbor, 1883; a member of the Medical Society of the State of New York and for several years health officer of Akron; died at his home in that village, October 31, from cerebral hemorrhage, aged 55.

Joseph Foster Land, M.D. Dartmouth Medical School, Hanover, N. H., 1877; a veteran of the Civil War and for many years attending physician to the Home for the Friendless, New York City; died at the home of his son in Erie, Pa., October 20, aged 74.

Ernest Edward Brown, M.D. University of Wooster, Medical Department, Cleveland, O., 1901; a member of the American Medical Association; a well-known practitioner of Oberlin; died in St. Luke's Hospital, Cleveland, October 26, aged 36.

Francis Wilson Daubney, M.D. State University of Iowa, Iowa City, 1883; a member of the Iowa State Medical Society; mayor of Decorah from 1895 to 1897 and from 1899 until his death; died at his home, November 1, from diabetes, aged 56.

George Washington May, M.D. Bellevue Hospital Medical College, 1869; a veteran of the Civil War and one of the earliest settlers of Nodaway County, Mo.; died at his home in Burlington Junction, October 26, from nephritis, aged 74.

Albert Nochim Mehrenlender, M.D. New York University, New York City, 1883; of Brooklyn; died in the Kings County Hospital, October 29, from pulmonary edema following an attempt at suicide by gas asphyxiation.

Charles Hicks, M.D. University of Maryland, Baltimore, 1877; formerly president of the Georgia Medical Society and a member of the State Board of Health; died at his home in Mount Vernon, October 31, aged 58.

Hugh G. Campbell, M.D. Columbus (O.) Medical College, 1882; for twenty-eight years local surgeon at Logan, Ohio, of the Columbus and Hocking Valley Railroad; died at his home in Logan, October 9, aged 53.

Mortimer Roland Beaudoin-Bennett, M.D. Dartmouth Medical School, Hanover, N. H., 1898; died at his home in Grand Rapids, Mich., October 29, from heart disease, aged 34.

Oliver W. Bean, M.D. Eclectic Medical Institute, Cincinnati, 1877; died suddenly near his home in Sheakleyville, October 29, from heart disease, aged 62.

William Henry Harlin, M.D. College of Physicians and Surgeons, New York City, 1862; a naval surgeon during the Civil War; died at his home in Oceanport, N. J., October 27, from disease of the liver, aged 73.

Lunsford P. Black, M.D. Vanderbilt University, Nashville, Tenn., 1882; formerly of Taylor, Tex., and later a resident of Medford and Ashland, Ore.; died in Portland, Ore., October 23, from heart disease, aged 59.

Henry Elijah Owen, M.D. College of Physicians and Surgeons, New York City 1867; a member of the Medical Society of the State of New York; died at his home in New York City, October 12, aged 69.

Silas J. Bower, M.D. McGill University, Montreal, 1865; at one time postmaster of Waddington, N. Y., and a practitioner of the village for forty-seven years; died at his home, October 27, aged 68.

Hiram Bliss Cross, M.D. Cleveland University of Medicine and Surgery, 1866; for forty-one years a practitioner of Jamaica Plain, Boston, Mass.; died at his home, November 1, aged 79.

Wilbert Lee Fay, M.D. Cooper Medical College, San Francisco, 1900; a member of the Medical Society of the State of California; died at his home in Forest Hill, Cal., recently, aged 37.

Clermont E. Thaw Casto, M.D. Miami Medical College, Cincinnati, 1875; a member of the West Virginia State Medical Association; died at his home in Parkersburg, October 14, aged 58.

Gabriel G. Bickley, M.D. Philadelphia University of Medicine and Surgery, 1863; for forty-five years a practitioner of Waterloo, Ia.; died at his home, October 29, from diabetes, aged 72.

Ernest Pring, M.D. Willamette University, Salem, Ore., 1884; of Berkeley, Cal.; a member of the Medical Society of the State of California; died in San Francisco, October 27, aged 54.

Joseph C. Pickard, M.D. Rush Medical College, 1887; formerly a member of the American Medical Association; died at his home in Chicago, October 31, from cerebral hemorrhage, aged 71.

Anthony Fleming, M.D. University of Pennsylvania, Philadelphia, 1895; a member of the Massachusetts Medical Society; died at his home in Lawrence, November 3, from nephritis, aged 39.

Joseph Bayer, M.D. University of Vienna, Austria, 1868; for many years a member of the staffs of the German and Mount Zion hospitals, San Francisco; died at his home, October 29, aged 73.

Isabella M. Pettet, M.D. New York Medical College and Hospital for Women, New York City, 1881; of New York City; died in the Presbyterian Hospital, New York City, September 9.

Calvin P. McAdoo (license, Ohio, 1896) for more than thirty years a practitioner of Miller's Run, O.; died at his home in Bremen, O., October 11, from tuberculosis of the lungs, aged 66.

William Frederick Rex, M.D. Long Island College Hospital, Brooklyn, 1905; a member of the American Medical Association; died at his home in Brooklyn, November 1, aged 31.

Festus F. Pitcher, M.D. Chicago Homeopathic Medical College, 1894; of Battle Creek, Mich.; died at the home of his parents in Mount Pleasant, Mich., October 30, aged 39.

Arthur Emrice Wharton, M.D. University of Louisville (Ky.) 1905; formerly of Denton, Tex., but more recently of Garza; died October 30, on a train near Aubrey, aged 32.

William B. Kennedy (license, Tennessee, 1889); of Vonore; was found dead in the road, having been stricken while on his way to make a professional call, October 27.

Damase Eusche Archambault, M.D. Laval University, Quebec, 1866; of St. Pierre les Becquets, Que.; died at the home of his son in Hull, Ont., October 19, aged 70.

Marcus C. Brockenbrough, M.D. Tulane University, New Orleans, 1870; of Quitman, Tex.; a Confederate veteran; died in Brazos, Tex., about October 29.

Alice McGillivray, M.D. Queens University, Kingston, Ont., 1884; of Hamilton, Ont.; died suddenly in her motor car, October 31, from uremia.

Harry Medley, M.D. Western Pennsylvania Medical College, Pittsburgh, 1902; died at his home in Tarentum, Pa., October 23, aged 32.

Otto W. Mayer, M.D. Medical College of Indiana, Indianapolis, 1880; died at his home in Hamilton, O., October 31, aged 52.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

CONVICTIONS UNDER THE FOOD AND DRUGS ACT

WALNUT OIL

On or about Jan. 4, 1910, Henry A. Mayor, who did business under the name, Mayor Walnut Oil Co., Kansas City, Mo., shipped from the state of Missouri to the state of Washington a consignment of so-called Walnut Oil. More than a year later—Jan. 24, 1911—the United States Attorney filed information against Mayor alleging that the shipment of Walnut Oil was in violation of the Food and Drugs Act. Some of the claims made on the label were:

> "Hair color restorer."
> "Nature's own remedy."
> "Simplest and best on earth."
> "A strictly vegetable remedy."
> "The only hair dye on earth made from pure vegetables and oils."
> "It will cause hair to become soft, bright and glossy as in youth."

The government chemists reported that, in addition to non-volatile matter and ash, they found

> Ammonia.
> Silver (calculated as silver nitrate).
> Unidentified oil (not walnut oil).

The government declared the product misbranded because it was labeled "a strictly vegetable remedy," which it was not, and further because it was labeled "walnut oil" when, in fact, it contained no walnut oil. The case came to trial April 25, 1912, and Mayor entered a plea of *nolo contendere*. The court ordered the case dismissed on the payment of the costs. The public received notice of this case Sept. 27, 1912—two years and eight months after the offense was committed. [*Notice of Judgment 1677.*]

FAGRET'S HAIR TONIC

On Aug. 27, 1910, B. Lucien Brun, who did business as the L. Fagret Company, Baltimore, shipped a consignment of Fagret's Hair Tonic to the District of Columbia. On April 1, 1912—notice the dates—the United States Attorney for the District of Maryland filed information against Brun, alleging that the shipment of the consignment of hair tonic was in violation of the Food and Drugs Act. Some of the claims made on the label were:

> "Fagret's Hair Tonic prevents baldness, makes the hair grow."
> "It not only keeps the hair from falling out but also from turning gray."
> "Prepared only by Mme. L. Fagret Devouges, specialist, hair and scalp."

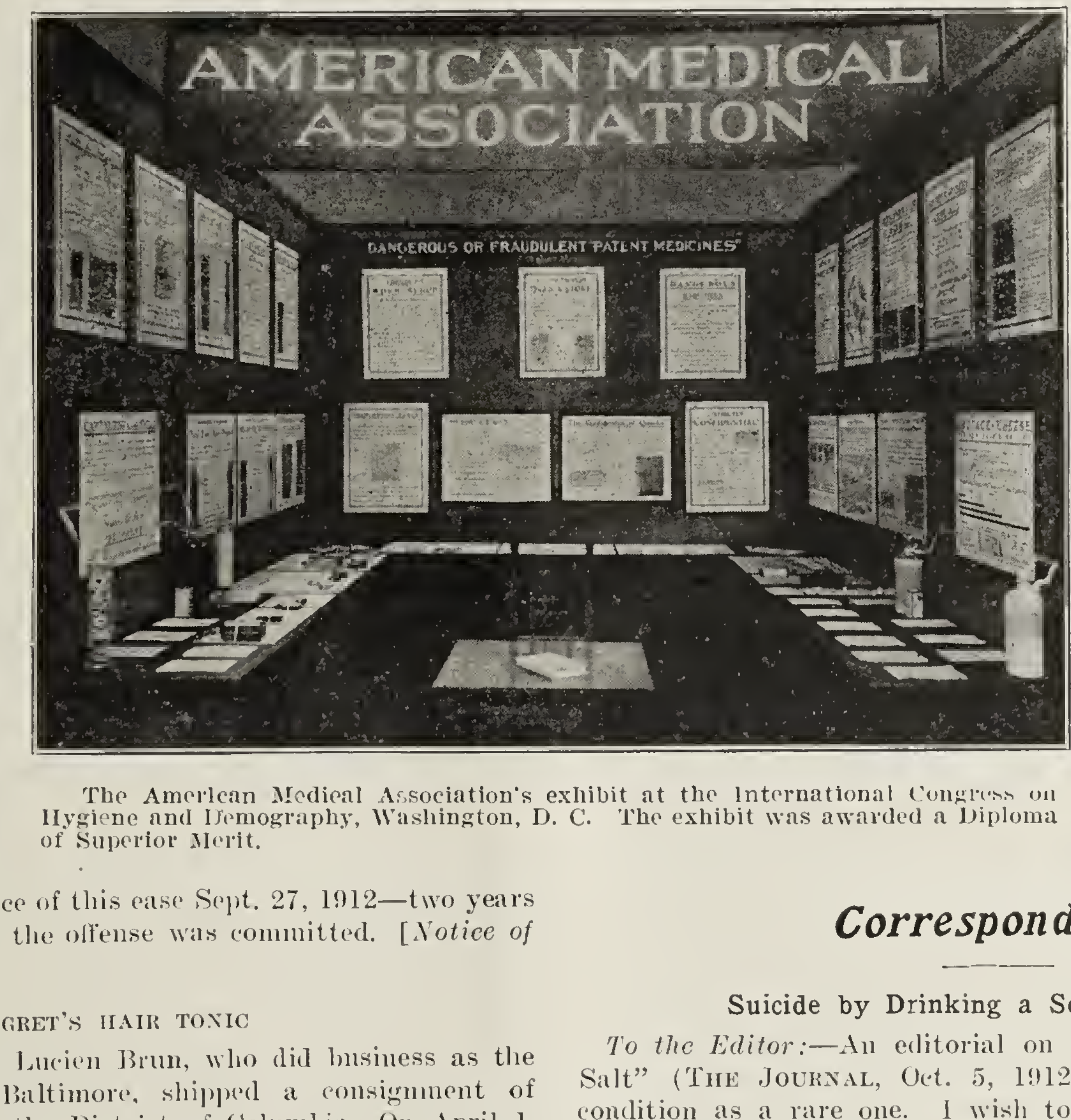
The government chemists reported finding non-volatile matter, ash, glycerin, flavors, etc., in one of the samples analyzed, as well as:

Alcohol (by volume)	53.40 per cent.
Alkaloid (probably pilocarpin)	0.05 per cent.
Castor oil	8.66 per cent.

The preparation was declared misbranded because the label failed to bear a statement as to the quantity of alcohol it contained. Brun pleaded guilty and was fined $5. The public was given this information Sept. 27, 1912, more than two years after the offense was committed. [*Notice of Judgment 1673.*]

THE ASSOCIATION'S EXHIBIT

The Exhibition on Health of the Fifteenth International Congress on Hygiene and Demography has been referred to in previous issues of The Journal[1] and a few of the exhibits briefly described. No admission fee was charged and it was estimated that the number of visitors to the exhibition exceeded 100,000 persons. As previously noted in The Journal,[2] the American Medical Association had an exhibit. This dealt with dangerous or fraudulent "patent medicines" and, with the possible exception of the exhibits by the American Federation of Sex Hygiene, attracted more attention than any other single exhibit in the entire exhibition. Pertinent facts concerning the composition of some of the most widely exploited medicinal humbugs and dangerous "patent medicines" were brought to the visitor's attention by means of placards. The general worthlessness of testimonials was shown, and the shameful uses to which "confidential letters" are put by the quacks who receive them were told by picture and motto. Examples were given showing how the Food and Drugs Act in certain ways protects the public against habit-forming drugs, and further examples were given showing the limitations of the act in not protecting the public against the presence of many dangerous ingredients in nostrums. A diploma of superior merit (the higher of the two classes of diplomas conferred by the exposition) was awarded to the Association's exhibit.


AMERICAN MEDICAL ASSOCIATION
DANGEROUS OR FRAUDULENT "PATENT MEDICINES"

The American Medical Association's exhibit at the International Congress on Hygiene and Demography, Washington, D. C. The exhibit was awarded a Diploma of Superior Merit.

Correspondence

Suicide by Drinking a Solution of Salt

To the Editor:—An editorial on "Poisoning from Common Salt" (The Journal, Oct. 5, 1912, p. 1297) speaks of the condition as a rare one. I wish to give my experience with several cases of fatal salt poisoning in China.

Throughout Chekiang Province, and probably in other provinces of China, the drinking of a saturated solution of salt is a common mode of committing suicide, and there is none more difficult to treat. In only one case did I succeed in securing recovery. Salt is taken for suicidal purposes sometimes in a common saturated solution made with water as the solvent, and sometimes in the brine from salted kraut.

Poisoning by salt usually presents a picture of high temperature and pulse, purging, vomiting and spasm. In the case in which I was successful in securing favorable results I washed the stomach with 2 quarts of a 1 per cent. solution of silver nitrate, using a stomach-tube. The washings were chalky white at the start and were kept up till the solution coming away was just slightly white. Then warm tea was used till the stomach was thoroughly cleansed. Large amounts of tea were taken by mouth and a purge given. The patient was then removed to the hospital and made a good recovery. Although suicide is extremely common in this part of China the use of salt solution is not so common as suicide by other less painful methods. The amounts taken vary with the determination of the person taking it, but usually are from 1 to 3 rice bowlfuls—a pint to a pint and a half.

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[1] The Journal A. M. A., Sept. 28, 1912, p. 1198; Oct. 5, 1912, pp. 1297 and 1311.
[2] Ibid., Sept. 28, p. 1198.

C. Heman Barlow, Greenville, Mich.

Queries and Minor Notes

Anonymous Communications will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ERYTHEMA FOLLOWING PARAFFIN INJECTION

To the Editor:—A young woman consulted me, July 10, 1912, regarding a reddened area over the suprasternal notch, which she wished to have bleached out. About a year previously she had permitted a quack "beauty doctor" to inject some substance, paraffin presumably, into the suprasternal notch for the sake of filling it, as she did not like the appearance of the depression. Immediately thereafter a redness of the overlying skin developed, which has since remained. I froze the erythema with carbon-dioxid snow, treating a quarter of the area at a time and giving the treatments a week apart. Of course, there was the usual inflammatory reaction, but the condition at present appears to be exactly as when I first saw the case. I am now having her apply, once daily, an ointment of one-half grain tannic acid to the ounce, but with little effect. The erythema covers an area about the size of a half-dollar and is best described as a blush. The redness completely disappears on pressure and there are no vessels large enough to be distinguished with the naked eye. The suprasternal notch is completely filled with some substance of about the density of fibrous tissue. There is no well-defined tumor and no bulging. As far as filling the space is concerned, the man did a good job, but a case of this kind ought to be a warning to us not to be too quick to inject paraffin merely for a slight esthetic reason.

I write for advice as to the treatment of the case. The patient is much concerned about the erythema and says she would rather have the material in the notch removed than to have the redness persist, even if a small scar should be left. Would daily applications of epinephrin help? I have hesitated to employ that, as I know there is frequently a secondary dilatation of the vessels after its use. If the paraffin were removed would the redness disappear of a certainty? I have not considered that electrolysis is indicated, because there are no separate vessels to be distinguished. Kindly do not publish my name and address.

D. B. E.

Answer.—Accidents of the sort described after paraffin injections under or into the skin are not uncommon. Many similar cases have been observed, especially about the face, in some of which the trouble became so pronounced that it caused great and permanent disfigurement. The reason for the trouble is that the paraffin acts as a chronic irritant which results in a persistent inflammation of the involved tissues. This may produce a purplish discoloration of the skin, a tumor of normal skin color of hyperplastic fibrous tissue, or a purplish tumor. Some of these tumors have shown a persistent tendency to slow increase, but not to malignancy. Heidingsfeld has discussed this condition in The Journal, Dec. 12, 1908, page 2028, and the subject is considered, with bibliography, under "paraffinoma" in W. A. Pusey's book on "Skin Diseases," second edition, page 865. The injections are also warned against in Pusey's "Care of the Skin," page 125. None of the methods of treatment mentioned in the query is of any service. Surgical removal of the paraffin is the only effective treatment and this is not altogether satisfactory because the paraffin is in threads and worm-like masses in the tissue and is difficult to dislodge.

STRICTURE OF THE ESOPHAGUS

To the Editor:—I am to prepare a paper on "Stricture of the Esophagus." Please refer me to literature on the history and treatment of the condition.

W. H. Cooke, Pocatello, Ida.

Answer.—The following may be referred to:

Ashhurst, A. P. C.: Stricture of the Esophagus, with Report of Eight Cases from the Children's Hospital of Philadelphia, *Univ. Penn. Med. Bull.*, December, 1908.

Lange, S.: Early Recognition of Esophageal Stricture, *Med. Rec.*, Jan. 16, 1909.

Wooten, J. S.: An Impermeable Esophageal Stricture; Operation; Recovery. *Texas State Jour. Med.*, January, 1909.

Lerche, W.: The Cutting of Cicatricial Stricture of the Esophagus Through the Esophagoscope, *Jour. Minnesota Med. Assn.*, February, 1909.

Lucas, C. G.: Stricture of the Esophagus, *Kentucky Med. Jour.*, March, 1909

Adams, S. S.: Spasmodic Stricture of the Esophagus, *Arch. Pediat.*, March, 1909.

Bell, J. M.: Stenosis of the Esophagus, *Med. Fortnightly*, April, 1909.

Johnston, R. H.: Modern Treatment of Esophageal Stricture, *Lancet-Clinic*, July, 1909.

La Fetra, L. E.: Spasmodic Stricture of the Esophagus, *Arch. Pediat.*, October, 1909.

Allen, C. W.: Esophageal Stricture Treated by Sling-Shot of Various Sizes with Excellent Results, *New Orleans Med. and Surg. Jour.*, January, 1910.

Ross, G. W.: Traumatic Esophageal Stricture in Two-Year-Old Child, with Radiograph, *New York State Jour. Med.*, July, 1910.

Jackson, C.: Stenosis of the Esophagus Following Swallowing of Caustic Alkalies, The Journal, Nov. 26, 1910, p. 1857.

Akin, H. L.: Stenosis of the Lower End of the Esophagus, *West. Med. Rev.*, February, 1911.

Salter, A. G.: Case of Esophageal Stricture, *Australasian Med. Gaz.*, April 20, 1912.

Downie, W.: Analysis of One Hundred Consecutive Cases of Stricture of Esophagus, *Glasgow Med. Jour.*, May, 1912.

Downie, W.: Analysis of One Hundred Consecutive Cases of Stricture of the Gullet, *Glasgow Med. Jour.*, June, 1912.

Morse, J. L.: Unusual Cases of Narrowing of the Esophagus in Childhood, *Arch. Pediat.*, July, 1912.

Keiper, G. F.: Strictures and Diverticula of the Esophagus, *Laryngoscope*, September, 1912.

Morton, J.: Case of Stricture of the Esophagus, *Glasgow Med. Jour.*, October, 1912.

SODIUM CACODYLATE IN TUBERCULOSIS—COMPOSITION OF PROTONUCLEIN

To the Editor:—1. Is there any literature on the use of sodium cacodylate in the treatment of tuberculosis? What are its therapeutic uses and dosage?

2. Please give me the approximate composition of Protonuclein.

J. A. C.

Answer.—1. We find no recent article treating of sodium cacodylate in tuberculosis, but it was recommended for that disease some years ago. Sodium cacodylate is used as a substitute for other preparations of arsenic. Its dosage is 0.025 to 0.12 gm. (½ to 2 grains) in pills, hypodermically or by enema. Reference may be made to the following two articles in The Journal on the general subject:

Dawes, S. L., and Jackson, H. C.: Physiologic Action, Elimination and Therapeutic Application of Sodium Cacodylate Used Hypodermatically, The Journal, June 22, 1907, p. 2090.

Dawes, S. L.: The Therapeutic Value of Sodium Cacodylate, The Journal, Aug. 5, 1911, p. 480.

2. The following statement is taken from the report of the Council on Pharmacy and Chemistry (Reed and Carnrick's Methods, The Journal, Oct. 5, 1907):

> Protonuclein, according to the definition indorsed by the firm, is a powder prepared from various glands (thyroid, thymus, salivary, intestinal, lining of stomach, pancreas, spleen and the brain, including the area at the base). These glands are dried in a thermostat (at or below 100 F.); the fat is removed by ether, the dry glands disintegrated, the connective tissue removed by sifting and the resulting powder is coated with an ethereal solution of benzoin and mixed with milk-sugar. The glands are used proportional to their relative weight in the body. Briefly stated, the powder represents the dried parenchyma cells and leukocytes of the organs used.
>
> From such a product one would expect essentially the known action of nucleins, viz.: hyperleukocytosis and its consequences; the thyroid might also have some effect; the digestive ferments would probably be nearly inactive, on account of mutual interference. No stress is laid on them in the literature, so that we may neglect them.
>
> The nuclein content of the product is high (0.28 per cent. of phosphorus) and might well suffice to explain the therapeutic results ascribed to this article. The manufacturers, however, claim that Protonuclein vastly transcends ordinary nuclein by the possession of distinctive qualities. In support of this claim two lines of evidence are adduced, the one experimental, the other speculative.

The claim that Protonuclein contains the constituents of protoplasm unaltered and the other claims as to the therapeutic action of Protonuclein aside from the action of the nuclein contained in it are held by the Council to be improbable and unwarranted.

LITERATURE ON THE HYGIENE OF SWIMMING-POOLS

To the Editor:—In The Journal, Oct. 19, 1912, p. 1424, I find a paper on "The Hygiene of Swimming-Pools," by Dr. M. P. Ravenel. Please refer me to any other data on the subject. The inadvisability of establishing a pool in the new Y. W. C. A. to be built here is being strongly urged, and official data on the subject would be appreciated.

F. Moylan Fitts, Richmond, Va.

Answer.—The following may be referred to:

Lyster, W. J.: Hygiene of the Swimming-Pool, The Journal, Dec. 16, 1911, p. 1992.

Sanitation of Swimming-Pools, *American Homes*, ix; supplement, April, 1912, p. 20; *Scient. Am. Supplement*, Jan. 27, 1912, p. 59.

Tully, E. J.: Hygiene of Swimming-Pools, *Am. Jour. Public Health*, March, 1912.

Porter, H. F. J.: Menace of the Bathing-Pool, *Survey*, July 27, 1912, p. 588.

LITERATURE ON PHENOLSULPHONEPHTHALEIN

To the Editor:—1. Please inform me where I can obtain literature on the phenolsulphonephthalein functional test introduced by Rowntree and Geraghty (used as a test in kidney lesions). 2. What is the nature of the test, etc.?

WILLIAM S. CAMPBELL, M.D., Albany, Mo.

ANSWER.—1. In looking through our indexes we find the following articles on the subject referred to:

Rowntree and Geraghty: *Jour. Pharm. and Exper. Therap.*, July, 1910, i, 579.

Geraghty and Rowntree: *Tr. Assn. Am. Genito-Urin. Surg.*, 1910, p. 59.

Rowntree, L. G., and Geraghty, J. T.: Study of the Functional Activity of the Kidneys by Means of Phenolsulphonephthalein, *Ann. d. mal. d. org. génito-urin.*, Feb. 15, 1911, No. 4; abstr. in THE JOURNAL, April 15, 1911, p. 1151.

Keyes, E. S., Jr.: Phenolsulphonephthalein as Test for Renal Function Before Operation, *Am. Jour. Urol.*, April, 1911.

Geraghty, J. T., and Rowntree, L. G.: The Phenolsulphonephthalein Test for Estimating Renal Function, THE JOURNAL, Sept. 2, 1911, p. 811.

Eisenbrey, A. B.: Elimination of Phenolsulphonephthalein in Various Experimental Lesions of Kidney, *Jour. Exper. Med.*, November, 1911, No. 5; abstr. in THE JOURNAL, Nov. 25, 1911, p. 1798.

Boyd, M. L.: Phenolsulphonephthalein and Functional Test of the Kidneys, THE JOURNAL, March 2, 1912, p. 620.

Austin, J. H., and Eisenbrey, A. B.: Experimental Acute Nephritis: Elimination of Nitrogen and Chlorids as Compared with that of Phenolsulphonephthalein, *Jour. Exper. Med.*, October, 1911, No. 4.

Rowntree, L. G., and Geraghty, J. T.: Phthalein Test; Experimental and Clinical Study of Phenolsulphonephthalein in Relation to Kidney Function in Health and Disease, *Arch. Int. Med.*, March, 1912, p. 284; abstr. in THE JOURNAL, April 6, 1912, p. 1038.

The Phenolsulphonephthalein Test in Surgery and the Genito-Urinary Tract, THE JOURNAL, May 27, 1912, p. 1305.

2. Phenolsulphonephthalein, like phenolphthalein, gives a red color with alkalies. When excreted by the kidney, the urine, after being made alkaline, will show this red color. By the time required for the excretion of the substance by the kidney and its appearance in the urine an estimate is made of the functional activity of the organ.

CONFIDENCE TO BE OBSERVED BY PHARMACIST IN THE MATTER OF PRESCRIPTIONS

To the Editor:—Please let me know what the pharmacist should do under the following conditions: The prescription blanks of Dr. A announce two "associates," Dr. X and Dr. Y. Dr. A asked the pharmacist for a list of patients for whom Dr. X had prescribed, with the dates. Dr. X, hearing of this request, advised the druggist that Dr. A had no right to any information concerning prescriptions that Dr. X had written. Some of the prescriptions written by Dr. X are on blanks with his name only at the head. Dr. A asserts that Dr. X has no right to use individual blanks under the terms of their contract. Should the list be furnished to Dr. A?

J. K. S.

ANSWER.—The physician who writes it, the pharmacist who fills it and the patient for whom it was written are the only parties who have any right to a prescription. The fact that Dr. X wrote prescriptions on several kinds of stationery is immaterial. They were all signed by Dr. X and except through the courtesy of Dr. X should not be subjected to inspection. True, the prescription blanks of Dr. A announce that Dr. X and Dr. Y are his "associates," and our correspondent, a pharmacist, has knowledge that some kind of a contract has been entered into by A and X. The terms of the contract are not here defined and the relationship implied in announcing X as an "associate" is too indefinite to warrant the pharmacist giving A information concerning the prescriptions in question. In other words, physicians "associate" in the use of common offices; in assisting each other when more than one person is required to render needed service; in one substituting for the other when the principal attendant is engaged, or on his request; in one performing laboratory work or making special investigations for the other; and occasionally physicians are associated in a full partnership as in any business. Only in a full partnership is one of the associated physicians warranted in treating the business acts—the prescriptions, for example—of the other as his own, or asking another to regard them in this light.

The best course for the pharmacist to follow is to provide X with the data A requests and advise A of this, leaving A to obtain the information from X.

ORGANIC AND INORGANIC CALCIUM ACID PHOSPHATE

To the Editor:—A few days ago a salesman for a well-known baking-powder was in our hospital trying to supply us with this particular brand. He made the statement that the calcium acid phosphate used was obtained from beef and mutton bones, and from the fact that it was obtained from the organic kingdom it was therefore more suitable for human use. He further stated that it was possible to tell by suitable tests whether this substance had been obtained from an organic or an inorganic source. In the books at my disposal I have been unable to verify his statements, and have always had the idea that no matter what the source, the chemical was exactly the same. Kindly inform me whether there is any difference in calcium acid phosphate, either chemically or biologically, obtained from the two sources mentioned above.

F. E. CLOUGH, Lead, S. Dak.

ANSWER.—Calcium acid phosphate (primary calcium phosphate) $Ca(H_2PO_4)_2$ if pure, is constant in chemical composition and physiologic action no matter whence obtained. Commercial calcium acid phosphate is probably never pure, but we know of no reason why that obtained from mineral phosphates should be more nearly pure than that obtained from bone-ash. It should be understood that the first step in the preparation of calcium acid phosphate from bones is the production of bone-ash. Since the substance is produced by action of high heat, all vestige of organic material is destroyed and the residue contains the same inorganic calcium phosphate which is found in the natural deposits.

TREATMENT OF TUBERCULOSIS IN EUROPE

To the Editor:—Will you inform me as to the present status of the sanatorium treatment of tuberculosis in Europe? A few years ago one of our leading journals stated that it had been thoroughly tried in Germany and found unsatisfactory, and that instead societies were being formed and literature circulated for the instruction of the public in prevention.

G. T. WILLIAMS, Crawfordsville, Ind.

ANSWER.—There is no tendency to abandon the use of sanatoriums in Europe in the treatment of tuberculosis. Perhaps our correspondent has received the impression he manifests from the fact that emphasis is being laid on prevention rather than on sanatorium treatment; that is to say, it is recognized as unwise to limit activities to sanatoriums when so much can be done by the education of the people in better hygiene and by improved conditions. These things prevent tuberculosis, but care is still being given in sanatoriums to cases that develop. This is true not only in Europe but in this country.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POSTGRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

CONTROL OF DEFECTIVES

One of the most interesting reports presented before the meeting of the American Institute of Criminal Law and Criminology, recently held in Milwaukee, was that of a committee appointed by the Wisconsin branch of the institute, on the sterilization of criminals and defectives. The subjects assigned to this committee were as follows:

1. In what ways can propagation of habitual criminals, imbeciles and lunatics be prevented?

2. Should sterilization of such persons in proper cases be authorized by law?

In modern times the accumulation of large amounts of materials in the shape of clinical statistics published by hospitals and medical journals has established the fact beyond question that heredity plays an essential part in the etiology of certain neuropathic conditions. In recent years social workers likewise have collected data showing the effect of heredity, so that the doctrine of hereditary transmission is now incontestably established.

It will be only after the united collaboration of many investigators and the study of vast data of family traits and family pedigrees that we shall be able to find out the fixed laws which govern heredity.

In view of the fact that the laws of heredity applicable to the classes in question have not been ascertained, the committee presented a series of actual family pedigrees showing to a certain extent the effect of hereditary transmission. The charts presented had been prepared by Davenport, Rosser, Goddard and others. They illustrated in the opinion of the committee:

1. The necessity of the compilation of the genealogies of the institutional charges, including physical weaknesses, diseases to which the different members were liable and causes of death. This can best be done by the state through trained field work-

ers under the direction and control of the various charitable and penal organizations.

2. The need for the establishing of a chair of eugenics in the various colleges and universities.

3. The need for the creation and equipment of at least one laboratory for the study of mental diseases in each state, to be located preferably at the institution nearest to a college or university having a medical school.

The combined efforts of the genealogists and eugenists will eventually lead to the discovery of the laws of heredity applicable to the human race. This, however, will not suffice, for the reason that the principles of prepotency or offset are equally important in ultimately working out the salvation of the race by better breeding. Given the laws of heredity and the principles of prepotency, they can be taught in the home and public school to the child of tender years. With this knowledge from infancy the normal, mature person, contemplating marriage, will demand genealogies and will shun any alliance which can result only in suffering to the parent and the child.

There are three methods by which the propagation of these defective classes can be influenced: by regulation of marriage, by effective sequestration, and by destroying the power of the individual to produce offspring.

Laws have been passed attempting to regulate marriage. There is no doubt but that conditions have been somewhat improved by such laws. It is wise to withdraw the approval of the state from the marital union of persons unfitted to care for and train the children they might produce.

Sequestration, if perfect, would be absolutely effective. It is doubtful if it can be made complete, however, especially in men. Among the insane, parole, in some cases, appears not only justifiable but beneficial. Among the feeble-minded, absolute enforcement of sequestration would appear unwise. In such cases it would unnecessarily tend to separate some children from their families permanently; and moreover, the higher grades of the feeble-minded are instinctive tramps, and absolute sequestration would mean a closeness of confinement totally at variance with the idea that institutions should be colonies, with almost the freedom of action of the country village, rather than places of confinement.

The jury trial is always available, and it is difficult to make the average jury believe that there is just cause for retention under the care of the state of high-grade imbeciles, who are often of prepossessing appearance, especially when the moral qualities are chiefly at fault. With girls retention is easier than with boys, as their tendencies for elopement are not so marked.

It cannot be doubted that sequestration is in some measure effective. For the last few years a steady decrease has been noted in the number of applications to the Wisconsin Home for Feeble-Minded, due, the committee believes, to the great number of highest-grade feeble-minded women who have been retained under the shelter of that institution.

In most of the few cases in which the higher-grade girls have been taken from state care, the results have been regrettable, but conditions have been better than in some states in which the control of the state is nominal. The superintendent of one institution asserts that he is now receiving the children of the girls released.

The number of feeble-minded, including juvenile delinquents (the criminal feeble-minded), is enormous. Dr. Goddard of the department of research in the New Jersey institution, estimates the present number in the United States at 300,000. He points out, especially, the large proportion of feeble-minded in reform schools, placing them at not less than 25 per cent. These are the "criminals" coming within the scope of the committee's activity, because their condition is permanent. They are usually sufficiently bright to mate with others of about the same mental status, and begin new lines of degeneracy. Unless they are under guardianship, they do not have the concentration of purpose to make a living for themselves and those dependent on them, or judgment to prefer right-doing to wrong-doing, or the will-power to resist the ordinary temptations of life, which come to all. Punishment has little effect on them, and reasoning is wasted. They are "repeaters" in crime. They are generally the offspring of those who have weakened their moral control through constant self-indulgence. They would probably belong in the class considered by the committee as proper subjects for surgical interference. From them spring all forms of neurotic defects.

For the purpose now under consideration, feeble-mindedness is the most important subject, and with it epilepsy may properly be classed, as feeble-minded or epileptic parents almost invariably transmit their qualities to their children in varying degrees; such offspring on account of their incapacities, misdeeds or crimes frequently become public charges or come into conflict with the authorities of the law.

Certain types of insanity, notably dementia praecox and manic-depressive insanity in the parents, show a marked tendency to reproduce themselves in the children as feeble-mindedness, criminality and other forms of degeneracy.

Neurotics reproduce neurotics with tendencies to neuroses, insanity, feeble-mindedness, drunkenness, pauperism and criminality. Insanity is more often inherited from the insane. Feeble-mindedness is the result of all neuroses, since any check to the growth of the brain must affect the development of the mind. In short, except in rare instances, feeble-mindedness, insanity, criminality, inebriety and pauperism may be looked on as allied conditions with marked tendencies to be reproduced in one or another form in the children of persons affected with such infirmities, and with a strong tendency for the defects to become more marked with each succeeding generation and to be accentuated by unions between such defectives, as persons belonging to these various classes have a strong affinity for others of their kind.

Efforts have been made to find a family in which two defectives have united and produced normal children. No record of such a family has been found.

That the insane are increasing much faster than the general population is undoubted. The census reports show this. The increase has aroused public interest to such an extent that several states have passed laws for the absolute prevention of increase, by operation. The decision in each state is left to a commission. The committee has summarized the law bearing on the situation in each of the states in which there has been legislation.[1]

Society Proceedings

COMING MEETINGS

American Physiological Society, Cleveland, Dec. 26-28.
Southern Surg. and Gynec. Assn., Old Point Comfort, Va., Dec. 17-19.
Western Surgical and Gynecolog. Assn., Cincinnati, Dec. 20-21.

PENNSYLVANIA STATE MEDICAL ASSOCIATION

Sixty-Second Annual Meeting, held in Scranton, Sept. 23-26, 1912

(Concluded from page 1647)

The Treatment of Flat-Foot: A Plea Against the Misuse of the Insole

Dr. Deforest P. Willard, Philadelphia: About one-fourth of the deformities of the body are due to weakness of the tarsal arch. For the support of the tarsal arch we have to depend on the sling-like action of the muscles of the leg, the principal of which are the tibials on the inner side and the peroneals on the outer side. Any weakness of the inner muscles or overaction of the outer muscles will cause the foot to evert when the body weight is placed on it, thus throwing a strain on the plantar fascia and the ligaments of the tarsal joints; these gradually give way and the normal arch disappears. In the treatment, especially of the pronated type, there are four indications which must be complied with, namely, to strengthen the weakened muscles, to allow the foot to assume its normal position, to relieve the strain on these muscles by throwing the line of weight-bearing to the outside of the foot, and to support the arch until the muscles are ready to take up their full work. To accomplish this we may use muscular exercises to strengthen the weakened muscles and to stretch the contracted ones, massage and passive motion, hot-air treatment, hot and cold water douches. The second essential is a proper shoe to give support to the foot. The use of arch-supports is the commonest form of treatment and the easiest to prescribe, while at the same time it does the most harm. At the best such a plate will be only a temporary support to the arch and in no way disposes of the causative factors of the condition.

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[1] See The Journal, Oct. 19, 1912, p. 1474.

Paraplegia in Pseudoleukemia; Treatment by Laminectomy and the Roentgen Rays

Dr. Charles K. Mills and Dr. Edward Martin, Philadelphia: A woman, aged 35, had suffered several years from what had been designated as pseudoleukemia. Three or four months prior to admission she had had a severe pain in the back between the shoulder blades, and a week before admission suffered from paresis of her lower extremities, which at the time of admission had developed into total paraplegia. There was also loss of bladder control with foot-clonus and slight Babinski on the left side. Laminectomy was performed. On removing the lamina of the third vertebra a growth was found involving the spinal membrane and encircling and infiltrating the cord. As much as possible of this was removed and the patient made a good surgical recovery. The symptoms were only slightly relieved. Roentgenotherapy was carried on, and three months after operation the patient reported that her suffering was greatly diminished.

Use and Abuse of Thyroid Extract in Obesity

Dr. Henry D. Jump, Philadelphia: There are two varieties of obesity, exogenous and endogenous. The latter is due to decreased activity of the thyroid, and hence thyroid treatment gives the best results. When obesity is associated with chronic nephritis, the thyroid treatment is of great value. Evil effects result from overdosage and uncertainty of dosage. The dose should be increased gradually. If overdosage is persisted in, death may result from heart failure. Thyroid must be classed as a dangerous remedy not to be used by a patient who is not under observation by a physician.

The Medical Aspect of Pulmonary Surgery

Dr. H. R. M. Landis, Philadelphia: In the treatment of certain of the affections of the lungs and pleuræ it is essential to success that the internist should seek surgical advice in doubtful cases, much earlier than is at present customary. That some of the diseases affecting the lungs and pleuræ can be treated more successfully by surgical methods must be apparent to any one who has followed the reports from some of the surgical clinics abroad and in this country. Of the conditions which especially demand surgical interference the first in importance are those due to suppuration, such as pulmonary abscess, acute or chronic, and empyema and bronchiectasis, in which surgery is the only hope of relief. The form of surgical treatment which promises most in pulmonary tuberculosis is the production of artificial pneumothorax. This is not to be recommended in cases of incipient or moderately advanced tuberculosis, if an arrest of the disease is being brought about by the usual hygienic measures. Other operative procedures for the relief of tuberculosis involve the resection of a portion of one or all the ribs on one side. Even in advanced cases of pulmonary tuberculosis the patients stand operative interference surprisingly well.

Intrathoracic Tumors

Dr. Joseph Sailer and Dr. Robert G. Torrey, Philadelphia: These tumors are easy to diagnose but are often mistaken for pulmonary tuberculosis. Diagnosis is useful only in preventing needless expense for sanatorium treatment. Medical treatment of any kind is unsatisfactory. Carcinoma is unsuitable for operative interference although successful cases have been reported. A review of reported cases of sarcoma leads to the belief that these tumors, when occurring in the lung, do not tend to metastases and might be removed with permanent good results. Secondary tumors are common in the lungs.

DISCUSSION

Dr. J. H. Jopson, Philadelphia: A large number of cases of empyema in which there are encysted interlobular collections are overlooked. Finally when these cases are observed by the surgeon they are in a condition which hardly admits of cure. The physical signs are those of empyema but on a small scale. Cases which are often regarded as unresolved pneumonia are likely to be some form of empyema. I think that the reason the needle fails in so many cases to discover these collections is that we do not bear in mind the natural fissures of the lung.

Dr. Alfred Hand, Jr., Philadelphia: It is often difficult to place the needle in the collection of pus. In the last few years I have used a brief general anesthesia in making these explorations and it has helped me a great deal. With the child absolutely relaxed we have it under perfect control and I do not have to repeat the exploratory puncture so often as I formerly did.

Dr. Samuel Robinson, Boston: I remember the advice given by the late Maurice Richardson in operating for empyema. He was in the habit of saying to the students: "Make large holes; get the pus out of the chest." As I have gone on I see that he was right. I am not prepared, however, to give up all of the suction methods through a small opening; but we as surgeons ought to know from the chart to the patient's condition that these methods are not always sufficient, and, if necessary, we should make another and larger hole in order to make sure that the pus is out of the chest. Artificial pneumothorax is a piece of work that the internist must carry on. Adhesions do not prevent the entrance of nitrogen gas so often as one would think. In forty-five out of fifty cases one can introduce it throughout the pleural sac to a greater or less extent.

Acute Membranous Vaginitis in Pregnancy

Dr. George Erety Shoemaker, Philadelphia: This complication of late pregnancy is unique in my experience and that of several of my friends. My first case was in a woman of 36, pregnant eight months, who suffered from soreness, swelling and intense itching of the vulva, associated with a copious discharge, partly fluid and partly of cheesy masses. The solid material was not adherent and could be removed without causing bleeding. There was no ulceration. The surface of the vagina and vulva was wiped with a 20 per cent. argyrol solution and a small tampon of the same solution inserted. Daily irrigation with potassium permanganate, 1:500, was carried out. Cure occurred in three weeks and one week later birth was given to a healthy child. The second case was in a woman eight months pregnant with twins. The condition was similar to that in the previous case and had increased in severity for three weeks in spite of treatment. The same treatment was carried out as in the first case with equally good results. Bacteriologic examination showed in both cases the enterococcus, the solid masses being made up entirely of these germs; in the second case there was also present the *Oidium albicans.*

Early Diagnosis of Gastric Carcinoma

Dr. John Herr Musser, Philadelphia: An analysis of sixty-nine cases of gastric cancer, verified by autopsy and by operation, showed that in 60 per cent. of the cases pain was either the first or second complaint of the patient; 43 per cent. of the patients complained of vomiting as the first or second complaint, while in a comparatively small percentage there were complaints of indigestion, and what is usually held to be a typical symptomatology—vague distress, some nausea, and flatulency coming after midlife in a patient who has before this been free of gastric trouble.

Affections of the Gall-Bladder Which May Produce Epigastric Pain

Dr. Joseph Sailer, Philadelphia: Pain in the right upper quadrant of the abdomen may be due either to thoracic or to abdominal lesions. The thoracic lesions are (1) pleurisy, either of the lower lateral aspect of the right chest or of the adjacent edge of the diaphragm; (2) lesions of the intercostal nerves or of the ganglia of the posterior roots, and (3) acute endocarditis. The abdominal conditions other than those involving the liver and the biliary tract are appendicitis, gastric and duodenal ulcer, renal calculus, subdiaphragmatic abscess, lesions of the colon, particularly of the hepatic flexure, adhesions and pancreatitis. The conditions of the liver and the biliary tract may be classified as follows: (1) lesions involving the capsule of the liver, acute distention, particularly an acute cardiac decompensation, carcinoma, abscess and traumatism; (2) obstruction of the biliary tract due to stones, inflammation, parasites, stricture and pressure; (3) rupture of the gall-bladder or bile ducts; (4) extension of inflammation to the adjacent peritoneum; (5) hepatalgia. These different forms of pain differ somewhat in character but not so greatly that the various types may be regarded as pathognomonic. Associated signs and symptoms, such as tenderness, jaundice, etc., are of importance in reaching the correct diagnosis.

Surgical Aspects of Epigastric Pain

Dr. John H. Jopson, Philadelphia: Epigastric pain is a symptom of prime importance in a large number of grave abdominal lesions. We may discuss the symptom of epigastric pain from the points of view of: (1) evidence of the existence and the general location of the morbid process causing it; (2) as an aid to differential diagnosis; (3) as an indication for surgical intervention. The commonest cause of epigastric pain is not located in the upper abdomen but in the right iliac fossa, namely, the appendix. Among the medical lesions two of the most important giving rise to epigastric pain are the referred pain in pleurisy and pneumonia, and the lightning-pains and gastric crises of locomotor ataxia. In some cases pain outweighs in importance any other symptom and is less open to erroneous interpretations. The persistent increase of pain in either acute or chronic lesions is fairly indicative of surgical intervention.

DISCUSSION

Dr. William H. Corrigan, Wilkes-Barre: It is on the early recognition of the early phenomena due to the disturbance of the physiologic processes that the diagnosis of the lesion is to be made, regardless of pain. There must be, first, comprehension of the normal physiologic processes in order that the abnormal may be appreciated, and, second, a mental picture of the pathologic lesion whose nature and location would logically explain the symptoms. Epigastric pain is not a persistent concomitant of the pathologic lesion. It is contingent on variable conditions and is not indicative of the extent, danger or existence of pathologic lesions. Surgery must conform to the natural law, and knowledge should precede action. The better the physiologist, the better the diagnostician, the better the surgeon.

Dr. Edwin Zugsmith, Pittsburgh: Epigastric pain is of value to the physician because of its variations and associations. Tenderness, as a rule, corresponds to the site of the trouble. While gastric and duodenal ulcer present the symptom of pain after eating, so also do many cases of gall-bladder disease, chronic appendicitis and adhesions. The point of differentiation lies in the intensity of the pain. The pain of ulcer is more severe than the corresponding pain of gall-bladder disease or appendicitis. Gall-bladder pains are deceptive and are not always located in the epigastrium. We need a better test than we have for the diagnosis of pancreatic disturbance. In appendicitis the tenderness that comes from a sudden relief of pressure is just as important as tenderness which results from a direct pressure. One of the most important causes of epigastric pain is the existence of adhesions. These are more common than before we resorted to abdominal surgery. I do not believe that ulcer is dependent on hyperacidity, but that the only thing that will account for ulcer in the stomach and duodenum are conditions connected with the blood and blood-vessels. Surgery is not the final word in gastric ulcer at present nor will it be for some time to come. I do not recall in my experience many cases in which ulcer has developed carcinoma. Neither can I recall a single case of carcinoma which had an ulcer history.

Dr. William Egbert Robertson, Philadelphia: I should like to ask Dr. Sailer what his experience is in respect to abdominal pain as an early symptom of some cases of pu monary tuberculosis. Its significance I am not able to explai but the fact remains that in certain cases that ultimat develop frank tuberculosis, pain is the initial symptom and ha been acute.

Dr. Joseph Sailer, Philadelphia: I have seen two cases gastric ulcer in which practically the only symptom th occurred was a persistent regurgitation of food in sma amounts. Neither patient had any pain after meals. I do no believe that a diagnosis of gastric carcinoma can be mad solely from an examination of the gastric contents. In severa cases of acute miliary tuberculosis, chiefly of the lungs, bu on examination found also in other organs of the body, th epigastric pain has been severe. I am unable to explain thi One can surmise that it is, perhaps, similar to the epigastri pain occurring in pleurisy, and it might be that a more accurate and painstaking examination of the pleura, the intercostal nerve or possibly of the ganglia on the posterior root might show the existence of some lesion. We know that thi pain sometimes occurs in herpes zoster, that herpes zoster i also not infrequently associated with disease of the gangli and the posterior roots, and that the pain in the epigastriu may occur before the appearance of the herpetic eruption.

Isolated Sclerotic Involvement of the Mitral Valve

Dr. Robert N. Willson, Jr., Philadelphia: The frequency of occurrence of mitral valve deformity and disease, independent of and in the absence of other cardiac valve implication, has received attention only, as a rule, from the point of view of vegetative endocarditis. It has been described customarily as rheumatic in origin and, at least in its acute forms, has been regarded as a part of true bacterial rheumatic disease. Sclerotic thickening and deformity causing insufficiency or stenosis, and often both anatomic effects, have received scant attention at the hands of students of the heart. In the wards and at autopsy I have been struck by the purely sclerotic nature of occasional mitral lesions which, during life, I had been led by the history and course of the case to regard as subacute recrudescences of a bacterial endocarditis of a purely vegetative type. I know of no clinical method of distinguishing the sclerotic type of valvular disease from the vegetative, except in the probable exclusion of syphilis from the etiology by the Wassermann test. I am inclined to believe that all patients with sclerosis of the mitral valve, whether this is associated with valvular involvements or isolated, will be found also to present distinctly sclerotic arteries, irrespective of the age. The only certain prophylactic measure would be prevention of marriage among the unfit.

Proctoclysis as a Curative and Prophylactic Agent in Primary and Secondary Acute Nephritis in Children

Dr. Harry Lowenburg, Philadelphia: Sodium chlorid does not increase water retention in nephritis. It inhibits the action of the toxic agent. Alkalies assist the action of the neutral salts. All other symptoms of acute nephritis are dissipated or prevented by a combination of alkalies and sodium chlorid. Acute nephritis is benefited by large amounts of water. Sodium chlorid may be administered by proctoclysis, hypodermoclysis or intravenous injection. One advantage of proctoclysis is the reduction of the kidney acidosis during the elimination of the water absorbed. Edema does not contraindicate the use of sodium chlorid in nephritis. In the treatment of the acute infectious diseases and toxic states, and before and after ether anesthesia, continuous or intermittent proctoclysis with normal saline solution as urgency may require, together with the administration of alkalies, is recommended. It would appear that Fischer's theory finds verification in the protocols of these cases.

The Relation of Animal Fat to Tubercle Bacillus Fat

Dr. William Charles White, Pittsburgh: The relation between the fats stored in the animal body, and the fat in the tubercle bacillus growing in this animal body, seems at first glance a very indefinite one; yet an attempt to establish such a relation yields many points of interest, the correlation of which establishes a connection between the two which is apparently very close. The storage of fat in bodies that are the seat of tuberculous infection is usually the basis of a favorable prognosis. This storage of fat, too, is the main object of the tripod of rest, fresh air and feeding, which forms the foundation of our treatment in this disease. While we have not been able to determine that such methods as we have employed in our work offer a means of distinguishing the human and bovine types of organism, still the findings suggest the possibility that in the relation of animal fat to tubercle bacilli there may be found some light on this question.

INDIANA STATE MEDICAL ASSOCIATION

Annual Meeting, held at Indianapolis, Oct. 10-11, 1912

(Concluded from page 1644)

Nervousness in Children

Dr. C. F. Neu, Indianapolis: The solution of this problem can never be reached by the sociologist alone, or by the economist, or by the educationalist, or by the disciplinarian, or even by the physician, but by the closest cooperation of all. The sociologist must seek constantly to improve the social and moral conditions of life; the economist to determine ways and means to alleviate the intense struggle for existence; the educationalist to understand and direct better the intellectual capabilities; the disciplinarian to instill self-reverence, self-knowledge and self-control, and the physician to supervise and direct all such measures as will be most conducive to the development of a healthy body and mind.

DISCUSSION

Dr. A. E. Sterne, Indianapolis: There are two classes of nervous children—those who have something the matter with them, and those who suffer from too much parents. Each child is a law unto itself; it must be studied individually. Nervousness in children is due almost always—unless they are sick—to lack of self-control, and that can be taught the child and must be taught the child. Insane people are sick people, they should be treated as sick people, they should be examined as carefully as any other sick persons, and in a great many cases we will find that the mental derangement is the result of internal illness. The trouble is we have no opportunity to study these conditions. When a person becomes unmanageable in the home or general hospital we have no place in this state to send that patient, except the insane asylum or some private institution. We have no detention hospital or observation hospital.

Dr. F. F. Hutchins, Indianapolis: There are two kinds of children—neurotic and non-neurotic, and we need them both. The non-neurotic child is the cart horse that carries the load; but we need the others, too. Where are we going to get men with dreams, artists and literary men to lead us from the common to the beautiful things of life? We get them from neurotic children. The history of every man who has arrived at distinction in the realms of art or science shows this. But it is a combination of the two—common sense and imagination—that makes the broad, all-round man of whom we are so proud.

Dr. F. B. Wynn, Indianapolis: This thing which we call in the life of the child and adult, "habit," really has a physical basis in the individual, and hence the necessity of recognizing that it is necessary to do something while the child is growing, when the central nervous system can be molded.

Antityphoid Inoculation

Dr. William Shimer, Indianapolis: Antityphoid vaccination seldom gives severe reaction. Most reactions have disappeared in twenty-four hours. Antityphoid vaccination is an almost absolute protection against typhoid infection, particularly that of "bacilli carriers." Universal antityphoid vaccination will do as much to eliminate typhoid as small-pox vaccination has done to eliminate small-pox.

DISCUSSION

Dr. C. S. Woods, Indianapolis: We have not had enough experience with antityphoid vaccine to determine how long we are going to be immune after inoculation, but we do feel, nevertheless, that under certain conditions, particularly in the army, where great bodies of men are moving from place to place, and for those people whose business or occupation calls them from place to place, antityphoid inoculation should always be done.

Dr. A. W. Brayton, Indianapolis: I regard it as a crime to ask any young woman to go into an institution where she is laying down her life, perhaps, without having prevention against typhoid fever, for the chances of having it in a hospital are eight to one against having it as a school teacher or in the ordinary walks of life. I hope each of us will become advocates of typhoid prevention in our respective spheres. I do believe that we have before us now the possibility of stamping out two of the great captains of the messengers of death—typhoid fever and syphilis—in a higher degree than ever before. There will come a time when it will not be so important to teach the physicians as to teach the laity. The laity is becoming wise, and when we have a wise laity to deal with, the nation can get along with a poorly educated profession, or better yet, compel the medical profession to keep abreast of medical science as taught in biologic laboratories.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION

Thirty-Eighth Annual Meeting, held at Chicago, Oct. 22-24, 1912

(Concluded from page 1736)

Training of Specialists

Dr. Louis Frank, Louisville, Ky.: I often wonder if four years of study in a medical school really qualifies one to undertake all the responsibilities of practice. My belief is that it does not. Obstetrics must be better taught and must be viewed from a broad point of view. The branch is poorly taught and the practice as generally carried on is worse. Most obstetricians, whether teachers or practitioners, have been deprived of such surgery as rightly and properly they should do, or have surrendered it. The surgeon of to-day should no more be called on to do a primary perineorrhaphy, or other operative procedure in the lying-in room, than to put on forceps, do a version or an *accouchement forcé*; yet our obstetricians, for the greater part, assign such work to the surgeons, not only in practice but in teaching the subject. Our students must have better training—a larger actual experience—hospital training and more rigid requirements before entering this field of practice. Specialists cannot be made in six or eight weeks, yet certificates of proficiency are granted by postgraduate schools following courses of such duration, during which time the sole opportunity for qualification has been to observe seventy-five or a hundred operations and, for a fee, to do two or four operations with the assistance (?) of the tutor. Let us have special examinations for those members of the profession who desire to wield the scalpel, with additional requirements in an increased hospital experience for all specialists, surgical, obstetric and medical. Then recognizing as such those who are able to qualify as specialists, let us compel them to adhere to such practice and not surreptitiously engage in work other than that for which they declare themselves particularly qualified.

The Stomach From the Point of View of the General Practitioner, the Specialist and the Surgeon

Dr. Charles G. Stockton, Buffalo: I have had frequent opportunity of observing the working of good and evil in the professional management of stomach diseases. This field is rich in illustrations because derangements of the stomach commonly form a part of pathology starting in almost any part of the economy, and because disease arising in the stomach often concerns directly the physician, the specialist and the surgeon. Few regions more generously reward the correlated study of physiology and chemistry, of psychology and general medicine, of special technic and wise surgery. Let us review two conspicuously familiar, illustrative pathologic instances.

1. A case of unrecognized tuberculosis, with gastric irritability. A specialist, after analysis of stomach contents, recognizes a gastric neurosis and treats it by lavage and restricted diet. Improvement is not forthcoming, so a surgeon is invited. He sees a reflex, secondary to chronic appendicitis, and removes the innocent organ. Following a brief period of improvement, the result of psychic impression and suggestion, the case marches on; there is now fever, cough and expectoration, heralding infiltration, softening and vomiting. It was a case for general medicine, not one for specialist or surgeon; yet it might have been, and both might better have studied the case jointly with the family physician until the diagnosis was established.

2. A case of gastric atony, with anemia, emaciation and mental depression; with constipation, slight hepatic derangement, tenderness and recurring bilious attacks. The general practitioner perceived the denutrition, yet harmed the patient with superalimentation and chalybeates. A surgeon, noting the gastric distress, the moderate motor insufficiency, the colonic stasis and the disturbed liver, felt that the primary fault was an infected and irritable gall-bladder, and drained the useful organ with no worse effect than making it small, limiting its movements and binding it by adhesions to the surrounding parts. In fact, the case was one for the skilful specialist, who by local treatment, carefully suited diet and general development of the patient, in the end relieved the symptoms; then, by educating the patient as to his dietetic limitations and necessities, by teaching forbearance, willingness and waiting, had the satisfaction of seeing him restored to reasonable health.

Biologic Interpretation of Abdominal Pain and Its Surgical Relation

Dr. George W. Crile, Cleveland: The only types of infections that are associated with pain are those in which the infection may be spread by muscular action or those in which the fixation of parts by continued muscular rigidity is an advantage. And further, we find as a striking corollary that the type of infection that may cause muscular action when it attacks one region of the body may cause no such action when it attacks another region. Among 8,684 abdominal sections performed by my associates, Drs. Bunts and Lower, and myself in the Lakeside Surgical Service, 923 were on the stomach and intestines, 725 on the urinary tract, 744 on the gall-bladder, 2,130 on the female genital organs and 3,988 on the appendix. In a recent conference, after tabulating all of our cases, we felt that certain conclusions could be drawn: Certain lesions of the viscera mentioned cause pain and indigestion, whereas lesions of the solid viscera cause usually no primary pain; lesions of the hollow viscera causing no pain are rarely benefited by operation; most cases of painful indigestion, if not duodenal or gastric ulcers, are extragastric; the cause of the pain is the stimulus to muscular action; pain is a damaging agency to health; acute abdominal pain is usually surgical; these phenomena obey a general biologic law of adaptation; the adequate stimulus of many of the phenomena acts through the brain; when the brain is disconnected these phenomena disappear and thus the mortality and the morbidity may be placed measurably further under the surgeon's control.

The Operative Treatment of Prostatic Hypertrophy

Dr. Hugh Cabot, Boston: The relative merits of the suprapubic and perineal operations in their present state of development seem to me to be as follows: The suprapubic route is the anatomically correct approach. It attacks the hypertrophied portion at the point where it can be reached with less destruction of tissue and with the greatest certainty of complete removal of the obstructing portion. It does less damage to other structures, interferes less with other functions and is followed by fewer complications. It is more certain to result in cure. The perineal operation shows at present a definitely lower mortality. It is a more difficult surgical procedure, no matter what technic be selected. It is more likely to do damage to other structures and functions and is less certain to result in cure. Of the various types of perineal operation, that of Proust, combining the prerectal incision with the intra-urethral enucleation, is best adapted for the uses of the average surgeon. The perineal operation survives only on account of certain contra-indications to the suprapubic method.

DISCUSSION

Dr. A. J. Ochsner, Chicago: What I have to say is based on experience obtained twenty years ago when lithotomy was done through the perineum by the surgeons whom I assisted at that time. My observation then was that these surgeons would introduce a staff into the urethra, make an incision in the perineum, would pass the staff with a button-knife, incise the membranous or prostatic urethra and the neck of the bladder, remove the stone, and leave the patient alone; everything would go well, and they never had difficulty with fistula or any other complication. Presently prostatectomy was advocated, and I did a number of suprapubic prostatectomies. Things went on nicely until I lost two patients in one day. Then I considered the perineal route and followed Ferguson, Murphy and later Young, until one day it occurred to me that we did not get at the prostate so well in that way as we used to from above, and so I now make the old-fashioned lithotomy incision with button-knife, introduce the finger into the bladder, enucleate the prostate, make a suprapubic operation through the old lithotomy incision, and now it is easy, and we have the advantages of the two operations.

Dr. Bransford Lewis, St. Louis: I would like to emphasize the importance of preparatory treatment, bringing the patient up to a physical condition in which he is likely to go through the operation for the removal of the prostate with success.

Dr. William J. Mayo, Rochester, Minn.: We have had this experience in our prostatectomies, and especially for malignant disease: in making a complete physical examination of all males that present themselves in the clinic, we have found that hypertrophy of the prostate was not at all infrequent in men who gave no symptoms whatever. The hypertrophy of the prostate in these patients does not begin to trouble them until malignant disease develops. When we have a patient who is known to have prostatic hypertrophy which causes a great deal of trouble, the reason for it will be found in the secondary development of malignant disease in something like 10 per cent. of the cases. In regard to the operation, we have gradually come around to the suprapubic, for the reason that this operation gives one the opportunity to do things that are indicated in the particular case, and as safely as by any other route.

Dr. E. Gustav Kolischer, Chicago: We cannot fairly compare the results of perineal prostatectomy, which is a favorite method, with the results of suprapubic prostatectomy, which is done in the old-fashioned way. Suprapubic prostatectomy is easy, provided we can expose freely the parts on which we operate.

Dr. Samuel J. Mixter, Boston: The mortality of the suprapubic and perineal operations can hardly be compared, because the suprapubic operation may be difficult in one case, while the perineal may be easy in another. In other words, the cases should be selected, not with the idea of which is the easier operation, but in general one should be guided by his judgment as to which is the better operation in a given case.

Sixty Laminectomies for Spinal Disease

Dr. Charles A. Elsberg, New York: My observations are based on sixty primary laminectomies: 22 for tumor, 9 for section of posterior spinal roots, 4 for inflammatory bone disease, 5 for old fracture of the spine, 2 for syringomyelia, 1 for intramedullary cyst, 1 for aneurysm of spinal vessels, 3 for a peculiar disease of the cauda equina and 13 exploratory. The dangers of a laminectomy should be very small, but spinal surgery is a special field demanding special training and experience. The value of the Wassermann reaction in making the indications for operation in spinal disease has been overestimated. In several instances a glioma was found at operation in patients with a positive seroreaction. It is almost as great error to allow a patient with a possible spinal tumor to come totally paraplegic while antisyphilitic remedies are ing tried as to allow a patient with a possible specific brain mor to become blind while mercury is being given. The cor- ct diagnosis of the level of the lesion should usually be made. ut one must not forget that a stasis of fluid above the lesion ay give level signs above the true level. Secondary degenera- ons may rarely cause a shifting upward of the level signs. he supposed danger from the sudden escape of cerebrospinal uid during an operation is not great. Retention of urine may cur after a spinal operation, but the frequency of its occur- nce is in direct proportion to the injury done to the cord. A arked abdominal distention often occurs after laminectomy the lower dorsal region. After complete laminectomy, the unction of the spine is fully recovered because the main sup- ort depends on the vertebral bodies. As many as seven spines nd laminae can be removed and perfect function of the spine ecovered. Some stiffness and rigidity may remain for a few onths, especially after operations in the lower dorsal and umbar regions. Free mobility is most quickly recovered after minectomy in the cervical region. In old fractures of the pine, with evidences of compression of the cord, the results of perations are little short of brilliant. Ultraconservatism is dicated in fresh fracture of the spine and only few patients hould be subjected to an operation. But in the patients in hom symptoms only appear after weeks or months after the njury and in the patients in whom there is improvement at rst and stationary symptoms persist, a decompressive minectomy should be done. Marked angulation of the cord an be straightened out, intramedullary cysts drained, etc. aminectomy for decompressive purposes is often indicated; he opening of the spinal canal may and often does have a rofound effect on the spinal cord, which may act beneficially n some spinal diseases whose nature is as yet not understood nd whose pathology is unknown.

The removal of an extramedullary tumor of the spinal cord s one of the most satisfactory operations in surgery. The peration can usually be done in less than half an hour, and he danger is small. Two stage operations are indicated in ntramedullary growths and in the giant-tumors of the roots of the cauda equina. The treatment of localized intramedullary umors by the method of extrusion has opened up a new field. It is both feasible and safe to incise the cord in order to allow the extrusion of intramedullary tumors, to empty cysts of the ord for decompressive purposes in infiltrating growths and in spinal gliosis.

Pancreatic Lymphangitis and Chronic Pancreatitis

Dr. John B. Deaver, Philadelphia: Pancreatitis must still be studied with an open mind in regard to its etiology and particularly in respect to its relation to chronic inflammatory diseases of the alimentary tract that result in retroperitoneal lymphangitis. Treatment is promising in the early stages and practically hopeless when the stage of interstitial deposit of fibrous tissue is reached. Our most promising lead for treatment consists in the means already devised for the treatment of chronic inflammation in the organs with which pancreatitis is commonly associated and on which it appears to be dependent. Pancreatitis is common and not rare. Its presence should be suspected in all cases of obscure upper abdominal indigestion and like other chronic inflammatory lesions of the abdomen, when it is uninfluenced in a reasonable length of time by medical measures it should receive surgical attention.

Surgical Management of Exophthalmic Goiter

Dr. W. D. Haggard, Nashville, Tenn.: From a considerable experience and from observation and reports of the work of those of large experience, I believe that the surgical treatment of this disease affords the most effective and lasting benefit. It has stood the test of time far better than the purely medical management. No matter at what time of life the early symptoms of hyperthyroidism develop, it has been demonstrated that reduction of the blood-supply to the hyperactive gland is a rational and effective method of treatment. The ligation of one or more of the thyroid arteries, under local anesthesia, constitutes one of the most satisfactory methods of handling this disease. Ligation is also indicated at the other extreme of the disease—when the patient is too ill for a radical removal of the hyperplastic lobe. Operation is not to be employed when the patient is in an acute exacerbation, or is rapidly growing worse, but if by rest in bed, with the ice-cap over the heart, belladonna, etc., the patient's condition can be made satisfactory, and if the pulse is below 120, the operation can be undertaken.

DISCUSSION

Dr. Arthur Dean Bevan, Chicago: I am thoroughly convinced of the truth of the theory of Moebius, that goiter is due to an altered and increased secretion of the thyroid, and I have been converted to the work of Kocher that these patients can be improved by the reduction in the amount of the thyroid tissue. In the beginning cases of goiter I believe the proper surgical procedure is ligation of the thyroid arteries. In many of these incipient cases the patients can be cured and the serious effects on the heart prevented by early ligation of the thyroid arteries. This should be done under local anesthesia.

Dr. A. J. Ochsner, Chicago: Every man who has had a large experience in the surgical treatment of exophthalmic goiter can refer more than one-half of the deaths which have occurred in his hands to a slip in surgical judgment. I do not believe I have lost a case in the last three or four years in which I could not definitely attribute it to an error in surgical judgment. A serious error is the one Dr. Haggard has referred to of subjecting these patients to a serious operation at a time when they are at or near the top of a wave of hyperthyroidism. That has carried away a number of these patients. With good surgical judgment, one will avoid these deaths.

Dr. Daniel N. Eisendrath, Chicago: The relation of the thymus gland to exophthalmic goiter opens a new era in the surgical as well as medical management of the disease. We must consider whether or not we have a persistent thymus present which is a factor in the mortality of the disease. I believe this will explain a considerable number of cases of sudden deaths from exophthalmic goiter which take place before or after operation. I make it a rule at present to have a radiograph made in every case of exophthalmic goiter in which I propose to operate.

Dr. J. H. Carstens, Detroit: I have patients brought to me under the supposition that they have some pelvic trouble. After examining these patients I have told the physician who brought them that they had exophthalmic goiter. But he would reply, "No; I don't see any goiter; I can't feel any enlarged thyroid gland." When these patients have palpitation of the heart, and have repeated attacks, I tell the physicians if they do not know what is the matter with these women otherwise, to look out for exophthalmic goiter.

Dr. George W. Crile, Cleveland: The prognosis depends on several things, among them the state of the patient at the time of the operation. It depends on whether or not, after the operation has been completed, the patient is sent back to the environment in which the disease originated. If so, many times there will be a recrudescence of the disease.

Eczema as Seen by the General Practitioner

Dr. A. Ravogli, Cincinnati: Eczema is curable, when properly treated. It is wrong to starve the patients, forbidding articles of food without scientific ground. On the contrary, the patient has to be well fed in order to increase albumin in the serum to form antibodies to oppose the toxic elements. Only indigestible and badly preserved articles of food have to be avoided. The affected parts have to be cleaned and kept aseptic like any other suppurating wound. Solutions of sodium bicarbonate or sodium biborate, or even a mild soap accomplish the purpose.

For an acute eczema the bathing with a 2 per cent. solution of subacetate of aluminum is very beneficial. After bathing the surface is covered with amylum or talcum powder. For a papular and vesicular eczema the applications of liniment of ichthyol, or of carbonate of zinc are useful. In recurrent vesicular eczema, painting the surface with tincture of iodin for sterilization has given very good results. Rhagades must be touched with silver nitrate, 3 to 5 per cent. solution.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

California: Los Angeles, December 3-6. Sec., Dr. Charles L. Tisdale, 929 Butler Bldg., San Francisco.

Delaware: State Society and Homeopathic Examining Boards, Dover and Wilmington, December 10-12. Secretary of the Medical Council, Dr. Henry W. Briggs, 1026 Jackson St., Wilmington.

Kentucky: The Armory, Louisville, December 12. Sec., Dr. J. N. McCormack, Bowling Green.

Maryland: Regular, 1211 Cathedral St., Baltimore, December 10. Sec., Dr. J. McPherson Scott, Hagerstown; Homeopathic, St. Luke's Hospital, Baltimore, December 13-14. Sec., Dr. O. N. Duvall, 1326 N. Mount Street.

Ohio: Columbus, December 10-12. Sec., Dr. George H. Matson, State House.

Pennsylvania: Philadelphia, December 3-5. Sec., Nathan C. Schaeffer, Harrisburg.

Virginia: Richmond, December 17-20. Sec., Dr. Herbert Old, Norfolk.

ADVANCED REQUIREMENTS IN PENNSYLVANIA

Dr. J. M. Baldy, president of the Bureau of Medical Education and Licensure of Pennsylvania, reports that at a meeting held at Harrisburg, Nov. 1, 1912, it was voted that after Jan. 1, 1914, the bureau would require for admission to medical colleges, in addition to a standard four-year high school course or its equivalent, not less than one year of college credits in chemistry, biology, physics and a modern language other than English, or the equivalent thereof as determined by the Bureau of Professional Education; and for examination for license to practice medicine in the state of Pennsylvania, a year of service as intern in an approved hospital, or a year of approved postgraduate instruction, and that the necessary amendments to the medical practice act be secured at the coming session of the legislature. If this legislation is secured Pennsylvania will be the first state to require that every applicant for a license to practice medicine within its borders must have held an internship in a hospital. Pennsylvania, therefore, has the opportunity to be the first state to demand this most desirable qualification for licensure.

PROFESSOR HIS ON MEDICAL EDUCATION*

As in the case of most of my traveling companions for the first time in this country, it may appear premature for me to express an opinion about American institutions; but the education of the physician, graduate as well as postgraduate, is a subject which occupies and must continue to occupy all enlightened nations while our art and science progress and until we are able to complete a system of the subject and the method of teaching it. Every country tries in its own way to do justice to this task, but that the ideal thus far has nowhere been reached is shown by the fact that in France and in England commissions attempt to improve medical education, and that in Germany, in spite of rather recent improvements, we hear continually of propositions for further changes.

There was a time when medicine was taught *ex cathedra.* Teaching was purely dogmatic, consisted exclusively in the reading and explanation of the classics, and the only problem was whether the Arabs or Galen should be followed. As late as 1796 medicine in Leipsic was taught *duce Gaubio,* that is, based on the pedantic and dry text-book of Gaubius. One who wished to learn observation of the sick had to go to Holland or Edinburgh, where the method of a Sylvius, a Boerhaave, a van Swieten had taken root. At that time a student could pass his examinations with honors without ever having seen and studied a patient or assisted at an autopsy. It is true that the teaching at the sick-bed became general during the earlier part of the nineteenth century, but this progress was retarded, at least in Germany, by the unfortunate epoch of natural philosophy. The poet Eichendorff missed his examinations because he left unanswered the question about the crystallization of the solar ether! At Vienna, at Halle with Krukenberg, at Berlin with Reil, one certainly had the opportunity to learn solid practical medicine, but the need of a demonstrative, objective education with practical occupation of the students asserted itself in general only after medicine until then the daughter of philology, had become a sister o the natural sciences. Even then small and narrow conditions often persisted, especially in regard to the teaching equipment My father, who taught anatomy and physiology in Basel, had at his disposal two rooms, half of a corridor and a third of a *Diener!*

New tasks arose for the clinic after physiology, under the leadership of John and William Hunter, Johannes Müller Magendie, Claude Bernard and Virchow, had built and broadened the bridge to practical medicine. Then laboratory work became a necessity and the clinician an experimenting scientist Here also the path was not a smooth one. The old practitioners scoffed at the "frog-and-rabbit clinicians." The brilliant development, however, of all clinical branches has shown that only by a combination of theory and practice, of research and its application, can errors and one-sidedness be avoided. Theory opens new fields for practice and practice fecundates theory by putting new questions and controlling conclusions by experience. These divisions have necessarily increased the demands made on the clinician. He has to follow anatomy, physiology and pathology, he has to keep in touch with physics and chemistry, he must be a good teacher as well as a good physician and something of an architect and administrator. Experience has shown that he can master all this fairly well, if he has learned to separate the important from the unimportant.

The clinic has thus become an organization of multiple branches which cannot be overseen by the one in charge unless he has at his side capable young men as helpers. These can be trained for the task provided that the certainty can be held out to them that honest and successful work will assure their future. Their advancement will depend, as far as this is possible, entirely on their accomplishments, regardless of foreign influences, personal, political or otherwise, which in the end always prove harmful. While the young scientist is working and waiting he should receive sufficient remuneration to enable him to devote all his energies to the service of the clinic. Such a condition has been approximately reached in the internal, surgical and specialistic clinics of Germany, Austria and Switzerland. That the ideal is not yet reached is shown by the many complaints and demands made by our privat-docents.

A gradual evolution during one century was necessary to bring about the present condition. America is a young country; what a few years ago was wilderness is to-day a land of culture. If there are here and there primitive conditions, they are merely transitory and their further development is beyond doubt. The only question remaining open is as to the most rapid and certain method of procedure. The solution is in sight when once it is generally accepted that only through its own resources can science assimilate food and force, that anything outside of scientific necessity acts as an indigestible foreign body, hindering or even arresting scientific development. To bring this conviction to general appreciation and acceptance, to impregnate it with common sense, is the surest way to rapid and profitable progress. America has often drawn inspiration from Europe, but has also given inspiration. It is here that two kinds of institutions arose which to-day are considered indispensable and equivalent complements to the medical clinic: the scheme of postgraduate education and the research institute. To become acquainted with these two institutions and to study their details is the most interesting task for the European physician visiting the United States. Here we want to see and to learn. To improve ourselves in the mutual exchange of ideas, to strive in friendly competition for our common high ideals—this is our aim. Our trip has been organized to serve this end and I cannot conclude better than by thanking you again for having met us with open arms.

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* From an address delivered at the reception of the German Medical Society, New York, Sept. 18, 1912. Professor Wilhelm His, director of the First Medical University Clinic, Berlin, was touring the United States with a group of other European physicians, as already detailed in The Journal.

California August Report

Dr. Charles L. Tisdale, secretary of the California State oard of Medical Examiners, reports the written examination eld at San Francisco, Aug. 6-9, 1912. The number of subjects xamined in was 10; total number of questions asked, 120; ercentage required to pass, 75. The total number of candiates examined was 199, of whom 164 passed including 24 steopaths and 35 failed including 11 osteopaths. Ten other andidates were licensed on the basis of honorable discharge rom United States services. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
College of Physicians and Surgeons, Los Angeles	(1908) 81.9; (1912)	75, 75.1, 77.7, 78.5, 78.7, 79.4, 79.9, 80.7, 80.7, 81.3, 81.4, 82.4, 84.2, 85, 86, 87, 88.3.
Cooper Medical College	(1912)	76.1, 77.9, 78.2, 79, 80.2, 80.5, 81.3, 82.7, 83.4, 83.4, 83.6, 84, 84.5, 84.8, 84.9, 84.9, 85.7, 85.8, 86.5, 86.5, 86.8, 87.4, 88.8, 89, 89.7, 90.3.
University of California, San Francisco	(1912)	77.5, 83.9, 86.1, 86.7, 87.3, 87.7, 88.7, 89, 89.6, 89.7, 92.3.
University of California, Los Angeles	(1911) 79.4, 83.5; (1912)	84.3, 84.7, 85, 86.4, 86.8, 89, 89.3, 91.8, 92.1, 93.4, 93.7.
Hahnemann Medical College of the Pacific	(1912)	81.1, 81.1, 86
College of Physicians and Surgeons, San Francisco	(1911)	78.5
Oakland College of Medicine and Surgery	(1912)	80.7
Denver and Gross College of Medicine	(1908)	83.7
University of Colorado	(1911)	84.4
Denver Homeopathic College	(1906)	78.4
Howard University, Washington, D. C.	(1904)	75
Hahnemann Medical College and Hospital, Chicago	(1896)	*85.3
American Medical Missionary College	(1902)	*80.8
Northwestern Univ. Med. School	(1911) 79.3, 82.8; (1912)	76.1
College of Phys. and Surg., Chicago	(1902) *92.2; (1903)	88
Rush Medical College	(1903) 87.1; (1907) 85.1; (1911) 85.2; (1912)	89.1.
Bennett Medical College	(1907)	75
Chicago College of Medicine and Surgery	(1909)	83.4
Kentucky School of Medicine	(1904)	75.3
Louisville Medical College	(1888)	*84.7
Tulane University of Louisiana	(1893)	*88.2
Johns Hopkins Univ. Medical School	(1907) 83.5; (1912)	86.6
Harvard Medical School	(1909) 85.2; (1910) 92.4; (1912)	77.9
Tufts College Medical School	(1898)	*83.5
University of Michigan, Department of Medicine and Surgery	(1906) 83.2; (1912)	89.8
University of Minnesota, College of Medicine and Surgery	(1897) *85.1; (1906) 84; (1912)	86.9.
Washington University, St. Louis	(1905) 78.3; (1909) 80 7; (1910)	80.9.
University Medical College, Kansas City	(1900)	*90.1
St. Louis College of Physicians and Surgeons	(1897)	*85.8
Marion-Sims Beaumont Medical College	(1906)	85
St. Louis University	(1906) 80.1; (1912)	83.7, 85.3
University of Nebraska, College of Medicine	(1887)	91.1
Creighton Medical College	(1896)	*80.2
Cornell University Medical College	(1910)	83.6
University and Bellevue Hospital Medical College	(1911)	77.5
Columbia University, College of P. and S.	(1911)	84.4, 87.3
Syracuse University	(1905)	81.6
Medical College of Ohio	(1891) *88.7; (1905)	91
Starling Medical College	(1903)	75.6
University of Wooster, Cleveland	(1880) *91.6; (1895)	*85.9
University of Oregon	(1911)	87.2
Jefferson Medical College	(1906)	83.6
Woman's Medical College of Pennsylvania	(1905)	83.3
Western Pennsylvania Medical College	(1903)	75.2
University of Pennsylvania	(1879) *90.9; (1887) *95.7; (1891) *85; (1912)	89.6.
Vanderbilt University	(1898)	*83.1
University of Virginia	(1901)	*86.4
M.R.C.S. Eng. (1889); L.R.C., Ire.†	(1885)	*93.6
University of Durham, England	(1911)	91.3
University of Vienna, Austria	(1910)	86.1
University of Edinburgh, Scotland	(1905) 93.7; (1910)	83.4

FAILED

College of Physicians and Surgeons, San Francisco	(1911) 59.9; (1912)	63.4, 72.4.
Cooper Medical College	(1907) 69.5; (1912)	66.1, 70.6
Hahnemann Medical College of the Pacific	(1912)	72.8
Oakland College of Medicine and Surgery	(1912)	69.4
College of Physicians and Surgeons, Los Angeles	(1912)	69.2, 70.5
Northwestern University Medical School	(1912)	72.8
College of Physicians and Surgeons, Chicago	(1901)	72.9
Kentucky School of Medicine	(1906)	67 7
University of Louisville	(1905)	71.3
College of Physicians and Surgeons, Baltimore	(1882)	84.1
Baltimore University	(1899)	60.5
Harvard Medical School	(1912)	72.9
Barnes Medical College	(1893)	54.9
Lincoln Medical College	(1906)	53.8
Laura Memorial Woman's Medical College	(1903)	53.9
Medical College of Ohio	(1895)	52.7
Cleveland Medical College, Homeopathic	(1892)	69.7
Miami Medical College	(1873)	82.4
Royal University of Naples, Italy	(1903)	56.3

* Includes percentage credit for years of practice.

† These are licensing boards and not medical schools.

Massachusetts July and September Reports

Dr. Edwin B. Harvey, secretary of the Massachusetts Board of Registration in Medicine, reports the written, practical and oral examinations held at the State House, Boston, July 9-11 and Sept. 10-12, 1912. The number of subjects examined in was 13; total number of questions asked, 70; percentage required to pass, 75. At the examination held in July, the total number of candidates examined was 119, of whom 93 passed including 4 non-graduates and 6 osteopaths, and 25 failed including 5 non-graduates and 7 osteopaths. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Medical School of Maine	(1912)	78
Baltimore Medical College	(1911)	78.3
College of P. and S., Baltimore	(1902) 75; (1912)	82.1
Johns Hopkins Univ. Med. School	(1912)	75.1, 80.2, 82.6, 86.5
University of Maryland	(1911) 79.2; (1912)	75
College of Physicians and Surgeons, Boston	(1912)	75, 78.2
Boston University	(1911) 79.7; (1912)	75, 75, 75.7, 75.8, 76, 76.9, 77, 77.2, 78, 78.2, 79, 81.2, 81.8, 82.
Tufts College Medical School	(1908) 75, 75.4; (1911) 75.5; (1912)	75, 75, 75, 75, 75.7, 75.8, 75.8, 75.9, 76.7, 76.9, 77, 77.2, 77.8, 78.2, 78.5, 78.7, 79.2, 79.7, 79.7, 79.8, 80.1, 80.3, 80.6, 80.7, 81, 82.5, 83.5, 83.7, 84.5, 86.6.
Harvard Medical School	(1909) 75, 80.6; (1912)	75.7, 76.9, 78.2, 79.5, 80.3, 81, 81.7, 85.9.
Jefferson Medical College	(1908) 75.1; (1912)	79.8, 80.4
University of Pennsylvania	(1893) 90; (1910) 78.4; (1011)	76.8
Medico-Chirurgical College, Philadelphia	(1911)	81.5
Medical College of the State of South Carolina	(1912)	77
University of Vermont	(1911)	75, 76
University of Toronto, Ontario	(1908)	77.8
McGill University, Montreal	(1909)	80
University of Rome, Italy	(1894)	75
Non-graduates		75, 75, 75.7, 78.4

FAILED

Atlanta School of Medicine	(1912)	60
Maryland Medical College	(1910) 66.9; (1912)	68.2, 70.3
College of Physicians and Surgeons, Boston	(1907) 61.3; (1910) 65.7; (1912)	66.
Tufts College Medical School	(1912)	70.5, 71.4
Boston University	(1912)	70.5
Harvard Medical School	(1912)	62.4
University of Vermont	(1911)	72.3
University of Naples, Italy	(1910)	70.6
Non-graduates		67.2, 69.7, 71.6, 72.2, 72.9

At the examination held in September the total number of candidates examined was 54 of whom 29 passed including 1 non-graduate and 2 osteopaths and 23 failed including 5 non-graduates and 7 osteopaths. Two candidates did not complete the examination. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Bennett Medical College	(1912)	75.2
Maryland Medical College	(1910) 75; (1911) 75.7; (1912)	75
Tufts College Medical School	(1911) 75.7, 81; (1912)	75, 78.9, 80, 81.7.
Boston University	(1912)	82.2
Harvard Medical School	(1911) 81.7; (1912)	79.3, 81.9, 83.4, 83.7, 85, 85.4.
Dartmouth Medical School	(1912)	78.7
Long Island College Hospital	(1912)	77.7
Columbia University, College of P. & S.	(1911)	81.7
New York Homeopathic Med. Coll. and Hospital	(1912)	76.7
Jefferson Medical College	(1878)	85
University of Vermont	(1908) 90; (1911)	77.6
University of Naples, Italy	(1910)	76
Non-graduate		75.6

FAILED

Atlanta School of Medicine	(1912)	66.9
National Medical University, Chicago	(1909)	58.7
College of Physicians and Surgeons, Keokuk	(1890)	49
Maryland Medical College	(1910)	71
College of Physicians and Surgeons, Baltimore	(1911)	71.7
College of P. and S., Boston	(1907) 65; (1912)	68.9
Harvard Medical School	(1912)	67.9
Laval University, Quebec	(1911)	68.1, 71.1, 72
Non-graduates		58.9, 68.4, 70.2, 70.2, 71.5

Book Notices

A TEXT-BOOK OF PATHOLOGY. For Students of Medicine. By J. George Adami, M.A., M.D., F.R.S., Strathcona Professor of Pathology, McGill University, and John McCrae, M.D., M.R.C.P., Lecturer in Pathology and Clinical Medicine, McGill University. Cloth. Price, $5 net. Pp. 759, with 304 illustrations. Philadelphia: Lea & Febiger, 1912.

The appearance of a single-volume text-book on pathology almost on the heels of the second edition of the larger treatise on pathology by the same authors, would at once suggest that the smaller work was a mere condensation of the larger one; but the authors distinctly assert that this is not the case. The single volume is said to be a response to repeated requests by the publishers, seconded by appeals from colleagues in not a few schools, for something which would embody the main features of the former work without its bulk.

While the general plan of the work is the same as that of the larger treatise in that it is divided into two parts, namely, "General Pathology" and "Special and Systemic Pathology"; and while the ideas expressed in the two works must necessarily agree, being by the same authors, yet it will readily be seen that the one is not simply a condensation of the other but that much of the matter has been entirely rewritten, with the elimination at times of elaborations on the ideas, which are themselves retained.

In a single volume of a little over 700 pages one could not expect to find special pathology covered very extensively, yet there is sufficient to give to the student a good foundation on which to build. Many of the illustrations are entirely new and the work presents an attractive appearance.

The Anatomy of the Human Eye, as Illustrated by Enlarged Stereoscopic Photographs. By Arthur Thomson, M.A., M.B., F.R.C.S., Professor of Human Anatomy in the University of Oxford. Paper. Price, 2 £ 2 shillings net. Sixty-Seven Stereoscopic Photographs in a box, with Letter-press and Key-Plates. London: Henry Frowde, 1912.

The explanatory text and stereoscopic pictures that constitute this work were used by Mr. Thomson to illustrate a course of lectures on the gross anatomy of the eye delivered to candidates for the diploma in ophthalmology at Oxford. The book is a notable and extremely useful contribution for the use of teachers of diseases of the eye. The idea of using the stereoscope for the purpose of demonstrating the normal and pathologic anatomy of the ocular structures is not new but it has remained for Thomson to give us a large number of pictures that faithfully depict these conditions. As Thomson points out, the specimens from which the photographs were taken were most of them removed within four hours after death. They were hardened in a formaldehyd solution, frozen, and sections prepared. Further dissections, when necessary, were then performed, and the preparations photographed under spirit. The photographs have been mounted on cards of standard size, so that they will fit any of the numerous stereoscopes already on the market.

The chapters that accompany the photographs constitute a *vade mecum* that affords the student all the information he is likely to require and form an admirable introduction to larger and more elaborate treatises on the subject. The press work is excellent.

The Accessory Sinuses of the Nose in Children. By Prof. Dr. A. Onodi, Director of the University Clinic for Diseases of the Nose and Throat in Budapest. With a Preface by Prof. Dr. W. Waldeyer, Director of the Anatomical Institute of the University of Berlin. Translated by Carl Prauanitz, M.D., M.R.C.S., L.R.C.P., Head of the Hydrophobia Department of the Hygienic Institute University of Breslau. Cloth. Price, $7. One Hundred and Two Plates. New York: William Wood & Co., 1911.

The preface of this book states that the object of the work is the study of the development of the accessory sinuses from their first appearance until after the beginning of puberty. Sections were cut in the three principal planes of the body and the accurate measurements of the air spaces are given. The book is illustrated with 102 plates, eighty-six of which represent the sections, and the remainder radiograms of the accessory sinuses. Explanations of the plates are written in German, French and English. The book will serve to direct closer attention to the accessory cavities in children and will undoubtedly prove a great stimulus in directing further work along this line.

General Surgery. Edited by John B. Murphy, A.M., M.D., LL.D., Professor of Surgery in the Northwestern University. Cloth. Price, $2. Pp. 616, with illustrations. Practical Medicine Series. Chicago: The Year Book Publishers, 180 N. Dearborn Street, 1912.

This handy volume of 600 pages forms the second number of the well-known Practical Medicine Series for the current year. A brief introduction calls attention to the topics of chief importance treated in the succeeding pages. In this the editor remarks that surgical technic is tending to a uniform standard so that operative methods are practically the same the world over. The space devoted to technic in the present work adds greatly to its value to the general practitioner, for whom the book is especially intended. This practical value of the book is much enhanced by the numerous and excellent illustrations.

Medicolegal

Corporation Liable for Physician's Bill

(Taylor vs. C. M. Roberston Co. (Conn.), 83 Atl. R. 534)

The Supreme Court of Errors of Connecticut finds no error in a judgment rendered for the plaintiff for services as a physician in attending an injured employee of the defendant. The court says that the employee, a boy about 17 years of age, was seriously injured one night by being drawn under a large belt in a mill operated by the defendant for the manufacture of paper board. A fellow workman summoned the plaintiff, who cared for the boy, attending him professionally for something like two months. Within a few days after the accident, while the plaintiff was attending the boy, a bookkeeper in the defendant's employ at the mill came to obtain information in regard to the extent of the boy's injuries, and during the interview told the plaintiff that the defendant would be responsible for the payment of his services. The president of the defendant also knew of the injuries to the boy, and that the plaintiff was attending him professionally, and on different occasions during the period of his attendance talked with the plaintiff about the boy's condition and prospects of recovery. After the services had been rendered, the plaintiff rendered to the defendant his bill therefor, which was sent by mail in a letter addressed to the defendant. In reply the plaintiff in a few days received a letter on the defendant's letter-head, reading: "It would oblige us very much if you would render a detailed bill of medical attendance to Earl McDiarmid. If you can modify this bill in any way, it would be much appreciated, as it looks now as though we would be forced to stand the full charge ourselves. Thanking you in advance for the favor, we remain, yours truly, The C. M. Robertson Co.—J. E. Church." Church was the bookkeeper before mentioned. The defendant's board of directors had never taken action empowering any of its agents, employees, or officers to employ the plaintiff to attend McDiarmid, or to ratify such employment, or to pay for services so rendered. The trial court found that Church represented to the plaintiff that the defendant would be responsible for his services; that this representation was known to the officers of the defendant; that the bill, mailed as stated was received by the officer in charge of the company; that the reply letter was written by Church by direction and authority of such officer, and that it appeared from the evidence that the plaintiff rendered the services in question under circumstances which justified him in believing that the defendant would pay for the same, and that the officers of the defendant had knowledge of these circumstances. The facts stated having been found, the judgment for the plaintiff was properly rendered. The foundation of the defendant's liability was not to be found in any express promise, or direct assumption of obligation. What the court made the basis of its judgment was certain knowledge and conduct on the part of the defendant leading to the ultimate conclusion that it had assumed as its own the assurance of its responsibility for the care of its servant given by its bookkeeper to the plaintiff, and on the faith of which he acted. The testimony disclosing Church's conversation with the plaintiff, the interviews between the plaintiff and the defendant's president, and the contents of the letter hereinbefore quoted were properly received. No part of it, of course, was competent to show an express promise by the defendant to pay for the plaintiff's services, or an obligation to do so directly assumed by ratification or otherwise, since no authority therefor was shown in any person who undertook to speak on the subject. But it furnished a basis for material inferences.

County Court Without Power to Order Registration as of Earlier Date

(In re Somme (N. Y.), 136 N. Y. Supp. 57)

A Special Term of the Supreme Court of New York, Queens County, holds that the county court has no jurisdiction and no authority to make an order directing the county clerk to enter the name of a physician in the "Register of Physicians and Surgeons," say on July 24, 1908, as of December 1, 1899, after he had, on the latter date, omitted to register his diploma in the office of such clerk, as the law required; nor has the county judge any authority or power, statutory or otherwise, so to do, and such an attempted registration of an applicant as a doctor of medicine is a nullity, without any vitality or effect, which on proper application will be vacated and canceled.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

November, IV, No. 5, pp. 265-332

1 *Influence of High Protein Feeding on General Metabolism, on Intestinal Flora and on Body Temperature of Infants: I. General Considerations. L. E. Holt and P. A. Levene, New York.
2 *Idem: II. Clinical Observations A. Brown, New York.
3 *Idem: III. Bacteriologic Observations. M. Wollstein, New York.
4 Idem: IV. Observations on Metabolism. A. M. Courtney and J. A. Moore, New York.
5 Epidemic of Sore Throat with Involvement of Cervical Lymph-Nodes. J. Ruhräh, Baltimore.
6 *Effects of Cold Air on Blood-Pressures of Children and Young Adults in Various Stages of Tuberculosis. B. R. Hoobler, New York.
7 Paroxysmal Hemoglobinuria. L. C. Ager, Brooklyn.
8 *Mode of Infection in Epidemic Cerebrospinal Meningitis. D. Bovaird, New York.

1. **Influence of High Protein Feeding on General Metabolism, Etc.**—It is held by Holt and Levene that alimentary fever may, under certain conditions, occur in infants after administration of casein of cow's milk and perhaps of other proteins. The rise of the body temperature was observed by them only when the food mixture was made up so as to contain about 6 per cent. of protein (chiefly casein) and a minimal quantity, only about 150 to 175 c.c. of milk daily. The rise of body temperature was invariably accompanied by a retention of chlorids, which, however, usually preceded the febrile attack by two or three days. After the first rise of temperature the fever persisted so long as the diet was continued, but in every instance promptly disappeared as soon as the food was changed. The fever is apparently due to the direct action of the absorbed protein, since the bacterial conditions of the intestines noted during the period of the "synthetic" food were not different from those noted during the preceding period.

From the observations reported by Holt and Levene it would appear that the changes in the food influenced the chemistry of the excreta more than they did the bacteriology. For while the chemical changes resulting from the food variations differed considerably in the individual cases, the bacteriology changed along the same general lines in all. In view of this fact and of the slow changes in the intestinal flora noted in these observations, such changes would seem to have but a limited application for therapeutic purposes, though a very definite one when the food changes can be made sufficiently great. It seems clear from these observations that one may use considerably higher percentages of protein in milk formulas than the 3.5 per cent. of Finkelstein's formula. This is a point which may be of much practical importance in conditions in which there is marked intolerance both of fats and carbohydrates. Such high proteins as 4.5 per cent. or over should only be used for limited periods, and never given at all except with a suitable proportion of whey. This report emphasizes the physiologic importance of whey in the nutrition of infants and other young animals. While laying stress on the dangers of whey, especially from its sugar content, in many forms of intestinal disturbance, Finkelstein and Meyer have also appreciated the dangers to nutrition which may follow reduction of the salts. Recently Osborne and Mendel also have found that the mineral salts in the proportion present in whey were absolutely essential for the growth of animals, and that in the absence of salts, though maintenance of life was possible, growth could not be induced. As yet it is not possible to formulate any definite opinion as to the nature of the whey components which inhibit that action of casein, which, in the absence of whey, causes the rise of body temperature. The present observations call special attention to the work of V. C. Vaughan and his collaborators, who have repeatedly reported the production of fever by the subcutaneous injection of various proteins. Whether or not the fever induced clinically in our cases and experimentally by Vaughan is occasioned by the same mechanism, remains to be established.

2. **Idem.**—In every one of the five observations made by Brown on three infants, an attack of fever followed the administration of a "synthetic" food, although in all the temperature had been previously normal for a considerable period. Three times this developed on the fourth day, once on the fifth and once on the sixth day. In four observations the patients had previously taken as high, or nearly as high, a percentage of protein in food prepared differently for much longer periods (in one case for sixteen days) without the development of fever. In every instance the fever developed abruptly without other warning than anorexia and some restlessness which usually preceded the rise of temperature for about twelve hours. The fever persisted so long as the diet was continued, but ceased almost at once when the food was changed to a simple milk dilution. With the fall in temperature all of the general symptoms speedily disappeared.

The highest temperature noted was 105.4 F. In the patient showing the least reaction it rose to 102.5 F. The average rise was to 104 F. Marked nervous symptoms usually accompanied the fever; constant rolling of the head, extreme restlessness, pallor, rapid respiration, considerable prostration, and in three observations marked leukocytosis. In one case the white cell count reached 27,000. Digestive symptoms, except anorexia, were conspicuously absent. Initial vomiting was noted but once; the bowels were usually somewhat constipated but not otherwise abnormal; a moderate abdominal distention was noted but once; neither pain nor tenderness was evident in any case. The urine showed several times an increased indican reaction, but this was not constant or persistent. Pallor, rapid respiration and prostration were marked in all but one case. In every instance there was rapid loss of weight, which was due partly to the refusal of food and partly to catharsis. This loss was soon repaired in nearly every case. In none of the observations did the symptoms resemble an ordinary attack of acute indigestion.

3. **Idem.**—Wollstein found that the varieties of bacteria identified as present in the rectal contents of the five children before and during the period of study included the following: *Albococcus*, *Micrococcus ovalis* or *Enterococcus*, a streptococcus proteolyzing milk, a streptococcus not proteolyzing milk, *B. coli communis; B. coli communior; B. lactis aerogenes; B. acidophilus; B. bifidus; B. bulgaricus; B. fluorescens*, liquefying gelatin. *B. dysenteriae* (Shiga) was found in one case. During the periods of high carbohydrate in the food the cocci, colon bacilli, acidophilus and bifidus bacilli were most numerous; sometimes *B. aerogenes capsulatus* appeared. During the periods of high protein content in the food, *B. mesentericus* gained the ascendancy. *B. aerogenes capsulatus* sometimes persisted, and the colon bacilli were increased in numbers. But the acidophilus and bifidus bacilli did not entirely disappear, probably because the change in the food was not complete or prolonged enough. Bacteria introduced with the food (*B. fluorescens, B. bulgaricus, B. subtilis, B. megatherium*) were found in the feces within a period varying from twenty-four to seventy-two hours. The transition in the flora from one period to another was always gradual, never abrupt, recognizable changes requiring forty-eight to seventy-two hours to develop. The return to the bacterial picture present at the beginning of the observation, which may be assumed to be the normal for that particular infant, was accomplished in from seven to ten days after the end of the study and subsequent catharsis. As regards the children studied a second time, neither one gave any evidence of a more rapid reaction during the second observation than he had shown during the first.

6. **Effects of Cold Air on Blood-Pressures of Children.**—Hoobler found that the blood-pressure in children having tuberculosis is persistently low, as has been found to be the case in adults. When a patient is transferred to the open air there is a gradual increase of blood-pressure within one or two hours. If the patient is kept constantly in the open air the pressure is raised to well within the normal limits and sustained at that point as long as the patient remains in the open air. The more advanced the case, the lower the pressure indoors, and the higher the rise when put in the open air. After several days in the open air the blood-pressure does not fall as much when placed in ward as it did previous to outdoor treatment.

8. **Mode of Infection in Epidemic Cerebrospinal Meningitis.**—Bovaird believes that the evidence at our command at present strongly suggests that the primary infection in epidemic cerebrospinal meningitis is respiratory, in most cases nasopharyngeal, and that the meningeal infection is developed through the blood.

American Journal of Obstetrics and Diseases of Women and Children, New York

October, LXVI, No. 418, pp. 509-708

9 Physiology of Ductless Glands in Their Relations to Obstetrics. C. E. DeM. Sajous, Philadelphia.
10 Therapeutic Application of Ductless Glands. H. A. Hare, Philadelphia.
11 Use of Pituitary Extract in Obstetrics. C. B. Reynolds, Philadelphia.
12 *Present Status of Corpus Luteum Organotherapy. W. Krusen, Philadelphia.
13 *Study of Certain Aspects of Comparative Anatomy Illuminating Architecture and Physiology of Human Pelvis. W. H. Allport, Chicago.
14 Case of Ovarian Fibromyoma Undergoing Sarcomatous Degeneration. H. J. Hartz, Philadelphia.
15 *Use of Continuous Fixed Laparotomy Sponge. W. F. B. Wakefield, San Francisco.
16 Torsion of Tubal Enlargements, with Special Reference to Pyosalpinx. B. M. Anspach, Philadelphia.
17 *Two Hundred and Twelve Cases of Cancer of Uterus, with Special Reference to Early Diagnosis. G. Kamperman, Ann Arbor, Mich.
18 Use of Adhesive Plaster in Cure of Talipes Equinovarus of Infants at Birth. A. R. Allen, Carlisle, Pa.
19 Diagnosis of Bone Diseases in Children. G. F. Little, Brooklyn.

12. **Corpus Luteum Organotherapy.**—After a careful study of the literature and the observation of his own patients, Krusen believes that the following conclusions formulated by Morley are justifiable: 1. The ovary possesses an internal secretion. 2. This internal secretion is produced by the corpus luteum. 3. In so-called ovarian insufficiency, relief may be obtained with an extract of the corpus luteum. 4. No untoward symptoms result from its use in conditions where it is indicated, even if no relief is obtained. 5. The extract should be given a fair trial before it is discontinued. 6. The extract used should be one that has been carefully prepared. 7. All glands that possess an internal secretion are more or less intimately connected.

13. **Comparative Anatomy of Human Pelvis.**—From a careful study of the pelves of various animals and the human, Allport believes it is plain that the human pelvic arches serve different purposes; the primary function of the dorsal arch is resistance to pressure, that of the ventral arch resistance to tension. Since force acting as traumatism is usually manifested in terms of pressure rather than of tension, this also makes it clear why in 90 per cent. of pelvic accidents the pubic arch, whose greatest strength lies in the tensile resistance, is the sufferer. When compared with the pelves of lower mammals the human posterior arch shows a remarkable development both in function and architecture. The anterior arch shows an equally distinct retrogression, not only in function, but as an anatomic corollary, in the quantity and strength of the material entering into its construction: mass and density have been sacrificed to tensile strength.

Allport says his study leads inevitably to the conclusion that function dictates to anatomy. Phylogenetically the tendinous belly wall of the oviparous bird becomes the massive ischiopubic uterine support of the viviparous mammalian quadruped; this in turn, in the one completely erect primate, shrinks again into secondary importance as the pubic structure becomes merely an ossified chord or "tension member" inserted to restrain the lateral thrust of the sacro-iliac arch. The thick and shapeless haunch bone of the *Ungulates* becomes the light and gracefully expanded iliac wing of man. The thin elongated sacral wedge of the quadruped becomes the broad basal support of the human spinal column, and hangs in turn as the inverted keystone of an arch perpendicularly on the heavily buttressed ilium and acetabulum. The sharp and projecting ischium, to which attach the rump muscles of lower mammals, is shortened and inverted to close the human pelvis, and provides the primate when seated with secondary points of support for the sacroiliac arch.

15. **Use of Continuous Fixed Laparotomy Sponge.**—Wakefield uses long folds of gauze of desirable size which, for convenience and safety, are packed in bags. One end is stitched to the bottom of the bag; the other end is left free at the top. We thus have a continuous sponge which is pulled out little by little as required. Two sizes meet all requirements. He uses a laparotomy sheet containing the border strip of gauze which is used for packing back the intestines or walling off local infective areas. In each side pocket fasten one of the narrower strips which is used by the operator and his assistant for keeping the field clear of blood or doing any work a sponge may be called on to do. The pockets in the laparotomy sheet are a good deal wider than the sponge bag and the used-up part of the sponge is tucked away in the pocket of the sheet, leaving a clean portion of the strip always under the operator's fingers ready for use. Should an abscess be opened or any infective fluid be spilled in the abdomen or pelvis, one of the sponges is used to wipe it clear and then discarded, another pocket with contained sponge being pinned or clamped to the sheet over the original pocket, thus covering up the whole infected area. When troublesome oozing occurs, which demands the use of a temporary hot sponge pack, a sponge bag is pinned to the laparotomy sheet below the incision, and as much as is required is pulled out, wrung out of hot salt solution, and packed in the pelvis.

17. **Cancer of Uterus.**—As a basis for this paper, Kampermann made a study of 212 cases of cancer of the uterus. He found that cancer holds fifth place as a cause of death in Michigan. During the last five years the death-rate due to cancer in Michigan has increased 15 per cent. Among gynecologic patients one in every twenty-five has cancer of the uterus. In five-sixths of all cases of cancer of the uterus the disease is primary in the cervix, and in one-sixth of the cases it is primary in the fundus. The age limit of carcinoma of the uterus is wide, from 28 to 75 years. The average age is 48 years. Carcinoma of the cervix occurs most frequently between 35 and 55 years of age; carcinoma of the fundus between 45 and 65 years of age. Carcinoma of the fundus develops over a longer range of years than carcinoma of the cervix. Patients with cancer of the cervix present a history of child-bearing in 92 per cent. of all cases. Among patients with cancer of the fundus the percentage is 72. Cancer of the uterus, although more common in parous women, may develop in nulliparae. Heredity has very little part in the development of uterine carcinoma.

Carcinoma of the uterus can be cured by operation, says Kampermann. In order to obtain a cure, however, the diagnosis must be made early. The early diagnosis of carcinoma of the uterus depends on giving close attention to the earliest symptoms. An increase in bleeding in a woman approaching the menopause demands a careful investigation and a microscopic examination of tissue from the cervix and fundus. The first symptom of carcinoma of the uterus in 73 per cent. of cases is an increased menstrual or an irregular intermenstrual discharge of blood. Watery and foul discharge and pain are symptoms occurring at a later stage of the disease. Carcinoma of the uterus occurs in many healthy and robust-looking women. Cachexia occurs only in advanced stages of the disease. The radical abdominal operation offers the only absolute cure for carcinoma of the cervix. Carcinoma of the fundus can be cured by a less radical operation. In inoperable cases temporary relief can usually be secured by a palliative operation. Most of the patients afflicted with this disease die either from some terminal infection or from uremia. To obtain earlier diagnoses the profession as well as the laity must be educated. All women must be taught that the menopause means lessened flowing, and that any increase in flowing at this time may signify disease. An organized campaign of education is necessary if more patients are to be saved from cancer in all its forms.

American Journal of Urology, New York

October, VIII, No. 10, pp. 511-566

20 Diagnosis of Diseases of Urinary Tract by Combined Use of Cystoscope and Roentgen Ray. E. M. Stanton, Schenectady, N. Y.
21 Surgical Treatment of Renal and Ureteral Calculi, with Report of Eighty-Two Cases. D. P. Kouznetzky.
22 *Case of Unrelieved Unexplainable Vesical Tenesmus. F. R. Hagner, Washington, D. C.
23 Salvarsan. A. Ravogli, Cincinnati.
24 Sexual Impotency. V. Blum.

22. **Unrelieved Unexplainable Vesical Tenesmus.**—Hagner's patient, a man, aged 67, complained of frequent urination and great tenesmus. The patient lost a leg during the Civil War; otherwise he had been normal. For five years, however, he had had symptoms of prostatic obstruction. On September 28, he had complete retention, relieved for a short time by catheterization, the tenesmus returning after a half hour. The tenesmus and urinary frequency continued, gradually increasing up to October 4. When Hagner first catheterized the patient he obtained 6 ounces of residual urine. The urine contained colon bacilli and a moderate amount of pus. The catheterization relieved his bladder spasm for about twenty minutes, then the tenesmus returned and a catheter reintroduced obtained only a small amount of urine, without relief of pain. Usually when the paroxysm of pain reached its crisis he would insert his finger into his anus and make forcible pressure on the soft parts on the tuberosity; this he declared invariably afforded him some measure of relief. His bladder capacity was seven ounces. The cystoscopic examination, which was not very painful, revealed a moderately enlarged intravesical prostate with regular outline; on rectal examination a fairly firm, moderate size prostate was noted. A perineal section was performed and a drainage tube inserted. As soon as the patient recovered from the anesthetic the tenesmus returned, being as severe as before the operation. He was given full doses of morphin to relieve the tenesmus, which had very little effect. Believing that the presence of the perineal tube in the bladder might be a factor in causing a continuance of the tenesmus, it was removed, replacing it with a soft rubber catheter. His relief was of only thirty minutes' duration, tenesmus then returning. The patient spent a most restless night, the spasm occurring every twenty minutes.

On the morning of October 7, Hagner irrigated his bladder with salt solution and removed the catheter, fearing the presence of any foreign body in the bladder might account for the continuance of the spasm. Within a few minutes the tenesmus returned with all its former severity, although only a few drams of urine was present in the bladder. Careful examination showed neither prevesical or postvesical infection, and as there was a leukocytosis of 16,000, and as the patient was very stout, Hagner considered the possibility of not being able to diagnose an infection outside the bladder. As the tenesmus continued in spite of the perineal drain, he suggested a suprapubic cystotomy. A careful rectal examination was negative, so the cystotomy was done under cocain anesthesia. The patient was more comfortable for about half an hour when the tenesmus returned with all its severity. The patient died thirty-six hours after the second operation, frightful tenesmus continuing almost to the time of his death. On admission the patient's temperature was normal, pulse 124 and respiration 24. He was weak, however, and in poor physical condition following the previous week's loss of sleep and his continued suffering. His highest temperature was 101 F, but his pulse gradually increased in frequency. The autopsy revealed only a very mild grade of double pyelitis, merely a little reddening of the pelvis; the rectum was absolutely normal, as was the tissue surrounding the bladder. The peritoneal cavity was free of infection or neoplasm. The bladder and prostate presented pictures as described in the examination. Sections through the prostate showed fibro-adenomatous tissue but no malignancy. The only possible explanation Hagner can give as a cause for the unrelieved symptoms is that the septic condition of his bladder produced a toxic neuritis of the nerves supplying that viscus.

Arizona Medical Journal, Phoenix

October, I, No. 2, pp. 1-67

25 *The Scandal of Medicine. J. E. Bacon, Miami.
26 Therapeutic Use of Typhoid Vaccines, with Report of Nine Cases. R. E. Thomas, Phoenix.
27 Infant-Feeding. P. V. K. Johnson, Los Angeles.
28 Disease of Ear in Relation to General Diseases. E. R. Carpenter, El Paso, Texas.
29 Surgery of Right Hypochondrium in Light of a Newer Pathology. A. S. Lobinger, Los Angeles.

25. **Scandal of Medicine.**—Many of the so-called evils of modern medicine are discussed by Bacon. Among other things he says: Just at this time when the elimination of the mushroom medical schools all over the land was being slowly accomplished by amalgamation, to the great good of the recent graduates, the small ill-equipped post-graduate schools began to thrive. Seventy-five per cent. of these schools are conducted for the personal aggrandizement of their faculties. The teaching is a farce. The pupil is nothing but a witness of the performances of the chief actors, and gains nothing but an inspiration to do his own surgery. Six weeks of this, and, with the help of a surgical instrument shop next door, many a man returns to his field with new tools, new ambitions, but with only his old knowledge of anatomy, and begins to do surgery, 75 per cent. of which is badly done, ill-advised and much of it needless. This state of affairs is responsible for part of the present distrust, yet it is only the result of the struggle to survive. Surgery to-day occupies an anomalous position. Instead of being regarded as a branch of therapeutics, which it properly is, and being administered by specially trained men, as it should be, it has become, to many—professional and laymen alike—the end of all endeavor for the alleviation of human ills. This is a specialism run to riot, and has done incalculable harm to both the profession and its clientele. Needless operations and those done without a proper diagnosis, those which are done with an eye to the fee alone, can but bring dishonor on us all.

The making of a specialist is a much more complicated matter than the printing of cards or the painting of signs. On a foundation of a liberal education must be erected a broad, comprehensive knowledge of the general practice of medicine. This to be followed by special training in theory and practical work along the line to be followed. Surgeons, especially, must be made, not born, and among the materials which go to the making are natural aptitude, a mechanical turn of mind, a thorough knowledge of anatomy, applied physiology and pathology, a long service as chief assistant to a real surgeon, and last, but not least, a conscience, or in lieu of that, a wholesome fear of God. It seems to Bacon that the future of medicine lies in organization and a division of labor, equitably and fully rewarded. The problem of sanitation and preventive medicine belongs to the people through their several branches of government, and even now that branch of endeavor employs a certain proportion of men who are fairly well paid and are provided for. For those who are engaged in the actual care of the sick and injured, let there be an organization for each district with a certain number of people to serve. Let there be a hospital equipped with all scientific apparatus for the investigation of disease. Let the work be divided among the members according to their several abilities. Laboratory workers, pathologists, physicians, bacteriologists, obstetricians, eye, ear, nose and throat men and surgeons. Let each man devote his whole time to his work and to each patient impartially, knowing that his work will be adequately rewarded if he does it well. In this way will each develop into a specialist worthy of the name, and in this way will each patient receive all that science has for him without regard to his ability to pay.

Boston Medical and Surgical Journal

October 31, CLXVII, No. 18, pp. 603-638

30 Memorabilia: Extracts from Medical Notes Made by the Late Henry Ingersoll Bowditch, M.D., of Boston. V. Y. Bowditch, Boston.
31 *Cases of Prostatic Obstruction Presenting Overdistended Bladders. A. L. Chute, Boston.
32 *Artificial Pneumothorax in Advanced Unilateral Cases of Pulmonary Tuberculosis. E. O. Otis, Boston.

31. **Prostatic Obstruction Presenting Overdistended Bladders.**—Chute believes that the mortality in operations for the relief of prostatic obstruction depends largely on the condition of the kidneys; that urinary back pressure and the damage and embarrassment this inflicts on the kidneys is the commonest form of renal danger in prostatics. Its importance lies in the fact that a patient may be very near the uremic state without this being evident. Functional tests do not give absolutely definite information as to how near the uremic state a patient is. We get our most accurate idea of this from the symptoms of general toxemia that these patients show; they are referred to the digestive tract most often, less frequently to the nervous system. What Chute terms the "element of embarrassment" in these patients, the element that depends on back pressure alone, is capable of relief. This element that is capable of relief by proper preliminary treatment may be enough to determine the success or failure of operation. Chute emphasizes that our endeavor in these patients should be to relieve the back pressure without infecting the urinary tract or with the minimum of infection. In the aseptic cases this is best accomplished by a preliminary suprapubic cystotomy under local anesthesia; in the infected cases an inlying catheter is usually sufficient.

32. **Artificial Pneumothorax in Pulmonary Tuberculosis.**—To many previously considered hopeless advanced cases, Otis says, artificial pneumothorax, produced by the injection of nitrogen gas, offers chance of arrest, and the increasing number of reported successful cases by men of the highest authority, and extending over a considerable number of years, has fully attested its value and established this treatment on the firm basis of successful experience. The procedure is a simple one, so far as any operative skill is concerned, but it requires careful manipulation in order to get in between the two layers of the pleura. If firm pleural adhesions exist the lung cannot obviously be compressed, but it is surprising how infrequently this happens, even in very extensive disease. Not only in advanced tuberculosis but also in abscess of the lung, bronchiectasis, and dangerous hemoptysis is the operation applicable.

In performing the operation, a very careful determination of the exact condition of the diseased lung is made, and in every case the Roentgen-ray is used, particularly to ascertain whether or not pleural adhesions exist. Of course, it is evident that the other lung must, for the most part, be able to perform its function; not necessarily that its integrity should be complete, for there may be and often is a small amount of disease at the apex. Curiously and fortunately the artificial pneumothorax often exercises a beneficial influence on the diseased apex of the other lung, if it exists, and that, also, becomes arrested, the cause of which has been variously explained.

The conditions, then, which warrant a recourse to artificial pneumothorax are an advanced or advancing case of pulmonary tuberculosis which does not yield to the ordinary treatment, the disease being principally unilateral. After a careful physical and Roentgen-ray examination, the spot which appears to be free from adhesions is selected, and, by careful manipulation, a needle similar to an aspirating needle is inserted between the two layers of the pleura and through it nitrogen gas is slowly injected under slight pressure. Only a certain amount of the gas is allowed to flow in at the first attempt, depending on individual conditions, and the procedure is repeated, if all goes well, at frequent intervals until the lung is tightly compressed, as shown by the physical examination and a Roentgen-ray picture. When this has been accomplished, the subsequent injections are at longer intervals, sufficient to maintain the compression.

Journal of Cutaneous Diseases, New York

October, XXX, No. 10, pp. 587-652

33 Pellagra. O. S. Ormsby, Chicago.
34 Seborrhea Capitis. G. T. Jackson and C. W. McMurtry, New York.
35 Lichen Planus Diffusus, Followed by Vesicobullous, Infected Lesions: Cure of Latter with One Injection of Autogenous Vaccines. M. B. Hutchins, Atlanta.

Medical Record, New York

November 2, LXXXII, No. 18, pp. 787-832

36 Diagnosis of Mental Conditions. H. M. Friedman, New York.
37 Caloric Feeding in Tuberculosis. N. G. Seymour, New York.
38 *Tuberculosis of Brain; Report of Case of Tubercle of Left Optic Thalamus. J. L. Pomeroy, Mourovia, Cal.
39 Safety and Science in Nitrous Oxid Administration. R. C. Coburn, New York.
40 Therapeutic Resource in Hernia and Other Intestine Obstructions. W. F. Waugh, Chicago.
41 Two Cases of Tumor of Spinal Cord. T. A. Claytor, Washington, D. C.
42 *Simple, Efficient and Elastic System for Indexing Case Histories and Filing Current Literature and References. E. M. Staunton, Schenectady, N. Y.

38. **Tuberculosis of Brain.**—In Pomeroy's case the lesion consisted of a tubercle of the left optic thalamus. The patient was 30 years of age; had had no serious illness. His early habits were good. He denied excessive use of alcohol and venereal diseases. Four years ago the patient had a severe hemorrhage (hemoptysis) and was compelled to give up his work. In July he suffered severely from diarrhea. Had his right ear examined on account of buzzing. The doctor could not do anything for him. There was no discharge or symptoms of inflammation. Shortly afterward he complained of dizziness and his wife noticed that he showed slight mistakes in memory. He would tell the children to be quiet; then in a few minutes would ask them why they were so quiet. No history of swelling of the feet, no headache, no convulsions, or eye trouble of a serious nature. Once an electric fuse blew out and scorched his eyes, but it was not serious.

No particular symptoms were noted until August 26, when he was found in bed suffering from vertigo; his temperature was 99 F., pulse 110, respiration 22, coughed badly, very emaciated, gait unsteady, expression staring and blank; his skin showed no scars. There was a marked Romberg's sign; his reflexes were all normal, the knee jerks perhaps a little lively but equal; the right pupil was a little larger than the left and did not react as well for light. His left nasolabial furrow was a little deeper than the right. There was no tremor of tongue or face; his hands were slightly tremulous; there were no changes in sensation. At times one noticed a little nystagmus. Reddening of both disks, and a little blurring of the outlines. Memory impaired. Movements slow and uncertain. Gradually sank into coma and died about three months from onset of his first symptoms. On opening the lateral ventricles of the brain a tumor mass presented itself, in the left optic thalamus. The tip was somewhat translucent, the choroid plexus adherent. Slightly anterior was a pitting and depression. The tumor arose from the region of the optic thalamus projected internally and a little over the median line. Opposite thalamus normal. Examination showed this tumor to be tuberculous.

42. **System for Indexing Case Histories and Filing Current Literature and References.**—This system is on the order of the Dewey decimal system for indexing books. For instance, I Nervous System: 11 hysteria; 12 neurasthenia, etc. II Circulatory System: 21 heart and pericardium; 22 thrombosis and embolism, etc. There are fourteen such divisions and each is subnumbered.

Journal of Kansas Medical Society, Kansas City

October, XII, No. 10, pp. 381-420

43 Appendicitis in Children. A. Smith, Parsons.
44 Vaccines in Relation to General Medicine. O. B. Kiehl, Pittsburgh.
45 Professional Cooperation. F. Poe.
46 Dementia Grouchitica. T. A. Stevens, Caney.

November, XII, No. 11, pp. 421-460

47 Sinusitis. H. L. Alkire, Topeka.
48 Typhoid Vaccine. (Prophylactic.) M. D. McComas, Fall River.
49 Some Pathologic Conditions of Urethra and Their Treatment Through Urethroscope. C. S. Evans, Hutchinson

Journal of Medical Society of New Jersey, Orange

November, IX, No. 6, pp. 275-328

50 Importance of Care of Eye, Ear, Nose and Throat in School Children. J. Toulinson, Bridgeton.
51 *Some Differences in Surgery of Children and Adults. E. W. Hedges, Plainfield.
52 *Administration of Anesthetics to Children. G. E. Tuers, Paterson.
53 Importance and Care of School Children's Teeth. J. E. Duffield, Camden.
54 Antibodies. W. F. Gutherson, Paterson.
55 Relation of Scientific Artificial Feeding to Reduction of Infant Mortality. J. Levy, Newark.

51 and 52. Abstracted in The Journal, August 10, p. 478.

New Mexico Medical Journal, Las Cruces

October, IX, No. 1, pp. 1-31

56 Practice of Medicine, Past, Present and Future. S. D. Swope, Deming.
57 Medical Standards, the Profession and the Laity. W. W. Lynch, Midland, Texas.
58 Relation of Medical Profession to Public. R. L. Bradley, Roswell.

New Orleans Medical and Surgical Journal

November, LXV, No. 5, pp. 339-414

59 Analysis of One Thousand Cases in Psychiatry. E. M. Hummel and H. Daspit, New Orleans.
60 Non-Penetrating Injuries of Eye. D. F. Waide, New Orleans.
61 *Pharyngeal Ulcer; Report of Case. J. L. Scales, Shreveport, La.
62 *Mastitis from Pediatric Standpoint. R. A. Strong, New Orleans.
63 *Ipecac Treatment of Amebic Dysentery. S. K. Simon, New Orleans.

61 and 62. Abstracted in The Journal, May 18, pp. 1537 and 1538.

63. **Ipecac Treatment of Amebic Dysentery.**—With a view toward establishing the permanent nature of the cure in patients treated exclusively with ipecac, Simon has endeavored to get into communication with as many of his former patients as possible. Only those, however, who had been subjected to the full course of treatment were included in the list. Likewise, all patients treated within the past six months were not considered applicable. In all, thirty-five letters were sent, requesting a report from each individual, of the subsequent status of health following the discharge as cured. Only fifteen replies were received. In each case a uniform and highly favorable result is reported. In no case has there been even a suggestion of a recurrence of the dysenteric attacks since a discontinuance of the ipecac. The interval thus elapsing has varied from almost four years to six months. All report otherwise splendid health records following their recovery, with a notable gaining of weight from five pounds to forty pounds.

The full plan of treatment includes the following essentials: 1. Absolute rest in bed over a period of at least two weeks. 2. A proper regulation and restriction of diet. Limit the amount of refuse in the intestinal canal to the minimum, so as to allow the drug freest access to the parasites. Only liquids should be allowed during the first week, preferably even to the exclusion of milk during the initial two or three days. Beginning with the second week the softer, easily digestible solids may be gradually added. There should be a restriction of the coarser foods, however, throughout and for several weeks following the treatment. The employment of a properly-coated salol pill. Simon has found 5-grain pills, freshly prepared, the best. The width of the salol coating should not exceed ⅛ inch, and preferably nearer 1/16 inch, but care should be taken that sufficient salol is used to prevent vomiting. The quantity of salol to each pill varies between 1½ to 2 grains. The relatively large dosage of salol, as high as 30 grains, with the maximum number of pills, has never been found in the least harmful. The ipecac should be of the best Rio variety, which is known to contain the highest percentage of emetin. Vedder has shown experimentally that the emetin alone of the alkaloids in the ipecac seeks out the destruction of the ameba. This is accomplished both by direct contact in the intestinal canal and indirectly through absorption, and subsequent excretion by the intestinal glands. A three-hour fast should always precede the administration of the pills. The initial average dose of the ipecac is 60 grains, though in special instances as high as 100 grains may be given. Each succeeding evening the dosage is reduced by 5 grains, or one pill. The employment of bowel irrigation or flushes should not be attempted during the administration of the ipecac. Otherwise, the aim of the drug is defeated by washing it out of the large bowel.

New York Medical Journal

November 2, XCVI, No. 18, pp. 881-932

64 The Edipus Complex. A. A. Brill, New York.
65 Ecchymotic Skin Reaction or Acquired Pseudohemophilia; Sicard's Syndrome. W. M. Barton, Washington, D. C.
66 Scientific Treatment of Insane a National Problem. T. W. Salmon, New York.
67 Disinfection, and Influence of Infected Rooms and Fomites in Transmission of Infectious Diseases. A. H. Doty, New York.
68 Use of Mixed Infection Vaccines in Skin Infections. J. G. Burke, Pittsburgh.
69 Manual Treatment of Abdominal Sympathetic. E. F. Cyriax and A. K. Cyriax, London.
70 Implantation of Fat Into Tenon's Capsule After Enucleation. W. B. Weidler, New York.
71 Local Treatment of Two Pistol-Shot Cases Using Hot-Water Applications. F. Griffith, New York.
72 First Medical Clinic of Vienna; Von Noorden's Division. J. Gutman, New York.

Pennsylvania Medical Journal, Athens

October, XVI, No. 1, pp. 1-84

73 Progress of Medicine During Last Half Century. J. Tyson, Philadelphia.
74 *Breech Presentations. A. W. Tallant, Philadelphia.
75 Use and Abuse of Thyroid in Obesity. H. D. Jump, Philadelphia.

74. **Breech Presentations.**—Tallant says that breech presentations occur with almost equal frequency in primiparae and multiparae, and are often found in twin pregnancy. Labor is not specially prolonged. The maternal mortality is not affected by the presentation, but perineal lacerations are frequent. The infant mortality due to the presentation should be less than 10 per cent. The mortality is higher in cases of contracted pelves. Full spontaneous dilatation should be secured and the membranes kept intact, whenever possible. The second stage of labor should not be allowed to prolong itself. Early extraction is often life-saving. In other words, the best management of a case of breech presentation is in the first stage patience, in the second, action.

Philippine Journal of Science

October, VII, No. 1, pp. 1-41

76 In Memoriam: Paul Caspar Freer.

Southern Medical Journal, Nashville

November, V, No. 10, pp. 657-732

77 Florida State Medical Association. A. H. Freeman, Starke, Fla.
78 Advances in Surgery. R. C. Turck, Jacksonville, Fla.
79 Typhoid in Tampa, Fla. H. Byrd and C. W. Bartlett, Jacksonville, Fla.
80 *Relation of Warts and Moles to Malignant Growths. G. J. Winthrop, Mobile, Fla.
81 Constipation and Its Treatment. D. W. McMillan, Pensacola, Fla.
82 *Amebic Dysentery. J. B. Wallace, Tampa, Fla.
83 Dysmenorrhea. G. R. Holden, Jacksonville, Fla.
84 Intravenous Method of Administering Salvarsan. J. L. Kirby-Smith, Jacksonville, Fla.
85 Pain in Abdomen and Its Significance. P. C. Perry, Jacksonville, Fla.
86 Orthopedic Treatment of Infantile Paralysis. W. C. Campbell, Memphis, Tenn.
87 Ureteral Calculi. W. F. Clary, Memphis, Tenn.
88 Meat Inspection and Tuberculosis. A. D. Melvin, Washington, D. C.

80. **Relation of Warts and Moles to Malignant Growths.**—Winthrop emphasizes the necessity of the earliest possible recognition of malignancy and to plead for the routine removal of warts and moles as possible precursors of malignant tumors. The simple operation of removal of every wart and mole, especially when located in regions liable to trauma and irritation, will do much toward decreasing the mortality from malignant disease. The use of caustics, in attempting to remove these growths, is deprecated. Too often, he says, such measures simply start the malignant change and even if complete removal be accomplished, the time required, the pain, and resulting scar are more than from complete removal with the knife. Once malignancy is established complete and thorough extirpation of all affected tissue, together with all metastastic tumors, must be resorted to.

82. **Amebic Dysentery.**—The use of ipecac in the treatment of amebic dysentery in Florida, Wallace says, has at the present time practically supplanted all other measures. The method employed is that suggested by Dudley of Manila, about two years ago, and is as follows: The patient is put on a milk diet and confined to bed; after 4 p. m., takes neither food nor water for four hours, when he is given 30 grains of ipecac in six salol coated pills, swallowing these with as little water as possible. The patient takes no food or water during the night; the next day he takes water and milk liberally until 4 o'clock, and after a four hours' fast is given 25 grains of ipecac. The dose is reduced 5 grains daily until the 5-grain dose is reached. Patient is then put on light diet and daily dose of 5 grains continued for a week or ten days. If the pills are properly prepared there is little or no nausea. This treat-

ment has given excellent results; as to whether or not they are permanent sufficient time has not elapsed to determine. The local treatment by irrigations with various amebacidal solutions has failed to give satisfactory results.

Therapeutic Gazette, Detroit, Mich.

October 15, XXVIII, No. 10, pp. 685-760

89 Treatment of Incontinence of Urine in Women. H. A. Kelly, Baltimore.
90 Treatment of Ophthalmia Neonatorum. A. Bray, Philadelphia.
91 *Treatment of Burns by Liquor Cresolis Compositus U. S. P. R. P. Stoops, Crosbyton, Texas.

91. **Treatment of Burns.**—Stoops has used liquor cresolis compositus U. S. P. in upward of 100 cases of burns and believes that its virtues should be more generally known by the medical profession. The remedy is to be applied in the following manner: Bathe affected surface with 1 per cent. warm solution of liquor cresolis in water until debris is removed and parts are anesthetic. Puncture blebs and express serum. Apply to burns strips of gauze, or in large burn strips of paraffin paper smeared with an abundance of vaselin containing 1 per cent. of liquor cresolis comp. Cover with cotton and bandage. Allow dressing to remain four or five days, after which renew according to indications.

Vermont Medical Monthly, Burlington

October 15, XVIII, No. 10, pp. 235-260

92 Relation of Physician to Public Health. F. T. Kidder, Woodstock.
93 Tubal, Ovarian and Tubo-Ovarian Hernias. A. P. Heineck, Chicago.

Wisconsin Medical Journal, Milwaukee

October, XI, No. 5, pp. 137-168

94 *National Importance of Eugenics. F. I. Drake, Madison.
95 *City Health Department. J. M. Furstman, La Crosse.

94 and 95. Abstracted in The Journal, June 22, p. 1970.

Journal of Ophthalmology and Oto-Laryngology, Chicago

October, VI, No. 10, pp. 325-358

96 Giant Magnet in Extraction of Foreign Bodies from Eye. W. O. Nance, Chicago.
97 Ossiculectomy, with Report of Three Cases. F. Dobija, Chicago.

Journal of Tennessee State Medical Association, Nashville

October, V, No. 6, pp. 219-262

98 Injection Treatment of Hemorrhoids. A. B. Cooke, Nashville.
99 Hernia. C. N. Cowden, Nashville.
100 Recent Advances in Bone Surgery. E. T. Newell, Chattanooga.
101 Medical Witness. J. B. Sizer, Chattanooga.
102 One Hundred Consecutive Cases of Abdominal Section. J. H. Carter, Memphis.
103 Laewen's Method of Anesthesia. W. A. Bryan, Nashville.
104 Anaphylaxis. J. F. Gallagher, Nashville.
105 Goiter. L. W. Spradling, Chattanooga.

Lancet-Clinic, Cincinnati

October 26, CVIII, No. 17, pp. 439-466

106 Relation of Physician to the Individual Patient or Individual Family. J. E. Greiwe, Cincinnati.
107 Vincent's Angina: Its Frequency and Importance of Its Recognition. T. H. Halsted, Syracuse, N. Y.
108 Diagnosis of Tuberculosis of Infants by Laboratory Methods. B. F. Lyle, Cincinnati.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

October 19, II, No. 2703, pp. 1005-1088

1 *Maternity Ward at St. Thomas' Hospital, London, and Its Work During 1911. J. S. Fairbairn and J. M. Wyatt.
2 *Significance of Albuminuria in Pregnancy. E. H. Siedeberg.
3 Persistent Occipito-Transverse Presentation: Labor Obstructed at Pelvic Outlet. H. Chapple.
4 Plea for Universal Standard in Observation of Morbidity of Childbed. A. W. Russell.
5 Treatment of 1,305 School Children (London County Council) at Royal London Ophthalmic Hospital. F. Moxon.
6 *Transitory Bigeminal Pulse. L. Brunton.
7 Chronic Irido-Cyclitis. G. Coates.
8 Board of Trade Standard of Eyesight for Sailors. K. Grossmann.
9 Use of Tuberculin in Diseases of Eye. G. Mackey, L. C. P. Ritchie and L. Dor.
10 Treatment of Word-Blindness, Acquired and Congenital. J. Hinshelwood.
11 Intra-Ocular Hemorrhage. W. B. I. Pollock.
12 Salvarsan in Diseases of Eye. S. Stephenson.
13 Ocular Imbalance and Auditory Affections. A. A. Bradburne.
14 Differential Diagnosis of Esophageal Stenosis. O. Kahler, E. B. Waggett and A. B. Kelly.
15 Some Cases of Painful Fissure of Mouth of Esophagus. A. Bronner.
16 Syphilis as Cause of Esophageal Stenosis. W. Downie.

1. **Maternity Ward at St. Thomas'.**—During 1911, 383 patients were admitted, and of these 364 were delivered, nineteen being discharged undelivered, either because they were not in labor or because they were taken in for a complication of pregnancy and did not require induction of labor. One hundred and thirty-nine were primiparae and 244 were multiparae. There were 286 cases of uncomplicated labor, of which two were face and eight were breech and the rest vertex presentations. There were five normal cases of twin birth. Three hundred and seventy-two children were born during the year, of which 354 were mature; of these, twenty-seven were still-born and four died; eighteen were premature; three of these were still-born and six died. Of the abnormal cases there were: Eclampsia, seven; placenta praevia, eight; contracted pelvis, ten. Albuminuria, three; in two cases labor was induced and in the other came on naturally; all were discharged well. Pernicious vomiting, four; none severe, and all recovered without disturbance of the pregnancy; one had gastric lavage and one had saline per rectum. Accidental hemorrhage, five; none severe; in only one was there any interference, namely, dilatation by Champetier de Ribes' bag. Postpartum hemorrhage, six, treated by hot intra-uterine douches and ergot or pituitary extract hypodermically.

Obstructed labor thirty-two: (a) Delayed second stage, twenty-one cases; forceps delivery. (b) Obstructed breech, five cases; three extended legs; one hydrocephalus and one large head. (c) Locked twins; one case. (d) Transverse lie, four cases; one in a case of twins; internal podalic version in all. (e) Impacted shoulders, one case; cleidotomy having failed, one arm was amputated and delivery effected.

Various complications, fourteen cases: (a) Cardiac and pulmonary disease, seven cases. In one, a serous case of mitral stenosis, cesarean section under spinal anesthesia was performed; and although the patient improved for four days, a fatal attack of cardiac failure occurred on the fifth day. (b) Various, including tuberculous cystitis (fatal) and acute rheumatism. Maternal morbidity—that is, any case which shows a temperature of over 100 F.: Septicemia, two. Sapremia, nineteen. Gastro-intestinal, nineteen. Mammary, twenty-two. Reactionary, twenty-two. Emotional, six. Urinary, three. Pulmonary, three. Various, eight. There were seven maternal deaths during the year. Of these, three were in cases of eclampsia; one in a case of placenta praevia from septicemia; one in a case of tuberculous cystitis and pyelitis; one in a case of mitral stenosis, already referred to; one in a case of acute pneumonia. Labor was induced, but the patient died shortly afterward.

2. **Albuminuria in Pregnancy.**—There is no doubt in Siedeberg's mind that the presence of albumin during pregnancy is a serious indication, and is likely to be the forerunner of some complication in labor. It is a strong plea for the more frequent examination of the urine during pregnancy and the more careful supervision of the general health, in the latter months, by the obstetrician engaged to attend the woman.

6. **Transitory Bigeminal Pulse.**—Brunton's patient, a young man, aged 19, had been suffering from albuminuria for more than two years; he also had enlarged glands behind his sternomastoids, in the axillae and left groin. The pulse was small, soft and regular. The tension was only 97. The urine contained a few swollen renal cells, very few casts and no crystals. With the exception of slackness he had no symptoms, and when excited showed considerable activity. He had no other complaint. September 23, his systolic tension was 108 and the diastolic 60. The cardiac dulness and sounds were perfectly normal. There was still a large amount of albumin; he had several nodes in the back of the neck, in the groins and in the front of the abdomen. His pulse was quite regular, but while Brunton was taking it it assumed a bigeminal character. He believes that the peculiar rhythm of the pulse was due to the partial interference of two rhythms, muscular or nervous, or both—though the exact *modus operandi* may require a prolonged investigation and discussion.

British Journal of Children's Diseases, London

October, IX, No. 106, pp. 433-480

17 Hypersensitiveness. E. W. Goodall.
18 *Blood-Pressure in Scarlet Fever. J. D. Rolleston.
19 *Treatment of Nocturnal Enuresis in Children. Mello-Leitao.

18. **Blood-Pressure in Scarlet Fever.**—In a series of cases of scarlet fever the blood-pressure was found by Rolleston to be subnormal in 25 per cent., the extent and duration of the depression being as a rule in direct relation to the severity of the initial attack. In the great majority the highest readings were found in the first week; there was also a predominance of the lowest readings in the same week, but in a large minority the lowest readings were found in the second week. The normal tension was usually reestablished by the fourth week. In the majority of cases the blood-pressure was lower in convalescence than in the acute stage. In 48.4 per cent. of the convalescent cases the readings in the recumbent and erect positions were the same, or the recumbent was higher than the vertical record until convalescence was firmly established (hypotension of effort). With the exception of nephritis complications had little, if any, effect on the blood-pressure. In only a minority of the nephritis cases, twelve out of thirty-three, was the blood-pressure above normal, and the hypertension was never extreme nor of long duration. Rolleston says that sphygmomanometry in scarlet fever, as in most of the other acute diseases, is of little practical importance in the acute stage, but in convalescence may give some indication of the severity of the renal lesion which may be of value in subsequent treatment of the patient. Pronounced arterial hypotension, especially if accompanied by other signs of acute suprarenal insufficiency, should be treated by epinephrin.

19. **Treatment of Nocturnal Enuresis.**—Mello-Leitao has employed Cathelin's method (injections of artificial serum or of a 2 per cent. cocain solution into the epidural space), Babinski's method (lumbar puncture), and renal opotherapy on the patients of the Children's Hospital in Rio de Janeiro. The usual drugs (belladonna, potassium bromid and the alkalies) were always used before epidural injections, which were tried only in the refractory cases. Several children were cured by drugs. Of seven obstinate cases reported, five were cured with epidural injections, one with renal opotherapy, while one was entirely refractory.

Dublin Journal of Medical Science

October, III, No. 490, pp. 241-320

20 Diabetes. J. Smyly.

Lancet, London

October 19, II, No. 4651, pp. 1059-1128

21 Surgery of Peritoneum. H. Macnaughton-Jones.
22 Amebic Colitis in India; Prevalence, Diagnosis and Emetin Cure. L. Rogers.
23 *Injuries to Semilunar Cartilages; 449 Cases of Operation. A. M. Martin.
24 Changes Induced in Blood by Feeding; Study in Cellular Physiology. G. Mann and J. G. Gage.
25 Case of Double Cataract; Case of General Booth. C. Higgens.
26 *Actinomycosis Occurring in Tuberculous Subjects. J. B. Slattery.
27 Rupture of Hemorrhagic Corpus Luteum Into Intraligamentary Cyst, Resembling Ruptured Ectopic Pregnancy. S. G. Luker.

23. **Injuries to Semilunar Cartilages.**—During the period between the end of the year 1900 and the end of the year 1911, Martin has operated on 449 patients (413 hospital and thirty-six private) diagnosed as suffering from injury to the semilunar cartilages. All the patients made good recoveries, and in no case was there any resulting joint infection or any interference with the after-stability of the joint. In a few cases, and this applied particularly to those in which no definite pathology was found at the operation, complaint was made that the symptoms had not been relieved; otherwise the results were all that could be desired. Coal miners are the most frequent sufferers from torn semilunar cartilage, and in the present series, out of 449 cases 282 occurred in miners while following their employment. This gives a percentage of 62.8. Football players are also very liable to the accident. Out of the 449 cases the accident occurred, in the first instance, while playing football eighty-one times. This gives a percentage of 18. It will be noted, therefore, that the mining occupation and football playing are responsible for 80.8 per cent. of the injury. Other forms of sport supply 2 per cent. The internal semilunar cartilage is very much more often injured than the external. In the present series the former shows a percentage of 92, while the latter shows a percentage of 8. The right knee is slightly more frequently affected than the left, the percentage of the one being 53.3 and of the other 46.7. In the case of six patients both internal cartilages were removed, in one case at the same operation, and in the others with an interval of from six weeks to five and a half years. In one patient both external cartilages were removed within an interval of one year. In two cases, in both of which the internal semilunar cartilage was diagnosed as torn, on operation these were found normal. An incision was therefore made on the outer side of the joint, and the external cartilages, much torn and mutilated, were removed. These two cases show that sometimes it is impossible to diagnose whether in the case of an injured knee the internal or the external semilunar cartilage is at fault. In three cases from the same knee both semilunar cartilages were removed, in the first with three years', in the second with eight months', and in the third with eleven months' interval between the operations. In two cases in which, after operation for injury to the internal semilunar cartilage, the symptoms were not relieved the joint was again opened. The portion of cartilage left behind after the previous operation was found to be torn and so was removed with complete relief of symptoms.

26. **Actinomycosis in Tuberculous Subjects.**—Slattery cites three instances of actinomycosis occurring in patients with positive reactions to tuberculin used in diagnosis. All were looked on for a while as cases of active tuberculosis with foci in the neck glands or in the lungs. One with tuberculous adenitis had been considered suitable for a tuberculin course. But in no one was the acute process due to the tuberculous infection. They were met with at long intervals in different institutions. In one case the examination of discharges showed streptothrix.

Archives Générales de Chirurgie, Paris

September, VI, No. 9, pp. 1005-1132

28 *Diffuse Peritonitis from Rupture of Pyosalpinx. H. G. A. Lamouroux.
29 *Suture of Stab Wound of Trachea. (Faut-il suturer les plaies du conduit laryngo-trachéal?) J. Ducuing and J. Boularan.

28. **Peritonitis from Rupture of Pyosalpinx.**—Lamouroux compares an experience from his own practice with twenty-six similar cases from the literature, all of which he summarizes, and discusses the treatment. In two cases the rupture occurred during medical examination; in every case there was sudden violent pain, sometimes the patient fainted. This sudden onset was the first sign of trouble in his case. The rapid development of the peritonitis and the fatal outcome when left to itself led to the suspicion of poisoning in some of the cases on record. In all but one case the temperature rose at once. Recovery was the rule in the twenty-seven cases reviewed, only nine of the patients succumbing.

29. **Suture of the Trachea.**—A man of 54 had tried to cut his throat with a pocket knife and both trachea and larynx had been incised. Ducuing sutured the wound and the patient is now able to swallow normally although the epiglottis had been cut. There was no emphysema nor suppuration. The patient was fed for four days through a tube in the esophagus and he rinsed his mouth out frequently with hydrogen dioxid. Silk was used for the suture. Efforts at coughing were rather disturbing, and Ducuing advises morphin to combat this.

Archives Générales de Médecine, Paris

September, XCI, No. 9, pp. 773-864

30 *Relations Between the Lungs and Genital Organs of Tuberculous Women. H. v. Bardeleben.
31 Diagnosis of Aspirated Foreign Bodies. (Diagnostic des corps étrangers des voies aériennes.) H. Abrand.
32 Cure of Ozena by Injection of Paraffin and Superheated Air. E. Chapellier.
33 *Iodin Vapors in Treatment of Ear Disease. (L'enfumage iodé en chirurgie auriculaire.) E. Chapellier.

34 Local Anesthesia in Operations on Ear and Upper Air Passages. A. Martin.
35 *Subcutaneous Injection of Oxygen in Treatment of Pulmonary Tuberculosis. R. Bayeux.

30. **Relations Between the Lungs and Genital Organs in Tuberculous Women.**—Bardeleben's experience has been that genital tuberculosis is usually secondary to a pulmonary process, and that the placenta or the region where it is implanted is the focus of a reciprocal and retroactive effect between the lung process and the genital process. The more active the lung process, the more unfavorable the influence of the pregnancy (90 per cent.). On the other hand, the chances for immobilization and circulation of the bacilli in the blood are less the more latent the pulmonary tuberculosis, and hence the rarer aggravation of the tuberculosis during a pregnancy (15 per cent.). Excision of the site of the placenta removes at one stroke the entire dangerous focus. Artificial abortion is useful only when there are very few tubercle bacilli in the placenta. The ovaries play no part in the aggravation of pulmonary tuberculosis during a pregnancy, while removing them merely reduces the general resisting powers and has no influence on the tuberculosis. Hysterectomy is useful, but equally good results may be anticipated from mere excision of the site of the placenta.

33. **Iodin Vapors in Treatment of the Ear.**—The Journal recently described the application of iodin vapors in gynecologic affections, and Chapellier here reports the advantages of the method in treatment of chronic otitis media. He used a home-made apparatus for the purpose, placing the iodoform in an ordinary square ink-stand with two glass tubes entering through the stopper, one connected with a rubber bulb, the other with a cannula. He vaporizes the iodoform by heating it with a red-hot metal bar or the actual cautery tip. The stopper is then replaced at once and the iodin vapors from the decomposed iodoform are pumped through the cannula into the ear. The result was surprising in the typical case reported in detail. He found it necessary to clear the ear out thoroughly before and after forcing of air through the eustachian tube into the middle ear by expiration with nose and mouth closed; this Valsalva measure is a very important preliminary to clear the passages for the iodin vapors.

35. **Subcutaneous Injection of Oxygen in Treatment of Pulmonary Tuberculosis.**—Bayeux now has a record of thirty-six cases in which he has applied this method during the last year and a half. He reviews his experiences in detail and gives an illustration of the portable apparatus he uses for the purpose. In more than 700 injections of the kind he has never had any accident, local or general. He makes the injections in the lower part of the trunk, and rarely injects more than a pint a day, as a rule repeating the injection every three days. The more serious the condition, the shorter the intervals. He has found that oxygen is absorbed more slowly in direct proportion to the gravity of the tuberculous intoxication—this has proved a useful prognostic sign.

Journal d'Urologie, Paris

September, II, No. 3, pp. 321-460

36 *Fistula Between Intestine and Bladder. (Etude des fistules vésico-intestinales.) G. Pristavesco.
37 Sarcoma of the Prostate. V. Pauchet.
38 Petrification of Microorganisms in Urine Sediment and Pseudocrystals. G. Rodillon.
39 Double Urethra. (Urètres doubles.) M. Lebrun.

October, No. 4, pp. 461-620

40 *Test Polyuria. (Critique de la polyurie expérimentale.) F. Legueu and B. Lagarde.
41 *Operative Treatment of Kidney Calculi. A. Pousson. Commenced in No. 2.
42 *"Prostatism with Normal Prostate?" (Existe-t-il un prostatisme vésical?) G. Marion.
43 *Duration of Non-Operated Renal Tuberculosis. Rafin.
44 Roentgenoscopic Indications for Pyelotomy. Arcelin and Rafin.
45 *Latent Disease of Other Kidney After Supposed Healing of Renal Tuberculosis Under Conservative Treatment. M. Heitz-Boyer.
46 Diagnosis of Traumatic Nephritis. M. Heitz-Boyer.
47 Urology in America During 1911. Faxton Gardner.

36. **Bowel-Bladder Fistula.**—Pristavesco summarizes the details of forty-two cases published in the last few years, classifying them according to the segment of intestine involved. They are generally due to trauma, inflammation, cancer or tuberculosis and exceptionally to actinomycosis or syphilis. Urine may be passed through the anus or gases and fecal matter through the urethra. Every effort should be made to prevent local infection and correct the condition. Various technics have been used, but the peritoneal and transvesical routes have given the best results. A previously unpublished case is reported in detail with the cystoscopic findings before and after the cure by a hypogastric incision and endovesical suture of the opening. Pascal in 1900 compiled 286 cases, all but 25 per cent. in men.

40. **Test Polyuria.**—Legueu and Lagarde present an array of clinical evidence to show that the polyuria which follows the test drinking of 700 gm. of water does not depend exclusively on the kidney. Other elements probably intervene in the elimination of the fluid before it reaches the kidney. When nephrectomy is being considered and the findings of the test in the other kidney are favorable, the functional integrity of the latter may be counted on. But, on the other hand, when the findings are unfavorable, this alone must not be accepted as indicating positively that the second kidney is functionally incapable. The charts are given of the findings in thirty-three applications of the test to thirteen patients before and after nephrectomy for tuberculosis, calculi or traumatic rupture of the kidney.

41. **Operative Treatment of Kidney Calculi.**—Pousson's illustrations and tabulation of the details form a review of the ten cases in which he was able to locate the calculi by palpation and remove them by an operation, and of the twenty-two similar cases in which there was complicating suppuration. The article is accompanied by nine stereoscopic views. The ultimate outcome after nephrectomy proved better than after nephrotomy alone. In four cases the kidney had to be removed later after the nephrotomy, with ultimate recovery. Infection renders the outcome of conservative measures very dubious. There is not only the danger of concrements in the other kidney, but the diseased kidney may have affected the other in various reflex ways. But his experience has been that calculi develop only exceptionally in both kidneys, while the reflex disturbances always promptly subsided after removal of the diseased kidney. Ten of his twenty-two septic patients were cured by nephrectomy, three for over eight years and four for over three years. One patient passed through a normal pregnancy two years later and has been in good health during the four years since.

42. **Prostatism with "Normal" Prostate.**—Marion states that he always finds some lesion or malformation sufficient to account for the disturbances in micturition. In one man of 44 with retention, distention and dribbling of urine, nothing abnormal could be found, but two years later other symptoms of tabes developed. In another group of cases the apparently normal prostate had some bunch or lobe enlarged or some small adenoma or other lesion, closing the passage by valve action. In one case he removed the neck of the bladder and upper part of the urethra for inveterate retention, but was convinced that he had performed a useless operation as the parts seemed to be entirely normal. On slitting the urethra, however, he found a small papillomatous growth on the point of becoming malignant. Complete recovery followed, and encouraged by this success he operated in two other cases of what seemed to be "prostatism sans prostate." In one case a small protuberance on the prostate projected up into the bladder and in the other minute adenomas in the sphincter had been causing the trouble. Marion has operated on the prostate in 155 cases and has never seen an instance of Young's sclero-inflammatory median bar. In any event he advises opening the bladder in case of trouble from prostatism, and excision of the neck of the bladder if nothing can be found to explain the disturbances. The illuminating findings and excellent outcome in the three cases reported confirm the wisdom of the measure.

43 and 45. **Duration of Tuberculosis of the Kidneys Without an Operation.**—Rafin compares the ultimate outcome in his 168 cases with those recently compiled by Wildbolz (mentioned in The Journal, Feb. 3, 1912, p. 380). Of the eighty-four patients still living, twenty-eight, that is, 16.6 per cent. of the total 168 patients are still in fair general health; 53

per cent. have died. Only 14.8 per cent. died without some other localization of the tuberculosis, showing that the renal tuberculosis under expectant or conservative treatment frequently becomes complicated with tuberculous processes elsewhere. The data reviewed confirm the gravity of renal tuberculosis. Very few patients can bear it and maintain good general health for years, although this does occasionally occur. Probably the process in these cases leads to exclusion of the kidney, amounting to a clinical cure, or the process may be of a peculiarly torpid nature.

Heitz-Boyer reports two cases of supposed recovery from tuberculosis of one kidney in which the diagnostic tests revealed serious impairment of the other kidney, although there were none of the usual signs of chronic nephritis. The supposedly healed and excluded kidney had evidently exerted a deleterious influence on the other kidney in the course of time, and serious trouble followed, one patient dying in uremic coma. The other was saved by removal of the excluded kidney at the first clinical manifestations of trouble. Even the spontaneous cure of a tuberculous process in the kidney is thus shown to entail serious dangers—another argument, he states, in favor of early operative treatment of renal tuberculosis.

Presse Médicale, Paris

October 9, XX, No. 82, pp. 821-828

48 Exaggerated Motor Functioning of the Stomach. (L'estomac hypertonique.) E. Enriquez and Gaston-Durand.

October 16, No. 84, pp. 845-852

49 The Lipoids of the Genital Glands. (Les lipoides de l'ovaire, du corps jaune et du testicule. Propriétés homo-stimulantes, physiologiques et thérapeutiques.) H. Iscovesco.

Revue de Chirurgie, Paris

October, XXXII, No. 10, pp. 517-656

50 *Suture of Traumatic Separation of Lower Epiphysis of the Femur. E. Desmarest.
51 *Primary Epithelioma of the Clitoris. A. Basset.
52 Aseptic Decay of Uterine Fibromyomas. J. Barbouth.
53 *Fractures of Neck of the Femur in Children and Youths. G. Worms and A. Hamant. Commenced in No. 9.

50. **Separation of the Lower Epiphysis of the Femur.**—Desmarest reports an excellent functional outcome in the case of a boy of 11 with traumatic separation of the epiphysis and displacement. He opened the fracture region and sutured the fragments in place, holding them with a little aluminum plate and six screws, not draining, and then applied a plaster splint which held the foot in dorsal flexion and immobilized the entire leg. The temperature was slightly higher for a few days but the child did not complain of pain in the knee, and recovery was soon complete notwithstanding the total neglect of the massage and passive exercises of the leg that had been strictly ordered. Desmarest summarizes from the literature six similar cases in which the fragments were held in place with screws or a metal plate or both. The outcome was excellent in every case but one in which the child succumbed to scarlet fever before the wound had healed. One child of 8 was able to walk and use his knee normally six weeks after the operation (Drew).

51. **Cancer of the Clitoris.**—Basset has found records of 147 cases of primary epithelioma of the clitoris, including two personally observed. The prognosis seems to be unusually grave with these growths as recurrence soon followed, over 61 per cent. of the patients succumbing to this cause within eight months on an average. The recurrence was generally in the connected lymph-nodes, and Basset urges that they should all be excised with the primary growth in one piece, his illustrations showing that this is feasible and simple, and would certainly increase the number of permanent recoveries beyond the 26.3 per cent. now on record; the survival in these cases has been from two to five years to date. Over 40 per cent. were permanently cured by an operation including removal of the lymph-nodes, and only 22.2 per cent. of those whose tumors alone were removed. Recurrence followed in 60 per cent. in the latter group and in 36 per cent. in the former, but the simple, single-mass method, advocated by Basset, was applied in only one case.

53. **Fracture of the Neck of the Femur.**—Worms and Hamant comment on the way in which the Roentgen ray has shown the incorrectness of the old idea that fracture of the neck of the femur is very rare in the young. They have encountered nine typical cases of fracture of this kind and review the literature on the subject. The symptoms in the young are generally the same as in adults, but sometimes there may be no pain, deformity or disturbance in walking. This is liable to be the case with an incomplete fracture, and the patients may have forgotten their traumatism when coxa vara develops later. The insignificance of the trauma causing the fracture is frequently mentioned in the cases on record; this seems to be peculiar to fracture of the neck of the femur in the young and in the aged. The special diagnostic points and technics are discussed; treatment should aim in particular to ward off coxa vara. With a recent fracture, rest in bed with immobilization of the leg for several weeks is indispensable, then a period of massage and cautious exercise of the hip joint after which the leg can be used but with great care not to overburden it until the bone has recovered its normal resistance. Operative measures, especially horizontal or oblique subtrochanter osteotomy, have given good results, correcting the tendency to adduction and outward rotation and improving the gait in old cases. It even lengthens the limb if it is followed by prolonged extension.

Revue de Gynécologie, Paris

August, XIX, No. 2, pp. 97-192

54 Ovarian Cyst Opened Through the Vagina. (Cas de kyste de l'ovaire praevia traité avec succès par la ponction vaginale.) X. Bender.
55 *Resection of Cancerous Rectum by Vaginal Route. A. Chalier and E. Perrin.
56 Treatment of Genital Tuberculosis in Women. M. Patel.

55. **Resection of Rectum for Cancer by the Vaginal Route.**—Chalier and Perrin state that there were only two operative fatalities among the twenty-nine cases on record, including a case from their own practice. The immediate mortality was thus only 6.89 per cent. and as most of the operations date from before 1900, this mortality now would be much less. The ultimate outcome is known in only a few cases but two patients are known to be in good health after four years. Recurrence does not seem to be any more frequent than with other technics; only eight cases of recurrence are known in the twenty-two cases followed for some time. The great advantage of the method is that the anus is left intact and continence is certain if the innervation is not interfered with too seriously. Five illustrations show the various steps of the operation and the T incision, the long end carried into the perineum but slanting off below to spare the anus. Ample oversight is thus afforded. The cancer must be well defined, limited, not very adherent, and at an accessible point to be amenable to this technic, that is, in the ampulla or space just above. The indications for the transvaginal route are thus practically the same as for resection of the coccyx or sacrum or both in men.

Semaine Médicale, Paris

October 9, XXXII, No. 41, pp. 481-492

57 Does the Carotid Gland Have an Internal Secretion? C. Frugoni.

Archiv für Verdauungs-Krankheiten, Berlin

XVIII, No. 5, pp. 571-700

58 Digestive Ferments in Diagnosis of Stomach Disease. (Ueber die diagnostische Bedeutung der Fermentuntersuchungen, speziell des Labfementes des Magensaftes bei Magenkrankheiten, zugleich ein klinischer Beitrag zur Frage der Wesenseinheit von Lab und Pepsin beim Menschen.) L. Rutimeyer.
59 Digestion of Fat in Liver and Pancreas Disease. (Zur Frage von den Störungen der Fettverdauung bei den Erkrankungen der Leber und des Pankreas.) E. K. Tauber.
60 Fat in the Secretions and Excreta. (Ueber den qualitativen Nachweis von Fett in den Sekreten und Exkreten mit bes. Berücksichtigung der Fäzes.) H. Löhrisch.
61 Eosinophil Proctitis; Four Cases. E. Fricker.

Berliner klinische Wochenschrift

October 14, XLIX, No. 42, pp. 1969-2016

62 *Principles of Modern Tuberculin Treatment. B. Möllers.
63 *Emphysema at the Apex in Pulmonary Tuberculosis. (Lungenspitzenemphysema.) O. Orszag.
64 Iodin in Treatment of Pulmonary Tuberculosis. W. Nieveling.
65 *Rest and Fresh Air in Treatment of Convalescents and the Chronic Sick. (Liegekuren für unbemittelte Rekonvaleszenten und chronisch Kranke.) E. Aron.
66 Spinal Cord Disease with Anemia; Fatal in Three Months. E. Richter.

67 *Splenic Anemia. S. Isaac.
68 *Central Station for Research on Anthropoid Apes. (Errichtung einer Station zur psychologischen und hirnphysiologischen Erforschung der Menschenaffen.) M. Rothmann.
69 Study of the Bile in the Living Organism. (Bakteriologische und chemische Untersuchung der Galle in vivo; diagnostisches Verfahren in der Frühdiagnose des Typhus abdominalis.) G. Kiralyfi.
70 Experimental Research on Nature of the Wassermann Reaction. A. Bittorf and H. Schidorsky.
71 Influence of Pressure on the Viscosity Coefficient of the Blood. J. Glaubermann.
72 Cholesterin Esters in the Blood-Corpuscles. (Die Cholesterase der Blutkörperchen.) F. Röhmann.
73 Sensitiveness of the Viscera. (Ueber die Sensibilität in der Bauchhöhle.) C. Franke.

62. **Principles of Tuberculin Treatment.**—Möllers declares that the campaign against tuberculosis demands that tuberculin treatment should not be limited to specialists but should be applied by general practitioners wherever needed, in combination with the usual hygiene-dietetic treatment. In the early cases the tuberculin treatment can be given to out-patients. The characteristic of modern methods is to give the tuberculin in a mild form, very slowly increasing the doses while avoiding to the utmost every reaction. The subcutaneous route is preferred, and a single course of treatment is not enough; in many cases years of repeated courses may be necessary, keeping the patients under constant supervision.

63. **Emphysema at the Apex of the Lung.**—Orszag says that emphysema in the apex of the lung often gives puzzling findings above a tuberculous focus. It is most common in the chronic fibrous cases with comparatively slight tendency to destructive processes. The tuberculous focus generally develops about an inch below the apex, and consequently there is a zone of sound tissue above. Assumption of emphysema in the apex explains the clearing up of an area of dulness without this being necessarily a sign of healing. The apical emphysema may be the reason why the focus shown by roentgenoscopy cannot be detected by percussion.

65. **Fresh Air Cures in Public Parks.**—Aron pleads to have a sheltered part of public parks set apart for convalescents and chronically sick persons, where they can spend the day in comfortable reclining chairs. The expense of the chairs would be slight, while the advantages for convalescents would be incalculable.

67. **Splenic Anemia.**—Isaac adds another to the few cases on record in which anemia with extreme enlargement of the spleen, but the liver normal, was observed for several years. His patient died finally from an intercurrent streptococcus infection. The liver was intact. Senator insists that only the cases with intact liver should be classed as Banti's disease.

68. **Research on Anthropoid Apes.**—Rothmann has already made a commencement in this line, having installed some chimpanzees on the Canary Islands where he thinks climatic and other conditions are peculiarly favorable for research on the physiology and psychology of anthropoid apes. He urges the importance of such research, especially on the brains before these animals become extinct. It seems impossible to conduct research of the kind in temperate climates as the monkeys die off so soon.

Correspondenz-Blatt für Schweizer Aerzte, Basel

October 10, XLII, No. 29, pp. 1097-1128

74 The Eosinophils in Various Diseases. (Ueber die von Dunger angegebene neue Zählungsmethode der eosinophilen Zellen und über das Verhalten dieser Zellen bei verschiedenen Krankheiten.) M. Gelbart.
75 Importance of Rigidity of the Muscles Over Pulmonary Disease. (Pottenger's Lehre von den Muskelveränderungen bei intrathoracalen Entzündungen, speziell bei Lungentuberkulose.) O. Amrein.

Deutsches Archiv für klinische Medizin, Leipsic

CVIII, Nos. 1-2, pp. 1-186. Last indexed Oct. 19, p. 1496

76 Human Arterial Blood. Hürter.
77 Heart Movements Propagated to Outer Wall. (Einige durch die Herzaktion verursachte Bewegungen der Brustwand und des Epigastriums.) G. Lang.
78 Direct Percussion with One Finger (Ueber isolierte Perkussion.) W. P. Obrastzow.
79 Fat Absorption and Proteid Metabolism in Diseases of the Pancreas. (Versuche an Pankreaskranken.) O. Gross.
80 Necropsy Findings in Case of Trichiniasis. (Zur Kenntnis der Trichinellenkrankheit des Menschen.) H. Knorr.
81 Significance of the Auricular Liver Pulse. G. Joachim.
82 Experimental Regeneration of Hemoglobin. (Abbau des Hämoglobins. II.) L. Hess and P. Saxl.

Deutsche medizinische Wochenschrift, Berlin

October 10, XXXVIII, No. 41, pp. 1913-1960

83 *Tuberculous Meningitis. P. Krause.
84 Influence of Exercise on Development of Internal Organs. (Einfluss der Bewegung auf den wachsenden und erwachsenen Organismus.) F. Külbs.
85 Displacement of Heart Toward the Right. (Dextroversio cordis und ihren Einfluss auf das Elektrokardiogramm.) W. Neumann.
86 Both Human and Bovine Tubercle Bacilli Found in Spontaneous Tuberculosis in Monkeys. E. A. Lindemann.
87 Changes in Blood in Potassium Chlorate Poisoning. (Blutveränderungen bei Vergiftung mit Kalium chloricum.) O. Huber.
88 *Importance for Surgeon of Temperature in Both Axillæ. (Temperaturmessungen in beiden Achselhöhlen und ihre Bedeutung für die Chirurgie.) Zalewski.
89 Superior Advantages of Nilson's Modification of Narath's Operation for Varicocele; Eight Cases. W. Wolf.
90 Chemical Therapy of Sepsis. P. Rosenstein.
91 Vasectomy for Sterilization of Degenerates. A. Kappis.
92 Treatment of Post-Partum Hemorrhage. (Zur Behandlung atonischer Blutungen.) H. H. Schmid.
93 Modification of Serodiagnosis of Syphilis. (Ueber die von Porges angegebene und von Hermann und Perutz modifizierte Syphilisreaktion.) S. A. Gammeltoft.
94 Serodiagnosis of Cancer. (Serodiagnostik der Geschwülste mittels Komplementablenkungsreaktion nach v. Dungern.) G. Wolfsohn.
95 The High-Frequency Current in Therapeutics. (Zur technischen Kritik der Hochfrequenz-Therapie.) P. Grabley.
96 Roentgenoscopy of Larynx and Trachea. A. Rethi.

83. **Tuberculous Meningitis.**—Krause comments on the variability of the early symptoms of this disease which, he reiterates, is always secondary. A primary focus in the bronchial or mesenteric lymph-nodes is common in the young. Vomiting is a frequent initial symptom but headache is generally the first sign of trouble, with restlessness and slight fever. In a recent case gastro-intestinal symptoms for three weeks with headache and slight fever were ascribed by the patient to eating spoiled meat, but at the end of the third week the typical picture of meningitis developed. In some cases the mind is affected from the first; occasionally the meningitis develops in drinkers after delirium tremens. In some cases the meningitis is ushered in by epileptic seizures, possibly confined to one side of the body. Tuberculous meningitis is often confounded with typhoid, especially in children. Acute infectious diseases in children are often accompanied by symptoms suggesting meningitis, so that we must not be too hasty in diagnosing tuberculous meningitis. Examination of the blood may reveal the bacilli. If there is diffuse bronchitis and cyanosis, a miliary irruption is probable. The prodrome of tuberculous meningitis is generally longer than with meningitis of other nature; there are usually weeks of ill health with the former. He had recently two cases of epidemic poliomyelitis in which the clinical picture was that of tuberculous meningitis; both patients recovered. He is convinced that the virus of epidemic poliomyelitis is responsible for some of the cases of serous meningitis on record. The literature contains examples of cases in which focal symptoms persisted for years before the picture was completed by other symptoms of the tuberculous meningitis. In a recent case the patient had headache, vertigo, tinnitus and attenuation of the right abdomen reflex for weeks, and then the symptoms subsided; there is probably some tuberculous process involved which at first produced symptoms of beginning tuberculous meningitis. Many authors think that the prognosis is invariably fatal, but Krause sees no reason why tuberculous foci might not heal in the meninges as well as anywhere else. He cites necropsy findings of healed tubercular meningitic lesions and summarizes eight cases of complete recovery from meningitis with tubercle bacilli in the spinal fluid. In rare cases the disease may have a stormy onset and prove fatal in a few days, but as a rule the course is from two to five months. Careful nursing is of supreme importance, with calomel or castor oil purges. Tuberculin is of no use and may aggravate the inflammatory reaction in the meninges. In one of his cases the disease was accelerated by it. He thinks it would be too dangerous to inject the tuberculin directly into the spinal canal. He says that no case has yet been published in which benefit from iodin was beyond question, but he urges further experimental research on drugs to influence tuberculous meningitis. Lumbar puncture gives often great relief but it is only transient, as also the benefit from puncture of the ventricle, or trephining. Bier has extolled the beneficial influence of therapeutic passive

hyperemia by constriction from an elastic band around the neck in case of meningitis originating in the ear. Symptomatic measures have not shown much progress during the last decades, but Krause found that the patients were generally relieved, as in seasickness, when moist heat was applied to the head. Purges and diuretics are useful but do not influence the course of the disease. Mercurial inunctions have benefited in some cases, but he thinks that the affection in these cases must have been of syphilitic origin. Treatment should always be persevered in as the ultimate outcome may prove the diagnosis of tuberculous meningitis erroneous. [Tyson states that the cases whose recovery surprised him were invariably those in which he had used cod-liver oil inunctions.]

88. **Importance of Taking the Temperature in Both Axillae.**—Zalewski found a difference in the temperature in the axillae in healthy persons and the difference was still more marked in pulmonary tuberculosis, pneumonia, etc. In 120 surgical cases he found differences up to half a degree Centigrade in the temperature of the two sides, in case of a unilateral morbid process. The higher temperature on one side was a guide to the progress of the morbid process, and he urges the importance of taking the temperature always on the side involved if only one axilla is tested. Entirely erroneous conclusions may be reached when the temperature is taken indiscriminately on either side. This double axilla temperature often proves useful in indicating the necessity for changing the dressings, etc.

Medizinische Klinik, Berlin

October 13, VIII, No. 41, pp. 1651-1692

97 Trauma and Cancer. (Bedeutung des Traumas für Entstehung und Wachstum krankhafter Gewächse.) O. Lubarsch.
98 *Congestion in the Abdomen. (Ueber Plethora abdominalis und ihre praktische Bedeutung. J. Schütz.
99 Recent Progress in Laryngology and Rhinology. O. Kahler. Commenced in No. 40.
100 Abortion with Intra-Uterine Pessaries. (Ueber Abtreibung mit Intrauterinpessaren.) L. Bürger.
101 Physical Examination of Abdomen Through Ring Compressor. M. Silberberg.
102 Auscultation at Mouth and Nose. C. Petersen.
103 *Damming Blood in Limbs in Treatment of Heart Disease. (Ueber therapeutische Beeinflussung des insuffizienten Herzens durch Venenstauung.) C. S. Engel.
104 Modified Wassermann Test. (Der "verfeinerte Wassermann.") E. Kromayer and Trinchese.
105 Psychology of Animals. (Stimmen zur Psychologie der Tiere.) V. Franz.
106 General Principles for Treatment of Habitual Constipation. M. Kahane. Commenced in No. 40.

98. **Primary Congestion in the Abdomen.**—Schütz has encountered a number of patients who presented puzzling symptoms suggesting those of atony of the stomach and enteroptosis, hyperacidity, neurasthenia and heart disease, while the rounded paunch indicated a well nourished condition. On stripping for examination, however, the arms were found thin, the chest flat and the abdomen was seen to be distended. The heart dulness may be enlarged toward the right and the urine sometimes contains casts and albumin while the liver is slightly enlarged and tender at times. When the patient reclines, the heart dulness subsides to normal outlines; the heart in these cases is merely forced up by the distention of the abdomen. Such patients may be constipated or not, but there is generally a tendency to hemorrhoids and high blood-pressure. The one feature common to all the cases is the passive hyperemia in the abdominal vessels; this explains the various symptoms, and the benefit under treatment directed exclusively to restoring normal conditions in the circulation throughout the abdomen confirms the correctness of the assumption of abdominal plethora as the idiopathic cause for the disturbances observed. Treatment should aim to deplete the vessels by diverting the blood to the skin and by systematic saline purges, massage of the abdomen and dietetic measures to ward off constipation, avoiding gas-forming foods and all substances liable to injure the intestinal walls. Balneologic measures to divert the blood to the skin may include carbonated baths, massage, exercises, etc. He regards the assumption of this primary circulatory disturbance in the abdomen as of great importance in warding off arteriosclerosis and nervous and mental disease from intestinal auto-intoxication. If such patients are not thoroughly examined their rounded paunch suggests that they are over-nourished, and treatment is instituted based on the wrong assumption that the trouble is a tendency to obesity, when in reality the treatment should be along entirely different lines.

103. **Damming the Venous Blood in the Limbs in Treatment of Heart Disease.**—Engel reiterates his previous assertions in regard to the great subjective benefit from arresting the venous circulation in the limbs in cases of heart disease. He has coined the term "phlebostasis" for it, and has been studying the effect with the sphygmograph on numbers of healthy and sick persons. By damming off so much of the venous blood the severest circulatory disturbances are mechanically combated; the arterial blood proceeds on its way unhindered while the heart is relieved from much of the bulk of the venous blood. The passive distention of the right auricle grows less and the venous blood left in the trunk can be propelled much more easily into the lungs. The capillaries in the lungs receive less blood and are enabled to contract better while the lung capacity is increased with consequent deeper inspiration of air, greater intake of oxygen and its better distribution to the coronary vessels and hence to the heart muscle, with its consequent rejuvenation. The effect is also felt elsewhere, especially in the medulla oblongata and viscera. Once the vicious circle of the venous stasis is broken up in this way, the whole clinical picture may become transformed as after administration of digitalis. The curves show improvement in the heart action, the breathing becomes deeper and the tendency to bronchial catarrh, so frequent in these patients, seems to subside after a few sittings, as also the symptoms of congestion in the brain. He suggests that the method might prove useful also in meningitis and other intracranial processes. The "phlebostasis" in heart disease also seemed to benefit the liver and kidneys. He adds in conclusion that this method of tying off the limbs does not harm even when frequently applied—in direct contrast to digitalis—while the ease and simplicity of the technic commend it as a valuable acquisition to the physical means of treating disturbances in the circulation.

Münchener medizinische Wochenschrift

October 8, LIX, No. 41, pp. 2209-2264

107 *Non-Operative Treatment of Cancer. (Nichtoperative Behandlung der Geschwülste.) V. Czerny.
108 *Nervous Disease in Pregnancy. (Nervenerkrankungen in der Gravidität.) A. Saenger.
109 Curves Showing That Both Lungs Do Not Always Work Synchronously. (Bilaterale Pneumogramme in Krankheiten der Lungen und Pleuren.) G. Richter (St. Louis).
110 *Quantitative Color Test for Albumin. M. Claudius.
111 Teleangiectasic Granuloma. (Botryomykose.) G. E. Konjetzny.
112 *Enucleation of Tonsils with the Finger (Totale Enukleation der Gaumenmandeln.) E. Borchers.
113 *Surgical Treatment of Tropical Dysentery. O. Müller.
114 *Relief of Headache by Inducing Copious Secretion in the Nose. (Entstehungsweise der Kopfschmerzen und ihre rationelle Behandlung.) A. Lorand.
115 Psychology of Youthful Criminals. (Jugendliche Verhafteter.) K. Rupprecht.
116 *Terrace-Balcony Houses. D. Sarason.

107. **Non-Operative Treatment of Cancer.**—Czerny remarks that 50,000 persons die annually in Germany from cancer and there must be an average of 100,000 suffering from it all the time. He has had 2,500 in-patients and 1,000 out-patients at the cancer research institute at Heidelberg in his charge, and he has been successful in prolonging life and making it bearable in a surprisingly large number of advanced cases. He reiterates anew that the earlier and the more radically incipient cancer is removed the better the prospects for a permanent cure, and that this is the best means to rouse into action the protecting powers of the organism. He has never known of a spontaneous cure without some surgical or therapeutic help. But there are many cases in which the character of the growth renders prompt recurrence almost inevitable. In these and in the inoperable cases we now have a large number of palliative, curative measures, and he applies a number in turn, individualizing them for each case. He is convinced that progress in this line demands numerous cancer research institutions and he wishes that the money now spent on a single Dreadnaught might be diverted to this cause. For although the causal agent of cancer has not yet been discovered and although direct transmission plays no part in its development, yet all the results of modern research point to some external cause for the disease and suggest that this cause lurks in the

soil or the houses we inhabit or in the food we eat. He believes that isolation of cancer patients in special institutions would not only ameliorate the condition of the patients but would contribute to reduce the spread of malignant disease, just as the special sanatoriums and the general improvement in hygiene have contributed to the decline of tuberculosis and leprosy.

108. **Nervous Disease in Pregnant Women.**—Saenger recalls several cases of puerperal neuritis or polyneuritis which he has previously published; in all the neuritic process developed in the puerperium and there was no tendency to fever or suppuration; delivery had been normal. In two other cases epileptic seizures developed during the pregnancy or reappeared after years of latency. In two other cases a maniacal psychosis developed in the course of a pregnancy. In both of these as well as in the epileptic cases the women recovered after the pregnancy had been interrupted. Saenger consequently reiterates his conviction that many women would be saved from chronic mental disease if abortion were induced in time when the mental disease first develops in connection with a pregnancy.

110. **Quantitative Test for Albumin.**—Claudius protests against placing reliance on the Esbach test for albuminuria, his experience with it confirming the conflicting results obtained with it on repetitions of the tests. He then describes a technic which he has found simple and reliable. It is based on the fact that when the albumin dissolved in a fluid is precipitated, if there is a stain dissolved in the water which has an affinity for albumin, the latter, as it flakes out, carries with it some of the stain, so that the supernatant fluid is seen to be less highly colored on comparison of the filtrate with the original stain. He uses for the purpose a stain formed by combination of trichloracetic acid, tannic acid and fuchsin.

112. **Enucleation of the Tonsils with the Fingers.**—Borchers gives an illustrated description of the technic for loosening and then enucleating the tonsil, using the forefinger and thumb alone. He does the little operation under a few whiffs of ethyl chlorid. In a minute or two the tonsil can thus be shelled out. He does this before the reflexes have been lost, to prevent aspiration of blood. With this technic the dangers and drawbacks of ordinary tonsillectomy are avoided. There was very little hemorrhage in the thirty cases in which he has applied it. Direct visual inspection is not necessary as the fingers are guided by the sense of touch. The chief advantages of this technic are the absence of danger of injuring the arteries, and that ether or chloroform are not required. If the tonsil is found very soft or firmly adherent to the adjacent parts this method will have to be abandoned and the operation completed with instruments.

113. **Surgical Treatment of Tropical Dysentery.**—Müller reports from Hong Kong four cases in which he succeeded in curing severe dysentery by local treatment through the appendix.

114. **Effectual Treatment of Headache.**—Lorand says that relief like that from lumbar puncture in compression of the brain can be obtained in cases of severe headache by means to induce copious secretion in the nose. This amounts practically to a venesection only that serum alone escapes, and he expatiates on the remarkable benefit thus derived in migraine or severe headache from other causes. The close connection between the circulation of blood in the nose and in the brain is abundantly shown by the headaches with certain nasal affections, such as the unbearable headache that may follow tamponing of the nose after an operation. By stimulating profuse nasal secretion the blood is drawn from the vessels in the dura and pia. He has found an irritating snuff the best means to start the nasal secretion, and gives two prescriptions, naturally only for transient use to relieve the headache: Menthol. 0.5 gm.; acid. bor. 1 gm.; irid. florent. and sacch. lact. *aa* 2 gm. Or ℞.: Pulv. mayoranae; irid. florent. *aa* 1 gm.; sacch. lact. 2. gm.; rad. veratri alb. 0.14 gm. The prompt cure of the headache in his own person and in a number of patients by this means suggests that this derivation by way of the nose might prove useful in meningitis, brain tumors, choked disc, optic neuritis or even possibly in glaucoma or disease of the internal ear.

116. **Terrace-Balcony Flats.**—Sarason's suggestion to build houses in which each story recedes a few feet was mentioned in The Journal, 1909, liii, 495, and this system of fresh-air tenement houses was given a medal at the Tuberculosis Congress at Washington in 1908. He now suggests an improvement on the original design. The terrace left by the receding of each story is supplemented by a veranda about three feet deep. This does not detract from the light and air in the room while it adds materially to the convenience of the inmates. Each story thus has its open terrace and veranda, and young and old can thus live out of doors on their own premises and with a minimal loss of ground space. He presents arguments to show that buildings of this kind have many advantages over the single-cottage plan, and that their introduction would do much toward the eradication of tuberculosis, etc.

Wiener klinische Wochenschrift

October 10, XXV, No. 41, pp. 1513-1556

117 *Gastric and Duodenal Ulcer. E. Schütz.
118 Roentgenoscopy in Duodenal Disease. A. Baron and T. Barsony.
119 *Diagnostic Importance of Hypermotility of the Stomach with Duodenal Disease. F. Eisler and S. Kreuzfuchs.
120 Duodenal Secretion. (Kurze Erwägungen über die grobphysikalischen Eigenschaften des menschlichen Duodenal—Jejunal—Saftes.) M. Gross (New York).
121 *Reflex Movements on Turning the Head in Cerebral Disease. (Reflektorische Bewegungen bei Kopfwendung in zerebralen Affektionen.) S. Bondi.
122 *Occult Hemorrhage in Stools with Gastric Carcinoma. F. Bardachzi.

117. **Duodenal Ulcer.**—Schütz reviews a number of the newer diagnostic points which permit differentiation of a duodenal ulcer. They have demonstrated further that ulceration in the stomach and duodenum is more common than hitherto recognized, and that in many cases—possibly in the majority—a supposed gastric neurosis was in fact merely the manifestation of an unsuspected ulcer. He urges tests for a gastric ulcer in every case of persisting and rebellious pain in the stomach which does not yield to diet. Even if the findings are negative, the possibility of an underlying ulcer should be borne in mind as it is far better for the patient to be credited with an ulcer when none exists, than to have one overlooked. Among the points useful in differentiating are a history of local trauma, the high total acidity of the unfiltered gastric content, a tumor without metastatic lumps, and pain regularly after eating solid food—these speak for gastric ulcer. With duodenal ulcer, the pains may subside for intervals of years or at certain seasons but their periodical appearance three or four hours after the meal and the way in which they spread to the right side, and the tender point to the right of the median line above the umbilicus, with reflex rigidity of the upper segment of the right rectus, and accelerated expulsion of the stomach content, are all characteristic. He does not regard operative treatment as inevitable for duodenal ulcer; he has had patients recover under internal measures alone, such as small frequent meals—even during the night—and the persisting use of alkalies, when all the clinical signs pointed to duodenal ulcer.

119. **Duodenal Hypermotility of the Stomach.**—Eisler gives the skiagrams of two cases out of a large number in which the motor functioning of the stomach was tested in its connection with disease of the biliary apparatus. One patient had the excessive motility of the stomach characteristic of duodenal trouble, with cachexia and jaundice; no tumor could be palpated and the urine and stool findings were negative, but the diagnosis was made on this alone—cancer of the pancreas involving the duodenum—and it was confirmed by necropsy. In another case a woman had had gastric disturbances for years, and in the last four months had become much emaciated and vomited frequently; in the right upper abdomen a tumor was palpated and roentgenoscopy showed the stomach displaced upward, of normal size, with hypermotility, the duodenum normal until near its lower third, where there seemed to be obstruction, and a tumor was palpated which could be moved with the duodenum. It proved to be a tumor of the pancreas involving the duodenum. He calls attention to the upward displacement of the right diaphragm and limitation of its excursions, a sign of the "duodenal excessive motility" of the stomach. In two cases examined the trouble was

traced to cholelithiasis secondarily impeding the functioning of the duodenum.

121. **Reflex Movements on Turning the Head in Brain Diseases.**—Bondi reports eight cases in which on passive turning of the head to one side a reflex drawing up of the leg followed. With hemiplegia sometimes there was merely dorsal flexion of the big toe, but as a rule the leg was flexed. The patients had meningeal symptoms and caries of the cervical vertebrae or cerebral syphilis or an abscess or hemorrhage in the brain. The reflex was elicited only when the head was turned to the affected side at first, but as the disease progressed both sides showed a tendency to the reflex movement. He found this sign useful in locating a circumscribed lesion in the brain in several cases.

122. **Occult Blood in the Stool with Gastric Cancer.**—Bardachzi obtained positive findings in all but four of fifty-eight patients with certain gastric cancer and in none of large numbers of healthy persons examined. He used the benzidin test applied to half a test-tubeful of the stool for the entire twenty-four hours, diluted.

Zeitschrift für Kinderheilkunde, Berlin

V, No. 2, pp. 85-174

123 Chemistry of Infant's Stomach. (Zur Chemismus des Säuglingsmagens.) L. Tobler. (Salzsäure im Säuglingsmagen.) B. Salge and H. Davidsohn.
124 Infantile Summer Mortality in Austria. (Die gleichmässige Verteilung der Sommersterblichkeit der Säuglinge auf Stadt und Land in Oesterreich.) L. Moll and E. Mayerhofer.
125 *Feeding of the Prematurely Born. (Zur Ernährungstechnik frühgeborener Säuglinge.) F. Rott.

125. **Feeding of the Prematurely Born.**—Rott has been feeding prematurely born infants through a No. 9 or 10 catheter, 15 cm. long, connected by a rubber tube with a glass funnel holding about 50 c.c. The catheter is introduced through the mouth along the median line into the esophagus and removed each time after the feeding is completed. The introduction of the catheter is simple and easy, especially on account of the lack of reflex action in the prematurely born. The child is fed in this way five or seven or even eight or ten times during the twenty-four hours. Eighteen incubator babies were fed through a catheter in this way, and he is convinced that many were tided by it past the danger point into safety, who otherwise would have succumbed. No by-effects or injury were noticed in any instance, and the case histories and weight curves given substantiate the great value of this simple and effectual means of supplying these infants with adequate nourishment. Three of the children had been born just before term and although they were several days old yet they were too weak to nurse. Under the catheter feeding they promptly gained in strength and weight.

Zentralblatt für Chirurgie, Leipsic

October 12, XXXIX, No. 41, pp. 1401-1432

126 Bandage for Prolapse of Rectum in Children. (Einfacher Verband zur Verhütung und Heilung des Mastdarmvorfalles der Kinder.) C. Vidakovich.
127 *Operation for Wandering Kidney. (Wanderniere.) K. Vogel.
128 Fracture of Shoulder Blade. (Zur typischen Fraktur des Schulterblattes—Prelser.) T. Kölliker.

127. **Wandering Kidney.**—Vogel hangs up the kidney by suspending it from the twelfth rib, cutting for the purpose a flap from the capsule which is passed over the rib and sutured to the kidney again, thus holding it and raising it as high as desired. He thinks this technic has many advantages over the methods of suspending the kidney by scar formation.

Zentralblatt für Gynäkologie, Leipsic

October 12, XXXVI, No. 41, pp. 1353-1384

129 *Roentgenoscopy in Obstetrics. (Zur geburtshilflichen Röntgendiagnose.) H. Eymer.
130 Pathogenic Importance of Non-Hemolyzing Streptococci. O. Bondy.

October 19, No. 42, pp. 1385-1416

131 *Hands Off the Uterus. ("Hand von der Gebärmutter.") F. Ahlfeld.
132 *Emptying the Breasts in Treatment of Eclampsia. (Abspritzen des Kolostrums bei Eklampsie.) G. Walcher, Jr.
133 *Importance of Epinephrin Treatment of Osteomalacia. (Nochmals bezüglich der Pathogenese und der Behandlung der Osteomalakie.) L. M. Bossi.
134 Contraction of Uterine Cervix Under Influence of Hypophysis Extract Interfering with Delivery. (Eine ungewöhnliche Wirkung des Hypophysenextraktes auf den gebärenden Uterus.) K. Hell.

129. **Roentgen Diagnosis in Obstetrics.**—Eymer expatiates on the value of roentgenoscopy to determine the shape of the pelvis and diameter of the outlet, the position of the fetus and whether there are twins or not. He gives the details in twenty-one cases to show the advantages of the measure. In some of the cases the roentgen examinations were made repeatedly during the course of the pregnancy.

131. **"Hands Off the Uterus."**—Ahlfeld thinks that the uterus is prevented from normal contraction after delivery if it is held from without or manipulated in any way, consequently he advises to leave it entirely alone unless one's hand is forced by excessive hemorrhage. After delivery of the child, the uterus and even the abdominal walls should be left unmolested for an hour or hour and a half if the danger of hemorrhage is not pressing.

132. **Emptying the Breasts in Treatment of Eclampsia.**—Walcher thinks that the connection between eclampsia and the mammary gland is not to be denied, and that it is an important indication to get rid of the toxins accumulated in the breasts. He consequently makes a practice of squeezing the colostrum out of the breasts, milking it out during or immediately after the convulsion, striving to empty the breast as completely as possible. In several of the eleven cases in which he has applied this measure a beneficial influence seemed beyond question. In others no improvement followed. It is certainly the simplest and easiest means to act on the mammary gland, and the benefit from this in veterinary medicine has long been established. It has been his experience that eclampsia developing or persisting after delivery is the gravest form; in a preceding series of thirty-four cases of this type, sixteen of the patients died.

133. **Epinephrin in Treatment of Osteomalacia.**—Bossi relates the particulars of an unusually instructive case of osteomalacia in a married woman of about 40. The osteomalacia had tormented her for thirteen years and proved rebellious to all kinds of treatment and care until a systematic course of injections of epinephrin was undertaken, under which she was entirely cured except for the deformity the disease had entailed. The case teaches the difficulty of differentiating osteomalacia, the trouble being generally ascribed to arthritis or rheumatism. The patient was sterile owing to curving of the uterine cervix and anteflexion. The first signs of the osteomalacia developed a few months after her marriage at the age of 26. The course of epinephrin included 150 injections in about nine months, 1 c.c. being the largest dose given of the 1 per thousand solution of epinephrin, and frequent pauses were made. Bossi's previous announcements of the importance of epinephrin treatment in osteomalacia were mentioned in The Journal, 1907, xlviii, 1386. He reviews the work of others along this line, and states that the epinephrin with proper technic never does harm in osteomalacia; the severer the case the greater the tolerance. His case suggests a connection between congestion and development of osteomalacia.

Gazzetta degli Ospedali e delle Cliniche, Milan

October 8, XXXIII, No. 121, pp. 1265-1272

135 *Tendency to Tuberculous Hemoptysis Cured by Intravenous Injection of Ergot and Morphin; Thirteen Cases. C. Garmagnano.

October 10, No. 122, pp. 1273-1280

136 Inflammatory Tumors in Abdominal Wall After Herniotomy. C. Giacomo.

October 13, No. 123, pp. 1281-1296

137 Antiferment Treatment of Abscesses. (Cura degli ascessi con gli antifermenti.) L. Cocco.

135. **Ergot and Morphin in Treatment of Hemoptysis.**—Garmagnano found a single intravenous injection sufficient to arrest the tendency to hemoptysis in pulmonary tuberculosis, and relates the details of thirteen cases of the kind. With a low blood-pressure he injected the extract of ergot alone, but with a pressure above 110 mm. he injected both ergot and morphin. This arrests the cough and tranquillizes the patient, and the blood soon disappears from the sputum. He did not find that the injection modified the course of the disease; the patients all died soon after as only the far advanced cases are admitted to the hospital where he is intern.

Policlinico, Rome

October 13, XIX, No. 42, pp. 1517-1552

138 Double Fracture of the Clavicle. R. Carnelli.
139 Multiple Rupture of Intestines and Mesentery from Kick bv a Horse. (Caso di rotture multiple dell'intestino e mesentere per calcio di cavallo.) M. Fransini.
140 *Heart-Block; Five Cases. (Sindrome di Morgagni-Stokes-Adams.) G. De Sanctis.
141 *Intravenous Injection of Phenol in Treatment of Sciatica. (Cura della ischialgia con speciale riguardo al metodo Baccelli.) U. Rosi.

October, Surgical Section No. 10, pp. 433-480

142 Malignant Teratoid Tumor in Testicle. F. Marcora.
143 Ureteral Grafts. (Omotrapianti ureterali.) A. Chiasserini.
144 Hypophysis Tumors. (Struma ipofisario iperplastico con acromegalia e tumori ipofisari.) N. Leotta. Commenced in No. 9.

140. **Adams-Stokes Syndrome.**—De Sanctis reports the details of five cases of heart block to illustrate the variety of the causes which may induce it. In two of the cases the trouble was evidently in the heart muscle while in the three others it was unmistakably the result of irritation of the vagus from some cause, reflex or directly toxic, or from a solitary tubercle in the medulla oblongata. The Vaquez test elicited a positive response in these three neurogenic cases while there was no response to it in the myogenic cases. The patients were men between 25 and 60 and one boy of 13, the latter having the solitary tubercle.

141. **Intravenous Injection of Phenol in Treatment of Sciatica.**—Rosi has applied in eleven cases Baccelli's method of intravenous injection of a very weak solution of carbolic acid in treatment of chronic sciatica. The sciatica was of several years' standing in some of the cases and had completely incapacitated the patient, but the sciatica was finally entirely cured by the injections, although from ten to sixty injections were required for the purpose. The patients were from 34 to 63 years old. [The strength of the solution is not mentioned, but Baccelli generally uses 1 per thousand or 1 per cent. solutions.]

Riforma Medica, Naples

October 5, XXVIII, No. 40, pp. 1093-1120

145 Heart Defect in Boy of 5. (Sopra un vizio di cuore in un bambino di cinque anni.) F. Luzzatti and B. Santangelo.
146 Recovery After Multiple Gunshot Injury of Chest and Abdomen, with Complications. (Nota clinica sulle ferite toraco-addominali.) O. Finzi.

October 12, No. 41, pp. 1121-1148

147 Much's Stain for Tubercle Bacilli. G. Constantini.
148 Hernia of the Ovary or Fallopian Tube. (Ernia annessiale.) U. G. Costa.

Semana Medica, Buenos Aires

September 19, XIX, No. 38, pp. 549-596

149 Heart on Right Side Plus Hernia of Diaphragm. E. D. Berenguer.
150 *Stab Wound of Lumbar Meninges. A. Rocco.
151 Physiology and Hygiene of the Mouth. (Apuntes de Odontologia.) P. Hidalgo.

150. **Stab Wound of the Lumbar Meninges.**—A boy of 11 fell on a knife in his belt and the knife pierced the meninges in the lumbosacral region. The fourth day cerebrospinal fluid began to dribble from the wound; probably some clot had blocked the hole in the meninges until this time. The boy was then placed in the ventral decubitus with the pelvis raised and the dribbling ceased at once. This position was maintained for over two weeks until the wound had entirely healed, leaving no trace of the injury.

Hygiea, Stockholm

September, LXXIV, No. 9, pp. 945-1056

152 Duration of Pregnancy. (Om den beräknade längden af det mänskliga hafvandeskapet och denna frågas betydelse för faderskpasbevisningen in foro.) A. Key-Aberg.
153 *Spirochetes in the Tonsils in Syphilis. (Tonsillerna som smittobärare vid syfilis.) H. I. Schlasberg.
154 Artificial Pneumothorax in Treatment of Gangrenous Cavity in Lung. C. Löwenhjelm.

153. **Spirochetes in Tonsils.**—Schlasberg found spirochetes in the tonsils of six out of fifty patients with syphilis of several months' standing and in all but ten of forty-two patients with recent syphilis. In some the tonsils were apparently sound, while some of the patients with sterile tonsils had specific lesions in the tonsils. He also examined the tonsils of twenty non-syphilitics but never found spirochetes in them. He never found them in the tonsils of patients who had taken three or more courses of specific treatment and whose infection dated from over eight months. His experience further demonstrated that when spirochetes are found in the tonsils during the first six months and local treatment is applied, in addition to the regular courses, the patient may be reasonably certain that there will be no secondary recurrence in the tonsils. The local treatment he found effectual was to paint the tonsils with a 2 per cent. alcoholic solution of mercuric chlorid once a week. In twenty-two of the recent cases this local treatment was applied and no lesions developed in the tonsils, while papules were found regularly on the tonsils after four or six weeks in the nine patients with spirochetes in the tonsils early but who were not given local treatment.

Nordiskt Medicinskt Arkiv, Stockholm

XLV, Surgical Section No. 2. Last indexed May 25, p. 1652

155 *Primary Tuberculosis of Mesenteric Lymph-Nodes from Surgical Standpoint. B. Floderus.

155. **Primary Tuberculosis of Mesenteric Lymph-Nodes.**—Floderus concludes from his research on the etiology, symptoms, diagnosis and prognosis of this condition that it is comparatively frequent. Primary tuberculosis of the mesentery is of far more frequent occurrence but has no importance from the surgical standpoint. He ascribes primary mesenteric tuberculosis to infection from cow's milk or butter or tuberculous sputum in about equal proportions. It is most common up to the age of 15, at which period it seems to reach its acme. Its development seems to be favored by acute infections in the connected segment of the bowel. Most of the clinical cases hitherto studied were diagnosed erroneously, the trouble being taken for a tumor, appendicitis, invagination or peritonitis. After a long stage of latency, pain is the first symptom, generally localized in the region of the umbilicus or cecum. The tumor is the most important objective finding. Vomiting, diarrhea and mucous stools are frequent but not characteristic. Jaundice may be induced by compression of the bile-duct by the swollen lymph-node. Fever is the rule in all cases of primary mesenteric tuberculosis. Suppuration of the lymphoma is probable if the fever is very high, although suppuration may continue long without fever. Other organs are rarely involved with primary mesenteric tuberculosis, but miliary tuberculosis is a frequent outcome. One or more of the swollen mesenteric lymph-nodes can generally be detected on palpation, especially by palpation through the rectum under general anesthesia. The tumor may become the size of a cocoanut by agglomeration of several lymph-nodes. The consistency is usually firm and elastic, tenderness is not always present. Radioscopy is a great aid in the diagnosis. Only fifty cases are on record in which operative treatment was applied, but Floderus adds twelve to the list. Connected segments of the intestines were removed with the lymphomas in twelve cases. The interval between the first symptoms and the operation was generally less than a month. The lymphoma is best enucleated close to the capsule, suturing with catgut the incised mesenteric serosa afterward and not draining. The bursting of a tuberculous pus pocket or tearing of an adherent loop of intestine are the chief dangers to be feared, but the postoperative reaction is surprisingly slight. In nine of the total cases the patients succumbed to hemorrhage, peritonitis, sepsis or miliary tuberculosis, and in three of these cases the operation might be incriminated in the fatal outcome. The results of operative treatment have been excellent as a rule; recurrence is exceptional. Enucleation of all the swollen lymph-nodes should be the aim. In case of extensive and inaccessible suppuration it may be better to restrict the operation to clearing out the pus pocket, without attempting to excise it entirely. As operative treatment in the early stages gives such excellent results and fatalities occur only in the old advanced cases, the operation should not be deferred when the diagnosis is once certain and the tumor is large, or there is persisting or recurring fever, abdominal pains or other intestinal disturbances. Whenever a stationary condition shows signs of exacerbation, the necessity for an operation should be considered anew. Pulmonary tuberculosis in an early stage should not be regarded as a contra-indication for operating for primary tuberculosis of the mesenteric lymph-nodes. Those generally affected are the ones connected with the ileum or ileocecum, more rarely those nearer the stomach or rectum. The swollen lymph-nodes may compress or become adherent to adjacent vital organs.

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CHEMISTRY OF INHALATION ANESTHETICS[*]

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The differing experiences which expert anesthetizers have had in the use of ethyl ethers supplied by various manufacturers in numerous surgical cases have prompted the present investigation of the chemistry of inhalation anesthetics. These differences are often not to be explained by idiosyncrasy. Then, too, the standards laid down by the various pharmacopeias of the world are not uniform. In view of this fact alone, a thorough investigation seemed called for. Inquiries addressed to large consumers of the solvent in manufacturing processes adduced further need for satisfactory methods of determining the purity of ethyl ether and chloroform, and of detecting impurities introduced, or proving their absence if eliminated, in the modification of the raw products used in their manufacture. The presence of small amounts of substances has oftentimes been the cause of a chemical reaction proceeding in a particular direction by virtue of a "catalytic action." So the presence of even traces of certain substances, as for example, peroxidized compounds, aldehyd, etc., in ether, may have caused some reactions to be incorrectly explained, or to follow an unusual or unaccounted for route. This is undoubtedly true for many physiologic changes.

The investigation of ether and chloroform naturally called for an examination of nitrous oxid and oxygen. These researches have been quite thorough and pursued for several years.

NITROUS OXID[1]

In 1793 Deiman and others prepared nitrous oxid by heating ammonium nitrate, essentially the commercial process for its manufacture to-day,[2] as it is made by heating such a mixture of salts that ammonium nitrate is one of the bodies taking part in the reaction.

Commercial nitrous oxid is apt to contain these impurities: chlorin nitric and nitrous oxids, nitric acid, ammonia, hydrochloric acid, carbon dioxid, oxygen, nitrogen and the rare gases of the air. It is usually purified by passing the gas through solutions of sodium hydroxid, ferrous sulphate and sulphuric acid. Further purification may be accomplished by the formation of a hydrate below 0 C. and heating this hydrate ($N_2O, 6H_2O$); by fractional condensation, and by fractional distillation (to remove the rare gases of the air), but these methods are not practiced in this country.

Table 1, which is self-explanatory, exhibits the results of our analyses of compressed nitrous oxid as supplied by American manufacturers.

TABLE 1.—ANALYSIS OF NITROUS OXID OF AMERICAN MANUFACTURE

No.	N_2O†	H_2O	CO_2	NH_3	O_2	N_2, etc., by Difference	N_2O by Explosion	N_2O by Cu + CO_2 + H_2‡	N_2O by Cu + H_2‡
1	99.7	0.13	0	0.006	*	0.16	97.5	99.4	99.7
2	96.6	0.15	0	0.001	*	3.25	95.0	96.2	96.6
3	99.5	0.15	0	0.000	*	0.35	97.3	99.5	99.5
4	95.9	0.16	*	0.000	*	3.94	94.1	95.6	95.9

* Present. † Actual percentage present. ‡ New methods of Baskerville and Stevenson.

Standards of Purity.—Nitrous oxid which is to be used for anesthesia should contain at least 95 per cent. of N_2O and no solids, liquids, combustible organic matter, chlorin, or other oxids of nitrogen. A small amount of carbon dioxid, according to the investigations of Gatch, can have no evil effects. If present, however, the percentage should be known.

ETHYL ETHER[3]

Ethyl ether is still made commercially by the historical process of treating alcohol with sulphuric acid — hence the misnomer of "sulphuric ether," or "vitriolic ether" — although other synthetic processes have been proposed, some of which have been tried out, but always without commercial success.

The quality of ethers on the market depends on, first, the purity or grade of the alcohol used; and, second, secondary reactions which take place, not only with impurities in the alcohol, but with ethyl hydroxid itself. For example, ethyl ether made from ethyl alcohol denatured by methyl alcohol contained other ethers, as dimethyl oxid or methyl-ethyl ether, not found in the ether made from rectified spirit. The generous interpretation of the denatured alcohol act by our government officials, whereby alcohol denatured by ether itself may now be used, eliminates these substances. Many of the impurities traceable not only to the quality of the raw products used, but to the secondary reactions of their virgin impurities, due to variations, as in temperature, pressure and other conditions, were removable and have in a large measure been removed, or much reduced, by subsequent purification.

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[*] Read in the Symposium on Anesthesia in the Sections on Pharmacology and Therapeutics and Pathology and Physiology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[*] Because of lack of space this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

[1] See Baskerville and Stevenson (Jour. Ind. Eng. Chem. August, 1911, No. 8) for a detailed account of the preparation, analysis and purification of nitrous oxid.

[2] It is usually carried out by heating mixed salts, as $NaNO_3$ and $(NH_4)_2SO_4$, $NaNO_3$ and NH_4Cl, etc.

[3] For a full consideration of the chemistry of ethyl ether see Baskerville and Hamor: Jour. Ind. Eng. Chem., 1911, iii, Nos. 5 and 6. On ethyl ether for anesthetic purposes see Baskerville: Am. Drugg'st, Sept. 26, 1910.

The specific gravity of ether intended for anesthesia should not exceed 0.720 at 15 C., provided that an ether containing minimum quantities of alcohol and moisture is required; an ether, however, which shows a specific gravity of 0.7215 (2 per cent. absolute alcohol), 0.7227 (3 per cent. absolute alcohol), or even 0.724 (4 per cent. absolute alcohol), provided that the sole "impurity" is ethyl alcohol, is acceptable for anesthetic purposes according to various pharmacopeias.

Presence of Alcohol in Ether.—In this connection it may be stated that for various reasons a pure ether may be diluted with ethyl alcohol when it is to be used for anesthesia. Impurities then observed may be due in part to the alcohol used in dilution. Practically all ethyl alcohol contains some acetaldehyd.

It has been asserted that ethyl alcohol serves as a preservative for ether when the latter is properly stored, which is not true; and small amounts interfere in no way with the application of ether in anesthesia. The presence of alcohol is unnecessary except when ether is administered by the drop method. In this case the presence of alcohol prevents too rapid volatilization and consequent chilling of the apparatus with which the ether is administered; and the alcohol remaining on the cone lowers the freezing-point of the condensed moisture of the breath. The presence of excess moisture in liquid ether should be guarded against, since ether in contact with water, or moist air, in time gives rise to various impurities of an objectionable nature. Thus anesthetic ether even of proper grade may develop impurities to be avoided quite as much as if they had been introduced in the original materials or later produced in the manufacture or added in the preparation for distribution in commerce.

Assisted by W. A. Hamor, I have conducted an extensive investigation of the changes which occur in ethyl ether during storage, and the experimental data obtained lead to the conclusion that the oxidation of ether in the presence of moisture is productive of a series of complex conversions, initiated, however, by the formation of hydrogen dioxid.

Our experimental work seems to establish beyond any doubt the fact that ether of anesthetic grade contains peroxidized compounds after exposure to varying temperature conditions and sunlight, in the presence of atmospheric oxygen, for considerable periods of time, especially when it is stored in colorless glass vessels, or in badly stoppered tin containers.

Acetaldehyd, the presence of which may account for some of the observations made in practice, is one of the impurities most likely to be generated by exposing partially filled containers to varying atmospheric conditions for continued periods of time. Ether should not be stored in glass vessels for any length of time without being tested for oxidation products before use; and the tin containers should be of such capacity that they need not be opened without being emptied when the ether is employed for anesthetic purposes.

Since it is highly important that ether intended for anesthetic purposes should be carefully manufactured and properly stored, as prolonged exposure to light and air greatly affect the results of etherization, causing coughing, suffocation, and even dangerous after-effects, such ether should always be tested for acidity, peroxids and aldehyd, and the presence of the last should be rigorously guarded against; or the ether, if so contaminated, should be administered by a method which eliminates these impurities before it is introduced into the animal system.

We have made a study of the value of all proposed tests for the impurities in ethyl ether, and devised several new and superior ones. A scheme for examination has been worked out and is now available in the literature.[4]

CHLOROFORM[5]

Liebig prepared chloroform from chloral and by treating acetone with "bleaching-powder." Guthrie and also Soubeiran treated alcohol with "bleaching-powder." Schering generated his "bleach" in the presence of alcohol by electrolysis. Then "methylated spirit" was used, whereby so-called "methylated chloroform" was obtained. In 1848 Böttger and others used acetates, and then chlorin was liberated in acetone by electrolysis. This process is used extensively in this country now. Methane of natural gas has been burned in chlorin, but this process has not proved successful commercially so far. Carbon tetrachlorid, made by chlorinating carbon disulphid, is being reduced by the process of A. W. Smith to produce much chloroform in this country at present. "Chloral chloroform" is imported in small quantities.

From the variety of *Ausgangs-Material* and different methods used, it is quite evident that crude chloroform may contain a wide range of impurities, which may vary not only with the materials used, but also with the conditions of manufacture. Alcohol has been removed from chloroform by washing with water, the chloroform being subsequently dried over calcium chlorid. Potassium hydroxid has been used to remove excess chlorin and acids. Manganese dioxid has been used to remove sulphur dioxid. Chloroform has been treated with concentrated sulphuric acid until the acid was no longer colored, and then the vapors of chloroform have been passed through towers of crystallized sodium carbonate; rectification has followed. To remove special impurities or decomposition products of the chloroform itself, chloroform has been treated with lead dioxid, with potassium permanganate, or with dilute sodium thiosulphate; or it has been distilled over 2 per cent. paraffin or poppy oil.

"Chloroform Anschutz" is obtained by distilling from crystals of salicylid-chloroform ($C_{28}H_{16}O_8$, $2CHCl_3$). "Chloroform Pictet" is made by chilling chloroform to — 80 C., filtering off the solids produced, and then lowering the temperature to — 82 C. and drawing off the liquid impurities. The frozen chloroform is then fractioned, the intermediate 80 per cent. of the distillate being taken.

Specific gravity determinations are not to be regarded as criteria of purity beyond indicating the amount of alcohol in chloroform.

There has been not a little diversity of opinion among chemists as to the nature and products of the decomposition of chloroform, especially the changes which chloroform undergoes on exposure to air; in fact, this discordance dates from the introduction of chloroform as an anesthetic and prevails to-day. This condition is ascribable to the many influencing factors occasioned by the degree of purity of the chloroform under examination and the extent and nature of the exposure, but is principally due to the failure to consider and correctly interpret the rôle of the general variable, alcohol, and with it the accompanying moisture.

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[4] Baskerville and Hamor: Jour. Ind. and Eng. Chem., iii, 395.

[5] The history, uses, manufacture, purification, physical constants, decomposition, impurities and examination of chloroform of all grades are treated at some length by Baskerville and Hamor in Jour. Ind. Eng. Chem., March to August, 1912.

The products of the decomposition of "pure" chloroform, according to various investigators, may be summarized thus:

Chlorin; hydrogen chlorid: Morson, Maisch and Hager.
Carbonyl chlorid: Rump, Regnault.
Carbonyl chlorid; hydrogen chlorid: Stark, Ramsay, Schoorl and Van den Berg, Dott.
Carbonyl chlorid; chlorin: Brown, Schacht and Biltz, and Adrian.

The formation of carbonyl chlorid alone is definitely agreed on.

The decomposition of chloroform has been universally conceded to be an oxidation process. It is generally accepted that chloroform is unaffected by light alone, and that light, although it accelerates oxidation, is not a necessary factor in the process (Hager, Rump, Brown, Schoorl and Van den Berg); several investigators, however, appear to have inclined to the view that light favors decomposition (Regnault, Dott).

With regard to the changes which occur in anesthetic chloroform during exposure to air and light there also exists a decided diversity of opinion, principally owing to the fact that no examinations were made during the course of the various investigations, so far as I am aware, for the presence of the oxidation products of alcohol in such chloroform. The whole subject required investigation, and accordingly an experimental study of the decomposition of both pure and anesthetic chloroform was carried out. It was also hoped to throw light on, if not fully explain, the rôle of alcohol[6] and other substances in the so-called preservation of chloroform, a satisfactory explanation of which has been wanting.

Various samples, twenty-three in all, both of pure chloroform[7] and of chloroform containing the usual pharmacopeial amounts of alcohol and water, were exposed in well-stoppered[8] containers of various sizes; these held varying amounts of the samples, and were of both colorless and anactinic glass, such as are customarily used in the trade. The exposures were made for different periods of time, but at room temperature, 20 C., from September to May, inside of a window having direct southern exposure. The conditions were extreme, but nevertheless were similar to those obtaining in many pharmacies and hospitals.

The anesthetic chloroform used was examined prior to the experiments, and only such chloroform as was found to be free from all impurities was used. An amount of water, however, equivalent on the average to 5.1 per cent. by volume of the alcohol present was permitted. Thus each sample was of pharmacopeial grade.

The tests applied for the detection of the oxidation products of chloroform and alcohol were those previously proved out in our work. Quantitative determinations of the impuritis developed were made whenever it was possible to do so.

RESULTS OF AUTHOR'S EXPERIMENTS WITH CHLOROFORM

The experimental results warranted the following conclusions:

1. The products of the oxidation of pure chloroform are carbonyl chlorid and hydrogen chlorid, which come about according to the reactions:

$$CHCl_3 + H_2O + O_2 = COCl_2 + HCl + H_2O_2;$$
$$CHCl_3 + H_2O_2 = COCl_2 + HCl + H_2O.$$

We are convinced that oxidation will not occur if water be excluded, and the absolute exclusion of moisture appears to be impossible in practice. Hydrogen dioxid is formed, although we were unable to detect it in the chloroform undergoing oxidation and therefore concluded that its existence is ephemeral, and oxidation of the chloroform continues throughout the period of the exposure. The rôle of the water is that of a true chemical catalyst. The decomposition of pure chloroform is accelerated by light, as was shown by a comparison of the results obtained in the experiments wherein colorless glass was used with those in which anactinic glass containers were employed. Carbonyl chlorid is formed with increased readiness in the presence of acids.

The extent of the oxidation is dependent on the nature of the container, the amount of air present, the purity of the sample, and the intensity of the light to which it is exposed. With light alone, when no air is present, no decomposition occurs for ordinary periods of exposure; and in cases where there is air contact alone and no exposure to light, the oxidation is slow.

2. The products of the oxidation of anesthetic chloroform are primarily the oxidation products of alcohol, and no decomposition of chloroform itself occurs while the oxidation of alcohol proceeds. When the oxidation of alcohol reaches a maximum, decomposition of the chloroform goes on as in the case of pure chloroform, with the exception that chlorinated derivatives of the oxidation products of alcohol may result. The decomposition of the chloroform itself is retarded, even prevented, so long as oxidation of the alcohol proceeds, and the retardation is consequently dependent on the amount of alcohol present. The extent of the oxidation is subject to the conditions referred to in the oxidation of pure chloroform. It is important to note, however, that anesthetic chloroform nearly always contains water, the usual amount being about 0.05 per cent. by volume, according to my experiences.

The preservative action of alcohol is due to the combination of the retarder with certain of the reacting substances; and any substance soluble in chloroform and readily oxidizable will exert an inhibitory effect on the oxidation of chloroform itself, for example, sulphur and many other substances. All compounds which have been found to serve as preservatives of chloroform are reducing agents, and the effect is due to their capacity for oxidation.

THE STORAGE OF ANESTHETIC CHLOROFORM

Anesthetic chloroform should preferably be furnished in vials, ampules, or bottles of high-grade anactinic glass containing about the quantity sufficient for one narcosis, and at the most not more than can be used within several days. If, for any particular reason, chloroform is ordered in a large container, it is advisable, immediately after opening it, to subdivide the entire remaining contents into 2-ounce bottles, taking care to fill the small bottles completely. It is important to see that the bottles are first completely free from water, and empty bottles should not be refilled without thorough

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[6] The amounts of alcohol stated as permissible in the various official chloroforms intended for anesthetic purposes are as follows:

Belgium	1.0 per cent.
Denmark	1.0 per cent.
Sweden	0.5-1.0 per cent.
United States	0.6-1.0 per cent.
France	0.005, part by weight.
Italy	0.5 per cent.
Switzerland	1.0 per cent. absolute.

[7] This chloroform was prepared according to the method of the author and was absolutely pure. Its physical constants were: boiling point, + 61.2 C. at 760 mm.; density, 1.49887 at 15.4 C.

[8] No cork stoppers unprotected by metal caps were employed. In the experiments on pure chloroform glass-stoppered bottles were used solely.

cleansing and drying. In no case should chloroform be gradually withdrawn in small quantities from large bottles or carboys. When it is found necessary to store anesthetic chloroform, it should always be kept in a cool, dark place, in well-filled, or, better still, completely filled, tightly stoppered bottles of anactinic glass.

The keeping qualities of anesthetic chloroform may be seriously affected by the character of the containers. The question of keeping anesthetic chloroform in tin containers has been a much agitated one in the federal War Department, and within the last ten years that department has decided in favor of the tin container.

My opinion is that glass containers are more conducive to purity for several reasons.

The impurities of anesthetic chloroform, so-called "organic impurities," are traceable to the materials used in the making, method of manufacturing, subsequent purification and manipulation before marketing, which may be grouped into Class A, and those developed with different conditions of storage, Class B.

These impurities, even though some may not be of much importance from a physiologic point of view, must still be given attention, since an impure chloroform is more likely to become altered through oxidation during storage, notwithstanding the fact that pure ethyl alcohol has been added. So far as I have been able to learn, the adulteration of anesthetic chloroform is not practiced now, and crude chloroform is no longer sold as chloroform of anesthetic grade.

In the Class A we have: excess water; excess alcohol; acetone; methyl alcohol; carbon tetrachlorid; carbon dichlorid (C_2Cl_4), carbon trichlorid (C_2Cl_6), etc.; aldehyds; amyl, propyl and butyl alcohols, and compounds; ether; acids (sulphuric, hydrochloric, formic); metallic chlorids; ethyl chlorid; ethylidene chlorid; ethylene chlorid; ethyl acetate; oils ("empyreumatic," "pyrogenous," "chlorinated"); fixed and extractive matter.

The possible impurities under the head of Class B are as follows: acetaldehyd; acetic acid; carbonyl chlorid; hydrochloric acid; hydrogen dioxid; chlorin; chlorinated derivatives of alcohol oxidation products.

A discussion of the numerous tests for these substances would of necessity involve much detail and be of interest mainly to the analytical chemist. In our laboratory we have studied every test we have been able to find in the literature and have been forced to devise new ones in some cases, while in others we are unable to make any recommendations at all as yet.

CHLOROFORM VAPOR AND OXYGEN

Among the anesthetic mixtures the combination of chloroform vapor with oxygen was used shortly after the introduction of chloroform as an anesthetic, and it has recently been reintroduced into practice. Hence it was important to investigate the changes which anesthetic chloroform underwent when a current of oxygen was conducted through it.

Experiments were carried out in order to determine whether the passage of a current of oxygen through anesthetic chloroform brought about decomposition of the anesthetic. Anesthetic chloroforms containing 0.56 to 1 per cent. of alcohol and 0.03 to 0.05 per cent. water were used. The conditions were such, except that the temperature was about 20 C., as obtain during administration by the Gwathmey method, his apparatus being used. The oxygen was allowed to flow at such rates through 3½ to 4 ounces of the anesthetic that about one-half remained in the vaporizer after three and one-half to ten and one-half hours. In one experiment the chloroform vapor was passed through water, as is Dr. Gwathmey's practice, and subsequently condensed. The examination of the residue and condensed chloroform showed the following:

Acidity (acetic acid):

Chloroform used	None.
Residue in container.....	0.00015 gm. in 100 c.c.
Condensed chloroform....	None.

Sulphuric acid test:

Chloroform used	Negative.
Residue in container.....	Marked reaction.
Condensed chloroform....	Negative.

Therefore it is to be concluded that the oxidation products of alcohol are not carried over when the chloroform-oxygen stream is conducted through water, and that these are concentrated in the residue. By this method of administration the patient is protected from the objectionable decomposition products, even if they have developed.

OXYGEN[12]

At the present time there are the following commercial methods for the preparation of oxygen used in anesthesia: (1) heating chlorates with or without the addition of various substances; (2) reaction of peroxids (oxone) with water and aqueous solutions; (3) by electrolysis of water; (4) from liquid air.

Oxygen that is to be used in anesthesia should contain at least 95 per cent. oxygen on the dry basis. We found the pyrogallate method for the determination of oxygen the most convenient to employ and most satisfactory provided Hempel's precautions to prevent the production of carbon monoxid are taken.

Analyses, by our methods, of oxygen on the American market gave the results shown in Table 6.

TABLE 6.—ANALYSIS OF OXYGEN ON THE AMERICAN MARKET

No.	Source of Oxygen	O_2	H_2O	CO_2	H_2	Organic Matter	N_2, etc.	All Other Impurities
1	$KClO_3 + MnO_2$	93.20	0.30	0.11	0.00	0	6.39	0
2	$KClO_3 + MnO_2$	98.31	0.14	*	0.00	0	1.54	0
3	$KClO_3 + MnO_2$	92.82	0.26	†	0.00	0	6.92	0
4	$KClO_3 + MnO_2$	97.13	0.23	*	0.00	†	2.63	0
5	Liquid air....	96.10	0.15	0.01	0.00	0	3.74	0
6	Electrolysis...	99.23	0.35	0.03	0.14	0	0.25	0
7	$Na_2O_2 + H_2O$..	99.20	0.50	†	0.00	0	0.30	0

* Present. † Trace.

CONCLUSIONS

I realize the danger of a mere chemist making an excursion into the domain of medicine, but the extremely venturesome one, if he has luck, may avoid the pitfalls of which he is supposed to have little knowledge. I have done enough in this field to justify certain conclusions concerning the administration of anesthetics.

Modern studies in physiology have unquestionably shown that the animal body exists to a great extent by virtue of the chemical and physical changes going on within it. I know of no valid reason for assuming that these changes are essentially different from those we control in the laboratory. If we wish to duplicate or control a physical or chemical change in the laboratory, we must become familiar with all the factors and conditions. I know of only one class of such changes over which we have not as yet secured control, and in that class belong those processes which we term radio-active. I am not sure but that we even have indications pointing toward our control of these. One of the essential factors in controlling a chemical process is the quality of the material with which we are working. I cannot therefore but regard all published statistics as to the mortality attributed directly to the anesthetic used as more or less worthless and that a large number of new cases must be observed to secure knowledge of the real physiologic effect of the drug when carried into the system by the pulmonary route.

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[12] The preparation and analysis of commercial oxygen are discussed by Baskerville and Stevenson in Jour. Ind. Eng. Chem., 1911, iii, No. 7.

Idiosyncrasy has served to account in large part for untoward after-effects of anesthetics and certain disagreeable consequences, as nausea, and interference with some of the normal organic functions, as glycosuria and albuminuria; these have often been regarded as natural results of anesthesia and taken for granted. They may now largely be obviated, and in many cases entirely avoided, by the use of anesthetics that are free from impurities, and by improved methods of administration. These statements are based on clinical evidence.

The main objectionable constituent in ether is acetaldehyd. American official ethers call for from 3 to 4 per cent. of ethyl alcohol in accordance with an old theory. Alcohol is practically never free from water, and in the presence of water and oxygen forms oxidation products. The speeds of the changes depend on conditions. It has been shown that the administration of moist ether, free from aldehyd, at body temperature, is rarely followed by nausea (in less than 10 per cent. of cases) and the usual strain on the kidneys is not so great. The last, however, according to the investigations of Hawk, are largely dependent on the preanesthetic diet.

Chloroform was formerly made mainly from alcohol, and contained many of the normal impurities of the alcohol used. These were not removed by the methods of purification practiced, nor are they removable now, except by elaborate methods of purification. These impurities doubtless have had much to do with the feeling of uncertainty in administering chloroform. Pure chloroform undergoes decomposition when exposed under certain conditions, such, for example, as the manner in which anesthetic chloroform is dispensed in some drug-stores and hospitals. A suitable amount of alcohol prevents this decomposition, shifting the change in composition to itself; hence anesthetic chloroform should contain ethyl alcohol. But the conditions of transportation and keeping of this chloroform should be such as to reduce the change of alcohol to aldehyd and acetic acid to the minimum.

Nitrous oxid, ether and chloroform exert each its specific physiologic effect in producing anesthesia without asphyxiation, provided the respiratory and cardiac functions are maintained approximately normal. This may be accomplished by administering these drugs with sufficient oxygen not to interfere seriously with the normal function of the hemoglobin of carrying oxygen to the capillaries, and by maintaining the usual concentration of carbon dioxid in the blood, and providing its regular elimination. Other factors involved are temperature and moisture. The anesthetics are carried into the system at body temperature. This may be accomplished by warming, and in the case of ether and chloroform by passing the vapor through heated water which, at body temperature, not only removes the aldehyd, but saturates the gas with moisture (Gwathmey method). Bruning[13] has concluded that too much moisture is as injurious as too little. Davis heats the anesthetic vapor after washing, whereby the "humidity" is reduced, so that the vapor enters the lungs as moist as normal air. The osmotic action of the alveolar cells is thus affected only to the extent of the densities of the gases introduced into the lungs and not, as normally is the case, by temperature (always lower) and desiccation as well. In other words, by the application of the principles of modern physical chemistry, the numerous variables are so reduced as to secure the real physiologic effect of the particular anesthetic drug after it enters the system. The real, and no conjectural, idiosyncrasy of the patient may be met. Here the physiologic chemist must take up the task; and it needs to be taken up.

SPINAL ANESTHESIA *

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In previous writings on this subject,[1] I reported 242 of my own cases, done at the Massachusetts General Hospital and in private practice, with a minimum of untoward effects during and after anesthesia, but with fifteen partial or complete failures to produce anesthesia, and with one case which showed very alarming symptoms during and after operation with eventual perfect recovery. I have now to report of my own cases, only an additional thirty-three. These, combined with twenty-nine cases (two failures) done by Dr. G. W. Morse, and sixteen cases (two failures) done by Dr. G. D. Cutler, the resident surgeons of the Massachusetts General Hospital, make a total of three hundred and twenty cases with nineteen failures.

Since my last report I have had no failures, have been able to perform spinal puncture almost without pain, and have had no untoward effects during operation, and a minimum of untoward effects after operation. This is due to increased skill and refinement of technic. I have also had many striking cases illustrating the great value of this wonderful method.

Though I have had no deaths, I am aware that 320 is a small number of cases from which to draw conclusions as to the safety of a method. I shall therefore make no effort to arrive at any statistical conclusion as to its safety, but will repeat my previous statement, that reviewing the work of Tuffier, Bier,[2] Dönitz,[3] Jonnesco,[4] Ryall,[5] McGavin and O'Leary[6] and others whose writings or work I have studied, and considering the freedom from untoward effects of our own cases, I am firmly of the opinion that this method is not only of inestimable value, but is, in competent hands, and carrying out rigidly a correct technic, a perfectly safe method, comparing more than favorably with the more modern methods of producing general anesthesia such as gas and oxygen anesthesia or the administration of ether by the rectal, intravenous or intratracheal method.

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[13] Bruning: Deutsch. Ztschr. f. Chir., 1912, cxiii, No. 6.

* Read in the Symposium on Anesthesia in the Sections on Pharmacology and Therapeutics and Pathology and Physiology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] Allen: Spinal Anesthesia, Boston Med. and Surg. Jour., clxii, No. 19; Remarks on Local, Spinal and Central Anesthesia, read at the annual meeting of Massachusetts Medical Society, June 13, 1911, Communications of Mass. Med. Soc., 1911, xxii; A Review of Ten Years' Work in Anesthesia, Boston Med. and Surg. Jour., clxv, No. 26, p. 976.

[2] Bier: Deutsch. Ztschr. f. Chir., 1908, xcv, 373.

[3] Dönitz: München. med. Wchnschr., 1908, lv, 1698.

[4] Jonnesco: Brit. Med. Jour., 1909, ii, 1396.

[5] Ryall, E. C.: Practitioner, London, 1911, lxxxvii, 393.

[6] McGavin: Brit. Med. Jour., 1910, ii, 733; McGavin and O'Leary: Practitioner, London, 1912, lxxxviii, 406.

WHY SPINAL ANESTHESIA IS NOT MORE OFTEN USED

Assuming that this opinion may have some weight, let me inquire into the reasons why spinal anesthesia, if it really is a safe and successful method, is so little used and is so generally frowned on and discredited by the great majority of surgeons.

As I stated in a previous paper, the principal reason for this is the large mortality shown by this method during the days of its incipiency, when cocain was used and when the imperative necessity was not appreciated of using epinephrin as an adjunct to whatever anesthetizing drug is to be injected into the spinal canal.

Now that the method, through the work of Bier and Dönitz, has been put on a safe basis by abolishing the use of cocain and by using stovain, novocain or tropacocain in combination with epinephrin, it is still difficult for many of us to eradicate from our minds the profound impression of danger produced by the early mortality. I remember when I considered spinal anesthesia an absurdly dangerous method; I now consider it a remarkably safe one.

Another and very potent reason for the unpopularity of spinal anesthesia is to be found in the fact that most surgeons, not realizing that its proper administration requires special instruction and experience, believe that by reading how to do spinal puncture they can equip themselves with any needle that is long enough, prepare their own anesthetizing drug, inject it into the spinal canal with an indifferent syringe and obtain a perfect result.

Such results as the breaking off of steel[7] needles in the lumbar spine, the patient's complaints of the pain caused by the puncture and finally the failure to produce anesthesia cause the surgeon to think, not that he is incompetent to administer it properly, but that the method is "unreliable, dangerous and no good anyway," and he promptly condemns and gives it up.

A visit to Bier's clinic in Berlin, and possibly the investing of a few marks in taking a course in local and spinal anesthesia under one of Bier's assistants, would probably convince any surgeon that he had something to learn about both these methods, and that reading alone is not sufficient preparation to qualify a man, however skilful he may be, to administer spinal anesthesia successfully. A great deal of practice and careful attention to many seemingly insignificant details are essential to this end, besides having a proper equipment of drugs, syringes and trochars. All this I have described in detail in previous writings and shall therefore discuss only in a general way the advantages of this method in certain operations especially with a view to combating shock, and shall analyze, as far as time allows, my new cases and the lessons I have learned from them.

ADVANTAGES OF SPINAL ANESTHESIA

The life-saving possibilities of the method are shown to the best advantage in cases in which shock and sepsis have to be dealt with, as, for example, cases of intestinal obstruction with fecal vomiting, beginning peritonitis following appendicitis and amputations for accidents, such as railroad crushings and compound fractures. The method gives such patients the best possible chance for life. Equally wonderful are its results in prostatectomy in old men, amputation for diabetes or senile gangrene, chronic intestinal obstruction, Kraske's operation for extirpation of the rectum, operation in which general anesthesia—even that of gas and oxygen, unless Crile's full "anoci-association" method be employed—materially increases the shock. Ryall administers spinal anesthesia as a routine in any operation in which shock plays a part, supplementing the spinal puncture if necessary by inhalation anesthesia.

It absolutely blocks the transmission of impulses from the periphery to the brain and thus entirely eliminates shock. Its use in certain operations would largely do away with the necessity for using novocain and quinin and urea locally as Dr. Crile does in his admirable "anoci-association" work, and would in any event be a valuable adjunct to "anoci-association."

Besides the inestimable value of the method in the above operations I am so strongly impressed by its results in certain of the commoner operations that I am hoping to have it used at the Massachusetts General Hospital eventually as the routine method in all cases of hernia, fistula *in ano,* hemorrhoids, varicose veins, hydrocele and varicocele, etc. Although entirely overlooked at present by the orthopedic men in our city, it would be particularly useful and safe in this branch of work, in any operation below the umbilicus—particularly so because in these cases it would not be necessary to produce a very high or a very intense anesthesia.

Although I have never tried Jonnesco's method of puncturing in the cervical region for operations on the head, neck and upper extremities, I am hoping to do so in the near future, and am confident that the method could be made useful and safe when so used.

AUTHOR'S EXPERIENCE

There are certain useful lessons as to technic and the care of patients that I have learned from my more recent cases. To begin with, as I said before, I have had no failures in my last thirty-three cases. Failures are always due to errors in technic, the commonest error being to let the point of the trochar slip out of the spinal canal at the time of injection. Once having obtained a satisfactory flow of fluid, just before making the injection I always make sure that the flow is still continuing by detaching the syringe from the trochar and then holding the latter immobile by placing the side of the left hand against the patient's back and steadying the butt of the trochar with the thumb and forefinger, at the time of making the injection. If this precaution is neglected, the point of the trochar can easily slip out of the spinal canal when the syringe is being attached. If injection is made at this time, failure will of course result, as the drug will not enter the spinal canal.

I have also learned lately how to make the injection absolutely painless, or at least as painless as an ordinary hypodermic injection. This is done by first thoroughly freezing the skin with ethyl chlorid and then piercing the skin itself by a quick thrust with a reasonably sharp trochar. Patients, when questioned as to the relative pain of the hypodermic injection and the spinal puncture, will almost invariably pronounce the former the more painful. As pointed out by Dr. Lusk,[8] however, the trochar must not be too pointed on account of the danger of impaling nerve-trunks on it.

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[7] Steel needles should never be used. Platinum or nickel is the metal to employ.

[8] Lusk: Ann. Surg., lv.

I have given up for the present the use of stovain and novocain and use invariably a 5 per cent. tropacocain hydrochlorid solution with epinephrin, prepared after Dönitz' formula.[9] This is much less toxic than the other two drugs, although it does not produce quite so intense an anesthesia as stovain.

I have entirely abandoned the use of the Trendelenburg position, except in cases in which a particularly high anesthesia is desired. The use of this position for more than a minute or two after injection is very apt to produce toxic symptoms, i. e., nausea, vomiting, sweating, etc., from the anesthetizing drug getting too high in the spinal canal. In ordinary cases a sufficiently high anesthesia can be obtained by slightly increasing the force of the injection. My highest anesthesia was in a case of subacute intestinal obstruction, and extended 1 inch above the nipples. After an interval of fifteen or twenty minutes the Trendelenburg position seems to be safe, probably because most of the drug has begun to be absorbed by that time. In perineal and suprapubic prostatectomy the Trendelenburg posture is rarely required before this time, which removes the objection made by some operators that spinal anesthesia is not applicable to prostatectomy because the Trendelenburg posture must be barred.

Toxic symptoms such as faintness, nausea, vomiting, sweating, air-hunger, feeble pulse, pallor, etc., should be met by elevating the head and shoulders, injecting strychnin, giving a stiff drink of brandy or whisky by mouth (if nausea has not begun), massaging the face and lips with hot cloths and by disturbing the patient as little as possible by questioning and noise in the room.

It is important not to allow patients who are to have spinal anesthesia come to operation starved and faint. They should be given a light breakfast on the morning of the operating-day and possibly an egg-nog just before operation. In the case of a man of 63 years undergoing a Kraske operation for extirpation of the rectum, I gave by mouth, on the table at the end of one hour and a half's operating (the whole operation lasted two hours and a quarter), two tumblerfuls of hot soup and several crackers. These were eaten with great relish by the patient, who went through the operation with no shock whatever.

It is important to remember that owing to the complete paralysis of the sphincters nothing will be retained by rectum for two or three hours following operation.

It is equally obvious and important that special precautions should be taken against hot-water bottle burns about the lower extremities.

PSYCHIC ASPECT OF SPINAL ANESTHESIA

The psychic aspect of spinal anesthesia is interesting from the point of view of the anesthetist, of the surgeon and of the patient. In the course of my daily work I see an enormous amount of all kinds of surgery done both in hospital and in private practice. It is therefore natural that I should come to classify patients into certain group or classes, some suitable to one form of anesthesia, some to another. What strikes me most forcibly is the enormous proportion of operations which I am positive could be safely and successfully done under spinal anesthesia with the maximum of comfort and convenience to both patient and surgeon were it not for the existing prejudice against the method. It is not the surgeons themselves who are best qualified to judge the value of an anesthetic method, except as it concerns their own work during the operation. It is their assistants and the nurses who watch the recovery of the patients from anesthesia who are the real judges. When these nurses and assistants see patients coming back from the operating-room in as good condition as they went into it, and see them immediately begin to take nourishment by mouth as they do after spinal anesthesia, they cannot help making comparisons between this and other forms of anesthesia. Thus we find that at the Massachusetts General Hospital the most active promoters of spinal anesthesia are the patients themselves whose fellow-patients see the wonderful results of the method, and secondly the house pupils and the nurses. It is very common for patients who have once been operated on under spinal anesthesia to make it a condition of their second operation that the method be used again, and the steadily increasing use of the method at our hospital at present is largely due to the house pupils who, having had opportunity to contrast it with other forms of anesthesia, are always urging its use whenever possible. It is not possible for anybody to see a considerable number of cases and not become convinced that spinal anesthesia is of the utmost value, and has a future equal to that of gas and oxygen anesthesia, if not greater.

As I have pointed out before, the importance of maintaining a proper mental attitude in the patients cannot be overestimated. They should always receive a quieting dose of morphin or some other narcotic before coming to operation and should be encouraged and reassured as much as possible by the surgeon and his assistants. If spinal anesthesia is decided on, the best results are obtained by simply telling the patient that the method is the best one for his case and its advantages explained. It is a great mistake to consult the patient as to his preferences, as this shows at once the surgeon's lack of faith in the method and produces doubt in the patient's mind. The selection of the anesthetic should not be put up to the patient in any way, beyond saying, for example, that in his case spinal anesthesia is the first choice for safety, gas and oxygen second, and gas and ether third. The patients that do the very best are those who are simply taken from the ward to the operating-room, put on the table, injected and operated on with as few words as possible. They often believe the spinal puncture to be another hypodermic injection and seldom know when the operation has begun.

During operation the demeanor of the surgeon and his assistants should be in accordance with the fact that the patient is not under a general anesthetic but is keenly conscious of what is going on. As a rule the company in an operating-room who are not used to operating under spinal anesthesia will either act exactly as if the patient were deeply under ether, or else will maintain a death-like and ominous silence, speaking only in "sick-room whispers." Neither of these methods is calculated to put the patient in the best frame of mind. The best plan is to act as naturally as possible, assuming that the patient is all right, and not disturbing him with questions as to his sensations or lack of them. If the patient is nervous or in a communicative mood it is a good plan to detail some agreeable nurse or assistant to sit by and act as mental anesthetist. But in most cases the patient appreciates being left alone and will often go to sleep during the operation.

200 Beacon Street.

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[9] According to Dönitz' formula "each vial (of alkali-free glass) contains 1.3 c.c. of a 5 per cent. solution of tropacocain with the addition of 0.00013 suprarenalin hydrochlorid per cubic centimeter."

AMERICAN STATISTICS *

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Many factors enter into the administration of anesthetics now that have not heretofore been considered, such as moisture, heat and oxygen. For this reason figures relating to anesthetics as given in former years have less value to us at this time than if we were continuing the methods previously employed. Nevertheless, it would be foolish for us to go blindly forward without taking into consideration statistics collated by others in different countries and making an intelligent comparison therefrom.

EUROPEAN STATISTICS

Hewitt, unquestionably, has collected the largest number of statistics. Before taking up the question of American statistics, therefore, it might be well to examine these. By combining Julliard's statistics with those of Ormsby, Hewitt gets over 1,000,000 administrations, with a death-rate of one in 3,162 for chloroform and one in 16,302 for ether. According to these figures ether is more than five times as safe as chloroform. At St. Bartholomew's Hospital, London, during the years of 1875 and 1900, there were 80,255 administrations of chloroform, ether and "gas-ether," showing a fatality of one in 1,300 for chloroform and one in 9,319 for ether and "gas-ether." Hewitt considers these the most reliable figures at his disposal, and makes the deduction that ether is about seven times as safe as chloroform and that the ratio of seven to one corresponds to that obtained by Waller as the expression of the relative toxicity of chloroform and ether. If we gather statistics according to climate, they present an entirely different aspect. For instance, Dastre[1] reports one death in 11,448 administrations of chloroform during the Crimean War, and Lawrie[2] reports 30,000 chloroform anesthetizations without a death.

It will thus be seen that chloroform, when given under favorable circumstances, is a close second to ether, if it does not equal it, in regard to safety. If we administer the chloroform with oxygen in a southern climate, the probability is that we would have an anesthetic practically free from danger. In the southern states, chloroform would immediately rise in value as regards life. We may also state that in the northern states chloroform is safer in the summer than in the winter.

I do not wish to be placed in the position of an advocate for chloroform, yet Hewitt's statistics may leave a wrong impression as to chloroform for the simple reason that they do not include facts gathered within the last few years, such as the administration of oxygen with chloroform, and chloroform heated to the temperature of the blood. Nor do they include the statistics of chloroform when administred by the Roth-Drager apparatus, in which oxygen and rebreathing are used. These statistics are fair or rather of practical value if we continue to use chloroform as in the past.

AMERICAN STATISTICS

We are now in a position to discuss the statistics gathered in the United States. About March 1 of this year I sent out 1,400 circulars to all the public hospitals with not less than ten beds in the United States, Canada, Cuba and the Canal Zone. Only 201 hospitals (14 per cent.) responded, 102 of these stating that they had no statistics to give and the other ninety-nine (7 per cent.) furnishing the statistics on which this paper is based.

Very few of the larger hospitals responded. In New York City only two large hospitals had any statistics available from an anesthetic standpoint. In all of these hospitals the statistics were obtainable provided I would pay for the compilation. In one hospital I attempted this method. The net result of my efforts was 900 administrations with a cost to me of $11 for clerk-hire. At this rate, the cost of obtaining 100,000 administrations would have been far beyond my means, so I decided not to attempt the collection of statistics from these hospitals.

TABLE 1.—THE UNITED STATES NAVY FOR THE YEARS 1908-1910

Anesthetic	Number	Deaths
Ether	2,218	2
Ether (rectal)	2	..
Ether, morphin and scopolamin	40	..
Ether and nitrous oxid	140	..
Ether and chloroform	2	..
Ethyl chlorid (general)	16	..
Ethyl chlorid and ether	24	..
Ethyl chlorid and chloroform	2	..
Chloroform	365	..
Cocain	91	..
Cocain and ethyl chlorid (local)	3	..
Cocain and epinephrin	3	..
Beta-cocain and epinephrin	4	..
Eucain	1	..
Novocain	4	..
Novocain and epinephrin	4	..
Schleich's solution No. 2	2	..
Total	2,921	2

TABLE 2.—ANESTHETICS USED IN SURGICAL OPERATIONS PERFORMED ON OFFICERS AND ENLISTED MEN OF THE ARMY FOR THE YEARS 1904-1910

Year	Chloroform No.	Ether No.	Chloroform and Ether No.	Spinal No.*	Local No.
1904	835	878	..	..	1,096
1905	713	806	83	60	1,070
1906	684	861	73	..	1,234
1907	571	831	37	29	1,270
1908	497	965	67	9	1,652
1909	335	1,326	100	..	1,873
1910	296	1,513	55	..	1,793
Total	3,931	7,180	415	98	9,988

* The agents used in spinal analgesia were tropacocain and eucain beta. Four deaths were due to the anesthetic (chloroform in all the cases).

Writing as an individual and without official authority from any source it is surprising that I received as many replies as I did. Replies were received from the Army and Navy by return mail, showing that those statistics were kept on file for inspection as are other statistics. They are inserted separately for this reason. (Tables 1 and 2.) A careful study of these statistics will amply repay one.

Table 3 shows the result of the first effort to gather American statistics concerning anestehsia. The anesthetics are placed according to their value as regards life. The number to the left of each anesthetic refers to the relative frequency of their administration. Replies were received from forty states, including Canada and the Canal Zone. The Philippines replied, but sent no statistics.

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* Read in the Symposium on Anesthesia in the Sections on Pharmacology and Therapeutics and Pathology and Physiology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] Dastre: Les Anesthésiques, p. 115.

[2] Lawrie: Bull. Johns Hopkins Hosp., January, 1895.

FATALITIES

Of the eight chloroform fatalities, four came from the United States Army, one from McAlester, Okla., one from Chicago, one from Minneapolis and one from Montreal, Canada.

The ether fatalities came from the following states and localities:

New York City
Pennsylvania
Poughkeepsie, N. Y.
Ottawa, Ill.
Omaha, Neb.
St. Louis, Mo.
Raleigh, N. C.
South Bethlehem, Pa.
Ancon, Canal Zone
Buffalo, N. Y.
Boise, Idaho
Fall River, Mass.
Jersey City, N. J.
Massachusetts
Mississippi
Montreal, Canada
and two from the United States Navy.

The location of the four chloroform fatalities in the United States Army is unknown. The other four, as will be seen, all occurred in a northern climate. A study of the location of the ether fatalities does not convey any special information.

TABLE 3.—AMERICAN STATISTICS

Anesthetic	1905	1906	1907	1908	1909	1910	1911	Total	Deaths	Percentage
5. Local anesthesia	1,422	1,882	1,881	2,462	2,458	2,611	2,092	14,878	0	0-14,878
6. N_2O with oxygen	144	175	335	881	1,619	2,130	3,301	8,585	0	0- 8,585
10. Anesthol-ether anesthesia	152	406	435	584	559	772	919	3,827	0	0- 3,827
13. Ethyl chlorid, drop sp.	67	102	133	97	115	136	255	905	0	0- 905
14. N_2O with air	51	90	......	40	90	......	290	561	0	0- 561
15. Spinal analgesia	66	43	86	64	34	63	165	521	0	0- 521
18. Anesthol-ether-$CHCl_3$	.....	17	52	27	18	39	......	153	0	0- 153
19. Anesthol-chloroform	.....	......	......	67	28	28	......	123	0	0- 123
20. Nitrous oxid, ether-anesthol	.....	......	75	16	14	9	......	114	0	0- 114
21. Essence orange-ether seq	.....	......	......	......	......	......	100	100	0	0- 100
22. $A_1C_2E_3$ or C_2E_3 mixture	2	2	......	......	......	6	85	95	0	0- 95
23. Ether-$CHCl_3$ sequence	3	18	10	1	15	13	34	94	0	0 94
24. Nitrous oxid-anesthol	.....	32	8	......	3	2	......	45	0	0- 45
25. Ethyl chlorid-anesthol	....	25	2	......	......	14	......	41	0	0 41
26. Anesthol-oxygen	15	......	16	......	......	4	2	37	0	0- 37
27. Ethyl bromid anesthesia	12	8	......	......	......	......	......	20	0	0- 20
28. Ethyl chlorid-oxygen	.....	......	......	......	1	2	10	13	0	0- 13
29. M-H-C anesthesia	.....	......	9	......	......	......	......	9	0	0- 9
4. Chloroform-ether sequence	756	1,374	1,770	1,641	3,022	3,804	3,687	16,054	2	1- 8,027
2. Nitrous oxid-ether sequence	2,359	2,576	4,147	4,991	11,274	6,703	9,385	41,435	6	1- 6,905
7. Anesthol	1,132	880	956	1,271	782	648	470	6,139	1	1- 6,139
1. Ether, drop or vapor	7,523	12,279	15,154	19,322	23,049	26,145	53,981	157,453	28	1- 5,623
8. Ethyl-chlorid-ether sequence	199	169	467	477	872	1,135	1,012	4,331	1	1- 4,331
9. $CHCl_3$-oxygen	401	472	664	673	461	660	678	4,009	1	1- 4,009
3. $CHCl_3$, drop or vapor	3,048	2,557	2,532	2,339	1,910	2,080	1,924	16,390	8	1- 2,048
11. Nitrous oxid	111	84	203	216	198	206	296	1,314	2	1- 657
16. Rectal anesthesia	.....	......	......	60	129	152	175	516	1	1- 516
12. Intratracheal insufflation	.....	......	......	......	......	......	1,000	1,000	4	1- 250
17. N_2O-ether-chloroform anesthesia	4	......	......	7	12	20	140	183	1	1- 183
								278,945		

The statistics received from ninety-nine hospitals include the statistics received from the United States Army and Navy. The total number of administrations from the ninety-nine hospitals was 278,945.

Of this number 157,453 were ether administrations, with a total of twenty-eight deaths, which gives a mortality of one death in 5,623. An examination of the table shows that the use of the drop method of ether is rapidly on the increase, rising from 7,523 administrations in 1905 to 53,981 administrations in 1911.

The nitrous oxid-ether sequence comes next in point of numbers, totaling 41,435 administrations, with six deaths, making an average of one death in 6,905 administrations. From these statistics the nitrous oxid-ether sequence is safer than ether by the drop or vapor method.

The next and most popular anesthetic, from a numerical point of view, is chloroform, given by the drop or vapor method, 16,390 administrations, with eight deaths being recorded, making a mortality of one death in 2,048 administrations. An examination of the table shows that the administration of chloroform is rapidly decreasing. In 1905 there were 3,048 administrations, while in 1911 there were 1,924.

The chloroform and ether statistics prove very conclusively that clinical experience and practice are in harmony with the laboratory findings in regard to these two drugs, and that the profession generally has anticipated the suggestions of the Committee on Anesthesia[3] of the American Medical Association of 1912. Chloroform is approximately two and one half times as dangerous as the nitrous oxid-ether sequence as administered in our hospitals to-day.

The chloroform-ether sequence comes next in point of numbers, giving 16,054 administrations, with two deaths, or one death in 8,027 administrations. According to these statistics, therefore, the chloroform-ether sequence is safer than the nitrous oxid-ether sequence or ether by the drop method.

Statistics concerning local anesthesia come next, with a total of 14,878 administrations with no deaths. It is safe to presume that very few of these were for capital operations.

Nitrous oxid with oxygen has 8,585 administrations, with no deaths; ethyl chlorid-ether sequence, 4,331 administrations, with one death; nitrous oxid alone, 1,314 administrations, with two deaths; ethyl chlorid 905 administrations, with no deaths. There are 516 cases of rectal anesthesia reported, with one death. In 521 spinal analgesias reported there were no deaths. Nitrous oxid with air was administered 561 times with no deaths. The nitrous oxid-ether-chloroform sequence has 183 administrations, with one death.

From this last statement it may be concluded that the nitrous oxid-ether-chloroform sequence is a dangerous one in the hands of the inexperienced. It may be stated in passing, however, that Hewitt, Buxton and other leading anesthetists of Europe, as well as many professional anesthetists in the United States, constantly use this sequence with nothing but favorable results.

When a patient is in profound surgical ether anesthesia, unless the change to chloroform is made very gradually, the anesthetist being careful to observe all

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3. THE JOURNAL A. M. A., June 15, 1912, p. 1908.

the physical signs, it is a very easy matter to plunge the patient into the fourth stage or danger zone of anesthesia.

On the contrary, when a patient has had a preliminary medication of morphin and atropin, and anesthesia is initiated with chloroform, drop by drop, and continued until the excitement stage is passed, a switch being then made to ether by the open drop method, there is very little danger of plunging the patient into the danger zone, and it is a comparatively easy matter to maintain an even plane after anesthesia is induced in the manner outlined.

Anesthol[4] was used 6,139 times, with one death, showing that the immediate results of the administration of this drug by the drop method as compared to ether is much safer. A study of the statistics shows that the administration of anesthol, continuously, has decreased from 1,132 administrations in 1905 to 470 administrations in 1911. The anesthol-ether sequence has increased from 152 administrations in 1905 to 919 administrations in 1911, with a total of 3,827 administrations, with no deaths, showing that anesthol is taking its rightful place in surgery as a preliminary to ether.

It is unnecessary to state that statistics of 1,000 administrations or less of any anesthetic, sequence or combination are valueless unless all the conditions and circumstances of the administration are known. The above statistics are more valuable for self-evident reasons than those presented by some one individual or some one hospital. Only two items appear in these statistics from individuals. One is the essence of orange-ether sequence given by Dr. Woolsey of Brooklyn, and the other is the intratracheal insufflation given by Dr. Elsberg of Mt. Sinai Hospital, New York City.

INDIVIDUAL STATISTICS

The essence of orange-ether sequence is included in order to call attention to an important discovery, namely, administration by the closed method of a non-anesthetic agent followed by ether, in which an absolutely safe anesthesia is produced while abolishing the second stage of excitement entirely, the resulting anesthesia being sufficiently deep for all surgical work requiring absolute relaxation.

Intratracheal insufflation is given a place to call attention to what is now considered by those whose judgment is impartial as an absolutely safe procedure, the four deaths under this method being entirely avoidable and not apt to be repeated.

The fact that 59 per cent. of the hospitals give preliminary medication is also in line with the suggestion of the Anesthetic Committee of the American Medical Association for 1912.

This statistical report should be considered merely and only in the form of a preliminary statement. If the surgeons connected with the larger hospitals throughout the United States would cooperate with individual statisticians, we could easily get data that would be of more value than any European statistics, and which would also urge us to great efficiency. It may be said in passing, however, that the data given by the ninety-nine hopsitals, from which replies to my request for information were received, may be considered as fairly representative of statistics from American hospitals in general.

EUROPEAN AND AMERICAN STATISTICS COMPARED

The fact that our statistics do not compare favorably with those of Hewitt can be easily accounted for. Every hospital in Europe has attached to its staff one or more professional anesthetists, who not only give a number of pay and free anesthetics, but who also instruct interns. This would account for the difference in the ether and chloroform mortality of American and European statistics.

The fact that chloroform is much safer and that ether is three times as safe in Europe as in America, according to the available statistics, is certainly not creditable to us. The statistics of both Europe and America are somewhat misleading from the fact that late deaths from ether pneumonia or fatty degeneration of organs following a long chloroform administration are probably not included in any of the tables. The fact, however, that there is only one death in 5,623 administrations would seem to indicate that a death could occur under ether only from gross carelessness or ignorance. We may state that no anesthetic death is possible to-day except from experimenting on new lines, or from carelessness or ignorance.

I wish to make the following suggestions:

1. The American Medical Association should appropriate sufficient money to continue the collection of these statistics from year to year.

2. In full harmony with the report of the Committee on Anesthesia just published, and from a careful study of the accompanying table, I would recommend that those using the drop method of ether should improve their technic and statistics by:

A. A preliminary medication of morphin and atropin or some similar drug or combination

B. Commencing the anesthesia with two to four drops of essence of orange (25 per cent., U. S. P.).

C. The drop method of anesthol until the patient reaches surgical anesthesia, and then a change to the drop method of ether.

D. Replacing the drop method of anesthesia by some form of "vapor anesthesia."

The term "vapor anesthesia" means the administration of any anesthetic by passing air or oxygen over or through the anesthetic used. This insures a definite percentage and a continuous anesthesia, with a minimum amount of the anesthetic. A crude way of testing the vapor method of anesthesia can be made by placing ether in the ordinary wash-bottle that accompanies the oxygen tanks used in most of our hospitals (the oxygen not being under high pressure), a tube from the wash-bottle to be placed directly under the ether mask, which is then covered with towels. This recommendation is made because, judging from statistics, this method would be safer and more satisfactory than the "straight" use of ether as practiced in some of our leading clinics.

Finally, I wish to express my thanks to the hospitals and to the individuals connected therewith, without whose assistance it would have been impossible to have completed this collection. From the 1,000 hospitals and over who failed to reply, I sincerely trust that some available material will be forthcoming at the request of the next statistician.

40 East Forty-First Street.

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[4] Anesthol as described by Dr. Meyer in The Journal A. M. A., Feb. 28, 1903, p. 556, is a clear, transparent fluid of very agreeable odor. It has a specific gravity of 1.045 and a boiling point at 104 F. It is a chemical combination of ethyl chlorid, chloroform and ether.

Diphtheria Antitoxin in Treatment of Measles Bronchitis.—S. Licciardi has been much pleased with the effectual action of this treatment, which he has applied in thirty cases of bronchitis accompanying measles, including a number of young infants. His communication on the subject is published in the *Gazzetta Medica*, 1912, xxxviii, 478.

POSTOPERATIVE MORTALITY FROM ANESTHETICS

THE RECORDED DEATH-RATE FROM ETHYL CHLORID *

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Deaths during or following surgical operations occur under three conditions: (1) from causes entirely independent of the anesthetic; (2) from causes to which the anesthetic contributes, and (3) solely from the anesthetic.

I. THE FATALITY ENTIRELY INDEPENDENT OF THE ANESTHETIC

Deaths of this class, in order of their frequency, are most often due to: (a) peritonitis, (b) septicemia, (c) pulmonary, cardiac or cerebral embolism, (d) hemorrhage. In such cases, the influence of the anesthetic need not be considered.

II. THE ANESTHETIC CONTRIBUTING TO THE FATALITY

These deaths, in order of their frequency, are most often due to: (a) shock, (b) pneumonia, (c) nephritis, (d) endocarditis or myocarditis, (e) suffocation from inspired vomitus. When a patient, organically diseased, dies during or following the administration of an anesthetic, or when the anesthetic indirectly induces the lesion which is the cause of death, the anesthetic is a contributing cause of the fatality. If a man were pushed in front of a rapidly-moving train, his death would be due to the impact of the moving body, yet the force which placed him in the unfortunate position should be considered a contributing cause of the fatality. In the postoperative deaths of this class, the anesthetic is the force which pushes the patient into the path of danger.

The following case, which has not been previously reported, is an example of this class of fatality:

Case 1.—The patient, a stout white man, aged 79, with a short, thick neck, was suffering from an incarcerated inguinal hernia. The duration of the trouble had been eighteen years. The hernia had been strangulated for twenty-four hours. The patient had vomited for twelve hours. There was a large mass in the scrotum. The abdomen was distended and tympanitic. The anesthetic was nitrous-oxid-oxygen. An incision was made over the external abdominal ring. Three minutes after the beginning of anesthesia, the patient vomited a large amount of fluid. The vomiting was continuous for several minutes. The patient did not breathe after the vomiting commenced and soon was pulseless. After death, large amounts of fluid could be expressed through the mouth by pressure on the abdomen.

It has happened many times and under all anesthetics that a patient in this condition has vomited a large amount of fluid at the moment when anesthesia was complete and has drowned in his own vomitus. The same accident might occur under an ideal anesthetic. The death, therefore, is not due to the anesthetic, yet without the influence of the anesthetic, death would not have occurred at this time or in this manner. The anesthetic is the force which pushed the patient in the way of the fatality. The death is one due to asphyxiation from inspired vomitus. Nitrous-oxid-oxygen anesthesia was a contributing cause.

III. THE FATALITY DUE SOLELY TO THE ANESTHETIC

These deaths are due to: (a) an overdose of the anesthetic, (b) improper administration, (c) a susceptibility of the patient to the anesthetic agent employed.

A standard for determining what constitutes a death due to an anesthetic is furnished by a supposably ideal anesthetic. Death would never be caused by such an anesthetic, yet deaths due to other causes would occur during or following its administration. Bearing in mind these characteristics of an ideal anesthetic, we can formulate the following rule:

Death during or following an operation is due to the anesthetic if the death would not have occurred under an ideal anesthetic. The following case is an example:

Case 2.—The patient was a colored woman, well-developed and well-nourished, aged 22. The diagnosis was acute appendicitis. The duration of the trouble had been eight days. The heart and lungs were normal. There was rigidity of the right rectus muscle and tenderness over the right lower quadrant of the abdomen. The temperature was 100; the pulse, 82; the respiration, 20, and the white count, 18,000. It was impossible, from the history or from the examination, to predict the catastrophe which followed. The anesthetic was ethyl chlorid administered as a preliminary to ether. On changing to ether, the respiration became shallow and failed. Artificial respiration and stimulation were used without avail. The pulse stopped five minutes from the time the anesthetic had been started.

If an ideal anesthetic had been used in this case, the patient would probably not have died. The death was, therefore, due to the anesthetic.

The foregoing classification of postoperative deaths has been worked out from a study of the death returns of a city of 200,000 inhabitants for a period of ten years. In these records there are seven deaths due to ether, four to chloroform and one to ethyl chlorid. The death-rate due solely to anesthetics was one in 4,591 operations. The anesthetic contributed to the fatality once in 886 cases.

The greatest confusion exists concerning the degree of danger attending the use of the general anesthetics. The published death-rate from ether varies from one in 481 to one in 23,204 cases. The death-rate from chloroform is given as from one in 1,186 to one in 11,448 cases. The statistics of nitrous oxid vary from one death in 100,000 to 1 in 750,000 cases. The usual sources of error in estimating the danger from anesthetics are as follows:

1. Only a small proportion of the deaths from anesthetics are reported.
2. It is impossible to determine accurately the total number of administrations.
3. There has been no standard for determining what constitutes a death from an anesthetic.

These objections may be obviated for the most part by collecting the records of deaths due solely to the anesthetic in series of cases reported from personal observation. It would also be of interest to collect separately, from similar series of cases, the record of cases in which the anesthetic contributed to the fatality, and also of the deaths which occurred independently of the anesthetic.

The mortality-rate from ethyl chlorid as a general anesthetic has been computed in the usual way with the results given in Table 1.

TABLE 1.—ESTIMATED MORTALITY-RATE FROM ETHYL-CHLORID AS A GENERAL ANESTHETIC

Observer	Death-Rate	Observer	Death-Rate
Hare	1 in 2,000	Lotheissen	1 in 12,000
McCardie	1 in 3,000	Ware	1 in 12,436
Luke	1 in 8,000	Seitz	1 in 16,000
Hewitt	1 in 10,000	Lotheissen	1 in 17,000
McCardie	1 in 10,000	Luke	1 in 36,000
Ware	1 in 11,207	Luke	1 in 150,000

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* Read in the Symposium on Anesthesia in the Sections on Pharmacology and Therapeutics and Pathology and Physiology of The American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

The obvious inaccuracy of some of these estimates is due to all three of the causes to which we have alluded as producing error in estimating, in the usual way, the mortality from an anesthetic.

The reported deaths under ethyl chlorid are given in Table 2.

The first death from ethyl chlorid was reported by Lotheissen. McCardie collected reports of eight deaths, including Lotheissen's case. Luke collected reports of sixteen deaths, including McCardie's list. McCardie collected reports of twenty-one deaths, including Luke's sixteen. In the same paper, McCardie referred to nine other deaths "which have occurred in the north of England, although no details are obtainable." These nine deaths are not included in Luke's list of twenty-two deaths. McCardie collected reports of 9,711 cases of ethyl chlorid anesthesia in the vicinity of Birmingham, England, with four deaths, a mortality of one in 2,228.

TABLE 2.—DEATHS REPORTED UNDER ETHYL-CHLORID

	Observer	Cause of Death
1.	Lotheissen	Anesthetic. Ethyl-chlorid.
2.	Bossart	Obstruction. Laryngeal diphtheria.
3.	Allen	Asphyxiation from inspired vomitus.
4.	Luke	Anesthetic.
5.	McCardie	Asphyxiation from fold of mucous membrane.
6.	McCardie	Anesthetic.
7.	McCardie	Pericarditis, endocarditis.
8.	Luke	Anesthetic.
9.	Luke	Anesthetic, dental case.
10.	Luke	Anesthetic, dental case.
11.	Luke	Anesthetic, dental case.
12.	Luke	Anesthetic.
13.	McCardie	Anesthetic, dental case.
14.	Luke	Anesthetic.
15.	McCardie	Anesthetic, dental case.
16.	Luke	Anesthetic, dental case.
17.	Louisson	Anesthetic.
18.	Hilliard	Anesthetic, dental case.
19.	McCardie	Anesthetic.
20.	McCardie	Anesthetic.
21.	McCardie	Anesthetic, dental case.
22.	McCardie	No details.
23.	McCardie	No details.
24.	McCardie	No details.
25.	McCardie	No details.
26.	McCardie	No details.
27.	McCardie	No details.
28.	McCardie	No details.
29.	McCardie	No details.
30.	McCardie	No details.
31	Luke—Case 17	Anesthetic, dental case.
32.	Luke—Case 18	No details.
33.	Luke—Case 19	Anesthetic, dental case.
34.	Luke—Case 20	No details.
35.	Luke—Case 21	No details.
36.	Luke—Case 22	No details.
37	Luke	No details.
38.	Gibbon	Ludwig's angina, endocarditis.
39.	Lee—Case 22	Tuberculous pericarditis.
40.	Lee—Case 23	Empyema of pleura and pericardium.
41.	Lee—Case 24	Edema of glottis, Ludwig's angina.
42.	Lee—Case 25	Anesthetic.
43.	Miller	Anesthetic.

He says: "The mortality in the Birmingham district will not be quite indicated by these figures. We might fairly place the total number of administrations at 12,000 and call the mortality about one in 3,000." Lee collected reports of a series of 5,575 cases of ethyl chlorid anesthesia at the Pennsylvania Hospital with five deaths, of which only one was due solely to the anesthetic.

Fourteen of the forty-three reported deaths under ethyl chlorid were reported with no details and we cannot judge whether or not the anesthetic is to be blamed for the fatality or if cases have been reported more than once. In twenty-one of the remaining twenty-nine cases the death, judged by the rule previously given, seems to have been due to the anesthetic. In eight cases the anesthetic contributed to the fatality. While we have twenty-one reported deaths due to ethyl chlorid, we are certain that this is only a small proportion of all that have occurred. We are also unable to estimate closely the total number of administrations, although we know that it is very large. From these figures we are unable to estimate closely the rate of mortality due to ethyl chlorid.

Observers have reported from personal knowledge the series of cases in Table 3. Deaths not due to the anesthetic and isolated deaths not reported in series of cases are not included in this table.

TABLE 3.—SERIES OF ETHYL-CHLORID ANESTHESIAS REPORTED FROM PERSONAL KNOWLEDGE

Observer	Cases	Deaths	Observer	Cases	Deaths
Soullier	8,417	0	Luke	2,000	0
Lotheissen	2,550	1	Tuttle	230	0
Ware	2,000	0	Herrenknecht	3,000	0
Cumston	197	0	Leighton	79	0
Newman	1,867	1	Greene	12,000	0
Koenig	40	0	Lee	5,575	1
Malherbe	170	0	Dodge	300	0
Wiesmer	400	0	Webster	1,880	0
Allen	60	0	Miller	6,648	1
Murray	350	0	Hornabrook	3,500	0
McCardie	1,000	0	Stieda and Zander	1,000	0
Barton	200	0			
Total				53,463	4

The proportion of deaths due to ethyl chlorid derived from Table 3 is one in 13,365. This is the mortality-rate of ethyl chlorid as recorded in medical literature. If we were able to estimate closely the tremendous number of times that this anesthetic has been used in dental and surgical cases and compare this figure with the reported number of deaths, we would obtain a result more favorable to the anesthetic. This result, however, would be inaccurate, for we are certain that many deaths have not been reported.

From nitrous oxid, the safest of anesthetics, there have been reported at least thirty-two deaths, of which nineteen were due to the anesthetic. The reported deaths under nitrous-oxid-oxygen are collected in Table 4.

TABLE 4.—DEATHS UNDER NITROUS-OXID-OXYGEN ANESTHESIA

	Observer	Cause of Death
1.	Teter	Shock and primary cardiac failure.
2.	Crile	Myocarditis, six hours after operation.
3.	Lydston	Anesthetic.
4.	Allen	Uremia.
5.	Allen	No details.
6.	Allen	No details.
7.	Gatch	Hyperthyroidism.
8.	Gatch	Pericardial effusion.
9.	Gatch	Lymphatic diathesis.
10.	Olow	Diseased heart and arteries.
11.	Boys	Anesthetic.

Two of these deaths were due to the anesthetic and in seven others the anesthetic contributed to the fatality.

The study of the statistics at present available does not enable us to gauge absolutely the relative safety of the general anesthetics. We are able, however, to arrange them, in respect to their safety, in the following order: (1) nitrous oxid, (2) ether, (3) ethyl chlorid, (4) chloroform.

Nitrous oxid and ethyl chlorid have been used almost exclusively for brief operations, and for this reason must be compared, in the consideration of safety, with each other and not with ether and chloroform. As nitrous oxid is undoubtedly much safer than ethyl chlorid, it must always be chosen, unless in rare cases there may be special indications for the use of ethyl chlorid.

This study must impress us with the fact that at the present time there is no intrinsically safe general anesthetic. In each and every case the greatest safety for the patient results from the most careful administration of the smallest possible quantity of the anesthetic agent chosen. The cooperation of surgeons with anesthetizers is necessary to bring about this happy result.

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THE LIMITATIONS OF NITROUS OXID WITH OXYGEN AS A GENERAL ANESTHETIC [*]

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Owing to the great interest manifested in nitrous oxid and oxygen anesthesia in general surgery, it becomes advisable to make clear the requirements and limitations of this combination, in order to maintain its present popularity as approaching the principles of an ideal anesthetic, and to avoid the sacrifice of life which may result in consequence of ignorance concerning the action of these peculiar gases.[1]

Of the general anesthetic agents now employed the combination of pure nitrous oxid with oxygen, when properly administered, is the safest, the most agreeable and the freest from post-anesthetic complications. It is to be regretted, however, that it is by far the most difficult general anesthetic to administer properly, for the following reasons:

1. The physical properties of nitrous oxid are such that this gas must be given from 80 to 95 per cent. pure, in order that the tension of the gas in the blood be sufficient to produce the physicochemical change in the nerve-cells which brings about the anesthetic state. Because of this fact one is constantly confronted with the problem of asphyxia, which is practically the only danger of gas-oxygen anesthesia when pure gases are employed.
2. The anesthetic properties of nitrous oxid are extremely evanescent. The patient can pass from profound anesthesia to the conscious state within sixty seconds. The extreme rapidity of induction and elimination makes the administration of this anesthetic very difficult.
3. Muscular tone is maintained to a much greater extent than when ether or chloroform is used, it being impossible to obtain the same degree of flaccidity of the musculature that can safely be procured with the more powerful anesthetic agents.

In consequence of these peculiar properties it is necessary to utilize every known scientific principle that will enhance its efficiency in order to make nitrous oxid practical as an anesthetic agent.

Before presenting, specifically, the requirements and limitations of gas-oxygen anesthesia, the following scientific principles which have proved of value in the administration of this agent may be briefly reviewed: (1) the use of preanesthetic narcotics; (2) the use of oxygen; (3) the even flow of both nitrous oxid and oxygen; (4) warm gases; (5) rebreathing; (6) positive pressure.

THE USE OF PREANESTHETIC NARCOTICS

The advisability of employing narcotic medication previous to the administration of any inhalation anesthetic is now generally recognized by the profession. The reasons for this are that the patient comes into the operating-room composed and tranquil; that the induction period is shortened; that excitement is lessened or entirely eliminated; that more profound anesthesia is obtained, with greater relaxation in proportion to the quantity of general anesthetic employed; that hypersecretion of mucus and cardio-inhibitory shock are prevented.

None of the narcotics employed may be regarded as ideal. I have used morphin and atropin, scopolamin and morphin, but have generally confined myself to morphin and atropin.

Retching on the part of the patient during the progress of an operation is of the greatest annoyance not only to the anesthetist but to the surgeon as well. This has been quite difficult to overcome with the gas-oxygen anesthesia when a non-asphyxial stage is maintained and all cyanosis eliminated. In many cases it is possible to carry the patient along in a natural-appearing sleep, and with sufficient relaxation to necessitate a comparatively light anesthesia, but to have the anesthesia marred by the occurrence of retching.

THE ADVANTAGE OF USING PURE OXYGEN

It has been stated that it is necessary to administer nitrous oxid from 80 to 95 per cent. pure, in order that the blood may become sufficiently saturated to produce the anesthetic state. This being true, there is not enough oxygen available from the atmosphere, in the majority of cases, to make the nitrous oxid respirable, owing to the large percentage of nitrogen in the atmosphere. The average patient, for example, will require 88 parts of nitrous oxid to produce a satisfactorily deep anesthesia, which would leave 12 parts atmospheric air. As the air contains only about 1/5 oxygen there would be only about 2 2/5 parts of oxygen available. Nitrous oxid is not respirable with less than 7 to 20 parts of pure oxygen. Therefore, a satisfactory anesthesia for general surgery cannot be obtained with nitrous oxid and atmospheric air.

On a number of occasions I have been unfortunate in having the oxygen supply fail and in being compelled to maintain the anesthesia with nitrous oxid and atmospheric air. Anesthesia in every instance was continued to the completion of the operation. In some cases there was a considerable degree of cyanosis and rigidity of muscles, and the condition of the patient was very unsatisfactory as compared with that obtained while using pure oxygen.

AN EVEN FLOW OF THE GASES

One of the most essential principles involved in the successful administration of gas-oxygen is the maintenance of a definite and even flow of both the nitrous oxid and the oxygen. I have referred to this feature in former papers.[1,2] With a definite, even flow of the gases it is comparatively easy to anesthetize successfully the majority of patients. When profound anesthesia has been obtained, and when the proper proportion of nitrous oxid and oxygen for the individual case has been determined, it will not be necessary to change the proportion of the gases to any great extent throughout the remainder of the operation. In many of my cases it was not necessary to change the proportion of the gases after the first fifteen minutes, in some instances the flow being continued without interruption for over an hour. An even narcosis is usually the result if the respiratory passages are not obstructed. The adoption of this method gives, relatively, a more profound narcosis followed by less nausea, and the work of the anesthetist is thereby greatly simplified.

The gases should be under control, with definite known pressures. This is accomplished by a pressure regulator which is incorporated in the apparatus or attached to large cylinders. It is possible by this means to obtain definite proportions of nitrous oxid and oxygen which will continue in the same proportions until a change is indicated.

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[*] Read in the Symposium on Anesthesia in the Sections on Pharmacology and Therapeutics and Pathology and Physiology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Teter: Requirements and Limitations of Nitrous Oxid and Oxygen as a General Anesthetic in Major Surgery, Lancet-Clinic, Jan. 21, 1911.

2. Teter: Thirteen Thousand Administrations of Nitrous Oxid with Oxygen as an Anesthetic, The Journal A. M. A., Aug. 7, 1909, p. 448.

No definite percentage of the gases is uniformly satisfactory, for the different patients or for the same patient at different times. Numerous factors are responsible for this, such as type of patient, depth and frequency of respirations, obstructed air-passages, reflex from surgical trauma, position of patient and degree of shock encountered. The average amount of oxygen used, however, is 16⅔ per cent. Anesthesia lasting one hour requires, on an average, 100 gallons of nitrous oxid and 20 gallons of oxygen.

I made an effort to secure definite known percentages of nitrous oxid and oxygen put up in high-pressure cylinders. This was found to be impracticable for the reason that the percentages changed, as shown by daily tests.[3]

It is not essential that the exact percentages of the gases be known, but it is essential that there be some means for obtaining definite and accurate amounts, as may be indicated by the symptoms of the patient. Many accidents have been caused by the failure of the patient to receive the amount of oxygen indicated on the apparatus. It is impossible to control the percentages of the gases by having the controlling valves between the gas-bags and the inhaler, on account of the impossibility of maintaining definite pressure in the bags. The only positive way is to have the gases at known pressures and the controlling valves between the gas-bags and the gas-supply. In this way one can be absolutely sure of obtaining the amount of gases indicated. This is a very important feature.

WARM GASES

It is an established fact that all anesthetics are safer when administered warm. Gwathmey[4] was the first, I believe, to experiment on animals with warm and cold nitrous oxid and oxygen. He found that nitrous oxid and oxygen, administered warm, are over twice as safe as when given at their normal temperature, and from three to five times as safe as the cold gases; also, that all anesthetics, heated to the body temperature, are increased in value as regards life, without a decrease in their anesthetic effects.

My clinical experience has substantiated Gwathmey's laboratory results, not only with regard to the increased safety of nitrous oxid and oxygen as an anesthetic, but with reference to the anesthesia being induced more quietly and more profoundly.

In a series of forty cases I compared the length of time necessary to produce anesthesia with warm and cold nitrous oxid. When pure nitrous oxid was used anesthesia was marked by the absence of the lid reflex and the beginning of stertorous respiration. The average time consumed in producing anesthesia with nitrous oxid at 90 F. was thirty seconds, and the average time with the nitrous oxid at 42 F. was fifty-two seconds.

Many of the patients to whom the warm gas was given said they knew nothing after from the second to the sixth inhalation, while most of those taking the cold gas were conscious up to the tenth and some of them to the twentieth inhalation. All of these patients were women from 18 to 60 years of age.

Warm nitrous oxid is more readily absorbed by the blood than is the cold gas, and the resulting anesthesia is more profound. About 90 F., in my experience, is the best temperature for inhalation. The gas should be of this temperature when it reaches the inhaler. A higher temperature raised the body temperature two to three degrees in some cases, and exhaustion was quite frequently noticed.

REBREATHING OF THE GASES

The method of rebreathing nitrous oxid is not new, having been used to a certain extent from the time anesthetics were discovered. Hewitt[5] speaks of to-and-fro breathing, but his experience was confined to this method only to the extent of inducing anesthesia and not to its continuous application.

To Dr. W. D. Gatch[6] of Baltimore, however, properly belongs the credit for placing on a scientific basis the method of rebreathing nitrous oxid and oxygen. He employed the method of rebreathing in a large number of major surgical cases at Johns Hopkins Hospital during his internship.

I have been using the method of rebreathing since September, 1907, in all anesthetics for general surgical cases. Being aware of the fact that the exhalations of the patient under nitrous oxid and oxygen anesthesia contain about 80 per cent. of nitrous oxid, I have utilized the exhalations as much as possible, still keeping the tension of the nitrous oxid up to the extent necessary to produce surgical anesthesia and allowing enough oxygen to eliminate the asphyxial factor. My purpose in using this method was to conserve the nitrous oxid and oxygen on account of the expensiveness of these gases. I found it possible, however, to obtain more satisfactory anesthesia by this means, with no alarming symptoms or serious results.

Gatch[7] gives reasons for the beneficial effects of rebreathing the gases to a certain extent, and refers in this connection to the work on "Acapnia and Shock" done by Yandell Henderson, professor of physiology in the Yale Medical School. According to Henderson,[8] by far the greater number of all deaths under anesthesia are fundamentally due to acapnia (diminished carbon dioxid in the blood and tissues) resulting from the excessive pulmonary ventilation during the stage of excitement.

As the respirations of patients under nitrous oxid and oxygen are greatly increased, in both volume and frequency, it is readily seen that this excessive pulmonary ventilation may rapidly take carbon dioxid from the blood. By allowing the patient to rebreathe some of his own carbon dioxid the normal amount of this substance in the blood may be maintained. Henderson[9] states, however, that "it must be remembered that carbon dioxid is a powerful drug and one to be administered in small quantities only, never in greater concentration than 5 or 6 per cent."

With the amount of rebreathing which I employ, the concentration of carbon dioxid is from 5 to 9.5 per cent. I arrived at these figures by having the contents of six bags of gas analyzed. These tests were made as follows:

Case 1.—A large woman, aged 51, was anesthetized for an operation which lasted one hour and twenty-four minutes.

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[3] Further analyses are being made in order to find out the causes of the changes in the percentages of nitrous oxid and oxygen compressed in the same cylinder.

[4] Gwathmey: Warm Versus Cold Anesthetics, New York State Jour. Med., February, 1908.

[5] Hewitt: Text-Book, Anesthetics, Ed. 3, p. 273.

[6] Gatch: The Journal A. M. A., Nov. 11, 1911, p. 1593.

[7] Gatch: The Journal A. M. A., March 5, 1910, p. 775.

[8] Henderson: Primary Heart Failure in Normal Subjects under Ether, Surg., Gynec. and Obst., August, 1911, p. 161.

[9] Henderson: Fatal Apnea and the Shock Problem, Bull. Johns Hopkins Hosp., 1910, xxi, No. 233.

The proportion of nitrous oxid and oxygen that carried the patient along in profound anesthesia was arrived at fifteen minutes after anesthesia had been induced. The respirations were twenty-four to thirty per minute, being regular and of good volume. The first test bag was attached directly to the face inhaler and was soon filled with the gases the patient was breathing. The first test was made after the patient had been under the anesthetic twenty-five minutes. The second test bag was taken after the patient had been under the anesthetic for eighty minutes. No change was made in the proportion of the fresh nitrous oxid and oxygen used in these tests. I expected an exact percentage of carbon dioxid in each of the bags, but the analysis showed that bag No. 1 contained carbon dioxid 7.4 per cent., and bag No. 2 carbon dioxid 5.5 per cent. One hundred and twelve gallons of nitrous oxid and 26 gallons of oxygen were consumed.

Case 2.—The patient was a man, aged 60, weighing 190 pounds and having a short, thick neck. The operation was a double herniotomy. Some difficulty was experienced in obtaining complete relaxation of the musculature, and it was necessary to keep changing the proportions of nitrous oxid and oxygen more or less for the first twenty-five minutes, after which time no change was made for forty-five minutes. The first test bag was taken thirty minutes and the second sixty minutes after the anesthesia was started. The analysis of Bag 1 showed carbon dioxid 5.125 per cent.; Bag 2 showed carbon dioxid 3.43 per cent. The length of operation was one hour and ten minutes. One hundred and fifty gallons of nitrous oxid and 28 gallons of oxygen were used. The patient's respirations were from thirty to thirty-eight per minute, being full and regular.

Case 3.—The patient was an anemic, frail woman. The operation was vaginal plastic and laparotomy. The length of operation was one hour and thirty-eight minutes. The proportion of nitrous oxid and oxygen was arrived at in about eight minutes. No change in this proportion was necessary throughout the remainder of the operation.

The first test bag was secured twenty minutes and the second one hour and twenty-five minutes after the anesthetic was started. Bag 1 showed carbon dioxid 8.6 per cent.; Bag 2, carbon dioxid 5.25 per cent. The amount of nitrous oxid used was 118 gallons, of oxygen, 27 gallons. The average respirations were thirty-two per minute, regular but rather shallow.

No ether was used in any of these cases.

It is interesting to note the difference in the percentage of carbon dioxid when the proportion of fresh gas being used is not changed, the same amount of rebreathing being thus assured. The small percentage obtained after the patient had been under for some time may have been due to the fact that the metabolic process was being interfered with, showing the influence of shock.

The average patient under nitrous oxid and oxygen will breathe 600 c.c. at each inhalation and will inhale about thirty times a minute, making 270 gallons of gas per hour. By the method of rebreathing which I employ, 100 gallons of nitrous oxid and 20 gallons of oxygen per hour, as a rule, are utilized. The difference between 270 and 120 is 150 gallons, which represents the amount rebreathed. With this amount of rebreathing there is no danger of carbon dioxid poisoning, nor is there present enough carbon dioxid to lower the tension of nitrous oxid below that necessary to produce surgical anesthesia.

The proper amount of rebreathing of nitrous oxid and oxygen must be governed by the symptoms in each individual case. If too much rebreathing is allowed, the patient will show symptoms of light anesthesia, quickly followed by asphyxial manifestations. An excessive amount of carbon dioxid will be manifested first by rapid, forced respiratory efforts, followed by sweating, livid appearance, gradual slowing of pulse and finally cessation of respiration.

POSITIVE INTRAPULMONARY PRESSURE

It is known that the blood will absorb 45 volumes of nitrous oxid to 100 volumes of blood at atmospheric pressure. I found that more profound anesthesia resulted when nitrous oxid under positive pressure was administered. This indicated that a greater amount of gas is absorbed when increased pressures are used.

In 1907, I began to use positive intrapulmonary pressure in the administration of nitrous oxid and oxygen for surgical purposes. My first work was for Dr. C. B. Parke of Cleveland. The operation consisted in the resection of four or five ribs for extensive empyema, involving both lungs. I have administered nitrous oxid and oxygen with positive pressure for intrathoracic surgery in eighteen cases. Being able to control accurately the pressure of the gases, I have never encountered even a temporary cessation of respiration in these cases. I soon noticed that more profound narcosis resulted when using positive pressure than when not using it, and have therefore utilized this additional factor in all my anesthetic work.

I am familiar with Paul Bert's[10] theory and know that his patients were placed in an air-tight chamber and were subjected to increased pressure, and that the pressure was increased not only within the lungs but without as well. Also, I know of the work done by Willy Meyer[11] on "Pneumectomy with the Aid of Differential Air-Pressure." Bunnell,[12] in a recent article, reports three cases of thoracic surgery in which he used positive pressure.

I have been able to administer nitrous oxid and oxygen, with ether also if needed, with excellent results, in all intrathoracic surgical cases that have been presented. The lungs can be held in their normal position or can be extended more or less, if desirable. The best working pressure, in my experience, is from 6 to 8 mm. of mercury; a much greater pressure, however, may be used without producing any alarming symptoms. In patients possessing heavy, powerful, muscular chests, a pressure of 24 to 30 mm. of mercury may be safely employed.

The objection that it is a dangerous practice to use positive pressure in anesthetic work is a theoretic hypothesis which is not borne out by the clinical facts. It is essential, however, that the pressure employed be known. A very simple positive-pressure valve makes this possible. The utilization of positive intrapulmonary pressure in the administration of nitrous oxid and oxygen is not dangerous; on the contrary, it is an important factor in the production of a safe, profound, even anesthesia. In addition to this it renders possible the safe performance of intrathoracic surgery.

CLINICAL EXPERIENCE

Laboratory experimentation amounts to little unless its results are borne out by practical clinical experience. Quite as much may be learned from clinical observation as from laboratory research work, provided the same accurate and painstaking methods are employed. It may not be amiss, therefore, in this connection, to review briefly personal experience with nitrous oxid and oxygen employed according to the principles above outlined.

During the past eight years I have advocated the advantages of nitrous oxid with oxygen as a general anesthetic. I have administered gas-oxygen anesthesia to patients of all types and of all ages, for every conceivable operation, lasting from a few minutes to four hours and eight minutes. I will not attempt to enumerate and classify the different operations. It may be stated, however, that there is no operation performed at the present time in which nitrous oxid and oxygen, or nitrous oxid and oxygen with ether cannot be employed. For operations within the nose, mouth or throat, gas-oxygen may be administered continuously by means of the nasal inhaler, mouth tube or intratracheal tube. For all other operations the face inhaler is employed.

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[10] Hewitt: Text Book, Ed. 3, p. 303.

[11] Willy Meyer: Pneumectomy with the Aid of Differential Air Pressure; An Experimental Study, The Journal A. M. A., Dec. 11, 1909, p. 1978.

[12] Bunnell, Sterling: The Use of Nitrous Oxid and Oxygen to Maintain Anesthesia and Positive Pressure for Thoracic Surgery, The Journal A. M. A., March 23, 1912, p. 835.

I have classified my administrations as to the length of anesthesia maintained. The following anesthetics were given for general surgical cases, from April 1, 1904, to May 1, 1912:

Administrations lasting 15 minutes or less	5537
Administrations lasting from 15 minutes to 30 minutes	1007
Administrations lasting from 30 minutes to 1 hour	470
Administrations lasting from 1 hour to 2 hours	336
Administrations lasting from 2 hours to 3 hours	34
Administrations lasting from 3 hours to 4 hours	2
Administrations for oral operations lasting from 15 minutes to 30 minutes	2496
Total administrations for general surgery and oral surgery	9882

In addition to this number I have administered nitrous oxid and oxygen by means of the continued nasal method for the extraction of teeth, 14,070 times.

In this large number of administrations I have had but one fatality which I reported in detail in a paper read before a section of this Association in 1909.[2] This was not, strictly speaking, an anesthetic death. I am aware, however, of sixteen fatalities that have occurred during the administration of nitrous oxid and oxygen. In a large percentage of these cases the patients were also receiving ether. From this it will be seen that gas-oxygen anesthesia is not without its dangers — hence, the reason for this paper.

LIMITATIONS OF NITROUS OXID AND OXYGEN

Having reviewed the scientific principles which have proved of value in the administration of nitrous oxid and oxygen, and personal experience with this combination employed in accordance with the principles stated, the specific limitations of this anesthetic may be given.

It is to be understood that the subject is discussed in a broad sense, bearing in mind the possibility of the administration of this anesthetic by persons not especially skilled in this form of anesthesia. It is a fact that the limitations of nitrous oxid and oxygen differ greatly in the hands of the expert and the average anesthetist. Probably the greatest limitation of this agent is the inability of the anesthetist to master and carry out the fundamental principles to which I have referred. For this reason, should I ever be so unfortunate as to undergo a major operation when the services of an expert anesthetist with nitrous oxid and oxygen are not available, I should prefer to take my chances with ether in the hands of an inexperienced person.

With the understanding, as above stated, I consider nitrous oxid and oxygen to be contra-indicated for any operation in children under 5 years of age. The reasons for this are that young children are easily asphyxiated, that they are easily thrown into epileptiform twitching of the body, that they readily assume the opisthotonos position and that they as readily come from under the effects of the gas. It is therefore a very difficult matter to administer successfully nitrous oxid and oxygen to young children.

This agent is also contra-indicated in old people, in whom a degenerative process of the body is manifested, especially when a severe degree of arteriosclerosis is present. The reason for including this class of cases is the likelihood of a certain amount of asphyxia accompanying the anesthesia. In 1909, I reported before this Association[2] some cases showing the condition of the brain when the patient was under the influence of nitrous oxid and oxygen. If anesthesia is accompanied by cyanosis the brain is greatly congested and so dilated that it not only completely fills the cranial cavity but protrudes from the opening in the skull. In the presence of a diseased and weakened condition of the walls of the vessels in the brain the above phenomenon would undoubtedly prove injurious, if not fatal, in some cases. In the aged, however, if a non-asphyxial form of anesthesia can be secured throughout, nitrous oxid with oxygen is without question the best anesthetic to be employed. Some of my most gratifying cases have been old people, and I have had no bad results with this class of patients. I have always maintained a non-asphyxial narcosis, not hesitating to use some ether if necessary.

It would be very unwise to attempt to anesthetize with nitrous oxid and oxygen a strong, vigorous, rough man, whose habits include the excessive use of tobacco and liquor, unless the anesthetist has developed great proficiency with this agent.

Unless a desired depth of anesthesia can be obtained in a given case without a marked degree of asphyxia it is much safer to use more oxygen, a little less nitrous oxid and to add enough ether to secure the proper amount of relaxation. A slight degree of cyanosis is not objectionable nor is it dangerous. If less than 11 per cent. of oxygen is used with nitrous oxid more or less cyanosis is manifested. A slight degree of cyanosis is the rule with this form of anesthesia, unless a large dose of some preanesthetic narcotic has been given or some ether is administered with the gases. The percentage of ether given with the gases should be known as far as that is possible.

The perecentage of cases in which it is necessary to use ether with the gases depends on both the operating surgeon and the anesthetist. After a time surgeons become accustomed to working under nitrous oxid and oxygen and do not require as complete relaxation as they did at first. The anesthetist's technic should develop so that a more profound and even anesthesia can be obtained. The anesthetist who works with only one surgeon should not be compelled to resort to the additional help of ether in more than from 5 to 8 per cent. of the cases. One who is administering nitrous oxid and oxygen for a large number of different surgeons would probably be compelled to use ether in from 20 to 25 per cent. of the operations.

The amount of ether employed with the gases varies from 2 to 8 per cent. It is not necessary, as a rule, to use ether after the patient is well under. When ether is employed in this way it is possible to depend on the nitrous oxid and oxygen as a general anesthetic in practically every case. I have met with but two cases in which it was necessary to discontinue the nitrous oxid, oxygen and ether. In one case the operation was finished with chloroform and in the other with pure ether, but satisfactory anesthesia could not even then be obtained.

Nitrous oxid and oxygen anesthesia is not ideal for major surgery on patients possessing strong, vigorous constitutions or extremely nervous temperaments, or in those addicted to drug habits or the excessive use of tobacco. In other words, any patient who requires a large amount of any general anesthetic is not a good gas-oxygen subject to control, owing to the lighter form of anesthesia induced by nitrous oxid.

The ideal patients for nitrous oxid and oxygen anesthesia are the very ill, the anemic, the debilitated, those possessing low vitality from any cause — in short, all cases except those requiring a powerful anesthetic agent. The great majority of all cases can be handled safely and successfully if the principles herein set forth are skilfully followed.

Rose Building.

HELPS IN SURGICAL ANESTHESIA *

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NEW YORK

I offer the following helps for use in the open or drop method of administering ether. This is the most popular method in this country, and is without doubt the easiest, simplest and safest for the majority of anesthesias, especially for those of limited experience.

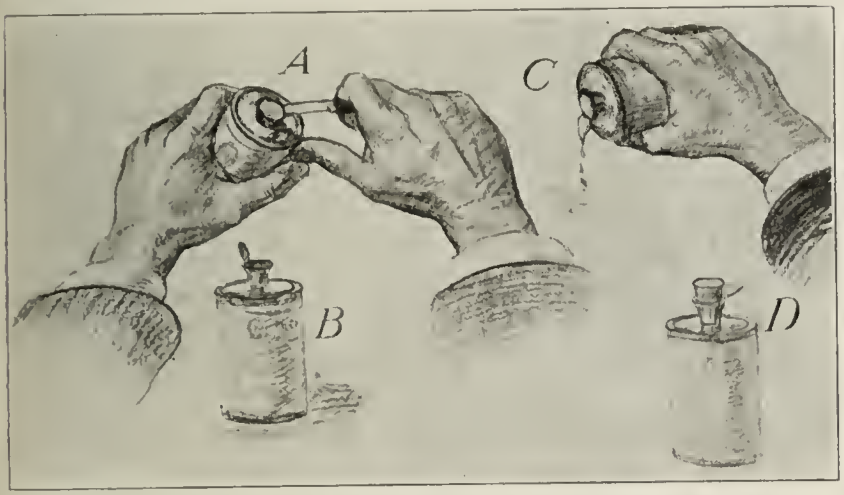

Fig. 1.—Dropper from original can.

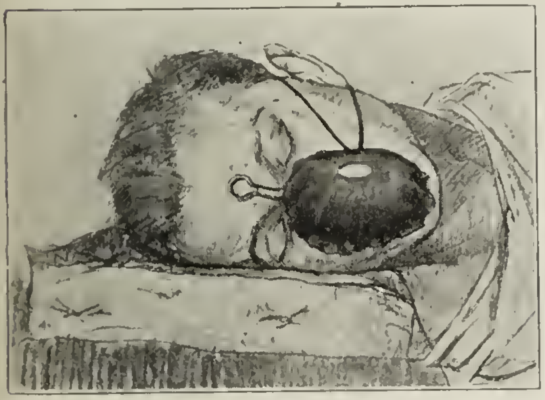

Fig. 2.—Rubber ether blanket and elastic mask holder.

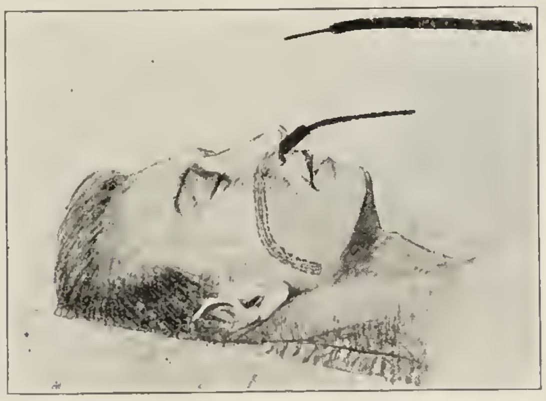

Fig. 3.—Easy way of applying nasopharyngeal airway.

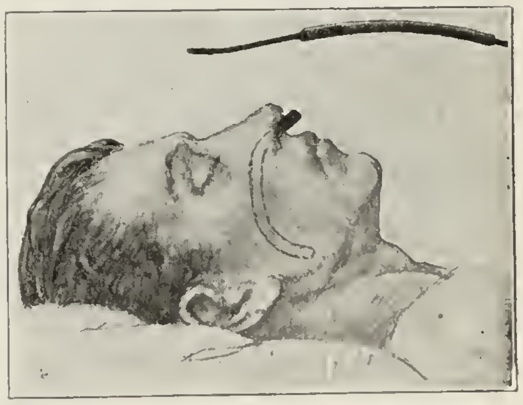

Fig. 4.—Nasopharyngeal airway.

This dropper is made from the original ether can (Fig. 1 A) by cutting a circular incision through the soft metal cap of the can, as close to the edge of the neck as possible, holding the knife at right angles to the can. This is extended about four-fifths of the way round (Fig. 1 B). This flap is turned back and a small pledget of cotton inserted (Fig. 1 C); then the flap is turned down to its original position; this will hold the wick in place. Now it is ready for use. Drops of ether will fall from the end of the wick rapidly or slowly according as the can is tilted much or little. The size of the drops can be regulated by manipulation of the wick. If, after using, some ether remains in the can, the flap can be folded back again as in Figure 1 D which will entirely prevent the escape of ether from the can, yet leave the flap in good condition for another time. The advantages of this method of dropping ether are availability, simplicity and cleanliness. It costs nothing, leaves the purity and strength of the ether undisturbed, and if properly managed will not deluge the mask or the patient's face.

The rubber ether blanket is made of thin rubber sheeting about 9 inches square with a small hole in the center about 1 inch in diameter (Fig. 2). It can simply be laid on the mask or fastened by the holding wire, and may also be used to protect the eyes. It is especially useful when a strong ether is wanted.

The mask-holder is made by using one or more rubber bands attached to the holding wire or fastened with a safety-pin (Fig. 2). It may be used on one or both sides of the mask, and by keeping the mask in position will leave the hands free to be used.

Following is an easy way of applying the nasopharyngeal airway: A soft rubber catheter is slowly introduced through the nose, then the larger rubber tube is slipped over it (Fig. 3) and the catheter is withdrawn (Fig. 4). This allows the quick and easy passage of a tube which might otherwise cause hemorrhage or be delayed by a nasal deformity. The tube can be retained in position with a piece of adhesive plaster or by a safety-pin.

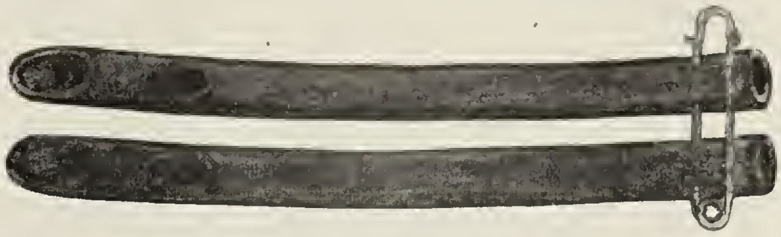

Fig. 5.—Tubes for mouth airway.

The mouth airway consists of two rubber tubes, each 6½ inches long and three-eighths of an inch in diameter. The end in the pharynx as well as the one or two fenestras should have very smooth edges (Fig. 5). This is used when the tongue obstructs the airway.

In presenting two easy ways of giving nitrous oxid and oxygen with the Bennett inhaler, using only one bag (Fig. 6), I should like to give a word of warning. Many deaths have occurred under this form of anesthesia sequence, only a few of which have been reported. Even in the hands of the experienced, dangerous respiratory embarrassment may suddenly appear; then, too, the after-effects are not always ideal. After all, the latitude of safety is not so great as with ether. In many cases it is the best anesthetic to us, but we should not be

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* Read in the Symposium on Anesthesia in the Sections on Pharmacology and Therapeutics and Pathology and Physiology of the American Medical Association, at the Sixty-Third Annual Session held at Atlantic City, June, 1912.

unmindful of its dangers and limitations. We have about ten compound, complicated and complex nitrous oxid and oxygen instruments on the market, each costing from $100 to $300, weighing from 40 to 80 pounds, and occupying as much space as a sewing-machine. Many of these instruments have so many valves and other parts as to suggest the need for an engineer's or chauffeur's license. I am sure that we are a trifle dishonest at times about this sequence, and that though we use morphin, nitrous oxid, oxygen and plenty of ether we call it a nitrous oxid and oxygen sequence.

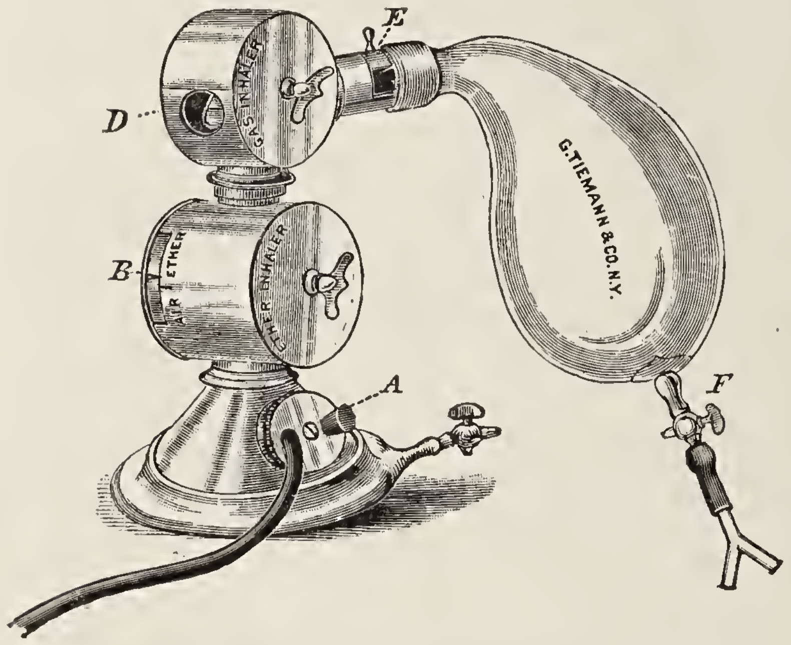

Fig. 6.—The Bennett inhaler.

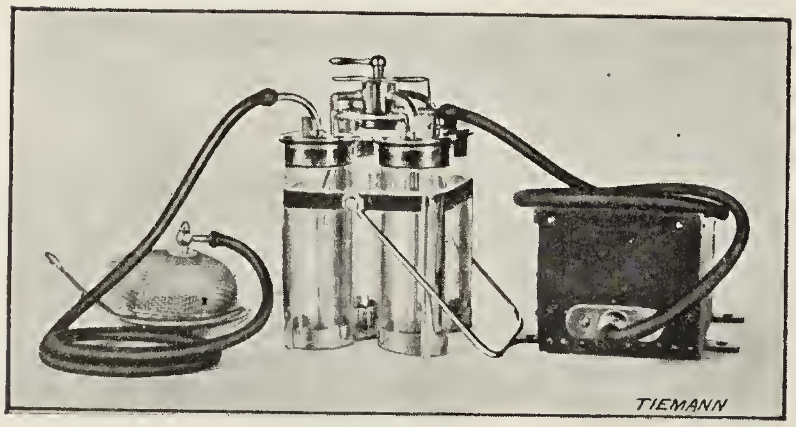

Fig. 7.—Four-bottle Junker vaporizer as modified.

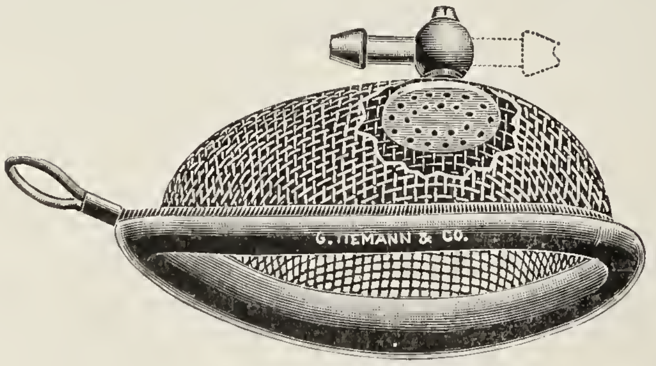

Fig. 8.—The vapor mask.

Nitrous oxid and oxygen can easily be given in the following ways: (1) Simply use a Y-shaped tube at the end of the gas-bag to connect the two gases (Fig. 6 F). (2) Lead the oxygen direct from the tank to the Bennett inhaler by a rubber tube through one of the air-holes in the face-piece, plugging the other air-hole with a cork (Fig. 6 A). The Bennett inhaler is used chiefly to induce anesthesia with the gas-ether sequence. This instrument weighs only 2½ pounds, costs less than $50 and may be transported easily.

My four-bottle modified Junker vaporizer (Fig. 7) is an instrument allowing the easy and quick use of almost any anesthetic in any strength or combination, and is particularly useful for head and neck operations. One bottle can be used for warm water to warm the anesthetic vapor. Personally I prefer to use it as a means of catching any overflow that may result from filling the bottles too full or when too much pressure is used. Usually the other three bottles are used for ether and chloroform. Two bottles are filled with ether, and when one becomes too cold, as often happens after using it for a few minutes, or becomes empty, the other bottle is used. The vapor can be forced by a hand-bulb, such as is usually attached to a Paquelin cautery outfit, or a small foot-pump or bellows. The face or vapor mask which I use is similar to the ordinary face mask with an arrangement in the top for the distribution of the vapor in front of the nose (Fig. 8). This vapor mask is useful in giving oxygen with ether or chloroform by the drop method. The advantages of the so-called vapor method are: (1) less anesthetic is used; (2) there are less nausea and vomiting; (3) the breathing is more like that of normal sleep; (4) the apparatus is out of the surgeon's way; (5) the anesthetist's hands are free; (6) it will be found easy to change from one anesthetic to another, or to form any combination.

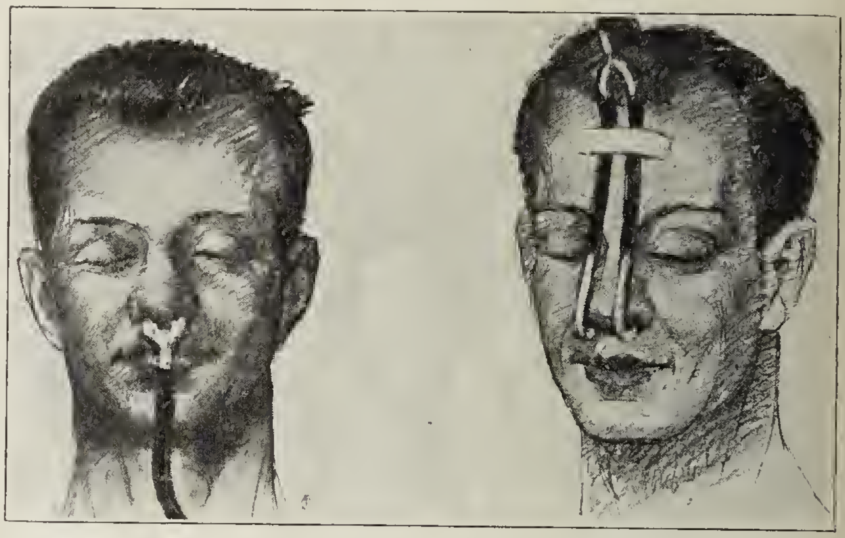

Fig. 9.—Glass nasal tubes for general anesthesia in use.

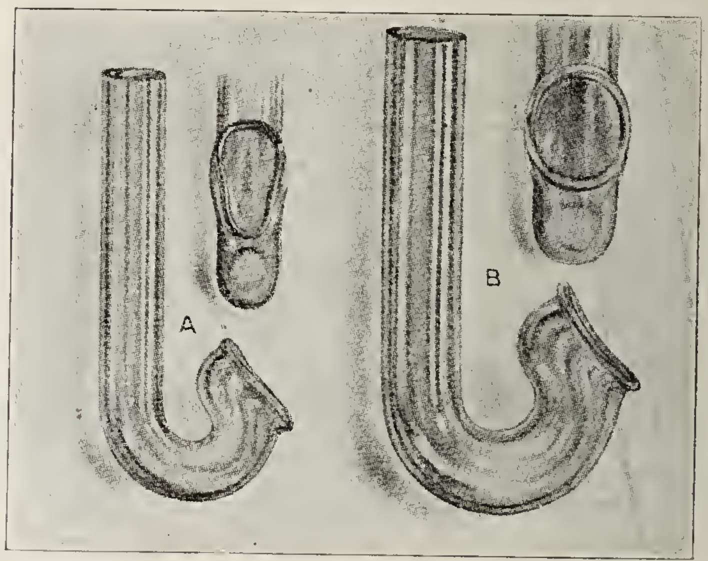

Fig. 10.—Glass nasal tubes for general anesthesia in head-surgery (A and B).

For special head cases I use glass nasal tubes (Fig. 9), which have these advantages over the rubber tubes: (1) They allow the anesthetic vapor to become warmed by passing through the nose; (2) they are more safely and easily introduced into the nose; (3) they do not cause nasal hemorrhage; (4) they are not apt to become obstructed by blood and mucus; (5) they remain in position much better than do rubber tubes; (6) they are much easier to clean and sterilize.

They are made in three sizes accompanied with a Y-shaped glass connecting tube which is used for operations on the upper part of the head (Figs. 9 and 10).

1925 Seventh Avenue.

SPINAL ANALGESIA — DEVELOPMENT AND PRESENT STATUS OF THE METHOD

WITH BRIEF SUMMARY OF PERSONAL EXPERIENCE IN 1,065 CASES *

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Spinal analgesia proves no exception to the general rule which applies to new methods. Its early development was fraught with mistakes, some of which were serious and even fatal. When it was heralded throughout the world that Bier had successfully injected cocain into the spinal subarachnoid space, many surgeons adopted the method. It was a new field and little was definitely known concerning the physiologic aspects of the question, and little more with reference to the therapeutic phases of the subject. It was but natural that, as the literature of spinal analgesia developed, the number of unfortunate experiences multiplied. It was inevitable, too, that enthusiasm should wane, and that the further development of the method should be left to a limited number of surgeons who recognized in spinal analgesia a procedure of distinct advantage, with a definite field of usefulness.

Following Bier's first demonstrations of the surgical application of spinal analgesia, report of which was published in 1899, the method was quite extensively employed for two or three years. Accounts of its use then disappeared almost entirely from medical and surgical literature, though it was not abandoned by the few earnest advocates of the method. The revival of the subject in the literature about five years ago is familiar to all. It is safe to assume that spinal analgesia is now permanently established among recognized surgical procedures, and will never again so nearly approach abandonment as it did during the short period of quiescence which followed its first few years of popularity.

A just estimate of the merits of any method can be reached only by a study of the accumulated experience of many observers. It is manifestly impossible on this occasion to trace the evolution of spinal analgesia by a review of the literature which chronicles the findings of the large number of surgeons who are now employing or have employed the method.

During the early stage of the development of spinal analgesia cocain and eucain were the agents most generally employed. This fact probably accounts for many of the adverse opinions formed of the method. Eucain gave a "patchy," and hence altogether unsatisfactory analgesia. Cocain was not entirely satisfactory, partly because of the reckless dosage employed by many surgeons, and partly because of the difficulties experienced in sterilizing the drug without destroying its analgesic effect or decomposing it in such a way that its by-products gave rise to unpleasant accompanying or postoperative phenomena. Bier early protested against the reckless manner in which cocain was being employed, and against the dangerously large doses which some operators used. He made a plea for an effort to find less harmful drugs for the production of spinal analgesia.

A very important part of the evolution of spinal analgesia has been concerned with the discovery of other drugs and other combinations, which would give a controllable analgesia, and at the same time lessen the dangers and eliminate the frequently disagreeable accompanying symptoms associated with the method. In the endeavor to find such a drug a great deal of careful experimental work has been conducted by different investigators. The results have been remarkably successful, and have given to the method a definite field of usefulness.

My experience with cocain was not so unfavorable to that drug, probably because at an early stage of the development of spinal analgesia I formulated a plan of sterilizing the agent,[1] which insured not only a sterile but a fresh and active solution, free from the harmful by-products so often claimed to be present and generally attributed to the methods of sterilizing by heat.

It is not necessary here to enter into the question which from time to time has been raised concerning the validity of the claims that cocain is decomposed by heat and its analgesic properties destroyed as a consequence. Whether correct or incorrect, the impression has gained currency that boiling decomposes solutions of cocain. Various methods of sterilizing this agent have, therefore, been suggested. The simplicity of the method which I have employed renders it of value for emergency work, where a rapid method is required to secure a sterile, potent solution. The method, which is applicable to other analgesic agents as well as to cocain, is as follows:

Five grains of fresh cocain crystals, carefully weighed, are placed in a sterilized measuring glass. Two drams of strong ether are added and mixed thoroughly with the cocain crystals by means of a sterilized glass rod until a paste is formed. The mixing process is continued until all the ether is evaporated and a dry powder is obtained. One-half to 1 ounce of boiled, filtered water, or sterile normal salt solution, is then added. One-half ounce makes practically a 2 per cent. solution and 1 ounce a 1 per cent. solution. The dosage varies, according to the age of the patient, the region to be operated on, etc., from 5 to 25 minims of the 2 per cent. solution, and from 10 to 40 minims of the 1 per cent. solution.

The crystals, if kept dry, do not deteriorate, as do other forms of the drug. It is advisable, however, if possible, to employ only fresh crystals, or to be sure that they have been kept perfectly dry. With active cocain at one end of the scale and inert cocain at the other, there are various grades of potency, from an analgesic point of view. The exact cause of this variation is a matter of dispute, some holding that it is due to the heat sometimes employed in sterilization, others denying the correctness of this assertion. The members of the Section on Pharmacology and Therapeutics will doubtless clear up this point in the discussion.

Following the suggestion of Bier, that less harmful agents be found for spinal analgesia, experimentation has led to the employment of the following agents: stovain, novocain, tropacocain, beta-eucain, beta-eucain lactate, alypin, holocain hydrochlorid, orthoform (new),

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* Read in the Symposium on Anesthesia in the joint meeting of the Section on Pharmacology and Therapeutics and the Section on Pathology and Physiology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] Bainbridge: Med. Rec., New York, Dec. 15, 1900.

anesthesin, and other agents. Cocain, stovain, novocain and tropacocain are the drugs most generally used, with stovain, perhaps, in the lead.

Other drugs than cocain having been found available for spinal analgesia, attention was next directed toward making such combinations of these with other substances as to render the solution heavier or lighter than the cerebrospinal fluid, the object being to avail oneself of gravity in controlling the height of the analgesia. Experimentation along this line has led to some very interesting results, and has evolved three general classes of solutions: (1) those of lighter specific weight than the cerebrospinal fluid; (2) those of approximately equal weight; (3) those of heavier weight.

To the first class belongs the so-called "diffusible" solution employed by Babcock, in which alcohol is used to render the fluid lighter than the cerebrospinal fluid.

To the second class belong the simple solutions of the analgesic agent with water, with water plus cerebrospinal fluid, with cerebrospinal fluid alone, or with normal salt solution.

To the third class belong the so-called "non-diffusible" solutions, which are rendered heavier than the cerebrospinal fluid by the addition of glucose, dextrin or gum arabic.

To any of these solutions may be added, if desired, epinephrin or some similar product, as employed by Bier, Gray and many others, or strychnin, as suggested by Jonnesco.

In 988 of my 1,065 cases simple solutions, of the second class, were employed, the agent being sterilized after the manner described, and dissolved in plain sterile water, without the addition of any other drug. In over 500 of the 988 cases cocain was used. In the remainder the various other agents and combinations were employed. I now use, as a rule, stovain or tropacocain, because fewer unpleasant symptoms are apt to ensue, but I do not hesitate to employ cocain.

In the 1,065 cases there was one death (with the diffusible stovain solution, probably due to status lymphaticus); one case of temporary partial paralysis with complete recovery;[2] one case of failure due to so-called "dry spine," in which puncture at different levels failed to bring cerebrospinal fluid; two cases with alypin, in which there was considerable respiratory depression, and one case of idiosyncrasy in which, after several attempts by spinal and local injection, the analgesia was almost *nil*. In all the other cases there were no accompanying or post-operative symptoms of permanent or serious moment.

ILLUSTRATIVE CASES WITH THE THREE CLASSES OF SOLUTIONS

SIMPLE SOLUTION (COCAIN WITH WATER)

Case 1.—J. P. D., aged 31, was operated on Nov. 27, 1902, (case of Dr. William T. Scovil, of Richmond Hill, Long Island), under spinal analgesia, which I administered. The patient had been operated on two years before by Dr. George Ryerson Fowler for appendicitis, at which time ether anesthesia was employed. The patient suffered for a year and a half from postanesthetic asthma of such severity that it was necessary for him to sit up at night in order to breathe. This gradually subsided and for six months before I saw him he had not been troubled with it. When I was called in consultation, the patient was suffering from multiple strictures, which had become so tight that there was almost complete retention of urine. A filiform bougie could not be passed. Albumin and casts were present in the urine. Chronic endocarditis further complicated the condition. The patient's testimony was absolutely necessary in a forthcoming murder trial in which circumstantial evidence was so strong against the defendant that a verdict of guilty was almost a certainty. Nothing but the patient's testimony could save the man.

Treatment.—To operate under inhalation anesthesia was practically impossible. It was determined, therefore, to employ spinal analgesia. Cocain, 20 minims of a 2 per cent. solution, was injected and external and internal urethrotomy performed. Analgesia lasted two hours and ten minutes. The patient read and smoked during the operation. In two weeks he went into court, gave his testimony and cleared the defendant. The patient, who is still living and in a fair degree of health, has never suffered from asthma since the operation under spinal analgesia—an interesting coincidence at least.

Case 2.—Mrs. M. D., aged 43, was admitted to the New York Skin and Cancer Hospital in October, 1911. Examination revealed a large deep tuberculous ulcer of the left leg, 6 by 5 inches in diameter, of three years' duration. On Dec. 20, 1911, the ulcer was excised, and the surface exposed to fulguration according to the de Keating-Hart method, with the long, high-frequency, high-tension, electric spark. Analgesia in this case was induced by means of 20 minims of a 2 per cent. solution of cocain. Eight minims injected at first proved insufficient, and after ten minutes another injection of 12 minims was made. Analgesia was complete to the nipple line in four minutes and lasted over an hour. There were no accompanying or postoperative symptoms of any moment, convalescence being entirely uneventful.

GLUCOSE-EPINEPHRIN-STOVAIN SOLUTION (NON-DIFFUSIBLE)

Case 3.—L. L., female, aged 58, was admitted to the New York Skin and Cancer Hospital, March 18, 1911, for operation for lipomas of the abdominal wall, papilloma of neck, angiomas of abdominal wall and varicose veins of the legs. The operation was March 20, 1911. Various growths were removed, and the varicose veins excised. Analgesia was induced by the glucose-epinephrin-stovain, so-called "non-diffusible" solution obtained from Gray, of London, one ampule, 2 c.c., 3 per cent. stovain, being injected. Adjuvant medication consisted of strychnin, 1/60 grain, and nitroglycerin, 1/200 grain. Analgesia extended to the neck, and lasted for one hour and fifty-five minutes. There was no nausea, no vomiting, no headache, or other unfavorable symptoms. The patient was cheerful throughout the operation, her facial expression giving no evidence of pain or distress. Recovery was uneventful.

The only death which I have to chronicle in my 1,065 cases occurred when the Babcock "diffusible" solution was employed. It may be stated in advance, however, that the fatality is not necessarily attributable to this agent.

STOVAIN-ALCOHOL-WATER (DIFFUSIBLE)

Case 4.—The patient, a male child, aged 2, on my service at Randall's Island, New York City Children's Hospital and School, was in very poor general condition, with chronic bronchitis, some dulness in the chest and distressing inflammation and prolapse of the rectum. Operation was definitely indicated, and inhalation anesthesia was positively contraindicated. It seemed justifiable, therefore, to attempt to relieve the condition by operation under spinal analgesia. An injection of 0.5 c.c. of the Babcock diffusible stovain solution was employed. The child died almost immediately after the injection was made. Autopsy was not allowed, but from the apparent slight enlargement of the thymus gland which was present, the dulness in the chest, and the general appearance of the child, it may be that death was due to that more or less mysterious condition known as status lymphaticus. We may give the diffusible solution the benefit of the doubt.

The following case illustrates the successful application of the method by means of the diffusible solution:

Case 5.—J. R., female, aged 50, was received at Randall's Island. Operation, Dec. 14, 1911, consisted of panhysterectomy for fibroid tumors of uterus and cystic ovaries, the incision and suture of "Lane's bands" and appendectomy. Preliminary medication consisted of 1/4 grain morphin and 1/200 grain atropin hypodermically half an hour before operation. Spinal puncture was made in median line between first and second lumbar vertebræ; 3 c.c. of stovain-alcohol solution injected, at 10:15. Analgesia was complete to nipple line at 10:19. Median abdominal incision was made at 10:25; patient experienced no pain or discomfort. Exploration revealed three distinct peritoneal bands, narrowing the lumen of the ileum and causing marked angulation at the crest of the pelvis. These were sectioned and sutured, and the appendix removed. This part of the operation was completed by 10:45, and panhysterectomy begun. At 11 o'clock the patient complained of discomfort due to the stretching of the abdominal wound, but cutting, suturing or clamping the tissues caused no pain. Her condition at this time was excellent. At 11:30 patient asked for a drink of water, which was given her, with a small quantity of whisky. Respiration and pulse were regular, and the expression of the face revealed no real discomfort. There was no nausea, no vomiting and no coughing at any time during the operation. The color of the skin remained good throughout. Operation was completed and abdominal wound closed at 12 noon. Patient left table at 12:05, talking quietly, and in excellent condition. Analgesia persisted for one hour after completion of the operation. At no time did the patient's temperature rise above 101 degrees F. There were no postoperative complications, recovery was uneventful, and at the end of the third week the patient was walking around the ward perfectly well.

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[2] Bainbridge: Med. Rec., New York, 1900, lviii, 937.

The patient in this instance was an ideal illustration of the field for spinal analgesia. She was old beyond her years, with some thickening of the arterial walls, with abnormally small kidneys, excreting urine of low specific gravity, with some albumin and casts. There was no postoperative interference with the action of the kidneys, such as would very probably have occurred after the administration of ether.

With certain notable exceptions, both the experimental and the clinical investigations of the early period of the evolution of spinal analgesia were concerned with the production of analgesia below the diaphragm, and its application to the surgery of these regions. It is not to be wondered at, however, that the advocates of the method were unwilling, in many cases, to rest with this limited field of application to the lower parts of the body, and that they began to extend it to the parts of the body above the diaphragm.

Tait and Caglieri of San Francisco, Morton of the same place, Chaput of France, and others, performed operations on various parts of the body above the level of the diaphragm, as early as 1900, thus antedating this particular part of the work of Jonnesco of Bucharest, by about eight years. Tait and Caglieri, in 1900, reported three cases in which cocain was injected into the sixth cervical space, without untoward effects. The patients were examined weeks after the injection and found to be free from any complication. Similar results were obtained by others.

So far as I have been able to ascertain, the work of Tait and Caglieri, Morton, Chaput and others, with high injection, has not been followed up with further clinical applications, and for this reason, perhaps, originality in this regard has been generally accorded to Jonnesco. The "new method" of spinal analgesia reported by Jonnesco in 1908 consists in piercing the spinal column at all levels, according to the operation, and injecting stovain, novocain, or tropacocain, with strychnin, into the subarachnoid space. As is well known, Jonnesco considers the fact that the respiratory nerves are not involved in the high injections as due to the influence of the strychnin.

I have never employed the high-injection method of Jonnesco, in either the original or the modified form (in which he confines the injection to the superior dorsal and the dorsolumbar sites). I have been able, however, in some instances, to operate on practically any portion of the body under spinal analgesia as induced by the various solutions, plus the head-high or the head-low position of the patient. Years ago I used strychnin and glonoin hypodermatically as supportive and corrective medication at the time of the spinal injection. The only thing new in Jonnesco's method, so far as strychnin is concerned, is injecting this drug, with the analgesic agent, into the canal.

The evolution of spinal analgesia was not completed with the discovery of less harmful agents as suggested by Bier. With the perfection of combinations of the analgesic agents with other substances, giving a more or less diffusible solution and a consequently more or less controllable analgesia, and with the extension of the application of the method to the upper part of the body, the indications and contra-indications for the method have also been carefully studied, and no inconsequent part of its development is concerned with the widening of the scope of spinal analgesia.

One of the most telling illustrations of this increased sphere of application is its use with children. In the earlier days of spinal analgesia perhaps the majority of writers on the subject named infancy and childhood among the contra-indications. Even now many advocates of the method do not approve of its use in this class of patients.

In the early stage of the application of spinal analgesia I began to employ the method, being particularly interested at that time in its use in young children. Several cases of children operated on under spinal analgesia were reported by me,[3] the youngest being 2½, the oldest 11 years old. The former patient was apparently the youngest on whom the method had been employed at that time. I reported an additional series of forty cases,[4] twenty-four of which were given in detail, the youngest being 7½ and the oldest 19 years of age. In July of the same year I reported twelve operations[5] on infants and young children, the youngest of this series being 3 months and the oldest 5 years of age.

Since that time a large number of children have been operated on by various surgeons, the most notable series of cases being that reported by H. Tyrrell Gray, of the Hospital for Sick Children, London. He employed the method in all abdominal work on children, holding that when it is used the mortality record in such cases is materially lowered.

Along with the perfection of the method in the matter of agents, sites for injection, scope of application, etc., there was much to be evolved with reference to the preliminary preparation of the patient, the selection of the analgesic agent best suited for the given case, the careful estimation of the dose required for the individual patient and the actual technic of injection.

As the method has been developed, various needles and syringes for the injection have been devised, and the technic has been varied to suit the ideas of the individual operator. Time does not permit, nor is it necessary, to detail the different modifications of the method. The technic which has answered my needs best is given below.

PRELIMINARY PREPARATION OF PATIENT

Preliminary preparation of the patient as regards diet, catharsis, etc., which is of so great importance in inhalation anesthesia, is not so essential in spinal analgesia, except in operations on the intestines. In a certain percentage of cases incontinence of urine and feces occurs from relaxed sphincters, when rectum and bladder have not been emptied. Patients coming into the hospital from the street, with no preliminary preparation, have been operated on as successfully, and with as few accompanying and postoperative phenomena, as have those who have been subjected to the most careful preparatory care. Generally speaking, however, attention to all details which conserve the patient's vitality and comfort should be observed.

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[3] Med. Rec., New York, Dec. 15, 1900.
[4] Med. News, May 4, 1901.
[5] Arch. Pediat., July, 1901.

A hypodermic injection of morphin (⅛ to ¼ grain), combined in some cases with atropin or scopolamin, may be given half an hour before spinal puncture. It serves to tranquilize the patient and to make him less susceptible to any possible pain or discomfort contingent on the initial procedure. Bromids instead of morphin may be given the day before, or nitroglycerin (1/200 to 1/100 grain) may be advantageous, administered at the time of injection. Strychnin (1/60 grain) given subcutaneously at the time of the spinal injection is supportive. Combined with nitroglycerin it lessens the danger of headache, shock and other disagreeable symptoms.

No preliminary medication is given to children.

APPARATUS

The apparatus for giving the injection of the analgesic agent consists of a syringe and two cannulas.

The syringe, which is made by Ford and Company or the Kny-Scheerer Company of New York, is entirely of metal, including the piston, so that it expands uniformly on boiling. It has a capacity of 5 c.c., the corresponding quantities in the two systems being graduated on the piston.

The cannulas are made in two sizes, of three lengths. The points are ground short and beveled, with a cutting-edge all round. The shank is of flexible metal, so that it will bend without breaking. The cannula slips on a ground joint, fitting accurately the handle, without washers or screws. The proximal end is fitted with a handle which can be firmly grasped. Through the cannula runs a stylet, the proximal end of which is rounded, knob-like, so that it can be pressed against the base of the index finger, adding firmness of grip.

The entire instrument can be taken apart and thoroughly sterilized.

TECHNIC OF INJECTION

The usual aseptic precautions are observed. The site of puncture may be cleansed in the usual way, by scrubbing, etc., or by painting the skin with tincture of iodin. The patient, in the sitting posture, the feet hanging over the side of the table, with the puncture site painted with iodin, is draped with a sterilized sheet. This sheet has cut in it a hole or window large enough for purposes of injection. The operator, in making his examination and identification of landmarks, runs no risk of contaminating his hands by contact with skin surfaces which have not been rendered aseptic.

The site of puncture is now determined in the following manner:

1. The highest points on the crests of the ilia are located. On this level is the spinous process of the fourth lumbar vertebra.
2. The sites of the second, third, fourth and fifth lumbar vertebræ are marked.
3. The thumb is placed in the space between the twelfth dorsal and first lumbar, second and third, third and fourth, or fourth and fifth lumbar vertebræ, according to the selection of site, at the mid-point between the two. One-half inch to either side of this is the site for the puncture. I usually inject between the fourth and fifth or third and fourth lumbar vertebræ.

The puncture-point being located, the assistant plays a spray of ethyl chlorid on the area, or, if preferred, a preliminary subcutaneous injection of cocain or other local analgesic agent may be given. A small incision is now made through the true skin, which may be rendered hemostatic as well as analgesic by the ethyl chlorid.

The needle is passed through the incised skin and subcutaneous tissue, straight forward. The head is then depressed, the point being made to go upward, forward and inward toward the median line. It is inserted from 1½ to 2½ inches, according to the thickness of the patient's body.

When the needle is felt to impinge on the bone surrounding the foramen, it is depressed a little more and pushed forward, when it comes on the ligamentum subflavum, then the dura mater. In piercing the ligament and dura there is a peculiar sensation like the "popping" of a membrane. This signifies the entrance to the subarachnoid space.

The cerebrospinal fluid escapes under ordinary circumstances. If it does not flow freely something is wrong. The needle may not have entered the right place, or it may be clogged. A stylet should not be inserted into the needle. Another syringe should be ready, and with this, if one cannot draw out blood or fluid, the needle should be withdrawn entirely and then, after being rendered patent, reinserted. I prefer not to proceed with the injection unless the fluid issues with at least an approximate quantity and tension. Others, notably Gray,[6] are not agreed on this point, being willing to proceed with the injection when the fluid issues only in slow drops, or when it is slightly blood-stained.

In some cases, despite careful technic and repeated attempts at different sites, no cerebrospinal fluid is obtainable. Such cases have doubtless led to the expression "dry spine," but it is rather to be inferred that they come under the category mentioned by Gerstenberg and Hein,[7] Lusk[8] and others, in which the arachnoid membrane is adherent to the posterior surface of the cord at the levels entered, so that no fluid is obtained for the reason that, at the given locality, the subarachnoid space is obliterated posteriorly. I have had one such personal experience. Despite four attempts, in each of which the canal was entered, two between the fourth and fifth, one between the third and fourth, and one between the second and third lumbar vertebræ, no fluid was obtained. The attempt was then abandoned and the operation (appendectomy) successfully performed under ether anesthesia.

The analgesic solution is now injected slowly. The obliquity of the passage of the needle has the advantage that no tract is formed for the fluid to follow as the needle is withdrawn. The body of the vertebræ in front should not be touched with the needle, because of the presence there of a large plexus of blood-vessels. When the needle is withdrawn a cotton and collodion dressing is applied.

If low analgesia is desired for operations on the lower part of the body, the patient should be allowed to sit up for a few minutes after the injection, or the head should be elevated, when solutions of the same or heavier specific weight than the cerebrospinal fluid are used. If the lighter fluid is employed, it must be borne in mind that the head must be lowered *at once* after the injection to prevent the rapid diffusion of the analgesic agent and the danger of death from respiratory paralysis. When high analgesia is desired, for operations on the upper parts of the body, the patient may be placed in a more or less marked Trendelenburg position, with the heavier solutions. The "diffusible" solution may be used if, after the initial lowering of the head, the head of the table is slowly and carefully elevated. My own feeling is that operations on the head and neck should not be undertaken under spinal analgesia unless other methods are absolutely contra-indicated and operation is essential.

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[6] Gray: Lancet, London, Sept. 25 and Oct. 2, 1909.

[7] Gerstenberg and Hein: Ztschr f Geburtsh u Gynäk, 1907-1908, lxi, 524; also Verhandl. d. Gesellsch. f. Geburtsh. u. Gynäk zu Berlin, 1907-1908.

[8] Lusk: Ann. Surg., October, 1911.

SUMMARY

From the weight of conflicting testimony with reference to the indications and contra-indications for spinal analgesia, it may be deduced, in a general way, that, granting the need of operation and the impracticability of local or regional analgesia, *the indications for spinal analgesia are the contra-indications for inhalation anesthesia.* So far as the character of the operative procedure is concerned, there are practically no contra-indications to the employment of spinal analgesia. A person already in marked shock or profoundly septic should not be subjected to this procedure. A number of surgeons with wide experience accept practically no limitations to its use. Some operators firmly believe that in certain cases this method is safest and best.

The real objections to spinal analgesia in my opinion are:

1. The operator is absolutely committed to the dose, whatever it be. It can be increased by an additional injection, but it cannot be decreased once given. With the changes in the position of the patient, with carefully graded dosage, control can be exercised.

2. In prolonged operations the analgesic effect may pass before the surgical procedure is finished. In some cases, as in laparotomy, it is quite inconvenient to turn the patient over for another injection.

It would be safe to assume that even its most enthusiastic adherents would not advocate the usual employment of spinal analgesia by the surgical novice. It must, therefore, continue to occupy a somewhat limited sphere until further accurate and scientific experimentation has led to more certain conclusions with reference to the physiologic action of the agents employed and the dosage in which they may be used to obtain a given result. Until such information is definitely in hand, spinal analgesia should be employed, as a rule, only by those experienced with the method and having careful technic.

34 Grammercy Park.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BASKERVILLE, ALLEN, GWATHMEY, MILLER, LUMBARD, TETER AND BAINBRIDGE

Dr. F. J. Cotton, Boston: The question of doing better work in anesthesia is largely one not of diminishing the deaths "on the table," but of diminishing those indirectly due to the anesthetic. There are, for instance, the deaths from ether from lung complications. It was a short series of deaths from that source that made me take up nitrous oxid-oxygen anesthesia. As Dr. Teter has said, it is the anesthetic of choice for routine work, when it can be administered by experts. Both this and spinal anesthesia are expert propositions; they will not become surgical routines for big hospital clinics. That, however, is no reason against their use where we can have our own way.

I have not had a large experience with spinal anesthesia; I think that proper administration makes it safe and satisfactory. I have had it given a good many times by Dr. Allen and Dr. Richardson, of Boston, and have found it satisfactory. The cases in which it seems to me that it would not be satisfactory to use any other form of anesthesia are those of diabetic gangrene and those of seriously damaged kidneys. These patients do better under spinal anesthesia, and I have been afraid to use nitrous oxid on them. The objection to spinal anesthesia, in addition to the fact that it requires an expert to administer it, is twofold: first, on the part of the patient; and secondly, on that of the surgeon. First, there are patients on whom it cannot be comfortably used; even if one anesthetize such a patient at the head, by talking to him, he is more or less nervous. Second, it takes long practice to do work with any kind of anesthesia when consciousness on the part of the patient is not abolished. To do good work under such conditions takes a rather callous temperament or long practice. There is great convenience in having a visible supply of gas. Oxygen is the only gas of which it is important to have a visible measure, but it is convenient to have a visible supply of both. Some form of bubbling arrangement is necessary—to enable one to see whether the oxygen is flowing. The development of cyanosis is so prompt under nitrous oxid and oxygen that if there is any hitch, there is trouble very soon. Anything that gives information on this point is rather worth while. Dr. Teter has not spoken of the furthering of an even flow by working from low pressure. This advantage is commonly accepted to-day, though it is relatively new in the handling of this anesthetic method.

Prof. Yandell Henderson, New Haven, Conn.: I urged yesterday in the House of Delegates (and it seems to me that the matter of statistics tends to bear out the point) that deaths under anesthesia are not really due to anesthetics, but to anesthetists. That is, if we are going to diminish the deaths under anesthesia, we must have capable anesthetists—I am not giving an expression of opinion one way or another as between nurses and interns. The principal point that the Committee on Anesthesia urged was that everything should be done that can be done to recognize anesthetists—to have a department of anesthesia for every large hospital and to put it under the control of the attending anesthetist, as the medical or surgical work is under the control of the attendant in medicine or surgery. This work should be managed by the attending anesthetist, just as it is by Dr. Allen at the Massachusetts General Hospital. This is of the utmost importance. Dr. Teter spoke of the quantity of carbon dioxid that is allowable. In an early paper, I set the limit at 5 per cent. That is too low, but there were not sufficient data at that time to enable us to know how much would be safe. It is clear now that it is quite safe to go to 10 per cent., and very likely 15 would not be dangerous.

The New York Society of Anesthetists, which was organized last winter, has been the means of bringing the anesthetists in the neighborhood of New York into personal contact, which is important for their mutual advantage and the advancement of anesthesia; and they have felt that it would be well to have a national society of anesthetists. It seems to me that to bring the anesthetists all over the country into contact and give them a feeling of solidarity, so that they may work together and insist on their rights, is most necessary.

Dr. W. Wayne Babcock, Philadelphia: My experience in spinal anesthesia does not date back so far as Dr. Bainbridge's; but eight years ago, I began to use spinal anesthesia and since then I have employed it in nearly all cases in which the operation was below the level of the nipple, except when the patient or the family physician expressed a prejudice. I began with heavy solutions and found difficulty in securing uniform anesthesia. Gradually, I worked away from the heavier solutions and used the lighter, and found that the range of the anesthesia became greater. Finally, by adding alcohol to reduce the specific gravity, I found I could produce an anesthesia that would involve any part of the body, even to the top of the head. The specific gravity of the anesthetic being less than water, if the patient sat erect it would soon rise to the upper cord. This fact involved certain dangers, and I soon discarded the high anesthesia, and as a rule limited the use of the anesthetic to operations below the nipple. There is an apparent general misconception as to the nature of spinal anesthesia; it is not a cord anesthesia, but a nerve-root anesthesia. Therefore, with higher injections, the patient may be completely paralyzed in the upper part of the body, but still capable of using the legs, and with tactile and other senses preserved in the feet, showing that the conducting paths in the cord functionate although certain nerve-roots are involved. This is important, as when the anesthesia is rather high, paralysis of the nerves controlling the diaphragm results in the abolition of diaphragmatic breathing. As this occurs, the chief muscles of the chest having been thrown out of function, the patient may by accessory muscles make ineffective efforts toward respiration. If such a patient be left alone, he will die; but if artificial respiration be instituted, even though the dose of the spinal injection be large, the patient will again start breathing, although perhaps not for fifteen or twenty minutes. The anesthetic has little influence on the heart, and by artificial respiration the patient may be kept alive, even after tremendous doses of the anesthetic.

Spinal anesthesia is contra-indicated in conditions that prevent the efficient use of methods of artificial respiration. It is especially useful in heart disease and in the other conditions described by Dr. Bainbridge. In regard to the objections, first that the patient is conscious, Dr. Bainbridge has shown how patients may almost enjoy the operation. Some, indeed, do seem to enjoy it. Those who are nervous, on the other hand, may readily have their higher centers abolished by injections of scopolamin and morphin. There is more and more a tendency to use narcotics, so that the patient comes down to the operating-room in a "twilight sleep."

Dr. R. C. Coburn, New York: Clover was the originator of the beneficial method of rebreathing, but it was on a very unscientific basis until the work of Henderson, who presented it in such a light that it is now susceptible of almost universal application. I strongly disagree with one of the speakers, who said that nitrous oxid is administered by rebreathing on account of the money that this saves, and that there is no principle involved that renders it safer, such as the matter of the increased carbon dioxid in rebreathing. While it is true that under nitrous oxid anesthesia there is less shock than under any other form, and that the anesthetic *per se* does not produce shock, yet under its influence there is a smaller amount of carbon dioxid in the blood, and therefore, a greater call for its retention than with any other anesthetic. As a corroboration of Henderson's theory as to the effect of the retained carbon dioxid in the administration of anesthetics, I want to cite personal observation that in abdominal operations in which the viscera are exposed and there is opportunity for the carbon dioxid to transpire into the surrounding air, the patient will tolerate a double amount of rebreathing, i. e., twice as much as in other conditions in which there is little exposure of the capillary blood-vessels.

A point in the administration of ether that corroborates this is that when a patient is under a light anesthesia, the shock is greater than under deep anesthesia, especially in abdominal operations. It is my experience that in the administration of ether, when one uses an extra amount of rebreathing, keeping the carbon dioxid at normal or more, the patients will undergo operations under light anesthesia with practically no shock. I believe that this is due to the increased carbon dioxid provided through the extra amount of rebreathing. In abdominal operations, in which this observation has been especially made, the carbon dioxid has the opportunity of transfusing into the surrounding air; and it is much lower in such operations than in those in which there is no such opportunity for the carbon dioxid to pass off into the air. While it is true that rebreathing in the administration of nitrous oxid reduces very materially its cost, I am quite sure that it is not the proper reason to give; and I am quite sure that the men who have been primarily engaged in the production and the promotion of nitrous oxid anesthesia with rebreathing have not placed their work on that basis.

Prof. Yandell Henderson, New Haven, Conn.: I did not say what Dr. Coburn thinks I did. What I said was that the method of rebreathing started as a question of cost. I would say that we have no exact measure of rebreathing in the individual patient, and until we have some clinical measure of rebreathing, it is not on an exact basis.

Dr. Robert H. Ferguson, East Orange, N. J.: While I use the open-drop method almost exclusively in my work, I now merely call attention to my belief that about 92 per cent. of all the ether anesthesias in the United States are by the open-drop method. This opinion is formed from a careful scrutiny of all the statistics I can get, together with personal observations made in many hospitals in over 75 per cent. of the states of the Union. Further, I believe that when anesthesias by this method have not been so good as were desired, the failure has been due to unskilful administration, perhaps aided by an improperly arranged apparatus, rather than to the method itself. A point, then, I wish to make is this, that instead of endeavoring to bring out new apparatus and multiplying methods we ought to concentrate our attention on one simple procedure, such as the open-drop method, and perfect it. After its range of usefulness is determined it will be right to study exhaustively another method, if the first is unsatisfactory. Experimentation in anesthesia ought, however, to be of the most conservative kind, since the safety and comfort of the patient is involved. To a mind impressed with such a necessity, the little advance made in a simple method of administering ether during the last twenty-five years is a matter of regret.

As regards anesthetic statistics, we should be very patient, not content with a small number, with those of one locality only or with any of a doubtful or limited value. Dr. Cotton has suggested that the majority of our anesthetic statistics are of small value. I believe that such is the fact chiefly because they are not complete. As an illustration let me say that it has been my duty, from time to time, to investigate so-called anesthetic deaths in various parts of the United States. Often, when my attention has been called to one death, I have found nine or ten in that vicinity. Again, while on the train, coming to this meeting a surgeon told me that the hospital with which he was connected averaged five chloroform deaths a year although his patients always had ether. I could give other illustrations. Now practically none of these deaths are reported in print. Some were mentioned at meetings of local societies but were you or I collecting data for statistics of anesthetic deaths none of these cases would be available. I think these facts are strikingly conclusive of the untrustworthiness of our anesthetic statistics. I wish that every hospital and every surgeon would realize the importance of putting on permanent available record every death, directly or indirectly due to the anesthetic, together with full details of the case.

Dr. T. D. Buchanan, New York: I want to report without pride two unsuccessful cases, merely as a warning and possibly a help to some of you, as surgeons or anesthetists, in diagnosing the same thing that I ran across. After fifteen years of specializing in anesthesia in New York City without any deaths, I came across two cases in two weeks and lost both patients, one under ether, and one under gas and oxygen. Both patients had enormous fibroid tumors of the uterus, both were pretty well exsanguinated by frequent hemorrhages, and both died very suddenly in the midst of the operation. Now statistics with regard to deaths on the table are very hard to get. The causes of the deaths of this sort in the hospitals with which I have been connected were hard to find. Each time that I went to investigate one, the surgeon would say that it was an anesthetic death, and the anesthetist would say that it was caused by shock. That is why we cannot get statistics. In my own cases of fibroid, the deaths were due solely to the anesthetic. I make this excuse for myself, however: that in a number of fibroid cases there is fibroid degeneration, not only of the uterus, but of other parts and tissues of the body, and frequently of the heart. There are numerous authorities for that statement, and I believe that this is what I encountered. I have known other deaths to occur following fibroid operations, ten or twelve hours afterward, but not on the table. The first case might have been due to my not paying attention to the anesthetic, but the second surely could not have been, because I had just had a warning a week before from the other fibroid case, and was watching every second. The second death, as I have said, occurred under nitrous oxid and oxygen. We should have a very wholesome respect for these cases, and not keep the patients in the Trendelenburg position longer than necessary; and the anesthetist and surgeon should avoid throwing even the slightest strain on the heart.

Dr. A. F. Erdmann, Brooklyn, N. Y.: I take this opportunity of thanking some whose names I cannot recall for sending to me the sample anesthetic charts for the society and other libraries. I have a collection of nearly a hundred: some of them are certainly queer. Three or four are very long, a number are very short; some contain only few details, others have space for numerous data; most of them omit important matter, so valuable that I cannot see of what use they really are. As a matter of fact, few charts are properly kept, mainly, I believe, because the intern realizes that pulse-rate, amount of anesthetic used and length of time of operation tell practically nothing of the course of his labor. May I suggest that we go over our charts again to see if there is not something to add to them that will make them more interesting to yourself or to some one else, and which will give them a value for those who like Dr. Gwathmey are endeavoring to gain knowledge of this subject for the common good? Until we use good charts and have them kept conscientiously we cannot expect to be able to gather reliable statistics.

Dr. F. R. Widdowson, Philadelphia: Dr. Buchanan, in his discussion, brought up the subject of statistics. I suppose, if he has had experience in looking up statistics of this character in a hospital, he has found them to be of little value, owing to the way in which these records are usually kept. I think that the reason why Dr. Gwathmey failed to get reports from many hospitals was their inability to render a report of value from the imperfect records. If a hospital does not have a form, as Dr. Erdmann has just said, on which the anesthetist can record the data concerning the administration of an anesthetic, the records regarding anesthesia will be very meager. For those who teach and have charge of the anesthetic work in hospitals, the first thing is to have a "form" on which data are collected systematically. If the administrator knows he has to make a record of these things on a chart, he will attend to his work in a more systematic manner, think of the different points, and derive more benefit therefrom. I would say to the surgeons and anesthetists here: One of the best things you can do is to have an official chart made for your hospital when you return. If you have one, you can improve on it, getting additional data. Then when Dr. Gwathmey or some other anesthetist tries to get statistics, he will be able to get them satisfactory to himself and to you, and it will be a pleasure, for the hospital asked, to give them.

Dr. Frank W. Pinneo, Newark, N. J.: There are four principal elements necessary for the success of insufflation anesthesia, which the report of the Committee on Anesthesia recognizes; that is, first, the warming of the vapor in the insufflation apparatus. The three other factors are maintenance of a steady air-pressure; a cock on the apparatus to determine and govern the delivery of vapor to the patient, and a catch-bottle to make it impossible for any liquid ether to be carried over to the patient. We ought not to think nitrous oxid and oxygen useless because some ether has to be added and where such an exponent of it appreciates the little ether added it helps to broaden the field for nitrous oxid and multiply its users. Dr. Gwathmey also has pointed out the value of nitrous oxid, which is, as Hewitt said, "the safest anesthetic known." There is a contra-indication to its use in children under 5 years of age, but here straight ether is usually good, or, in competent hands, with caution, we may be able to use chloroform for induction (never after an initial period of "ether excitement").

Dr. F. K. Ream, Chicago: I have been administering nitrous oxid and oxygen for over twenty years for the extraction of teeth. This particular work led me to engage in hospital practice, and my work is largely limited to that now. I have so completely covered the ground of the use of the various methods that I am really apparatus-poor, having purchased most of the outfits on the market; my experience has led me to the selection of two methods. My method of choice is the Teter, using large nitrous oxid and oxygen tanks with continuous, uniform pressure, making it possible to obtain intrapulmonary pressure, as recommended by Dr. Teter. I cannot with any other method on the market obtain relaxation and control my patients without ether, as I can with the intrapulmonary pressure. I consider all other methods substitutes. I think that Dr. Teter's methods and research have done more to eliminate and limit the use of chloroform and ether than those of any living member of the profession.

I have recently had a series of cases in which I used Dr. Coburn's apparatus for a mixed anesthetic and rebreathing. In some of these, I did not use any ether whatever, and obtained splendid relaxation. In cases in which that is possible, the patients, I believe, must be susceptible to anesthesia in order to bring about that condition, but I am satisfied that I can obtain very much more relaxation from nitrous oxid and oxygen under pressure.

Dr. J. W. Heim, Louisville: I disagree with the man who recommended the chloroform-ether sequence for children to whom we do not wish to give chloroform straight. I think that is the most dangerous form of anesthesia. If in giving an anesthetic the beginning is the most dangerous, why should we use chloroform, which is the most dangerous anesthetic, at the most dangerous time? I would rather induce the anesthesia with ether.

Dr. W. S. Bainbridge, New York: First, the early mortality from spinal anesthesia cannot, I think, be attributed to cocain, but to the excessive dosage of cocain employed and the wrong technic. From my own experience, I have learned that stovain and tropacocain are the spinal anesthetics of choice. Still, cocain has been uniformly of value in my cases. The only new thing about Jonnesco's method was that he put strychnin with his analgesic drug into the cord. Stovain had been used before; the high puncture was not new; strychnin had been used by others. In 1901, I was personally employing strychnin under the skin to offset any bad effects of cocain in the subarachnoid injection.

By using cocain low in the cord, I have been able to do operations on the top of the head and have had a number of cases of total analgesia. I thoroughly believe that there is such a thing as preanesthetic anticipatory shock, and the person who says to a patient about to take any anesthetic, "Look what is going to happen," is giving him a certain amount of shock, with which the anesthetic has no right to be saddled. Whenever possible, the mind as well as other organs of the patient should be properly prepared for any anesthesia. I think that it is a safeguard to the patient for the surgeon to watch what he is doing. There is likely to be less shock from unnecessary handling of the tissues when the patient is conscious.

I have had children as young as three months sucking the bottle while the operation for incarcerated hernia was going on, and only stopping their sucking of the bottle with a good, ravenous appetite, to give a cough indicating the general bronchitis that was present. Waugh and Lane assert that the use of spinal anesthesia in acute abdominal conditions in children reduced the mortality about 20 per cent.

Dr. Charles K. Teter, Cleveland: What is the prevailing impurity usually found in nitrous oxid? I have had reported to me within a month two fatal cases in which nitrous oxid and oxygen were used, death being due to impure gas. There are such peculiar symptoms manifested in such cases that the cause cannot be overlooked. The patients have a very peculiar greenish-red color, and the blood seems almost of a rusty hue. Dr. Clifford U. Collins, of Peoria, Ill., reported a fatal case with these symptoms within the last month. I have had two cases in which these symptoms arose, and in both I found that my gases were impure. I did not have the opportunity to have the gas analyzed, in order to find out what particular impurity produced the condition. The patients were quite sick for a day or two, but recovered. I think that the impurity was probably nitric oxid.

It has been said lately that all that was necessary to make the present nitrous oxid and oxygen apparatus an automobile was the addition of a carburator. If nitrous oxid is the agent used to induce and maintain anesthesia and not as a makebelieve, a more or less complicated apparatus is essential. At present it may be admitted that in the way nitrous oxid is administered by a good many people, it is not the anesthetic. They are really using the closed method of ether, giving 3 or 4 ounces of ether in an hour, but calling it nitrous oxid anesthesia. It requires only an inhaler and a bag and a couple of cylinders to do this; but if one depends on nitrous oxid and oxygen, only using the oxygen to eliminate the asphyxia, one must have more apparatus and also some sense to know how to employ it. I have seen some men give anesthetics who, if they had to pass as stringent an examination in regard to the subject of anesthesia, as a chauffeur has to pass in his examination, would fail.

One must use common sense in employing positive pressure. If it is used to such an extent that stress is thrown on the respiratory mechanism, one is using too much. If there is strain, one should change the pressure. There should be no strain. In the average case, if one uses 6 to 8 mm. of mercury pressure, it will not hamper respiration in the least. If this is too much, the pressure should be released. The reducing of pressure in a cylinder is important in securing a perfectly even flow of the gases.

Dr. A. H. Miller, Providence, R. I.: It is a fact that there have been no reliable statistics of the mortality from anesthetics available, but I do not believe that this should be. I believe that we can get valuable statistics of the mortality from anesthetics. In the first place, we must separate the deaths that occur as the result entirely of the anesthetics from those in which the anesthetic contributed to the fatal result, and from those in which it had no effect in producing the mortality.

Dr. James T. Gwathmey, New York: The statistics, as given this afternoon, are certainly reliable, and more reliable than any heretofore taken. Indeed, they are more reliable and of more consequence to us, for they represent the results of statistics as given in the United States to-day. Dr. Cotton, in his discussion, stated that he doubted their value, because he knew that many unreported deaths occurred under anesthesia, and also that postoperative deaths are probably not reported in these statistics. It is a question whether any postoperative deaths are reported, yet we know that they do occur after all anesthetics. In the last month, I know of a case (a laparotomy) in which a local anesthetic was used. The operation was successful, and a large tumor was removed; the patient died a few days afterward, from pneumonia. The question is so complicated that if we go into the matter of collecting reports of deaths after operation, it is doubtful whether, even if we had the statistics of all postoperative deaths, they would be as reliable as the statistics we have that can be compared with similar ones already in existence. We know that anesthetic statistics are recorded in but few hospitals of America to-day. The fact that I sent out circulars to the hospitals started many of them in the work of compiling statistics; and I would suggest that if it is known that statistics are being asked for they will be more careful in the future.

Anesthetics are in a state of evolution. There is no one accepted method of anesthesia. As to the question of whether local, spinal, morphin or pulmonary anesthesia alone or in combination is the best method, no one can say positively. Therefore, I should like anyone who is connected with a hospital that has not given statistics, to assist me by asking for a circular to fill in. This report will be the first that has been made of reliable statistics in America.

Prof. Charles Baskerville, New York: As to the different prices of ethers, I would say that I make it a rule to pass on the quality, without inquiring about the price. It is immaterial what the price is. That involves a problem of manufacture, which is not generally known, outside of what I have presented in the paper. Some manufacturers make one grade of ether—anesthetic ether, they call it. Some make just "ether"—chemically pure ether (which is infinitely purer than the anesthetic ether), anesthetic ether, commercial ether. Ether may be thus of three kinds, and they may all be made in one way. You know the class of labor that many manufacturers employ; and when they get to the packing, there is danger of mixing these ethers. I have had some cases of that kind. It might have been an accident, but it happened. Some manufacturers of ether prepare only one grade, anesthetic ether, and some manufacturers who make the different grades can afford to sell commercial ether at a low price. They then rectify a little of that, so as to get just enough to keep their trade in the anesthetic grade. It is a perfectly good ether; but if nothing was paid for it, they would lose nothing. Every cent that they get for that is net profit. It costs them nothing to produce it.

The truth is that when we gather statistics we do so for two purposes. One of these is the matter of curiosity. That is all statistics show in one way. The other object is to learn something; and what we want to learn is how to get over the troubles that we have been having. I am convinced that each drug has its specific action and the processes that go on in the human body are the same as those that we control in the laboratory; and that is the whole field of medicine. If we can learn to control the different reactions, we have the problem solved. That is one thing about getting an anesthetic into the system. Of course, I realize that it is dangerous for a chemist to trespass in a field of that kind, but I shall be out of town soon. The anesthetic ought to be sent in approximately at the temperature of the body. It should also be sent in approximately at normal humidity, and both of these have been accomplished by means of vapor anesthesia, whether nitrous oxid or other kinds, if passed through water.

An improvement on Dr. Gwathmey's method is that of Dr. Davis, which consists in saturating vapor with water and warming it afterward, so that it enters with a degree of humidity of 60 or 70 per cent.

ANESTHESIA BY PHARYNGEAL INSUFFLATION *

FRANK WILCOX PINNEO, M.D.
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The ideal anesthesia includes four factors: (1) an induction, short, tranquil and not unpleasant to the patient; (2) a maintenance, surgical, even, featureless and so absolutely under control that it is but just deep enough each minute for the existing purpose; (3) a recovery, prompt and complete; (4) after-effects, *nil*, i. e., without symptoms, immediate or remote, in any organ, alimentary, respiratory, circulatory or excretory. It is true of every known method that as it approaches this ideal in some respects it recedes in some other; hence the need for adapting the anesthetic and its method of administration to the individual case, choosing the best combination of results attainable.

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* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

In the surgery of childhood — not a new subject, but bound to receive more special attention — we are confronted, in anesthetics, with the pediatric problem of administering to an organism, embryonal in some degree, potent drugs to which it is peculiarly susceptible. Hughes[1] points out in this connection that age and body-weight are as important as in feeding or medication. The same authority shows the fault of a "smothering" induction, that the workable limits of a safe maintenance are very narrow, that under 5 years of age any deprivation of oxygen is badly borne, that liability to surgical shock increases, not diminishes, with deepening anesthesia, and that detection of shock is especially important and not easy. Kelley,[2] of Cleveland, says that prolonged operations are bad for children, and all can confirm this who have watched the vitality wane in one who may have gone through the first half hour very well. Kelley also emphasizes the need of gentleness in manipulation of the delicate tissues of a child, quoting Bloodgood[3] that "rough handling of tissues and hemorrhage" are most productive of shock.

UNIFORM MAINTENANCE OF ANESTHESIA

In the evolution of surgical anesthesia since its beginning with Long, 1842, Wells, 1844, and Morton, 1846, the present age demands, not so much discovery of new anesthetics as refinement of methods and greater accuracy in the use of the materials we have. But this — to be practical and universal — must be accomplished without elaborate apparatus. The report of the Anesthesia Commission of the American Medical Association,[4] just made public in the Handbook of the House of Delegates of this Association, says, "Recent developments in this field afford ground for the hope that we are to-day at the beginning of an epoch of progress in anesthesia unequaled since its original discovery and introduction." The need is for an anesthesia featureless, safe, surgical, yet not more profound than immediately necessary. The maintenance of this state is our chief concern, and is difficult, particularly in operations about the throat and face where anesthetist and surgeon both need the same field. Kocher, in his "Operative Surgery," says, "Even careful surgeons are still confronted with the great difficulty of maintaining the right degree of narcosis during a prolonged operation." The above-mentioned report of the Anesthesia Commission[5] also says:

> As regards ether, the two points to be emphasized especially are that anesthesia should always be induced quickly, and that throughout its entire duration it should be as nearly uniform as possible. It is not the anesthetist who at all times maintains uniformly deep anesthesia whose patient stops breathing. This accident comes particularly to those who administer so irregularly that the patient at times comes nearly out of anesthesia and again is plunged into profound narcosis. . . . Anesthesia is good in proportion as it is uniform. . . . Offenses against this principle occur most frequently in adenoid and tonsil operations. When the death of the patient (usually a child) results, it is assigned either to "heart-disease" or to an "unrecognized condition of status lymphaticus." It is probable that in most cases these deaths are merely the natural result of intermittent anesthesia and of the increased susceptibility induced by fear. Under the ordinary methods the anesthetist and the operator are alternately in control of the patient's nose and mouth.

Packard[6] has compiled a list of twenty-nine deaths from the anesthetic in tonsillectomy, twenty-six of them being from chloroform, none from ether. That this especially concerns children is seen in that twenty-two of twenty-eight patients were 12 years or under, five between 13 and 16, and one, 20 years. That intermittent anesthesia is very deleterious, even deadly, is reported by Yandell Henderson,[7] with confirmation by Carrel in animal operations, showing that renewal of the anesthetic after partial recovery is fraught with much danger. His comment[8] on the case reported (death in stage of ether excitement under tonsillectomy) is:

> The reason that "unsuspected status lymphaticus" is so often invoked after tonsil operations lies less in any connection of the tonsils with the thymus than in the fact that ether is administered intermittently in such operations, and the subject comes part way out of anesthesia.

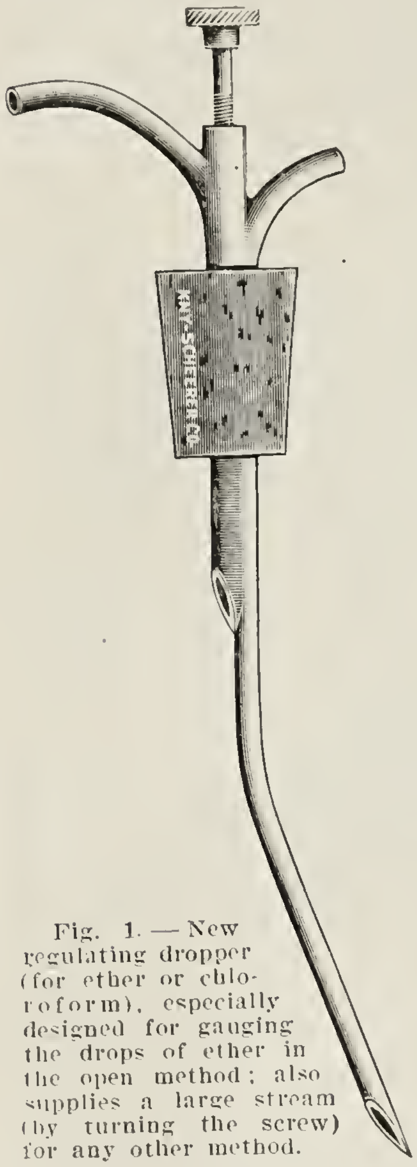

Fig. 1. — New regulating dropper (for ether or chloroform), especially designed for gauging the drops of ether in the open method; also supplies a large stream (by turning the screw) for any other method.

He thinks that "status lymphaticus" has been made to bear an unreasonable burden of deaths from unexplained causes and adds:

> If anesthetists will only realize that this (interrupting the administration of ether) is a procedure which above all others should be shunned, the number of cases of so-called "status lymphaticus" under anesthesia will, I believe, show a sudden and marked decrease.

The problems are not solved in simply choosing the method. In the preliminary report of the Anesthesia Commission of the American Medical Association, Cunningham and Anderson,[9] giving a summary on the closed method of ether, cite as a disadvantage that the uneven administration (due to intermittent application) trespasses on the safety limit and predisposes to shock.

But in adopting the open method[10] another difficulty confronts us. The same investigators[9] found this so characterized by refrigeration, the evaporation of ether on inhalation extracting so much heat from the lungs (for exhalations are warmed) that, "if refrigeration is a factor in postanesthetic pulmonary complications" or shock, the open, or drop, method must head the list, as it extracts most heat from the patient. The semi-open method, as with the Allis inhaler, is a compromise between the closed and open method, standing nearer one or the other according to the freedom of air admitted or amount of rebreathing allowed. That it must have great merit is shown by the great extent of its use and by the tendency, I observe, in even those who think they are using the open method to withhold partially the patient's exhalations by a surrounding towel or even a partial impervious cover over the mask. Again, how many do not drop the ether on but pour it more or less intermittently? If the drop method is chosen the ether should be administered by perfectly regular drops.

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[1] Hughes: Kirmisson's Surgery of Children, p. 803.

[2] Kelley: Surgical Diseases of Children, pp. 41 and 48.

[3] Bloodgood: Bryant and Buck's American Practice of Surgery, ix, 478.

[4] Report of Committee on Anesthesia, THE JOURNAL A. M. A., June 15, 1912, p. 1908.

[5] Ibid., p. 1909.

[6] Packard, Francis R.: Adenoid Operations, THE JOURNAL A. M. A., Aug. 28, 1909, p 695.

[7] Henderson: Intermittent Ether Anesthesia, Tr. Am. Surg. Assn., 1911, p. 231.

[8] Henderson: Heart Failure Under Ether, Surg., Gynec. and Obst., August, 1911, p 164.

[9] Cunningham, O. J., and Anderson, H. C.: Methods of Administering Ether, THE JOURNAL A. M. A., Nov. 7, 1908, p. 1574.

[10] Herb, I. C.: The Open Method, THE JOURNAL A. M. A., May 6, 1911, p. 1314.

A REGULATING DROPPER

To facilitate this I have designed a regulating dropper which may be set at any desired rapidity of drop or stream, is inexpensive and easily inserted in any cork. The best mask has, rather than a thin layer of stockinette, enough layers of gauze, with coarse mesh, to hold some vaporized ether (yet not enough to prevent breathing through it). This diminishes refrigeration and improves the volatilizing of the ether. I am confirmed in my opinion of the value of this by the judgment, in animal operations, of so accurate an observer as Alexis Carrel,[11] who says, "I found that my animals lasted much better if the mask used to etherize had a large dead space so as to involve a considerable amount of rebreathing."

RECTAL AND SPINAL ANESTHESIA

For operations about the head, rectal etherization has been developed,[12] but its field must be very limited and dependent on a skilled anesthetist and careful preliminary preparation of the rectum. It adds rather than removes difficulties. Spinal anesthesia[13] has its field, but the untoward effects during operation and the after-effects, according to Freeman Allen,[14] are such that, in spite of any indications for it in given cases, it can never wholly replace inhalation anesthesia with its adaptability, in depth and control of anesthesia, to the age of patient and kind of operation—an adaptability especially promoted by the use of such means as I propose.

NITROUS OXID-ETHER SEQUENCE

In the search to combine the advantages of different anesthetics, the present age has come, happily, to the use of nitrous oxid preliminary to ether. Such a sequence must be sharply distinguished from mixed anesthetics, such as the A. C. E. mixture, with their uncertainty and danger. Nitrous oxid, especially with oxygen, is most safe. In sequence with ether, as by Gwathmey's apparatus, it affords the advantages for induction and, if the ether following be administered conveniently for head operations, we approach our ideal in maintenance as well as induction. Sequences have come to stay, and statistics prove they are safe. The Pennsylvania Hospital[15] in 11,167 anesthesias had eight deaths, none under sequences but all among the 2,391 straight anesthesias, three under ether, five under ethyl chlorid. Nitrous oxid and oxygen, followed by ether has much to commend it, for with these under instant control by proper apparatus, as Teter's, almost any indication may be met, the ether being, as Crile[16] has shown, an important factor in the administration. The disadvantages he enumerates include the apparatus and experience necessary, the venous congestion and incomplete muscular relaxation; to which might be added the customary hypodermatic of morphin, which in children is contraindicated. In this connection Crile cites a requirement in the administrator, which must appeal to the judgment of everyone having at heart successful anesthesia, namely, a certain personal equipment which affords "the keenest perception of the precise condition of the patient at every moment, i. e., the anesthetist must be a most delicate human recording apparatus."

PRELIMINARY MORPHIN

Bevan[17] and Herb[18] contend against the use, as a routine, of preliminary hypodermatics of morphin or scopolamin. This question has two scientific aspects: (1) that, by its action on the cerebrum, morphin tends to block harmful sensations and, also, that it quiets the respiratory center, thus diminishing danger from acapnia produced by hyperpnea, either voluntary or due to ether excitement; (2) that this very action toward paralysis of respiration removes one of the best safeguards of life, sensitiveness to the stimulation of carbon dioxid (vital, as Henderson[19] has shown) and of ether, and hinders excretion and prompt recovery afterward. Alexis Carrel,[11] at the Rockefeller Institute, says, "I do not give morphin. I use only ether." For our present subject this applies only in so far as it concerns children and the severity and duration of the operation with its need for fortifying the patient against harmful sensations. Crile[20] has well pointed out that there are at work on the nervous system noxious influences which anesthesia does not prevent and suggests means for producing a state of anoci-association (absence of harmful associations). This has its chief application in the handicapped patient, i. e., one whose vitality is seriously impaired, as by infections or severe injury. In the case of children fear is easily overcome by judicious use of our knowledge that they have no natural fear, but that it is learned only by experience.

ANESTHETIST AND OPERATOR IN SAME FIELD

Considering the aims toward the ideal anesthesia which the above facts and opinions suggest, and applying them for operations in and about the mouth or head, we find the following provisions indispensable:

1. After induction of anesthesia the anesthetic must be uninterrupted and capable of administration to any degree the exigencies of the case demand.
2. The operator and administrator must have equal access to the respiratory tract, each without interrupting the other.
3. Sufficient anesthetic must be admitted by either mouth or nostrils alone.
4. The ether vapor must be warmed, and the extraction of heat by the rapid evaporation of ether must be met by the constant supply of an equal number of calories.
5. Finally, the method must be safe, as against the possibility of pumping any liquid to the patient, and simple,[17] so that anyone, qualified for any anesthetizing, may use it, with only the ordinary precautions.

The Junker inhaler for chloroform, which was brought out about 1860, consisted of a small 1-ounce bottle with inlet tube to the bottom for air and outlet tube from the top to the patient. Many deaths resulted from its use; the files of the *British Medical Journal* contain many compiled reports. Hewitt improved it with a double tube, to obviate the possibility of connections getting reversed and liquid chloroform being pumped to the patient. Kocher in his "Operative Surgery" said. "Rose declares that the introduction of Junker's apparatus is the most important advance that has been made in the matter of anesthetics."

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[11] Carrel, quoted by Henderson: Surg., Gynec. and Obst., August, 1911, p. 165.

[12] Cnnningham: Rectal Anesthesia,, Boston Med. and Surg. Jour., April 20, 1905.

[13] Chaput: Spinal Anesthesia, Edinburgh Med. Jour., 1908, xxiii, 243.

[14] Allen, Freeman: Spinal Anesthesia, Boston Med. and Surg. Jour., 1910, clxiii, 715.

[15] Lee: The Use of Ethyl Chlorid as a General Anesthetic in the Pennsylvania Hospital, Ann. Surg., 1908, xlviii, 641.

[16] Crile: Nitrous Oxid Anesthesia, Surg., Gynec. and Obst., August, 1911, p. 170.

[17] Bevan: Choice of the Anesthetic, The Journal A. M. A., Dec. 2, 1911, p. 1821.

[18] Herb: Drugging Before Anesthesia, The Journal A. M. A., May 6, 1911, p. 1315.

[19] Henderson: Heart Failure Under Ether, Surg., Gynec. and Obst., August, 1911, p. 162.

[20] Crile: "Anoci-Association," The Journal A. M. A., Dec. 2, 1911, p. 1811.

THE PRESENT METHOD OF PHARYNGEAL INSUFFLATION

I have used the method now described in some form for three or four years. It was presented to the New Jersey State Pediatric Society in June, 1911.[21] It is designed for ether, but I could recommend it for chloroform, did I believe in chloroform by insufflation, as I do ardently in ether. The apparatus consists of a double rubber bulb maintaining air under a little pressure, which flows, controlled by a cock, through ether in one bottle, then into a second bottle (empty) and thence by tube to the patient's oropharynx or nasopharynx, as may be chosen. The bottles hang in a water-bath heated by an incandescent lamp beneath. A thermometer is kept in the water. After induction is accomplished, preferably with nitrous oxid, anesthesia is maintained with ether. It accomplishes the following objects: (1) the air-pressure being constant (70 mm. of mercury is the maximum with hand-bulb), the administration is even and (2) its rapidity is controlled by means of the stop-cock; (3) the ether in the first bottle is warmed and the etherized air passing from it is kept warm in the second bottle, which also serves (4) to catch any ether condensed in the tube beyond, besides absolutely preventing any being pumped from the first bottle over to the patient; (5) a temperature of 98 F. is maintained in the water by the incandescent lamp, the calculation being that the ordinary and convenient 16-candle-power lamp will in the copper vessel replace the loss from the rapid evaporation of ether (but, without this lamp attachment, simply drawing off some water, by the water-cock, and replacing with warm answers as well); (6) there is flexibility in choice of three methods of delivery to patient, by metal tube in angle of mouth, or pair of Lumbard's glass tubes in nostrils, or pair of rubber catheters, graduated, introduced to level of the soft palate; (7) operator and administrator are mutually independent in the same field; (8) the apparatus is simple, easily kept in perfect order, inexpensive, portable, usable by any anesthetist anywhere.

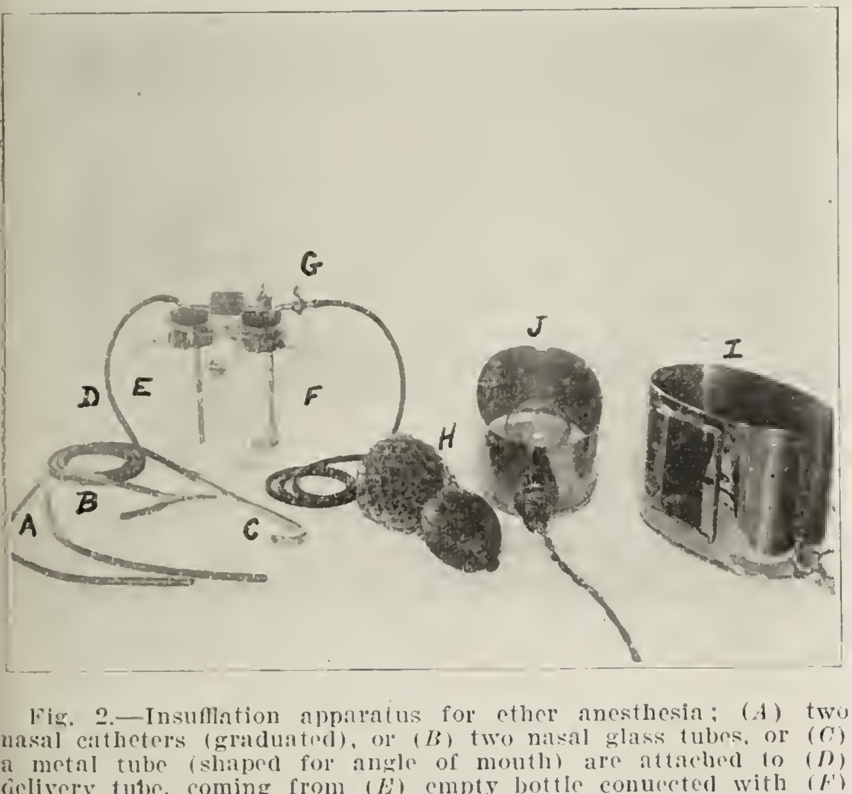

Fig. 2.—Insufflation apparatus for ether anesthesia; (*A*) two nasal catheters (graduated), or (*B*) two nasal glass tubes, or (*C*) a metal tube (shaped for angle of mouth) are attached to (*D*) delivery tube, coming from (*E*) empty bottle connected with (*F*) ether bottle (graduated in grams, also liquid ounces). (*G*) Cock governing the air pumped from (*H*) double bulb. (*I*) Water bath, in which the bottles are suspended. (*J*) Base (containing incandescent lamp), on which the water bath fits; but which, in lack of electricity, may be dispensed with and the cooling water replaced with warm by hand.

I emphasize the value of warming the ether, a facility not hitherto appreciated, except by very few writers recently, notably Gwathmey.[22]

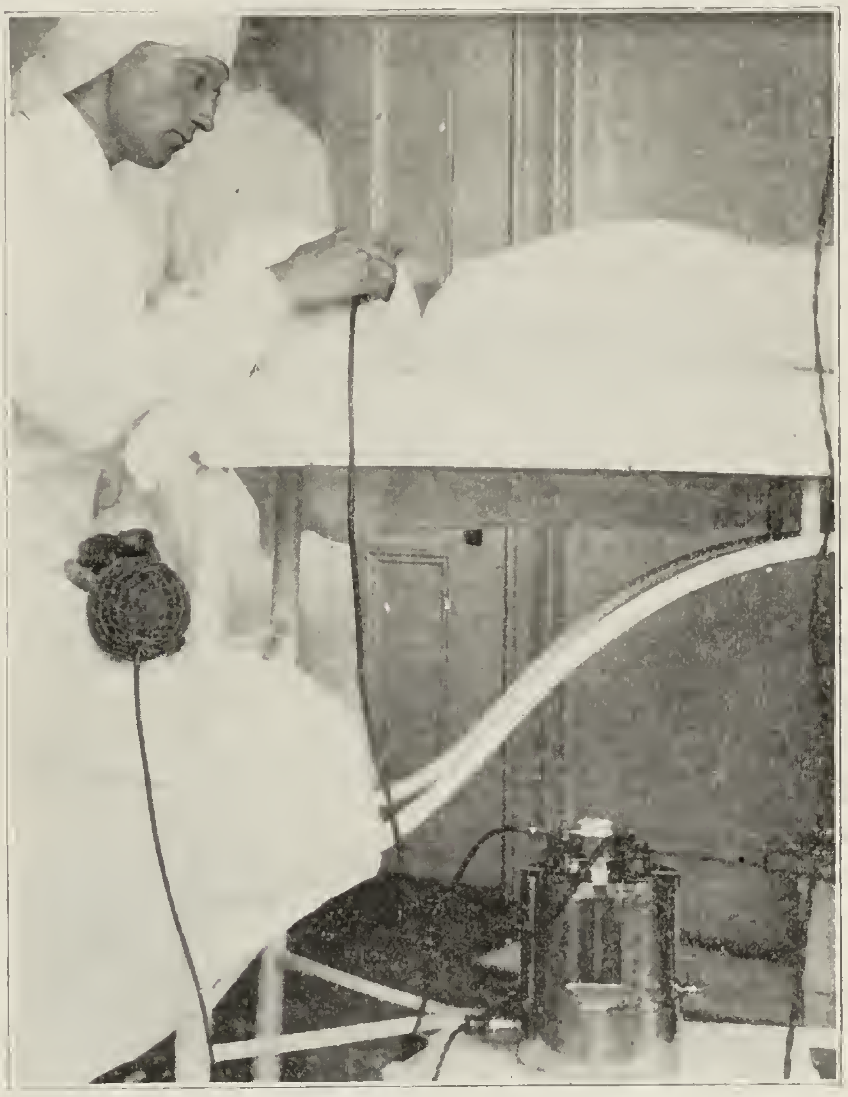

Fig. 3.—Ether anesthesia by pharyngeal insufflation. Ready for operation. The apparatus is entirely out of the way, only a metal tube in mouth of the patient being in the field of operation. The air pressure is steady. Administration is uniform (determined by cock). The ether vapor is warm. No liquid ether can reach the patient.

Cunningham and Anderson[10] state that, with the open method, "experiments have demonstrated that in a room at 80 F. 2.1 per cent. ether vapor reduces the inhalations to 30 F. and 5.4 per cent. ether vapor reduces them to 9 F., thus causing a loss of about 21,000 calories of body heat for every ounce of ether used." Even this does not fully show the conditions in practice, as I have found, by thermometer in the gauze, the temperature to be 0 F. during operation. Contrast that method with insufflation, in which the vapor delivered into the pharynx of the patient is 87 F. and may be maintained at 84 F. under any rate of flow.

INTRATRACHEAL INSUFFLATION

In the discovery of intratracheal insufflation, Dr. Meltzer,[23] with Dr. Auer, has done the world great service. When automatic respiration has ceased, to be able to substitute, surely and safely, artificial respiration, or, when operation necessitates opening the thoracic cavity, to be able to give an anesthetic safely and smoothly, in the absence of any automatic breathing, or even excursion of the lung, is a discovery which marks a new era. The courtesy of Drs. Meltzer and Auer in personal demonstrations at the Rockefeller Institute is appreciated and cordially acknowledged. It is thrilling to see an animal with both lungs exposed to atmospheric pressure anesthetized and oxygenated so well that the lungs are pink and full and the skin and mucous membranes looking as in healthy sleep. Especially interesting to our topic is Dr. Meltzer's latest publication,[24] of artificial respiration by pharyngeal insufflation. It could be easily applied with my apparatus, adding a manometer and provision for substituting instantly oxygen or air in place of anesthetic and thus equip the operator with resources for treating respiratory embarrassment from any cause. This is a preliminary note on some suggested experimental study (Fig. 4).

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[21] Pinneo: Anesthesia in the Surgery of Childhood, Arch. Pediat., January, 1912, p. 18.

[22] Gwathmey: Methods of Anesthesia, THE JOURNAL A. M. A., Feb. 17, 1912, p. 467.

[23] Meltzer: Intratracheal Insufflation, Med. Record, New York, March 19, 1910.

ADVANTAGES

My method, while designed chiefly for throat and head operations, to facilitate surgeon and anesthetist working in the same field, maintains an anesthesia so dry, even and controlled, whether shallow or deep, that I have come to use it for all kinds of operations, including the following: tonsils and adenoids, brain tumors (positions supine and prone), cervical adenitis, cancers of tongue and jaw, lymphangioma of tongue, appendicitis, hernia, meningitis (draining the fourth ventricle), prolonged dental operations, hip dislocations, osteomyelitis, club-feet, knock-knees, mastoiditis, pelvic operations, nephrectomy. The warm, evenly supplied ether vapor seems to find so easy entrance through the pulmonary alveoli that some of the common embarrassments of other methods, such as wet anesthesia when crowding the ether, are entirely absent (and no new ones occur!) (Fig. 5).

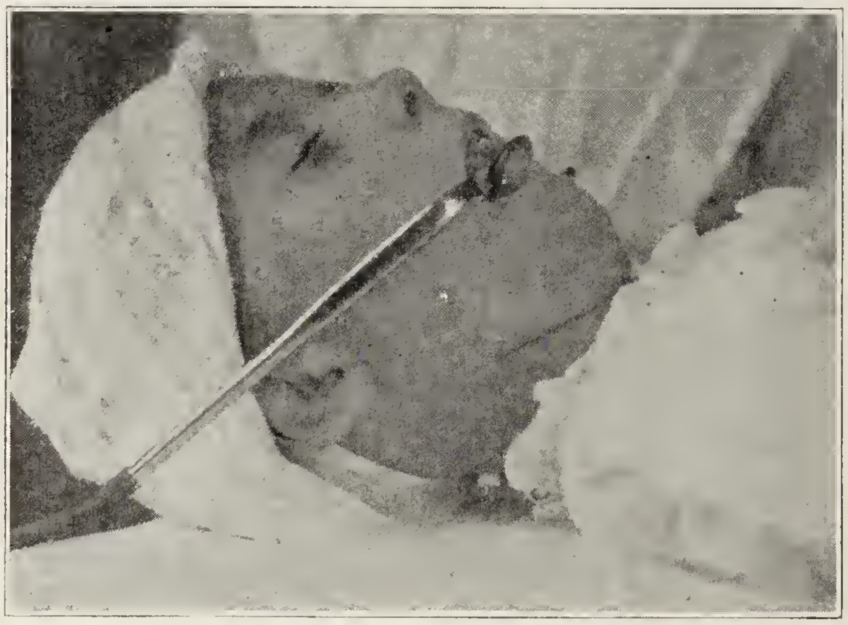

Fig. 4.—The mouth tube in position, delivering a steady, warm, dry ether vapor. Both anesthetist and operator are independent though in the same field.

A recent discovery was the unexpected ability to anesthetize an alcoholic man, to whom ether was like alcohol; increasing the dose by ordinary mask, therefore, would simply produce a vicious circle of cyanosis and muscular rebellion. He yielded on introduction of the mouth-tube, in one or two minutes, smoothly, with good color and dry throat, and he had had no preliminary hypodermatic of any drug whatever! That the success in such a case may be life-saving against fatal, prolonged period of ether excitement is shown in the case mentioned by Henderson.[19]

FOUR ESSENTIAL ELEMENTS

In conclusion, recognition is urged that the following factors are all of them essential in this method of anesthesia by pharyngeal insufflation: (1) steady air-pressure (whether by hand-bulb or foot-bellows); (2) a cock, fixing, at the anesthetist's discretion, the delivery of vapor to the patient, and maintaining it evenly; (3) a catch-bottle interposed between the ether-container and the delivery tube; (4) a heating system which will maintain evenness of temperature.

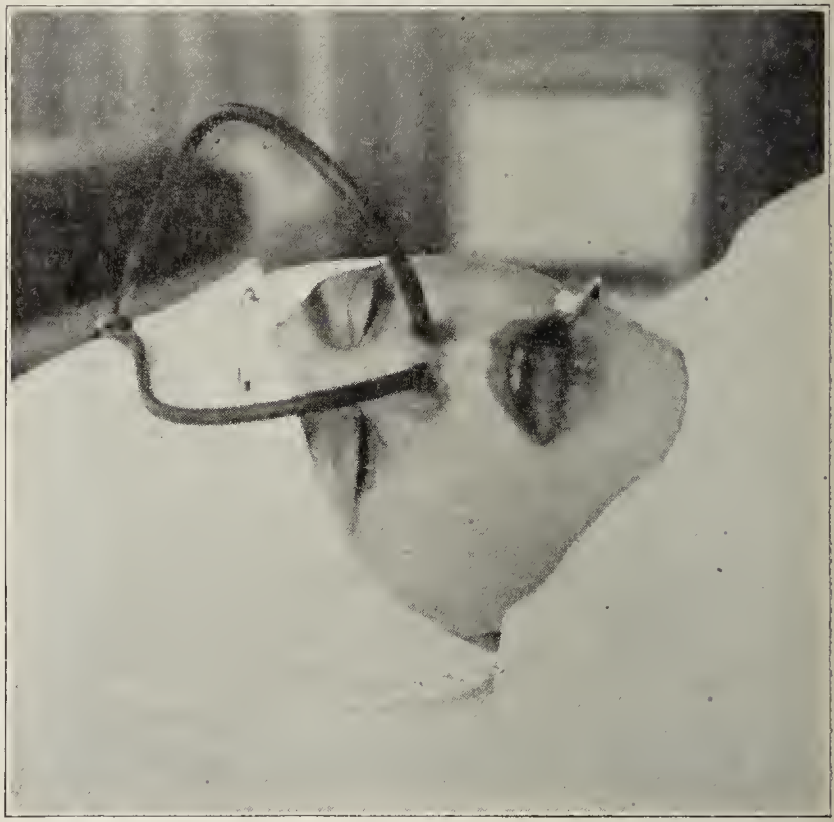

Fig. 5.—The nasal catheters in use. The mouth tube is also shown, though usually unnecessary in addition.

Without all of these the method would be fundamentally lacking; with them, even in different form, it would have the essential elements.

199 Garside Street.

ABSTRACT OF DISCUSSION

Dr. James T. Gwathmey, New York: It has been stated that it is impossible to heat ether vapor. I have made a number of elaborate experiments to prove not only that vapor can be heated but also that it can be kept at a uniform temperature as long as required (*New York Med. Jour.*, June 1, 1912). There is nothing in the world that cannot be heated. To say that one cannot heat ether vapor is to violate every law of physics as we know them to-day. Especially is heat desirable in the administration of anesthetics to children, because loss of heat is one reason for shock. You all know how rapidly a child parts with heat under an anesthetic. Every precaution should be taken to avoid this.

Sequence in anesthetization has come to stay. Dr. Woolsey has proved that by having the child inhale the essence of orange by the closed method and following with ether the cyanosis that sometimes accompanies the administration of the "gas-ether" sequence is not produced. With little children especially I do not believe in the use of chloroform, except in an exceedingly hot climate; even then I do not want to take the responsibility of saying that we should use chloroform throughout with the clinical results of the effects of chloroform before us. Nevertheless, I think that is one of the best methods of introducing the anesthetic to the child. The chloroform-ether sequence is, I think, better than the orange-ether sequence, but the essence of orange-chloroform-ether sequence is the best. The child is frightened quite frequently by the placing of the mask with bag over its face, and the results of recent experiments show that the psychic element must be considered. It is much better to get the child to sleep in a natural way. It is wise to give the essence of orange on an open mask. Place one or two drops of essence of orange (25 per cent. U. S. P.) on the mask, and then follow with ether. As respirations become automatic, change to ether. The good results of the ether are obtained without frightening the child with nitrous oxid. I feel that it is better to do away with the orange if possible and to take the child in a normal sleep. Select an hour before the child naturally awakes. Place one or two drops of chloroform on a gauze sponge held by an artery forceps and approach the child gently before it awakes; change to ether at the onset of surgical anesthesia.

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[24] Meltzer, S. J.: Pharyngeal Insufflation, A Simple Method of Artificial Respiration, The Journal A. M. A., May 11, 1912, p. 1413.

Dr. W. C. Woolsey, Brooklyn: The anesthetization of children is of prime importance because of their extreme susceptibility to all toxins, be they chemical or otherwise. As surgery in children advances, the question of anesthesia becomes important. The administration of any anesthetic to a child by the ordinary open-drop method has disadvantages familiar to all. The particular point to which I would like to call attention is that failure to anesthetize children successfully is usually due to the fact that the irritating ether vapor as the child inhales it, dropped on the ordinary open or closed cone, produces a collection of mucus in the pharynx, contraction of the pharyngeal muscles and paralysis of the muscles of the glottis. This in turn produces respiratory obstruction, which occurs early in the anesthesia of children and prevents them from getting the proper amount of anesthetic. Anyone who has given an anesthetic for the removal of tonsils and adenoids knows the difficulty of getting the child thoroughly anesthetized. It is not because one does not use enough anesthetic, but because there is respiratory obstruction and the child cannot get the anesthetic.

With the introduction of either nasal tubes or catheters into the pharynx, past the point of obstruction, all the disadvantages of respiratory obstruction are eliminated, and the minimum amount of ether may be introduced with the maximum result.

Dr. F. W. Pinneo, Newark, N. J.: The advantage of the essence of orange is that it is so pungent and pleasant, especially for children, that it overcomes the undesirable element, terror, and induces them to take the ether vapor easily, which, without its aid, would be less acceptable. I think it answers an admirable purpose. I do not advocate nitrous oxid for very little children. Their air space is too small. Chloroform in sequence would not have its deleterious effect provided one remembers two things: the error of irregular and inconstant administration and that holding of the breath followed by a gasping inhalation which will flood the lungs with concentrated chloroform, and possibly induce death. The admirable report of the American Medical Association Anesthesia Commission, just published in our Delegates' Handbook, even after condemning chloroform makes a place for it for induction, if it be given early (not after a prolonged ether excitement) and administered perfectly evenly. I prefer nitrous oxid to ether. If the child is too young for nitrous oxid, essence of orange with straight ether is to be commended.

Combustion of Sugar in Diabetes.—An active person in perfect health can burn as much as a kilogram of glucose during the day. In some mild cases of diabetes the patient can burn from 100 to 150 gm. of glucose derived from ingested carbohydrate, plus the sugar formed from the protein of the diet (about 50 gm.) It may be pointed out that certain varieties of starch are more thoroughly utilized than others. Thus the diabetic tolerates oatmeal starch much more readily than any other kind. As the case becomes more severe, ingested sugar cannot be burned and is entirely eliminated, but the sugar of protein origin is still available for combustion. In a later stage even the sugar from this source cannot be burned.—V. C. Myers and M. S. Fine in *Post-Graduate.*

SOME REASONS FOR SURGICAL FAILURES IN CHILDREN *

LeGRAND KERR, M.D.
BROOKLYN

Irrespective of the justice of the conclusion, the fact remains that surgical procedures in general which affect children are not held in due regard by a large proportion of the general public and are not always regarded with favor by the profession.

Undoubtedly this present attitude has been fostered by the inadequacies of which I shall presently speak and while they remain the chief, yet they are not the only factors. I shall eliminate from this consideration all emergency cases, because these are often undertaken under the most unfavorable circumstances and the suddenness of the event leaves the parents unprepared for the exercise of clear judgment. But we must also recognize the fact that elective surgery among children comes in for a large share of public disapproval.

One of the difficulties of the situation is that we are unable to define surgical success satisfactorily. To the surgeon it means something entirely different from what it means to the public and the opinions remain so widely divergent that it often requires the personality of one with a mutual interest to adjust them.

Here, then, is the opportunity for the family physician; the one who is so close to the confidence of the parents and yet who fully understands the possibilities and limitations of surgical intervention. A neutral or politic attitude for him is in no manner constructive of the best interests of the child, the parents, the surgeon or himself, but is destructive to the public confidence in a profession of which he is an important member.

More can be done by the family physician to restore public confidence and a sane attitude toward surgical procedure than through any other channel.

The proper and efficient surgical examination of a child requires a previous intimate knowledge with the normal child at the various periods of its development. Without a knowledge of the morbid tendencies which are peculiar to each period, the unstable equilibrium, the varied and irregular disturbances and the peculiar reactions to either injury or disease will lead the examiner astray. To some extent this knowledge may be obtained from books, but in the main it is acquired just as the surgeon's operative skill is required, by years of experience and observation. It is not sufficient in every case to limit the examination to the surgical condition present, although this is commonly done.

An adequate examination requires that all possible information be obtained of the child's organism as a whole, for this broader view will aid in the discovery of underlying conditions which, when relieved, will lessen the probability of unpleasant and sometimes fatal complications during either the surgical procedure or convalescence. Such an examination, while taking cognizance of every detail of the child's physical condition, should also be supplemented by a detailed history of previous conditions. It is not a common practice among surgeons to obtain a definite history of the possible exposure of the child to infectious or contagious disease and yet we have seen several instances of nearly fatal results (and a few fatal ones) which were due to a disregard for this feature of the examination.

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* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

While I would not be misunderstood as claiming that every "surgical child" should be examined by a pediatrist, yet it remains a fact that the proposition is often a twofold one and the attempt of the surgeon to cope with a surgical procedure with which he is entirely familiar in a being with whom he is unfamiliar is often as disastrous as would be the attempt of the pediatrist to undertake a surgical procedure with which he is unfamiliar in a being with whom he is entirely familiar.

There are so many modifications of the purely surgical consideration that are offered by the changing response of children at different periods and particularly modifications which have their genesis in underlying nutritional states, which few but the trained pediatrist can understand and cope with, that it is unfortunate that the operative skill and courage of the surgeon is not more often coupled with the judgment and experience of the pediatrist. Such counsel would give the child and the surgeon their best chances.

A thorough examination is in practically every instance necessary to establish an accurate diagnosis. For the reason that the examination of young children is commonly incomplete, the diagnosis is often inaccurate and not complete enough to insure a full measure of success. This diagnostic inaccuracy is fostered many times by a knowledge that has been acquired through unreliable sources. In a few instances the accurate knowledge is so consciously insufficient that psychologic factors are allowed to enter. Take, as a common example, the subject of acute appendicitis in children; its importance is so emphasized and it is so constantly the topic of discussion, that it is immediately thought of when abdominal pain occurs in children. And yet abdominal pain is commonly a minor feature of acute appendicitis. Or again, take meningitis; if varied nervous phenomena are present, which are not readily understood, meningitis is often diagnosed when it does not exist. My consulting records show that it is rare to find a diagnosis of acute appendicitis or meningitis overlooked in childhood, but on the other hand, it is common to find them assigned as the cause of symptoms when they do not actually exist.

Generally stated, an accurate and a complete diagnosis is essential to the institution of adequate treatment, but this is not invariably so. For example, I have observed several instances in which, when viewed from the purely surgical point of view, an accurate diagnosis was practically impossible without exploratory incision or other surgical procedure. And yet there were other factors present which would markedly influence the end-results.

If such factors are ignored or reduced to a minor consideration there is immediately introduced into the problem an uncertainty which does not conserve the morbidity or mortality of postoperative convalescence. To appreciate what the end-results will be in any given case requires very often a close consideration of facts that at first seem to have little or no bearing on the disease or injury, but which will force themselves into the problem just as soon as the depressing effects of any surgical procedure are brought into play.

Not infrequently we are asked: "Can the child stand the operation?" Too often it is dismissed thoughtlessly and the child suffers a serious injustice because a surgical procedure that promises a result in the first instance is delayed until in a later stage it is accompanied by added difficulties and does not restore the child's full efficiency. Such a question should be answered by another: "Can we in this particular case adjust our surgical technic to meet all of the conditions presented by this particular child?" The claim is constantly made that there is a too ready recourse to surgery in childhood and to some extent this may be true, but it is my opinion, based on several years of observation, that operative timidity and procrastination are often the cause of operative insufficiency, and that our greatest danger in childhood is in good surgery wrongly applied.

The final results of a skilfully executed surgical procedure have not infrequently been compromised or jeopardized by overinterested, underinterested or inadequately warned assistants.

It is assumed that their selection as assistants is proof of their ability, but irrespective of this, all three classes influence the final outcome of a surgical procedure in childhood in exactly the same way, but from different motives. The overinterested assistant is more alive to the technic of the operator than he is to the best interests of the child; the underinterested assistant looks on the procedure as just so much necessary work to be done and is not in full harmony with the operator's scientific interest; the inadequately warned but trained assistant simply does not know. Each in his own way influences the end-result, contributing not so much to the mortality as to the morbidity, because each contributes more or less to the production of shock.

Now what factors in the production of shock does the assistant have more or less under his control?

They are mainly two: hemorrhage and injury. It must be recognized that whether the blood-pressure is directly reduced or not, the mere loss of blood is sufficient in itself to cause shock in children and the degree is influenced by the rapidity of that loss. It is not sufficient therefore simply to prevent the loss of blood, but the assistant must be zealous in immediate attention to all bleeding surfaces and whenever practical, a vessel should be secured before its division.

Injury that conduces to shock in childhood is not only that made necessary by the operation, but, in many instances, is the result of pulling or dragging on the tissues and particularly on those tissues which are directly connected with some organ. It is as commonly the unnecessary injury done by the assistant as the necessary injury by the operator that adds to the degree of shock in young children.

In far too many instances it has been the policy to designate the least experienced intern as the anesthetist and, without going into a discussion of the matter, it is sufficient to state that such a procedure is unwise and in no way conserves the best interests of the patient or the operator and is a most certain way of adding to postoperative morbidity and mortality and of prolonging convalescence.

Too often the rôle of the anesthetist has been assumed as being necessary but unimportant. And the anesthetist himself has largely contributed to this general opinion by assuming the position of a necessary adjunct to a surgical procedure rather than realizing and making others realize that he is actually and largely a direct contributor to the success or failure of the procedure. Too often he asks, "What anesthetic shall we use?" Too often he, without protest, obeys the command to "push the anesthetic." Too often he accepts the relationship of an inferior when he should be an equal. Who is better able to decide what anesthetic to use and when to push it or withhold it, the trained anesthetist or the surgeon? Surgeons should be more acute generally in realizing that the anesthetist is either a constant danger during a surgical procedure, a necessary adjunct who requires constant watching and suggestion, or is a most valued co-worker according to the thoroughness of his training and experience. And, if in the latter class, it is the operator's duty outwardly to recognize within and without the operating-room the true value of his service and surround his position with the dignity and esteem which it rightly deserves. The danger of an anesthetic in young children is not so much from the asphyxial element as from the toxic, and therefore the preservation of normal functioning should be left to the anesthetist rather than to the operator.

In the postoperative care of children it must be remembered that manifestations of discomfort are not so insistent as in adults, and that children do not often complain, so that in such matters as the detection of postoperative hemorrhages, thirst and pain, there is a necessity for more skilled and careful watching than is essential in adult life. Irrespective of the kind of anesthetic or the length of its administration, thirst becomes a prominent factor and definite instructions should be left for its relief. The same is true of pain; there are many instances in which its occurrence can be predicted with certainty and it then becomes a duty to anticipate it by the use of some means to minimize its intensity.

But most often the efficient management of postoperative convalescence begins before the operation. There are three large classes of children that come to the surgeon for elective surgery: first, those with a surgical condition which interferes with the general health; second, those with a surgical condition which has little or no effect on the constitutional condition, who might be considered normal if it was not for the surgical condition, and lastly, those who, irrespective of their surgical condition or its influence on their general health, exhibit unmistakable evidences of nutritional faults which, while possibly not much exaggerated by their disease or injury, will become important factors when surgical intervention is contemplated.

In the first class, the relief of the disease or injury is all that is required because the surgical procedure is not interwoven with any problems dealing with constitutional depression independent of it. The restoration of the patients to normal efficiency is a question of surgical relief plus ordinary hygienic care and diet.

There is a similar proposition in regard to the second class also, because the surgical condition is largely or wholly responsible for any constitutional symptoms. We ought not to be satisfied, however, with the mere restoration of a balance which follows the elimination of the surgical cause, but should go beyond this and restore normal rather than relative efficiency.

The third class needs more attention before and after than during the operation. Here, then, is the opportunity for the most skilled assistance and counsel obtainable, so that the mortality may be reduced, the morbidity lessened and postoperative convalescence shortened and made more certain and comfortable.

While the general attitude of the public toward surgical procedures in children is not what it should be, there are several definite factors which have led to its unconscious formation. Inaccurate diagnoses are more common in children than in adults and incomplete diagnosis is the rule rather than the exception, both being brought about largely by the lack of intimate knowledge of children in general and the manner in which they react to injury or disease.

An inaccurate or incomplete diagnosis often, although not invariably, leads to inadequate treatment and, as a consequence, the child suffers either from too much or from too little surgery. Inadequate preparation of the particular patient and his surroundings is commonly evidenced by the inefficient examination and observation which precedes the operation; there is often inadequate operative care because no special attention is paid to planning for rapid work, a brief and skilfully administered anesthetic, the most efficient assistants and the maintenance of body heat. And it is a far too common fact that an unpleasant postoperative convalescence is commonly the end of an otherwise perfect procedure because the child has not been understood and safeguarded at every point. Postoperative complications are not always directly due to the surgical procedure; a prolonged postoperative convalescence is rarely a surgical proposition and the surgeon is not always capable of handling the whole proposition because at one period there existed a definite surgical problem.

If there is to be a restoration of public confidence which will give the surgeon his due, it must come through a correction of the inattention to those things which surround and bear on the operation itself and a closer relationship between the surgeon, the family practitioner and the pediatrist. Operative procedure is not sufficient; the little one must be returned to its parents not alone surgically relieved but equipped for efficient childhood.

42 Gates Avenue.

ABSTRACT OF DISCUSSION

Dr. Frank C Neff, Kansas City, Mo.: Sometimes it is the custom for a nose-and-throat surgeon to operate on a child without the immediate knowledge of the physician who has often observed that child. I have had two instances in which such work was responsible for a grave condition which might have been prevented had the surgeon first obtained an accurate history of the child's previous condition. The first child had been a victim of periodic vomiting, and if I had known the child was to be operated on I think certain suggestions regarding the anesthetic and subsequent care of the patient with regard to washing out the stomach, etc., would have been of some value. It seems that in this case the child vomited for three days following the administration of the anesthetic, which was administered by a capable man.

In the second case, the child had been to some extent a bleeder, and had quite a profuse hemorrhage after the removal of the tonsils. It is not probable that the previous history of hemorrhage would have been disregarded had the child's regular physician been consulted.

Dr. Frank W. Pinneo, Newark, N. J.: Children are the most helpless patients, and although we have learned to view their feeding and medication from a pediatric standpoint, their surgery has not yet reached this state. Chloroform is so dangerous, because it is given to a small child in an indeterminate dose for an indefinite period, that surgeons are giving up its use. Does the anesthetist think, for instance, of the result of the excitement produced by the anesthetic on the child as one of the causes of sudden death? Does he know that death may follow after a considerable number of minutes and yet be the result of the anesthetic? Does he realize, also, that the renewal of an anesthetic after a few hours is fraught with danger of sudden death, especially in children? How often do we hear it said, by excellent and responsible men who work with children, "This is but a slight operation; we will just give him a whiff of ether!" A child is more subject to shock and narcotics than an adult. Because a child is easily anesthetized, should we "smother" him with an anesthetic that he will remember all his life with terror of surgery and surgeons? In this era there are so many conditions that a child may have which can be relieved by surgery that he should never be given this terror of anesthesia. Better to postpone operation than to induce anesthesia with terror. Long operations are very bad. So also is rough handling of tissues, necessary through haste. Standing between the two we may have to choose. Bloodgood emphasizes the importance of short anesthesia, but he also recognizes the shock of rough surgery and says that he would rather prolong the anesthetic and handle the tissues carefully and gently, especially in children.

Dr. Kerr suggests a number of excellent diagnostic points on appendicitis and meningitis. Osler says that there is "no symptom of meningitis present in a child which may not be present when there is no inflammation of the meninges at all." Lumbar puncture, therefore, is indicated, if not needed, for diagnosis. And how important, and sometimes difficult, is the differential diagnosis of appendicitis and functional intestinal toxemias?

Dr. H. J. Gramling, Milwaukee, Wis.: A number of cases have been reported in which death was probably not due to the anesthetic but to the persistence of the thymus gland.

MODIFICATION OF THE FERGUSON OPEN-DROP METHOD ETHER-INHALER, AND MODE OF ETHERIZATION

C. E. PRUDDEN, M.D.
DULUTH, MINN.

After extended hospital use of the ether-inhaler devised by Robert H. Ferguson, M.D., of East Orange, N. J., for the maintaining of surgical anesthesia by the open-drop method, and having become thoroughly impressed with the advantages of its use, I employed the principle of construction in a modification which I believe has several advantages over the original.

Using the principle of the Ferguson inhaler as a working base, I have added to it the simple and well-known celluloid gas chamber and rubber mouthpiece of the ordinary nitrous oxid gas-inhaler.

The apparatus is not so complicated as one would suppose on first inspection. It consists of a double copper-wire frame. The inner frame (*A*, Fig. 1) is a convex frame of four wires fastened to the base wire; the outer frame (*B*, Fig. 1) is of a heavy wire ring supported by four wire legs. This is attached to the celluloid face piece (*C*, Fig. 1). Over the inner frame (*A*, Fig. 1) are stretched several thicknesses of surgical gauze, which is held in place by a wire loop (*D*, Fig. 1) that slips tightly over the gauze.

The wire frame with the gauze is then covered with a hood of oiled silk having a draw string at top and bottom. The bottom string when drawn tight and tied around the base wire will keep out all air from below; the top string is drawn up until only an opening of about an inch in diameter remains. Through this opening the ether is dropped (*not poured*) on the inner gauze hood, which is made of eight or ten layers of gauze.

The rubber mouthpiece (*F*, Fig. 2) is then slipped over the celluloid frame and inflated by blowing into the valve and then tightening the valve to hold the air which acts as a seal and face-cushion (Fig. 3).

Should it be desired to have the patient in the lateral position instead of the supine, a hood with an opening in the side instead of at the top may be used.

When assembled for use the inhaler consists of two chambers (*A* and *B*, Fig. 2), and when ether is dropped through *C* in the hood *D* it falls on the gauze *E*, supported by the wire frame, and volatilizes, thereby saturating the air in the chamber *A*.

This air saturated with ether is of a higher specific gravity than pure air and is drawn and falls through the gauze into chamber *B*, where it is inhaled as a vapor by the patient.

The rubber mouthpiece fits tightly over the mouth and nose and conforms to the contour of the face and allows no air to enter from below into chamber *B*. This advantage of fitting tightly to the face does away with the greatest disadvantage from the use of the Ferguson inhaler, namely, the use of towels, either wet or dry, which are commonly used around the base of the Ferguson inhaler to exclude the air from below. It will also be found unnecessary to place a towel or covering over the patient's eyes to guard against any ether which might run into them.

The placing of a covering over the patient's eyes will often at the onset of anesthesia produce a sense of fear in patients by excluding their vision, for they feel that something is about to be done which they should not see, something mysterious, and they at once lose confidence in the anesthetist, which above all should be guarded against, especially in children and hysterical women. Omission to cover the patient's eyes also has the advantage of not obstructing the movements of the anesthetist, by relieving him of the necessity of having continually to remove a towel to expose the eyes in watching the pupils for contraction and expansion.

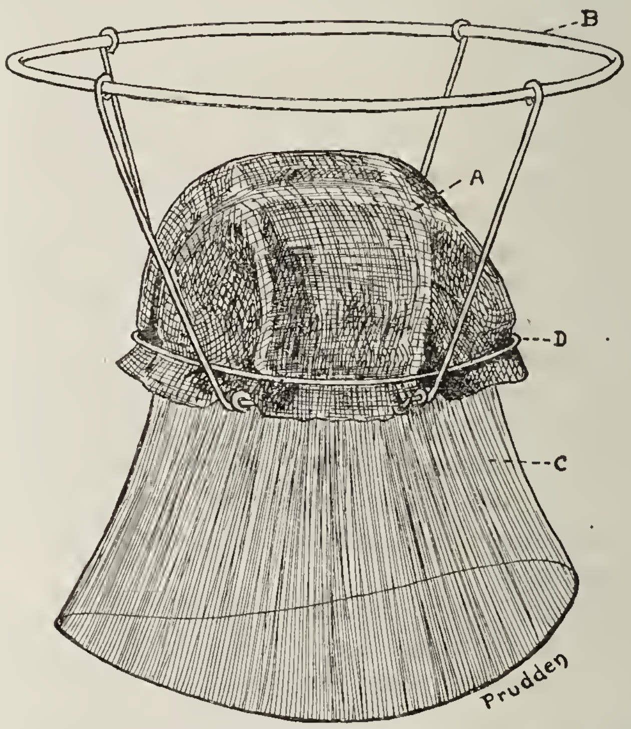

Fig. 1.—Frame of inhaler showing wire construction and gauze pad in place.

MODE OF ETHERIZATION

The inhaler is held in place over the face by the left hand, the third and fourth fingers holding up the jaw; the right hand is free to drop the ether at the rate of three or four drops a second. Through the transparent celluloid frame of the lower chamber (*B*, Fig. 2) can be noted the condition of the mouth; the color of the lips can be watched and the presence of saliva and mucus can be observed quickly and the inhaler hastily removed to clear the mouth and nose of foreign matter.

The patient is first shown the inhaler and is told that placing it on the face will in no way interfere with his respiration; he is also told that the first few inhalations will be unpleasant and that at one stage of the anesthesia there will be a slight choking sensation which will pass away with a few deep inspirations; he is told to breathe naturally and not to resist the anesthetist, but to allow himself to be overcome by the ether.

The anesthetist then has the patient's confidence, which is so much desired for a successful anesthesia; the patient understands that the responsibility of getting rid speedily of any unpleasantness rests with him and he will cooperate by breathing deeply, which will in great part do away with the initial persistent fixation of the chest so annoying to the anesthetist.

The inhaler is then gently placed over the mouth and nose; a few inhalations are allowed to demonstrate that breathing will in no way be interfered with and then the ether is slowly dropped on the gauze through the opening, gradually at first so as not to frighten the patient, and also to produce an analgesic effect on the mucous membrane of the posterior nares, pharynx and larynx, so that it becomes tolerant to the ether vapor. The ether is then increased in rapidity of drops to the second; surgical anesthesia will be produced in from four to nine minutes, generally without any manifestations of the so-called second stage or stage of excitement. Should the chest become rigid and the breathing cease for a short period the anesthetist should not be alarmed and remove the inhaler, as this stage will soon pass if the lower jaw is forced forward of the upper and the ether is increased. The anesthetist may maintain surgical anesthesia for hours by controlling the number of drops of ether and watching the general condition of the patient, the lips, pupils and pulse, the latter by means of the little finger of the left hand placed on the facial artery where it crosses the inferior maxilla, this being done while holding the jaw; or by discontinuing the anesthetic a few seconds and taking the pulse by the index-finger of the right hand on the temporal artery just anterior to the ear.

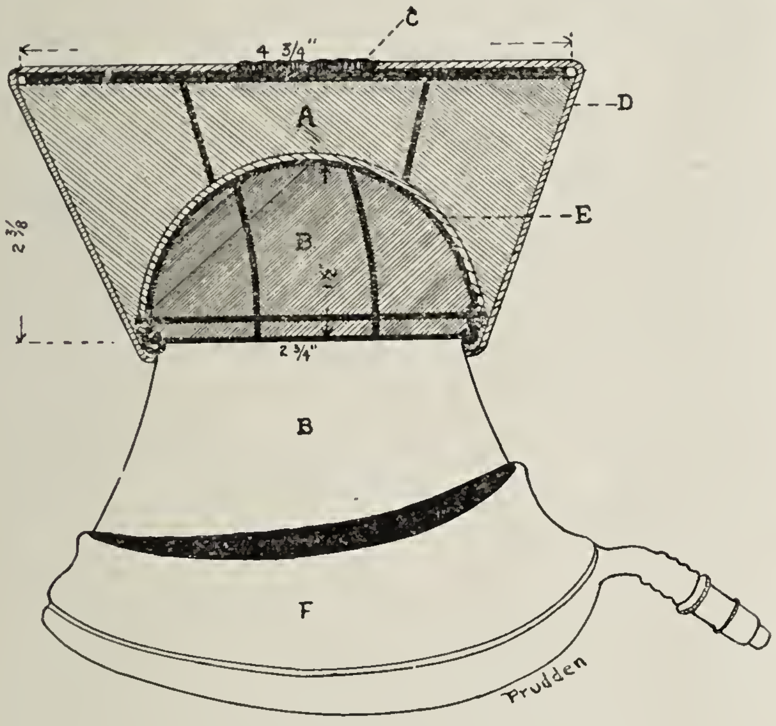

Fig. 2.—Sectional view of inhaler.

Better results will be produced by continually dropping the ether and gauging the amount than by rapidly dropping the ether from time to time with long intermissions.

Rarely, if ever, will nausea and vomiting follow the use of this inhaler with the anesthetic given as directed, and the recovery is speedy.

After the anesthetic the oiled silk hood and gauze pad are removed and the whole frame dipped into some antiseptic solution, dried and a new gauze pad and hood added, when the inhaler is ready for another anesthetic.

Whether or not the much-disputed statement is true that ether vapor given by the open-drop method chills the patient's lungs, I have yet to see a case of postoperative pneumonia or bronchitis follow as the direct result of the anesthetic given by this method and with this inhaler.

ADVANTAGES FROM USE OF THE INHALER

I have kept a thorough record of 300 anesthesias, consisting of the general run of hospital patients, those prepared for operation and emergency accident cases, both sexes and all ages, mostly adults, and including neurasthenics, alcoholics and cases of bronchitis. In speaking of prepared patients I refer to those who had had a clearing of the bowel, no food before anesthesia and were given 1/150 grain atropin and one-fourth grain morphin (dosage subject to discretion) hypodermically half an hour preceding the anesthetic. The latter procedure tends to produce a quieting effect on the sensorium, reduces pharyngeal secretions, accentuates respiration and tends to facilitate the giving of ether in the first stage of anesthesia.

I have not had the most remarkable results obtained and reported by some clinicians, but the following statistics are conservative and based on actual experience in the surgical clinics and have been very gratifying to me:

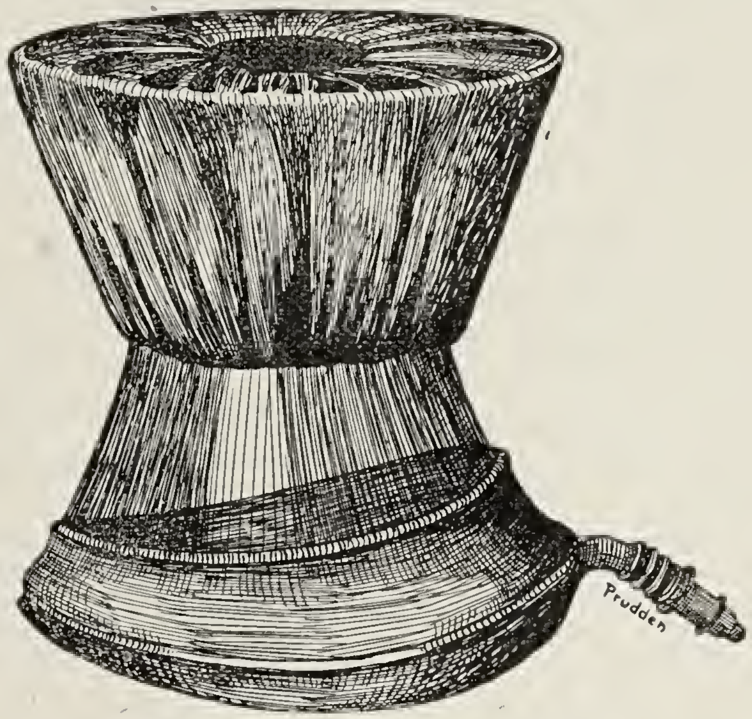

Fig. 3.—Ether inhaler complete.

1. The average time consumed from the time that the anesthetic is begun to the stage of complete surgical anesthesia is six and one-third minutes.

2. The average amount of ether required to induce surgical anesthesia is 2 ounces.

3. The average amount of ether required to keep the patient in surgical anesthesia is 6 4/5 ounces.

These figures vary greatly according to the patient; it takes from four and one-half to nine minutes, and from one-half to 2½ ounces of ether to induce surgical anesthesia. It will be found that as the length of time of the anesthesia increases, the amount of ether used will decrease and so a short anesthesia of a few minutes may require more ether than the whole second hour of a continued and long anesthesia.

The air cells of the lungs become so saturated with the ether vapor during a lengthy anesthesia that it will require very little to maintain an even stage of relaxation and not a too profound narcosis. I have repeatedly observed anesthesias with the use of other inhalers in which it required from twenty to thirty minutes to secure sufficient relaxation in the patient to allow the surgeon to proceed; the patient would become cyanotic, breathing would cease, the anesthetic would have to be discontinued until the prolapsed tongue was brought out of the throat, and artificial respiration would be resorted to and recourse made to the too convenient hypodermic. Generally in these cases the anesthetist has flooded the inhaler with ether and used from 12 to 18 ounces of ether an hour. Of course these cases are rare now, owing to the more intelligent training of anesthetists and to the employment of the open-drop method inhaler.

This inhaler can be made easily with the aid of a pair of pliers and some copper wire and by following the accompanying illustrations. The celluloid lower chamber (*C*, Fig. 1) and the rubber mouthpiece (*F*, Fig. 2) can be procured from any surgical supply house and the oiled silk hoods can be quickly sewed together on a machine.

A summary of its advantages follows:

1. There is absolute freedom from any face covering except the rubber mouthpiece, affording the anesthetist a constant and unobstructed view of the patient's face and condition of the pupils, and relieving the patient of fright which would follow the use of a face covering of towels, excluding his vision.
2. The inhaler fits snugly to the contour of the face, thus eliminating all air from around mouthpiece.
3. Through the transparent celluloid face-piece, saliva, mucus and the color of the lips can be noticed.
4. Absolute safety is secured, owing to the reduced amount of ether required.
5. The administration of ether is simple.
6. The stage of excitement is reduced to a minimum.
7. Surgical anesthesia is produced rapidly.
8. Postoperative vomiting and nausea are infrequent as a direct result of the ether.
9. The same inhaler fits both children and adults, and is adapted to both the dorsal and the lateral positions.
10. Ether may be administered with this inhaler in cases such as alcoholism and bronchitis, in which ether is contra-indicated when given otherwise than by the open drop method.

NITROUS OXID-OXYGEN ANESTHESIA WITH REPORT OF A FATAL CASE

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So much has been written of late concerning the safety of nitrous oxid-oxygen anesthesia that it seems to me a note of warning ought to be sounded as to the dangers and difficulties of administration, so that an anesthetic agent as valuable as nitrous oxid should not fall into disrepute. Despite the assertions of the nitrous oxid manufacturers and the exploiters of the machines, nitrous oxid-oxygen is not the safest anesthetic in the generally accepted sense of the word. Outside of dental work or momentary anesthesias it is not nearly so safe in the hands of the inexperienced as is ether. The margin of safety between surgical anesthesia and death is much larger in an ether than in a gas-oxygen anesthesia, and I therefore believe that if nitrous oxid were used as extensively by the inexperienced as is ether, the immediate operative mortality would be higher.

I wish to add here to the reported cases another death due to nitrous oxid. The anesthetic was being administered during my absence from the city by my intern, who had given possibly seventy-five or eighty ether anesthesias, and had had little or no experience with nitrous oxid.

The patient was a woman aged 40 who had had repeated attacks of gall-stone colic associated with jaundice. At the time of the operation, apart from a slight icterus, she was apparently in excellent health. Examination of the chest and urine showed nothing abnormal. Morphin, one-quarter grain, and atropine, 1/100 grain, had been given hypodermatically one hour before the beginning of the operation. The operation itself was a very simple one and had proceeded to the stage of sewing the opened gall-bladder to the peritoneum, the stones having been removed. At this time, which was between twenty and twenty-five minutes after the anesthetic had been started, death came suddenly with an intense cyanosis. There had been some cyanosis during the operation. The respirations and pulse stopped almost immediately and there was absolutely no return of either, despite the fact that massage of the heart through the diaphragm and artificial respiration were kept up for several hours. Cyanosis either continuous or intermittent is always a sign of danger and how much, if any, cyanosis can be permitted in any given case can be determined only by the experienced anesthetist.

A perusal of the literature will show that most of the reported deaths due to this anesthetic occurred either in the hands of the wholly inexperienced or of those just learning the administration of nitrous oxid. I do not wish to go on record as being opposed to the use of nitrous oxid-oxygen anesthesia, as I personally give it the preference in all my anesthetic work, and believe that it ought to be used whenever possible, but not by the occasional anesthetizer. The number of factors which come into play in the administration of this anesthetic are greater than in any other anesthetic, and as the margin between surgical anesthesia and asphyxia is so narrow as compared with the margin of safety in ether, this is essentially the anesthetic for the expert. But the fact that the anesthetic requires skill in its administration is no more excuse for not using it than that a life-saving operation should be refused a patient because it requires skill in its performance.

Let us consider those factors which make for the difficult administration of this anesthetic. In the first place nitrous oxid-oxygen anesthesia is a mixed one, as the vast majority of cases require a preliminary injection of morphin in order that a smooth anesthesia with muscular relaxation may be obtained. When morphin is not given and in a certain percentage of cases when it is administered, ether is necessary for muscular relaxation and still further complicates the anesthesia. Morphin outside of its narcotic effect, which is of value, exerts an even more important influence on the respiratory center in that it increases the tolerance to carbon dioxid and thus allows of the administration of a mixture richer in gas than would otherwise be the case. A slight increase in the arterial carbon dioxid content is a much more potent cause of hyperpnea and a resulting overanesthetization than is a comparatively large diminution of oxygen. Haldane and Priestly[1] have shown that an increase of 0.2 per cent. of carbon dioxid will double the respiratory rate. When nitrous oxid-oxygen is administered without the preliminary morphin injection, the hyperpnea is of serious import and prevents a smooth anesthesia. Nitrous oxid itself is also a respiratory depressant, and this added to the morphin action makes the danger of asphyxiation always a real one. On the other hand, without the use of morphin, the respiratory rate is increased, more nitrous oxid is inhaled and absorbed, and there is again the danger of asphyxiation, plus an irregular anesthesia to contend with. In either event, the nicest judgment and skill are necessary to conduct a safe and satisfactory anesthesia. Nitrous oxid cannot be administered by any automatic machine; neither can any other anesthetic, as neither patient nor operators are automatic.

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[1] Haldane and Priestly: Jour. Physiol., 1892, xiii, 419.

Nitrous oxid-oxygen given with ether again complicates the physiologic workings of the anesthetic. Nitrous oxid with "just a little ether," or with more than "just a little" given continuously throughout an operation should not be considered as a nitrous oxid anesthesia at all, but as an ether anesthesia modified by nitrous oxid.

Nitrous oxid-oxygen-ether anesthesia does not present nearly the difficulties in administration as does nitrous oxid-oxygen without the ether. Ether is a respiratory stimulant and counteracts the depressing action of both nitrous oxid and morphin. It is much more powerful as an anesthetic agent, volume for volume, than is nitrous oxid. Therefore those who give "just a little ether," say 1 or 2 per cent., throughout an entire operation (which in some cases may mean 2 or 3 ounces), are able to use possibly 5 or 10 per cent. less gas, for which oxygen can be substituted, which is from five to ten times the leeway allowable when ether is not used, and when a difference of 1 per cent. in the gas or oxygen spells success or failure.

I maintain that when ether in any amount is given continuously during an operation the anesthesia is essentially an ether anesthesia and the patient is subjected to the dangers and disagreeable after-effects of ether. Judging from the amount of ether some administer with the gas-oxygen, these gases simply serve to vaporize the ether, an expensive and unnecessary procedure, as the skilful anesthetist can conduct an ether anesthesia even for prolonged operations with from 2 to 4 ounces of ether without the gas. When the ether is given only for a few minutes early in the anesthesia this is also essentially an ether anesthesia until all ether effects have been eliminated.

I do not wish to appear as condemning this combination, as there are cases in which anesthetization is unsatisfactory or impossible without ether, and if anesthesia by the use of an ounce of ether plus the gas and oxygen is satisfactorily maintained, I believe that the patient is better off than if he has taken 3 or 4 ounces of ether without the gas and oxygen; but these should not be called nitrous oxid anesthesias. To summarize:

1. Nitrous oxid-oxygen is not the safest anesthetic for the occasional anesthetist, and should be administered only by the expert.
2. The number of physiologic factors involved are greater than with any other anesthetic.
3. A preliminary injection of morphin should always be given.
4. Ether modifies the anesthetic and makes it easier to administer, but subjects the patient to the dangers and disagreeable after-effects of ether.

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Recent Work in Anesthetics.—Although the foundation of most of our knowledge of the action of anesthetics has been laid bare through experiments with chloroform, clinically and in the laboratory, it now appears that both physiologists and anesthetists are beginning to regard this drug as having yielded to us all it can, and are turning their attention elsewhere. In America, as we have seen, ether holds the field to a very large extent, although at the moment that field is being encroached on by administration of nitrous oxid and oxygen.—J. Blumfeld in *Practitioner*, London.

RESUSCITATION FROM DROWNING

CONTINUED PERSISTENCE OF HEART-BEAT; DEATH FROM NON-RESUSCITATION OF THE RESPIRATORY CENTERS

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The frequent occurrence of drowning-accidents during the summer serves to emphasize the need of a thorough understanding of the principles underlying resuscitation, and particularly the fact that success ultimately depends on preventing permanent injury from anemia of the brain. There is need of extensive series of figures based on accurate observation of similar accidents which will show the important part the time element bears in such cases. In the following case, while resuscitation was not accomplished, the facts seem to be worth recording because the heart continued to beat for so long a time while artificial respiration was being given:

The patient was a strong, well-developed man, aged 28, who had apparently been seized with cramps while swimming in about 7 feet of water. When attempts were made to get him out of the water he struggled so hard that he not only prolonged the efforts but also nearly drowned two of his rescuers. In all probability he was submerged between four and five minutes. After he was brought ashore the water was pressed out of his lungs at once, his tongue was drawn forward, and artificial respiration was begun by the Sylvester method.

On my arrival, about fifteen minutes after the accident, I found the patient with markedly cyanotic face and no radial pulse. I at once gave him a couple of sharp slaps over the heart, and turned him over on his face so as to continue the artificial respiration by the Schäfer method. Within the next few minutes feeble heart-sounds could be heard with the stethoscope, and a little later a faint pulsation at the wrist could be obtained. In the meantime Dr. J. B. Austin had been sent for at my request, and from this time on we worked on the patient together, Dr. Austin confirming the subsequent findings.

At the end of about half an hour after the beginning of artificial respiration the face began to be a little less cyanotic, and three slight spontaneous respirations were obtained. Oxygen was then given continuously. It seemed as if success would ensue, but in spite of strychnin, one-thirtieth grain, and epinephrin, 10 minims of a 1:1,000 solution, being given intravenously and massaged thoroughly toward the heart, it was impossible to bring back spontaneous respiration. The heart continued to beat until two hours and ten minutes had elapsed, the artificial respiration being given for a total time of two hours and fifteen minutes, and the oxygen for the last one and three-quarters hours of that time.

This case illustrates the well-known fact that efforts at resuscitation should be used for at least two hours after apparent death, although I do not believe it is of any use to do this for so long a time in case of persistent absence of the heart-sounds as shown by careful stethoscopic examination. In this regard in another drowning case which I was called to attend a few days previously, a 14-year-old boy had had cramps and been submerged between five and ten minutes—probably nearer ten minutes than five. No heart-action could be detected and as I saw him after there had been no evidence of heart-action for about twenty-five minutes the case at once seemed to be hopeless. Resuscitatory measures had been maintained for three-quarters of an hour, when a drop of ether was placed in one eye (d'Halluin). No reddening was caused, confirming the previous finding that there was no circulation. The artificial respiration was continued for an hour longer without result—really unnecessary effort in the face of two such negative tests.

The heart may continue to beat for as long a time as five minutes after cessation of respiration, although it usually stops in two or three minutes. Add to a *possible* five minutes the seven minutes during which the brain may be completely resuscitated after total cessation of the heart-beat, a *possible* maximum of twelve minutes of relative death may be undergone with recovery. If this period of twelve minutes is exceeded "recovery" may take place, but without return of consciousness, or with destruction of some of the higher centers. Moreover, if the heart does not pump a sufficient stream during the first five minutes the time is shortened. Another dangerous factor tending to shorten this time is the degree of violence with which the water enters the lungs when the accident happens.

In case preparations can be made inside of this twelve-minute limit the attempt should be made to inject epinephrin in normal saline solution into a radial artery toward the heart (Crile). In this way the coronary blood-pressure can be raised and the heart made to resume its action. Doing this on the field would mean taking chances as regards infection, but with a life at stake it would be legitimate to make the effort. The hands of the operator and the wrist of the patient could be sterilized with tincture of iodin. No anesthetic would be needed, nor could it be used if at hand. The needle, tube, reservoir and saline solution would have to be in a portable form ready for instant use.

In the case reported above, failure to resuscitate was due principally to irreparable damage having been done to the respiratory centers in the medulla by anemia. In this case there was no indication for using the saline-epinephrin intra-arterial infusion because the heart was resuscitated without doing so. The intravenous injection of epinephrin and strychnin must have been dispersed through the circulatory apparatus, but epinephrin and strychnin will not cure cerebral anemia — they merely enable the circulatory mechanism to work more efficiently.

With the exception of the Brosch-Sylvester method, the Schäfer method of giving artificial respiration gives the greatest respiratory exchange per movement of the thorax. When, in addition to this, the facts are considered that the tongue automatically falls forward, that there is free drainage from the lungs, and that long-continued application can easily be made, it is undoubtedly the best method to be used in drowning-accidents.

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The "Drug-Action" of Anesthetics.—Richard Gill, chief chloroformist to St. Bartholomew's Hospital, maintains that the "drug-action" of all anesthetics is similar; they are all oxidized in the blood into inert bodies; they deprive the red cells of their oxygen. The hot nascent oxygen of the red cells readily oxidizes them, whereas the diluted oxygen of the air does so only with extreme slowness. The red cells at first offer a resistance to this demand for their oxygen. The resistance progressively diminishes. Less and still less anesthetic is needed during a long operation as the minutes pass, and much more anesthetic is needed to break down the first resistance (induction) than is subsequently needed to deoxidize cells already beaten by the anesthetic (maintenance). The oxygen instead of feeding the body tissues is confiscated by the anesthetic; hence the "anesthetic state" is one of oxygen starvation. An oxygen-starved brain and nervous system is improperly nourished, and cannot function fully; hence unconsciousness and immobility.—J. W. Bean in *Australasian Med. Gaz.*

THE ABILITY OF MOTHERS TO NURSE THEIR CHILDREN *

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Perhaps this topic may well be opened by emphasizing the necessity for women to nurse their children, particularly as so much misconception exists regarding this, not only on the part of the laity, but of physicians themselves. I have heard expert physicians say that they have little fear of difficulty in feeding an infant artificially if only they can have the charge of it from the beginning. I thoroughly agree with the necessity of the early control by the pediatrist in order to avoid the digestive disturbances which so readily arise. The difficulty is thereby lessened, but by no means removed. I cannot share the optimistic view expressed. There may exist the man who can, under these circumstances, feed infants as successfully artificially as at the breast, but I have yet to meet him. Certainly, all statistics indicate the contrary. A few of these may be of interest.

INFANT MORTALITY AND INFANT DIET

The oft-quoted extensive studies of Eröss,[1] based on the vital statistics of thirteen European countries, covering a number of years, show that the average mortality in the first year of all children born alive is 18.33 per cent. The United States Census Reports[2] for 1890 give a very similar figure — 18.29 per cent. for the registration area. There is considerable variation in different parts of the world. According to Eröss, the mortality in Ireland is but 9.4 per cent. and in Sweden 9.7 per cent; in Saxony, on the other hand, 28.1 per cent., and in Bavaria 28.7. In Russia, according to Gundobin,[3] it is still higher, 32.6 per cent. Budin[4] reports a mortality in the first year for France from 1896 to 1900 of 20.2 per cent., and the statistics of Luling,[5] for Baudelocque's clinic de Paris, give 26.94 per cent. dying in the first year of the 13,952 children born.

That this mortality is largely dependent on disorders of digestion is a suggestive fact. Heimann[6] reports an average from 1897 to 1901 inclusive of 10,993 infants under one year of age dying each year in Berlin, over one-third of them suffering from digestive disorders. In the mortality of Massachusetts from 1892 to 1896, according to S. W. Abbott,[7] diarrheal disorders were responsible for 29.49 per cent. of the deaths in the first year of life. The six-year record for the United States ending 1890 made diarrhea responsible for 21.22 per cent. of the deaths in this period. Budin[4] found that 38.5 per cent of the deaths in the first year in the civic population of France were due to gastro-enteritis.

This brings us naturally to the next point to be considered, the influence of the diet, since it is particularly among the artificially fed infants that gastro-enteric affections prevail. We have reason to expect, then, that the mortality will be found much greater in the artificially fed. That this is the case is well recognized, but a few figures may serve to illustrate to what degree it is true. In the cases reported by Luling,[5] 14.24 per cent.

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* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] Eröss: Ztschr. f. Heilk., Prague, 1895, xix, 371.
[2] Eleventh Census, U. S., 1890, Vital Statistics, i, 22.
[3] Gundobin: Jahrb. f. Kinderh., 1898, xlviii, 368.
[4] Budin: Ann. de méd. et chir. inf., 1903, vii, 181.
[5] Luling: Thèse de Paris, 1900, p. 18.
[6] Heimann, quoted by Ebert: Jahrb. f. Kinderh., 1905, lxi, 500.
[7] Abbott: Jour. Massachusetts Assn. Boards of Health, December, 1898.

of the breast-fed infants died and from 31.42 per cent. to 50.24 per cent. of the bottle-fed; and in the 10,000 infants in the first year studied by Westgaard,[8] of those that were breast-fed 17 per cent. died from gastro-intestinal diseases and of the bottle-fed 43 per cent. Of 1,000 infants studied by Armstrong,[9] in England, but 8,418 per cent. of the breast-fed died in the first year against 22.826 per cent. of the bottle-fed. In 8,329 deaths under one year of age, occurring in Munich, Frank[10] found that 86.14 per cent. of the infants had been bottle-fed. Finally, W. H. Davis[11] addressed letters of inquiry to a large number of women giving birth to children in 1910 in Boston. The 736 replies showed that only 26 per cent. of the deaths between two weeks and one year of age had occurred in breast-fed babies. Roughly speaking, we may say that the breast-fed baby has at least five times the chance of living that the bottle-fed baby possesses.

We may then assume it proved, beyond question, that the absence of breast-feeding is perhaps the chief cause of infantile mortality in the first year, as indeed of many deaths occurring in the second year. We may even go further than this and claim that the results of bottle-feeding are often much more lasting than this period. Thus Rose[12] studied 164,000 persons with relation to the later influence of the diet which had been given in the first year of life, and found that in many respects the deleterious effects of bottle-feeding were often quite discoverable in these individuals, and that even in men capable of military service the difference to the disadvantage of the bottle-fed baby was very apparent. This observation is by no means an isolated one, similar conditions having been noted by other writers.

BREAST-FEEDING AND THE CONDITIONS AFFECTING IT

With the full understanding of these facts, the importance of the next three topics to which reference must be made is pressed home on us: 1. How many mothers nurse their children? 2. How many are capable of nursing? 3. What is the cause of failure of women to nurse their infants?

The condition varies considerably with the country. In Japan, breast-feeding is the rule. In Greenland, artificial feeding is scarcely known, and, among the Esquimaux of Alaska, there is no cow's milk to be had and infants are often nursed for from two to three years. In some of the races of Africa, the mother is often helped, if need be, by any of the women of the village, previous parturition, recent or at all, not being a necessity, the secretion of milk being gradually established in virgins or in grandmothers by the repeated putting of the child to the breast.

The importance of nursing by the mother is one long recognized by writers. An interesting contribution by Schlossman[13] quotes the urgent advice given in favor of it by the philosopher, Favorinus, who lived in the time of Trajan. Unfortunately, however, in many so-called civilized countries, maternal nursing has undoubtedly decreased greatly in frequency since then. In parts of Bavaria, according to Grassl,[14] hardly 30 per cent. of the mothers give the children the breast. In Berlin, as stated by Neumann,[15] 55.2 per cent. of the infants were nursed in 1885 and only 31.4 per cent. in 1890, showing the great falling off which had occurred in maternal nursing. Further statistics could be given.

Is this failure of breast-feeding an actual inability or only an apparent one? Is there in reality a diminishing power of women to nurse their infants? This is our second question. As a result of studies in the Obstetrical Clinic of Graz, Negris[16] found that there existed in only 10 per cent. a physical disability to nurse. In the Stuttgart clinic, according to Martin,[17] nearly 100 per cent. do nurse. In Heidelberg, Jaschke[18] observed that whereas, in 1904, 64.01 per cent. of the infants were breast-fed, in 1907, 86.14 per cent. and in some months 97.22 per cent were, showing a very decided increase in the ability. In Württemberg, where formerly, according to Hegar, only 41 per cent. of the women in the clinics nursed their babies, now, according to Martin,[17] 100 per cent. were capable. Madam Dluski[20] estimated that of 500 women observed in Pinard's clinic in Paris, there were but five in whom it was certain that nursing would have been impossible either from the beginning of lactation, or after an interval of continuous effort; and Blacker,[21] as a result of studies on 1,000 children in London, could find only twenty-four, or 2.5 per cent., in whom there was a physical inability to nurse.

With regard to the frequency of breast-feeding, whether there is an actual diminution or an apparent one only, some of the figures which have been given, are, to a certain degree, open to criticism. In the first place, many of the statistics are derived from lying-in institutions for patients of the poorer classes only, among whom the conditions of life are very different from those which obtain among the well-to-do. In the second place, such statistics apply only to the first few weeks of the nursing period, during which the women are under close observation and careful diet and treatment; and we have no means of knowing how many of these women are able to continue nursing, say, for six months or more, or do so, even if able, after they return to their homes. The important matter to determine is whether there is a diminution in the actual ability of women to continue nursing, or whether the cessation of nursing is a preventable condition. Exact figures bearing on this are not very numerous. In Leipsic, according to Hohlfeld,[22] only 27.5 per cent. of the mothers continued to nurse for six months. Weiss[23] found that in 1,622 cases studied by him there were 77.01 per cent. of the infants nursed for one week and only 25.3 per cent. fed in this way for over six months. Negris[16] found that among the polyclinic clientele of Graz and its vicinity only about one-third of the mothers continued to nurse exclusively for a period averaging two months or more and that this number was diminishing. Nordheim[24] reported his experience in 1,000 women coming to the Children's Dispensary in Munich. Of these only 3.6 per cent had nursed longer than three months, and only 0.8 per cent. longer than six months. This is truly, as Nordheim says, a deplorable condition.

More encouraging are the interesting figures of Deneke and Thorn[25] who, through the aid of midwives who had been in attendance, studied the later history of 32,447 infants born in the Magdeburg district in 1907, outside of maternity institutions. It was found that 83.7 per cent. of these were nursed at least for a time, and that in 61 per cent. nursing was continued for longer than two or three months. They conclude from these studies that the great majority of mothers are physically capable of nursing their children. Hegar[26] is of the opinion that under careful management 60 per cent. of mothers outside of maternities are able to nurse their infants. Kriege and Seutermann,[27] in 4,096 infants in private practice in Barmen, found 77.9 per cent. nursed for from five to six months. Koplik,[28] in 1,007 cases in private practice in New York, found less favorable conditions. Only 573 (56 per cent.) of these were breast-fed for different periods and only 40 per cent. of these 573 for longer than four months. Marfan,[29] on the other hand, estimated, as evidenced in his own practice, that two-thirds of the women of Paris can nurse satisfactorily, and in the other third there is generally a partial power to do so, a certain amount of substitute feeding being required; only 10 per cent. are actually unable.

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[8] Westgaard: Die Lehre der Mortalität und Morbidität, 1901; quoted by Jaschke, Monatschr. f. Geburtsh. u. Gynäk., 1908, xxviii, 172.

[9] Armstrong: Brit. Jour. Child. Dis., March, 1904, p. 115.

[10] Frank, quoted by Jacobi: Gerhardt's Handbuch der Krankheiten, i, 319.

[11] Davis: Boston Med. and Surg. Jour., 1912, clxvi, 242.

[12] Rose: Deutsch. Monatschr. f. Zahnheilk., 1905, xxiii, 13, quoted by Ziegenspeck, Verhandl. d. Gesellsch. f. Geburtsh. ü Gynäk., 1907, xii, 829.

[13] Schlossman: Monatsch. f. Kinderh., 1910, Orig., ix, 201.

[14] Grassl: Soc. Med. u. Hyg., 1907, i, 597.

[15] Neumann: Deutsch. med. Wchnschr., 1902, xxviii, 795.

[16] Negris: Wien. klin. Wchnschr., 1905, xviii, 459.

[17] Martin, quoted by Jaschke: Monatschr. f. Geburtsh. u. Gynäk., 1908, xxviii, 172.

[18] Jaschke: Med. Klin., 1908, iv, 257.

[20] Dluski: Thèse de Paris, 1894.

[21] Blacker: Med. Chron., Manchester, 1900, Series 3, ii, 323.

[22] Hohlfeld: Deutsch. med. Wchnschr., 1905, xxxi, 1391.

[23] Weiss: Med. Klin., 1911, vii, 644.

[24] Nordheim: Arch. f. Kinderh., 1901, xxxi, 89.

[25] Deneke and Thorn: Ergebn. d. Säuglingsfürsorge, 1909, 17.

The question, then, of the falling off of maternal feeding can be determined only partially, on account of the variation in published statistics. Undoubtedly many more women cannot nurse than should be the case among supposedly normal individuals. Undoubtedly, on the other hand, many women do not nurse who are capable of doing so under proper care.

The relative inability among the poor and the well-to-do is also a matter of interest. The general opinion appears to be that in the better classes the inability to nurse, or at least the infrequency of nursing, is seen more markedly than among the poorer classes. There exists certainly among the upper classes a large number of women who do not and often, in spite of their most earnest wishes, cannot nurse their infants. Contrary to the common opinion is, however, that of Neumann,[30] who thinks that the falling off in the capability of maternal nursing in Berlin women is seen oftener in the working classes. From the years 1900 to 1905 there occurred in that city an increase in breast feeding among the well-to-do. The small percentage of Vienna infants nursed over six months, as reported by Weiss,[23] came, too, from the dispensary class of patients.

Some of the statistics of maternities quoted are at least a clear indication of the general change which it is to be hoped is taking place. The clearly increasing number of women in some of these institutions who now nurse their children, as compared with the conditions a few years earlier, indicates that a similar increase of frequency of nursing is to be looked for in patients outside of the institutions. Certainly, everywhere among the more intelligent classes and even among the poorer, under the influence of the awakened conscience of physicians and the instruction which mothers receive from varied sources, there is a growing earnest desire of women to nurse their children, and, it would seem, an increasing frequency of maternal nursing.

This brings us to our last question. What is the cause of the diminution of breast feeding which has shown itself in many regions? Bunge[31] believes that there is an increasing actual physical inability of the mother to carry on maternal feeding, which he attributes largely to the continued use of alcohol by civilized races. Whatever the cause, there is good reason to believe that there is a physical disability to a certain extent and that this disability may be transmitted by inheritance. Most investigators, however, think that the causes of failure to nurse are to be sought rather in the unwillingness of the mother, instigated or abetted often by the advice of midwives and monthly nurses, and, I regret to say, far too frequently by physicians to make a fair effort. Hegar[26] expresses this clearly in attributing the inability to nurse to the influence of generations of undervaluing of maternal feeding. The introduction of the numerous methods of artificial feeding led easily to the conviction that nursing at the breast was an unnecessary and onerous affair. Ziegenspeck[32] points out that in Germany, where the preparation of artificial foods and food mixtures has long thriven, dating, as we know, at least from the time of Metlinger (1474 A. D.), maternal nursing has suffered proportionately.

I have, in a previous article,[33] referred to an interesting contribution by Keller,[34] which is so illustrative of the curious reasons assigned that I give it now more in detail. Although the observations were made on women of the poorer classes, the reasons in many respects are very similar to those commonly given by women in better circumstances. Keller studied the histories of 1,300 children in the Kaiser Franz-Joseph's Ambulatorium in Vienna and found that 278 or 21.4 per cent., had never been nursed at all. In eighty-two of the 278 cases the failure to nurse was on the mothers' own initiative, not through the suggestion of others. The reasons given were: "felt weak," fifteen cases; "felt ill," nineteen; "too young," one; "too little milk," but without any attempt, fifteen; "child would not take the breast," but without trial, six; "no milk," but without attempt, seven; "took bottle readily," six; "menses occurred," one; "had a severe labor," three; "pain in the breast," but child never put to the nipple, seven; "husband unwilling," two. In nineteen cases it was through the advice of the attending physician that the mother did not attempt nursing, and on the following grounds: "sick" or "weak," ten; "menses had occurred with previous child," one; "too little milk," but without trial, two; "no milk," but without trial, six. In seventy-nine cases the advice of the midwife was followed, the reasons urged being: "sick" or "weak," twenty; "too old," one; "no breast," three; "would not take the breast," but no trial made, five; "too little milk," but no trial made, twenty-nine; "no milk," but no trial made, twenty; "tender breast," one. In ninety-four of the remaining ninety-eight cases the reason for not nursing was the necessity of going immediately to work. In only 0.8 per cent. of the cases was it perfectly certain that the mother could not have nursed. Very similar results have been previously published by others, among them Nordheim[24] who found that of 1,000 women, 642 had never nursed at all, and 86.7 per cent. of these entirely without good reason.

Among the working classes, undoubtedly, poverty is a frequent cause of the desire to avoid nursing.. It is often imperative for the mother to work, and she cannot well do this and attend to the infant also. In other cases lack of suitable nourishment for the mother causes a failure in the secretion of milk. The remedies for these lifficulties are to be found only in sociologic aid. In ther cases it is the complete ignorance of the mother egarding the importance of breast feeding which leads o gross indifference in the matter, and this applies to ll classes of society. Only constant instruction of the eople can remedy this. The splendid work of the 'onsultations de Nourissons, founded in Paris by Budin, and established in other cities of France, has y this instruction increased the number of cases of naternal feeding among the poor by 20 or 30 per cent. imilar efforts in Meran and Stuttgart to care for the etter nutrition of the mothers have, according to Ziegenspect,[32] increased their ability to nurse their hildren. In the upper classes there is undoubtedly ften seen an inability to nurse dependent on the more ighly organized and hence more easily disturbed ervous organization of the mother. Here, too, is the nfluence of early mental forcing, early enjoyment of ocial life, with late hours, and the like. With all lasses the failure of intelligent management of the arly nursing periods by physicians or midwives has ften been sufficient reason for an early cessation of the nilk secretion. Faulty methods of dressing have doubtess in the past been the cause of many hopelessly epressed nipples.

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[26] Hegar Beitr. z. Geburtsh u. Gynäk., 1910, xv, 201.

[27] Kriege and Seutermann: Zentralbl. f. allg. Gsndhtspflg., 1906, xxv, No. 1; quoted by Schwarz, Ergebn. d. Säuglingsfürsorge, 1911, No. 11.

[28] Koplik: THE JOURNAL A. M. A., Jan. 13, 1912, p. 75.

[29] Marfan: Rev. mens. d. mal. de l'enf., 1902, xx, 1.

[30] Neumann: Ergbn. d. Säuglingsfürsorge, 1910, v.

[31] Bunge Die Zunehmende Unfähigkeit der Frauen ihre Kinder zu stillen, Munich, 1900.

[32] Ziegenspeck. Verhandl. d. Gesellsch. f. Geburtsh. u. Gynäk., 1907, xii, 829.

[33] Griffith: New York Med. Jour., Dec. 4, 1909.

[34] Keller: Wien. klin. Wchnschr., 1909, xxii, 635.

The numerous stated contra-indications to nursing re more fancied than real. Actual contra-indications re few, and physicians should learn to appreciate this act. Here, especially, the obstetrician who is thoroughly rounded in the importance of breast feeding can be of he greatest aid, since he is so early associated with the nother and can exert a great influence on her. Certainly nany obstetricians in the past have paid all needed ttention to the mother, but far too little to the infant. This is a reproach often made, but one which I hope s passing away. There is, there can be, no good substiute for mother's milk and this the obstetrician should mpress on the mother with all his power.

Finally, in this connection, it must never be forgotten hat inability to nurse or inability on the part of the nfant to digest its mother's milk can never be deternined by a brief trial. It is only after prolonged and epeated, and again repeated, efforts that we can reasonbly conclude that weaning is necessary. Here the fault ies with physicians, since they are, as a rule, far too eady to abandon their efforts. The mother is perhaps lamorous for weaning, and it is easy to move in the ath of least resistance. Many a time the breast, which t first gives insufficient milk, will later render an bundant supply, and the infant's digestion, at first much listurbed, will accustom itself perfectly after a while.

In conclusion, I think it may be claimed (1) that the nother's ability to nurse her infant, although lessened n the past, is no longer materially diminishing, proided the woman has been raised and continues under ealthy, normal conditions; (2) that these conditions re improving in the upper classes and not changing for he worse in the poorer, and (3) that the infrequency f nursing depends chiefly on the ignorance of the laity nd the indifference of physicians. It is our duty as hysicians to remedy these evils.

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Metal Poisons.—While it is true that most of the workers n the poisonous metals are warned of their danger, my xperience with them is that each man usually thinks he will rove an exception to the rule, and like the coal-miner long ccustomed to deal with fire-damp, finally forgets the danger nd courts disaster.—Thompson in *Jour. Maine Med. Assn.*

SUPPLEMENTAL BREAST-FEEDING IN INFANTS[*]

H. M. McCLANAHAN, M.D.
OMAHA

Vital statistics have abundantly demonstrated the following facts:

1. Mortality is greater during the first year than at any other time of life, and higher during the first three months of life than during any other period.

2. Mortality and morbidity are higher among bottle-fed than among breast-fed infants. This is the testimony of writers on diseases in children. As there is no evidence that breast-fed infants receive better care than those reared on the bottle, it is evident that the only reason for the greater mortality in bottle-fed infants is due to the nature of the food. The reasons for the difference in mortality may be briefly summarized as follows:

A. The milk of the mother is adapted by nature to the peculiar needs of the human infant, just as the milk of other mammals is peculiarly adapted to their offspring.

B. It contains all of the elements necessary to the growth of the various organs and tissues of the infant's body. In the order of nature, the milk of other mammals is not adapted to the digestion of the human infant.

C. Breast-milk is received by the infant in its natural state unchanged by cooling or agitation or the separating of its constituent elements.

D. It is a vital fluid, as it enters the stomach, stimulates the digestive secretions and is assimilated with less waste and induces less exhaustion of the vitality of the infant than any prepared food. Hence, there is less expenditure of vital energy in the digestion of mother's milk.

E. Under normal conditions it is a sterile fluid and is carried to the infant's stomach in a sterile condition.

F. It is ingested at an even temperature, namely, that of the body, and is at once ready for the action of the digestive ferments.

G. It contains certain protective principles that confer an immunity to the infant, and greatly lessens infant morbidity.

REASONS FOR INCREASE IN BOTTLE-FEEDING

While the above facts are common knowledge among students of medicine, they are not duly appreciated either by physicians or by the laity. There is an increasing number of infants being reared on the bottle. It is believed, and no doubt correctly, that the chief reasons for this increase in bottle-fed infants are:

The influence of manufacturers of infants' foods. We must admire the systematic method employed in exploiting the merits of the various foods, and we cannot believe that extensive and expensive advertising would be continued, even to the mailing to expectant mothers of handsomely illustrated booklets containing specific directions for preparing the food, if it were not a paying business.

Improved methods of infant-feeding. During the past twenty years there has been an immense volume of current literature on feeding, not only in medical journals but also in popular publications, and both the medical profession and public have come to believe breast-feeding neither essential nor important to the welfare of the infant. On the contrary, breast-feeding has received scant attention; indeed no other physiologic function of the human body has received so little study as breast-feeding. Granting that immense progress has been made in artificial feeding, it yet remains true that the best artificial feeding will not equal breast-feeding.

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[*] Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

My limited study of this subject leads me to the conclusion that among both the medical profession and the laity, the belief exists that a mother either can or cannot nurse her infant. As Southworth has said, "Milk either comes into the breasts abundantly and is good, or it comes in scantily and is useless." It is the practice, if the mother does not have sufficient milk adequately to nourish her baby, forthwith to place it on the bottle. Now the question I wish to present for consideration is this: Is there no middle ground between entire breast-feeding and bottle-feeding? If the mother has a partial supply of milk why should this be discarded? Is not some breast-milk better for the infant than no breast-milk? The arguments I have presented for breast-feeding apply almost equally to partial maternal nursing. Supplemental feeding is not only simple justice to the helpless infant; it is, I believe, beneficial to the mother. It relieves her from the drain, if the milk is scanty; it affords her wider personal freedom and while it may sound sentimental, I believe it nevertheless true that breast-feeding stimulates the maternal instinct, and enhances affection for the offspring.

Granting that the infant can be reared on the bottle and survive its first year, is that all? What about the morbidity of bottle-fed infants? Is it not the general experience that many bottle-fed infants suffer from various forms of indigestion, anemia and other diseases of nutrition, as scurvy, rickets, malformations and general infections, that increase mortality in subsequent years?

I have no statistics to offer, but this is my personal experience. I have been giving this subject study for more than five years and during that period have made it a rule in my office work to ask the question whether or not the patient was breast-fed or bottle-fed. If the reply was that the infant was bottle-fed, I have endeavored to ascertain the reason. As the result of these inquiries I have gathered, from 400 mothers who have reared their infants on the bottle, the following information:

Only fifteen mothers out of the 400 replied that they positively refused to nurse their infants. Three hundred and eighty-five replied that they would have nursed their infants had there not been some reason to the contrary. Twenty of this number stated that they were seriously sick following confinement and for that reason could not nurse their infants. A number were compelled to wean their infants because of retracted nipples or fissured nipples or mammary abscess, and a total of 108 made a failure of breast-feeding during the first two weeks after confinement. In about 250 cases the mother said that she had weaned her baby because it was starving or crying or her milk was not nourishing or that she did not have enough milk to supply the infant. In reply to the question "Did your physician advise mixed feeding?" not more than ten gave an affirmative answer. I was impressed with the fact that the majority replied that they had never heard of such a thing as mixed feeding. To the question "Did your physician examine the breast-milk before advising you to wean the infant?" the answer was negative in all but three cases.

It is my conclusion that supplemental feeding is not appreciated either by the profession or by the laity. This suggests the question "Does supplemental feeding offer any advantage or is it better or safer for the infant than entire bottle-feeding?" As I have already indicated, there is but one answer to this question, but as the experience of any one individual is too limited to have any great value the question can only be answered by the combined experience of many observers.

I am firmly convinced that mixed feeding is almost as beneficial to the infant as entire breast-feeding, and I desire earnestly to protest against the fallacious doctrine of weaning the infant entirely because of insufficient supply of milk or of poor quality of milk or any other reason except some organic disease in the mother. I would urge with all possible emphasis the adoption of mixed feeding in all cases in which there is a deficient amount of milk, and in cases in which the supply of milk is abundant but the mother's health seems to suffer in consequence. In these cases I am sure it will be found that supplemental feeding will be of benefit to the mother. In cases in which the supply is sufficient but the quality deficient, as ascertained by simple examination of the milk, it is a simple matter to supplement the breast-milk with a modified milk that will make up the deficiency in quality. It is a mistake to think that any preparation of milk will do in mixed feeding. I am sure failure results from want of attention to this phase of the subject.

RESULTS OF SUPPLEMENTAL FEEDING

I wish to report fifty-six cases of supplemental feeding under my care during the last five years. In this series of cases I have had the privilege of directing the mother at intervals during her nursing period. I freely confess to a number of failures during the same period, but I believe most of them were due to my inability to secure the confidence of the mother. In my judgment to attain success, it is essential to have the cooperation of the mother. The best way to secure her cooperation is to convince her of the value of the method—that it will not only save her strength but increase the life prospect of her infant, improve its nutrition and confer a relative immunity to disease. It is important also that the mother should receive proper medical advice as to her general health.

In my experience there are two important difficulties to be encountered and overcome in mixed feeding.

1. The infant tends to wean itself from the breast. This is the first real serious problem to be met, and without firmness and obedience on the part of the mother, failure will result. In some cases it will be necessary to let the baby go hungry for hours. In one case the baby had nothing but water for twenty consecutive hours. It then took the breast and never after was there any serious trouble in this case. Each time the mother weakens and gives the bottle but increases the difficulty. In fact, most failures occur as a result of this tendency.

2. Lessening of the quantity of milk. If the breasts are not nursed regularly they tend to cease secretion, and also in my experience the milk is of a poorer quality. The use of the breast-pump is a poor substitute in stimulating the secretion.

I have found that the safer plan is to give but one entire bottle a day. This bottle is usually given at 6 or 10 p. m. This rule permits the mother to have an evening out, without feeling that she is in any way neglecting her infant. At other times the baby is to have the breast, the time varying, owing to the condition of the gland. As soon as the mother feels that it has become soft, the infant is taken away and given the bottle. It is a mistake to permit the infant to strip the breast. This practice is wearing on the mother and likely to induce indigestion in the infant. I have found from experience that ten minutes is usually ample time to keep the baby at the breast. My rule is to let the baby nurse the bottle until it is satisfied. Of course, the quantity will vary owing to the amount it gets from the breast. No rule can be given, but I always have an ample quantity of modified milk prepared. It is my observation that the food should not be too sweet. I have repeatedly observed that when the infant is given condensed milk, there is greater danger of its weaning itself from the breast.

The small amount of prepared food required to cause a gain in weight is surprising in some cases. One of my patients, an infant aged 4 months, had not gained for three months. I was called to advise concerning weaning the baby. In that case the addition of one bottle each evening of 5 ounces caused a gain during the first week. I have frequently observed that supplemental feeding improves the health and general comfort of the mother. In some of my cases the mother would frequently go for several days without giving any bottle. Another advantage is that if the mother feels that she is not quite up to the standard, or that the infant is not gaining normally, bottle-feeding can usually be increased.

These fifty-six mothers were from all walks of life. Several were wives of laboring men who were compelled to discharge arduous household duties, including washing and ironing. In all these cases the mothers appreciated greatly the relief given by mixed feeding. Three of them were women who were compelled to work all day and to be away from the infant. Two of them found it necessary to pump the breast two or three times a day in order to keep up the supply. Not one of the fifty-six infants were seriously sick during the nursing period. Three developed pertussis, but recovered. All made a satisfactory gain in weight. The mothers were satisfied with the method of feeding, and a number ceased nursing their infants with regret. As a result of my experience and observation, I submit the following conclusions.

CONCLUSIONS

1. Unless the mother is suffering from some serious disease, she should nurse her infant.

2. Many failures in breast-feeding occur during the first two weeks, often from preventable causes.

3. It is an unjust aspersion to assert that the mothers refuse to nurse their infants. The majority of mothers will nurse their infants if they realize that it is important.

4. The responsibility for bottle-feeding rests largely on the medical profession. If all physicians believed in breast-feeding and would use their influence with the mothers, there would be few infants reared entirely on the bottle.

5. Supplemental feeding provides the infant with the vital elements of breast-milk, and to that extent lessens mortality and does not injure the mother's health.

6. Supplemental feeding requires an intimate knowledge of the various modifications of cow's milk, and necessitates complete cooperation between mother and physician.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. GRIFFITH AND M'CLANAHAN

Dr. David E. English, Summit, N. J.: I have used a plan, which has proved very satisfactory. When the mother's milk is scanty and there is not enough to satisfy the baby, I have her nurse the baby and feed it at the same time; that is, put it from one nipple right on to the other. I have two reasons for this; one is that I think the baby's stomach should be filled up when fed, so that it does not have to be fed so frequently. The other is that it gets the mother's milk mixed with the modified milk, and gets the action of the ferments in the mother's milk—what Dr. McClanahan calls the vital principle. There are three ways in which this may be done; one is to feed the baby modified milk before he is put to the breast; in doing this we have to find out by experiment how much modified milk to give him. Another is to give the breast first. Some babies refuse modified milk after the appetite has been half satisfied with mother's milk. A third way is to give a little modified milk first and then breast-milk, and then, if the baby will take any more, finish up on modified milk. By using these little tricks, I have not only been able to keep the mother's milk going and the baby well nourished, but also to help it to digest the modified milk better than it would otherwise.

Dr. Henry J. Gramling, Milwaukee, Wis.: When I find a mother who cannot nurse her baby the first thing I do is to put the baby on modified milk at night. If the mother's milk is scanty and she has to get up at night, she will not have enough nourishment for the child the next day. If the mother is nervous it is wise to take the baby away from her altogether at night, so that her sleep will not be disturbed. Persistence along this line is usually rewarded with success.

Dr. Thomas S. Southworth, New York: Aside from the fact that breast-milk is more readily digested, it has always seemed to me that one of the reasons children do so much better on breast-milk is that the average child at the breast requires less supervision than a child on the bottle. Bottle-feeding must be constantly changed and modified in order to adapt cow's milk to the child's needs during its first year. Nature does what adapting is necessary in the breast-milk. I do not, however, consider that the breast-fed child should be allowed to go without proper supervision on the part of the physician, and I believe that a great many of the failures to nurse successfully are due to the fact that the mothers are left to their own resources. I am glad Dr. Griffith used the expression "awakened conscience of the physician." Others have spoken here of the fact that we as physicians have been largely responsible for the decadence of maternal nursing. It is my experience that the man who readily advises a mother to wean her baby and put it on artificial feeding is, as a rule, an unsuccessful artificial feeder.

I am a little afraid that someone might misunderstand Dr. McClanahan when he quoted me as saying that, "either the breast-milk comes in abundantly and is good, or it comes in scantily and is bad." That is the popular opinion, giving rise to the opinion that if the milk is abundant and good one can continue with it, and if it is scant and bad one must stop it. The latter is not my deduction. I do not believe that there is very much bad breast-milk; there is scanty milk, and sometimes it is lacking in a sufficient quantity of fat. When a mother tells me that her child has been removed from the breast because it was having green stools and the doctor said her milk was poisoning it, I know that that doctor was on the wrong track. There are instances when the maternal milk is poisonous, but they are extremely rare. I do not care much about elaborate examinations of the breast-milk. I use the Holt apparatus chiefly to find the amount of fat, but we can be misled by the analysis of the milk. I think that we should pay less attention to analysis and more attention to building up of the general health of the mother, in which case the quality of the milk usually takes care of itself. I think that if we increase the number of supplemental feedings, more than one or two daily, we tend to decrease the stimulation of the breast, and the child gets less breast-milk; for this reason I then have the child nurse at both breasts during each nursing.

As Dr. McClanahan said concerning his cases of pertussis, through which several children passed successfully, breast-feeding is one of the greatest protections to the child, not so much in making it less liable to infectious disease as in enabling it to withstand infections.

Dr. Henry L. K. Shaw, Albany, N. Y.: Those of us who have had experience in institutional feeding find that many lives are saved by simply giving one breast-feeding in twenty-four hours. At the Infants' Hospital, with which I am associated, the board of managers authorized the employment of two wet-nurses. Five or six babies are often nursed by one wet-nurse, who gives each baby one or more nursings in the twenty-four hours and the results are marvelous.

The benefits of nursing the baby for a certain time and then finishing with a bottle-feeding have been brought clearly before the profession by Dr. Southworth. He coined the term "complemental feeding" when the breast is followed by the bottle. When the entire breast-feeding is replaced by bottle-feeding, the term "supplemental feeding" is employed.

I want to protest against Dr. McClanahan's statement that the breast-pump does not stimulate the breast. A concrete case will illustrate what I mean. About four weeks ago a mother brought her baby to my office with the following history: The baby was 5 weeks old and had been exclusively breast-fed for two weeks. Since then she had been fed on several formulas and prepared foods and had lost in weight. The mother had plenty of milk but because the baby had colic she had been told to wean it by her physician. She still had plenty of milk and used the breast-pump once or twice a day to relieve herself. Analysis of the milk showed practically no fat. She was ordered to stimulate the excretion of milk by pumping regularly every two hours and massaging the breast. In a week there was 2.5 per cent. of fat and a few days ago it was over 3 per cent. The baby is now nursing regularly and gaining, although it is having two supplemental feedings of modified milk.

Dr. Frank S. Churchill, Chicago: At the Children's Memorial Hospital in Chicago we always keep one wet-nurse; throughout the summer months, two wet-nurses. The results are much better with them than without. We do not feed one particular baby with breast-milk, but get as much breast-milk as we can and divide it up among the different babies, giving to each baby perhaps one, two or three feedings in the twenty-four hours; the other feedings are of modified cow's milk. We all know that if a baby has ever so small an amount of breast-milk during the twenty-four hours, it can take a higher percentage of the elements of cow's milk than when on cow's milk alone. Our experience has been that the breast-pump is very stimulating to the breasts of these nurses, and with it we get large amounts of milk. That and the regular hygienic life which the nurses lead give very satisfactory results. They come in giving, as a rule, small amounts. They are put on a regular diet, lead an almost perfect hygienic life and the result is a great improvement in their general condition. We do not believe it is fair to a wet-nurse to put to her breast the babies in the hospital, because we never know how many of those may have congenital syphilis, so we have the breast-milk pumped out and fed to the baby. This apparently has a very stimulating effect. The woman soon begins to secrete much more milk than on entering the hospital, and in some instances marvelous amounts are secured. Our maximum amount was secured from a wet-nurse, a primipara, who gave during the twenty-four hours for a matter of several weeks 5 quarts of milk a day. You may ask how we know. By the method I have just detailed it is quite possible to know exactly the amount of milk we are feeding our babies in the ward. We were feeding to those babies a little over 4 quarts of milk in twenty-four hours. The wet-nurse was in addition nursing her own baby. I had that baby weighed before and after nursing for quite a number of times in order to get the average amount. That totaled to a little over a quart.

Dr. Collins H. Johnston, Grand Rapids, Mich.: We often find difficulty in getting wet-nurses. Being near Chicago, we can sometimes get one there. Last summer we saved the lives of a number of babies by securing a woman who could spare 8 or 10 ounces or a pint of breast-milk a day. In hot weather this is a great boon to the babies.

Several of the speakers have referred to the fact that wet-nursed infants are stronger and more vigorous at the end of the first year of life than the bottle-fed babies. Last summer while in Berlin I learned of the results of an investigation along this line which are exceedingly interesting. The investigation included 176 families. Twenty-four of these families with 109 children, all breast-fed, at the end of five years of married life had lost no children, while every one of thirty-three families whose children were all bottle-fed at the end of five years had lost one or more children. The results were especially interesting in families in which some of the children were breast-fed and some bottle-fed. In one group of twenty-nine families with eighty-five breast-fed children and 109 bottle-fed children, at the end of eleven years all of the breast-fed children were alive while 57 per cent. of the bottle-fed babies were dead. In another group of thirteen families with forty-eight breast-fed and twenty-three bottle-fed babies, the former were all alive and healthy while the bottle-fed babies were all dead.

Dr. George D. Scott, New York: It is very interesting to know the conditions which underlie breast-feeding and bottle-feeding. Those of us who have seen the peasant women of Europe, particularly in the southern part, feed their children any place by simply exposing their breasts and nursing the child, and who have seen our own women try hard to nurse their children without being able to, will see the condition underlying this whole question of bottle-feeding. Those of us who try to use the bottle a great deal, who try to give food and find it inadequate, cannot help feeling that breast-feeding is at all times the best. The underlying cause or condition is psychic. If you go into the psychic condition of a woman's mind, if you let her know that her child can be bottle-fed without any responsibility to her and no exertion on her part, and no self-denial in food and social pleasures, you will be obliged to put that child on the bottle. If, however, on the other hand, you make that woman feel and instil into her mind the fact that breast-feeding is best, and that bottle-feeding is only supplemental to breast-feeding, you will, I think, make her try harder to nurse her child. Those of us who work among the poor and lowly, I think, have tried hard to make mothers feed their own children, with more or less success. By encouraging bottle-feeding we do humanity great harm.

I want to make a protest against the attitude of the obstetricians, who think they can feed the child maybe from birth. They feed it sometimes for two or three months, and when the baby is in a poor condition they throw it on us. I object to the obstetrician feeding children over one or two weeks. I think then only the pediatrist should control them.

Dr. T. L. Harrington, Milwaukee, Wis.: It seems to those of us who do not spend all our time on diseases of children that a most important question has arisen. Two of the speakers have referred to supplemental feeding. They put the child first on one breast and then on the other, and if necessary give the child the bottle in addition. The point is to find out in what way we can have the mother give the greatest portion of the necessary food in order that the child may gain constantly and steadily. It is a question of how we can get the best work from the mammary gland. It seems to me from my study of the matter that it is a mistake to put the child first on one breast and then on the other and then on the bottle, because you do not give the mammary gland the best chance to do its work. A healthy mother who has sufficient milk for her child nurses first on one breast and then on the other, giving each gland a rest of from four to six hours. Yet you would take a mother who has a limited supply, and tease out a small amount from each mammary gland, and only give each gland a rest of from two and a half to three hours. I believe that the best results will be obtained, and that supplemental feeding will be at the lowest amount if the mother nurses from only one breast at a time, giving each breast a considerable rest in order that it may attain its highest physiologic power, allowing the child to nurse for from ten to ifteen minutes; then after that and in addition, put the child on the bottle if necessary. I say after and not before, because f you put the child on the bottle before, you are not in a position to take advantage of the increasing quantity of milk which that breast may be secreting if you are managing the case correctly and giving the mother proper rest and nourishment.

DR. CHARLES DOUGLAS, Detroit: It seems to me that the mpression has been left that every woman can nurse successfully if we only manage her properly. There are certain conditions under which it is impossible to do successful nursing. It is not the putting of a certain amount of liquid into a child's stomach that makes success. You must have a successful result. Some women cannot nurse successfully no matter what they do. They have milk, but it does not produce a good effect on the child. What can we do with such a patient? Regulate her diet and give her rest, which is an absolute necessity. After this is done and we find that the child still has green, ropy stools, I contend that it is an error and an injury to persist in giving even one or two feedings of that milk in each twenty-four hours. I am heartily in accord with all the recommendations for giving one feeding when it can be done properly. It is nonsense to talk of giving a child breast-milk simply because the mother produces it. We must know that what we are getting from that mother is right. She must have good nourishment, rest, a limited amount of labor, etc., to give a good secretion. If then the milk fails to produce a good yellow stool, I think that mother's milk should be laid aside and the child put on modified milk. One feeding a day of mother's milk, when it is the right quality, no matter how small, is beyond price. There is nothing we can purchase which approaches it in value to the infant.

Obstetricians certainly have been doing a great deal of careless work in caring for infants. I will go a step further also and say that we are responsible in a large measure for he crude, negligent work being done by midwives and the harm that results. Our attention should be directed toward making midwives more efficient, so that they can do better work.

DR. FRANCIS P. DENNY, Brookline, Mass.: There is one argument in favor of supplemental feeding which Dr. McClanahan did not mention and that is the advantage to the child of starting cow's milk early and gradually, thus accustoming it to the albumin of the cow. If a child has to be weaned suddenly, that child is in a better condition to be weaned if for months it has been having at least one bottle of cow's milk a day.

DR. JOHN ZAHORSKY, St. Louis, Mo.: I think it is wrong to condemn physicians generally. Most physicians do try to keep he baby on the breast, but there are a great many conditions about breast-feeding which, unfortunately, we do not understand, and we might just as well admit it now. In the first place, we have the condition of dyspepsia of young infants. The baby has bad stools, continued flatulence, gets colic as soon as it nurses a drop from the mother and screams day and night. The dyspepsia in young infants is attributed to various causes; bacteria, underfeeding, overfeeding, and what not. The ruth of the matter is that we know nothing about it. It is not too high fat or too high proteid, because in many cases which I have attended, at least to my own satisfaction, I have not found excessive fat or excessive proteid. Disturbances in a young infant will often lead the mother to put the baby on he bottle, because the baby is suffering and we cannot relieve t. Diminished milk-supply is the case in a great many healthy, well-to-do mothers. They try to nurse their children, but they have not enough milk. Some mothers of fine, healthy appearance give only 1 or 2 ounces of milk, and they are not able to increase the quantity after trying in every way. Another reason why some women do not nurse their babies is a painful sensation when nursing. This may come from nfected breasts. Quite a large percentage are due to this cause. How can we prevent sore nipples? Then there are some mothers who have a disagreeable sensation when nursing the baby. I think there is a definite pathologic condition in these cases, and they should be studied.

We say, "Keep them on the breast," but as a matter of fact we all give the bottle very soon. We either replace the breast-feeding or add to it. We have to, for if we did not the other doctor across the street would.

DR. JULES M. BRADY, St. Louis: It should be emphasized here that it is not always a paucity of the natural food which leads to artificial feeding. Many infants sicken as the result of overfeeding on the breast. The condition is not correctly interpreted and, as a result, artificial feeding is instituted.

SOME CASES OF HYSTERIA PRESENTING SYMPTOMS USUALLY FOUND ONLY IN ORGANIC DISEASES *

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In the presentation of a paper with this title I fully realize that I am treading on dangerous ground. The subject is of great importance, however, in that distinguished and trained neurologists have differed, for instance, as to whether the Babinski phenomenon, absent knee-jerks, incontinence of urine and feces, ankle-clonus and other usual signs of organic disease are ever found in hysteria.

In remarking on this I shall only quote a few statements gathered here and there from the literature on the subject. Mills[1] thinks that true astereognosis, loss of the sense of position, true ataxia and hemianopia are not found in hysteria. Purves Stewart[2] states that in hysteria absent knee-jerks, incontinence of bladder and rectum and the Babinski phenomenon never occur. Babinski himself says that hysteria itself is incapable of modifying tendon-reflexes. Dana[3] says that the sphincters are never involved except temporarily or through some complication. Incontinence of feces never occurs, according to Grainger and Stewart.[4] Philip Coombs Knapp[5] gives an excellent biography of the reflexes in hysteria and says that the Babinski and Oppenheim reflexes are never caused by hysteria. Tendon-reflexes may be exaggerated within normal limits. Whether hysteria can give rise to ankle-clonus or loss of knee-jerks is doubtful. Knapp also says that total paralysis and total anesthesia on one side are very rare. He says that Crocq[6] believed he had found ankle-clonus and patella-clonus in hysteria, and was supported by Charcot, Sachs, Oppenheim and others; and loss of knee-jerks has been found by Steiner, Marye, Nonne, Wigand and Charcot. Complete absence of plantar reflexes has been noted by Knapp and other observers. Mills[1] states that Van Gehuchten has reported one case with the Babinski phenomenon and ankle-clonus which disappeared in a few days. In commenting on this he says: "One case, however striking, is not sufficient to contravene the testimony of scores of other well-studied cases."

The whole outcome of a case may thus hinge on the view we take of one or more of the signs or symptoms

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] Mills, Charles K.: Jour. Nerv. and Ment. Dis., 1909, xxxvi, 407.

[2] Stewart, Purves: Diagnosis of Nervous Diseases, p. 365.

[3] Dana, Charles L.: Text-Book of Nervous Diseases and Psychiatry, p. 553.

[4] Grainger and Stewart: Text-Book of Nervous Diseases, p. 539.

[5] Knapp, Philip Coombs: Jour. Nerv. and Ment. Dis., 1910, xxxvii, 93.

[6] Crocq: Rev. neurol., 1904, xii, 1069.

found. Hysteria, indeed, is a disease which has caused so much controversy that it is our duty to clarify our conception of it as much as possible. As in neurasthenia, the present-day methods have done much to lessen the frequency of the diagnosis of hysteria by the neurologist. Since we have recognized and classified dementia praecox, manic-depressive insanity, the anxiety psychoses, psycholepsy and others, we have fortunately narrowed the conception of hysteria.

The cases to be mentioned here are not reported in full because this is deemed unnecessary and would add too much to the length of the paper. These cases were frankly hysterical, however, as careful examination and subsequent observation proved.

Case 1.—*Hysteria with Pseudo-Aphasia.*—The patient was a mulatto woman about 55 years of age, a member of a neurotic family. The patient gave the history of frequent hysteric seizures during the course of her life from puberty. In October, 1908, on the anniversary of her wedding day, she was taken with a right hemiplegia without facial involvement and without unconsciousness. It was accompanied, however, with great difficulty and slowness in speech. There were areas of analgesia and anesthesia on the right leg and neither the right leg nor the right arm could be moved voluntarily. Slight pressure over the left ovary made her flex her right knee about 45 degrees and the right arm about 90 degrees to the great surprise of her family. By one treatment with a strong faradic current she was made to talk better, to put the right hand to her face and to walk. She shortly recovered. Investigation developed that the patient's husband nine months before had a cerebral hemorrhage with paralysis of the right side and aphasia and had died after a short illness. The onset of the patient's symptoms resembled exactly those of the husband except that she was not completely unconscious. The interesting point about this case is the hysterical hemiplegia with a pseudo-aphasia, which complicated the picture.

Case 2.—*Hysteria with Temporary Loss of Sphincter Control.*—The patient, a young white woman, aged 17, was seen during November, 1907. This patient had been married when 13 years of age, borne a child when 14 and had used quinin to produce abortion of a 5-months fetus three months before she came under observation. She was emaciated to such a degree as to suggest progressive muscular atrophy. Her hands had a claw-like appearance at first but she could move all of her fingers normally. There was marked contraction of the lower extremities, especially at the knees. Careful examination for organic signs or symptoms was negative. Areas of anesthesia were found on the left upper extremity. The patient appeared so ill that no eye examination was attempted at this time except that the pupil reflexes were found normal. For a few days the patient voided urine and feces involuntarily. With careful nursing she gained flesh and with massage and stretching her limbs were straightened. She had no further trouble with incontinence and in a few months was well and at home doing her usual housekeeping. To determine if spinal anemia accounted for the loss of sphincter control a blood examination was made, which was negative. The patient's hemoglobin was 62 per cent. and her red cell count was 4,500,000. The interesting point about this case is that the patient had incontinence of urine and feces without blood changes or other signs or symptoms of organic disease. The regain of sphincter control was permanent. The loss was due evidently to simple but great functional body weakness.

Case 3.—*Unilateral Hysteric Amblyopia.*—The patient, a white girl aged 16, seen Sept. 9, 1909, developed hysteria, owing, it was thought, to overwork at school and a love affair. She complained of not having been able to see out of the right eye for a week past. Dr. John P. Davidson made an ophthalmologic examination and diagnosed unilateral hysteric amblyopia. Hysteria was confirmed by the history of hysteric seizures, sensory changes and pseudoclonus. By suggestion she was made to read large type with this eye the first day, medium type the second day and small type the third day after which she had no further trouble. The interesting point about this case is, of course, that the amblyopia was unilateral.

Case 4.—*Hysteria in Which the Knee-Jerks Were Absent.*—The patient in this, the last and most important case to be mentioned, was a young married white woman, aged 19, seen during July, 1909. She had given birth to a healthy child six weeks before. Her marriage was a runaway match with a man who drank to excess and who treated her with extreme cruelty. The patient had just separated from her husband. She gave the history of infrequent hysteric seizures in the past. Two weeks before she was seen she had been paralyzed in the right arm. When first seen she had loss of power in the right leg, having suddenly regained power in the right arm. Examination showed contracted vision fields, complete anesthesia of the right leg from the hip down, including the foot, and areas of anesthesia on the left leg and also over the back. Hoover's sign showed the paralysis of the right leg to be hysteric in type. There was, however, absolute loss of both knee-jerks both without and with reenforcement. Believing the case one of hysteria, and not being willing to give up the diagnosis on this symptom, I tested the knee-jerks of the patient's mother and found them absolutely absent, even with reenforcement. The mother, who gave no other symptom of brain or cord disturbance, stated that seven years previous she had been told at Johns Hopkins that her knee-jerks were absent. The patient's sister, aged 11, was tested and found to have knee-jerks. A first cousin on the maternal side, aged 7, was then tested and knee-jerks were found to be absent even on reenforcement. No other members of the family could be tested.

The diagnosis of hysteria was made, and with suggestion and several faradic shocks the patient was made to walk. The anesthesia cleared up within six days and the patient has remained well. This case is interesting because the absence of knee-jerks was accounted for as a familial phenomenon and was in all probability congenital.

Other less striking cases could be mentioned, but these are possibly sufficient to illustrate the point.

The above cases are given in brief outline, not with the intention of trying to prove that in hysteria organic signs and symptoms may occur as part of the symptom-complex and manifestations of the disease *per se,* but to call attention to the fact that definite or apparent organic symptoms may occur as a complication. To illustrate: A beautiful piece of tapestry was recently found by an art-buyer which appeared genuine and old, except that the general picture was complicated by glass beads being inserted in the representation of a piece of jewelry where diamonds should have been embroidered. The piece was rejected. Later it was found by closer observation that these glass beads had been sewed on by a child over the embroidered diamonds and the piece was thus proved genuine and was sold at a great price. The picture of hysteria may be genuine with an incongruous symptom inserted and if this symptom is not thoroughly investigated and taken out of the picture we are liable to reject the case and believe it not genuinely hysteric.

208 East Franklin Street.

Whooping-Cough.—Any disease which kills 10,000 children per annum is a serious one. If bubonic plague were to kill that many children in the United States in one year, the whole world would quarantine against our country. A child dead of whooping-cough is just as dead as a child dead of plague. A child whose body is weakened by disease is a potential economic loss to the nation. Whooping-cough is a danger to be avoided and combated in the interest of humanity and the citizens of to-morrow.—W. C. Rucker in *Pub. Health Rep.*

THE RECIPROCAL INFLUENCES OF MORBID CONDITIONS OF THE MOUTH, JAWS AND GENERAL ECONOMY *

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Much has been written in recent years relative to the unhygienic mouth as an etiologic factor in systemic disease. In fact, a wave of enthusiasm has been created so that oral cleanliness as a prophylactic measure against disease is receiving earnest attention both here and abroad. The municipal appointment of dental examiners in the public schools, in many parts of this and other countries, is evidence of the interest that has been manifested in the care of the mouth and teeth. Great credit is due the dental profession for this important step in the right direction, for its members have been mainly instrumental in bringing it about. The medical profession has likewise been a factor in proving to city officials the need for this advance in the protection of public health.

There is, however, much to be done to establish in medical, dental and lay minds a knowledge of the tremendous bearing that certain mouth and jaw diseases have on the general health and, furthermore, the manner in which many disorders can be early detected by a careful examination of the mouth. I will not dwell on the fact that many persons are rendered more susceptible to disease by the lowered vital resistance created by tooth, mouth and jaw troubles. This is too evident to all who give the matter any thought, but I want to lay stress on the frequency with which patients under treatment for mouth troubles are permanently cured of deviations from the normal which originally appeared to have no relation to the local lesion within the oral cavity. It is equally true that many systemic disorders are either directly or indirectly responsible for morbid conditions of the mouth and jaws.

The time-worn custom of physicians of asking to see the patient's tongue is indicative of the manner in which the oral mucous membrane in its varying condition of health and disease reflects primarily the state of the alimentary tract, secondly, the presence or absence of febrile conditions and, thirdly, circulatory changes. In certain maladies, examples of which are scarlet fever and syphilis, the tongue may exhibit as definite indications of the disease as are found in other parts of the body. In cerebral, meningeal and nervous disorders the tongue may again give enlightenment and thus be a prompt means of arriving at an accurate diagnosis. During convalescence from many diseases and in fact when the patient's life is in the balance between death and recovery, the tongue, if its readings are properly interpreted, may aid in encouraging the family or preparing them for the worst. So the tongue during the course of disease may materially aid in determining the prognosis.

The lips of the patient are occasionally studied by careful and observant diagnosticians, mainly, however, to note conditions of impoverished blood or types of anemia, as is the everted eyelid for the study of the conjunctival lining. Occasionally a definite lesion on these parts may be sufficiently evident to attract attention.

How very unusual is it, however, for physicians to make careful observations into the conditions of the mouth as a whole, to determine the presence of lesions on the mucous surface of the cheek, the floor of the mouth beneath the tongue, the palate, the gingival margins of the gum, or the roof and floor of the vestibule of the mouth. These parts to the stomatologists impart even greater information at times than do the tongue or lips. Just as does the dark line in lead-poisoning exhibit itself, so do other changes in peripheral circulation leave their mark. Faulty metabolism, auto-intoxication, rheumatism, gout, anemia, diabetes, renal, cardiac and pulmonary diseases all show their ill effects on the gingival border of the mucous membrane and often before symptoms are sufficiently pronounced in other parts to cause the patient to consult a physician.

It is no unusual occurrence in my practice, and no doubt my experience conforms to that of many who specialize in the treatment of diseases of the mouth, for me to refer to the family physician patients who on examination of the mouth are found to be in the incipient stage of one of the many maladies aforementioned. Indeed, I have occasionally found a patient to be in the throes of a well-advanced illness of no trivial character. In several instances, the true cause of what appeared to be an ulcerative or gangrenous stomatitis was recognized as the dreaded oral manifestation of leukemia only after I had insisted on a blood examination.

The vast majority of oral and even dental disturbances are markedly influenced by the state of the general health of the patient. In such extreme instances as osteomalacia, rachitis, and even the normal process of pregnancy do the mouth and teeth suffer with the rest of the system the drain on the osseous structures. In most diseases of the dermal covering of the body the prototypes of their lesions can be seen within the mouth, and here, owing to their modified appearances, great mistakes may be made in diagnosis.

All that has been said about the influence of systemic disease on the tissues of the mouth is more generally conceded and accepted by medical practitioners than by some of the excessively enthusiastic dental men who claim to cure all forms of so-called pyorrhea or suppurative gingivitis by local treatment and local treatment alone. These men fail to realize that they are but maintaining a more hygienic and non-irritating influence on tissues which are rendered susceptible to inflammation and infection by a systemic trouble. Great good is accomplished by such treatment when a proper regard for the underlying cause is kept in mind. Woe to him, however, who attacks boldly by local treatment only a suppurative gingivitis of diabetic origin.

The reciprocal influence of abnormal conditions of the mouth and jaws on the general economy has not been accorded to date the importance that it must receive, if the health and welfare of human kind is to be consistently conserved.

Briefly stated, the bearing that the mouth has on the general organism is governed first, by the ability of the mouth to perform its normal functions and to contribute its share toward the intricate and marvelous method of providing nutriment to the animal system. A failure in any measure to live up to its contract is accompanied by disturbances further on in the process with associated efforts to counterbalance the evil. So, then, must other organs and parts suffer or assume responsibilities which will eventually tell on their longevity.

Second, the matter of provision of food to the system through the natural avenue, the mouth, should be accom-

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* Read in the Section on Stomatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

plished without contamination such as is prone to occur when the mouth is not kept mechanically clean, and by this is meant that all surfaces of the buccal mucous membrane and all surfaces of the teeth must be kept free from oral débris and the virile organisms that infest unclean mouths. Third, such local infections as arise in spite of a reasonable amount of care must be met and conquered.

Stress should be placed on the eradication of infective foci from the mouth, even though radical surgical procedures and the sacrifice of teeth become necessary. Current literature, both medical and dental, contains many references to the relation of remote diseases to infections arising within the mouth. Infective endocarditis, rheumatism, anemias and other affections of serious moment are occasionally laid to the door of mouth infection. Many patients in my practice within recent years have exhibited decided attacks of neuritis involving the arm, shoulder and other parts that have cleared completely following the surgical removal of an infected area from the mouth. Patients who are suffering from diabetes, kidney troubles, etc., which may have been the predisposing cause of gingival disturbances within the mouth, are usually improved when efficient treatment removes the pus which by absorption aggravates the systemic trouble.

It is unnecessary for me to dwell further on the many and varied complications that may arise from septic absorption within the mouth.

Another important field of study is that which relates to the reflex disturbances that arise as a result of dental and maxillary abnormalities. The ear, the eye, the nose and throat, as well as parts further removed from the mouth, are occasionally the seat of baffling disturbances that are traced to conditions within the mouth. Neurologists are beginning to realize that some of their cases of melancholia, dementia præcox and other types of nervous disorder are occasionally brought on by an impacted tooth, a hidden abscess, or some other equally obscure trouble connected with the mouth and teeth. I am seeing such cases with increased frequency and in most instances am able to record a decided improvement if not an absolute cure of the nervous or mental condition.

At this time I will not report the cases that have come under my care for I will hope to supplement this brief communication with one which will be more clinical in its nature.

Before closing I desire to make reference to a paper by Baker,[1] in which he presents a compilation of diseases attributable to mouth conditions. According to his list, 125 different affections were traced by scientific men to dental and mouth disorders. In studying the bibliography of Dr. Baker's article, I find that almost all authors quoted are graduates of medicine. I refer to this point as the strongest evidence toward the verification of their findings, and that such reports were not made as the result of biased observations. Though Dr. Baker collected seventy-nine articles, written within the past ten or eleven years, from which he culled the references to the large variety of diseases, such sporadic outbursts of individual enthusiasm are scarcely adequate appeals for the betterment of the cause for which we are working. The dental profession, the medical profession and the lay public have begun to realize what scientific stomatology will contribute toward health preservation.

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ABSTRACT OF DISCUSSION

Dr. Joseph Head, Philadelphia: There seems to be the general idea that it is extremely dangerous to treat diabetics who have pyorrhea. I have in my own practice at present two patients suffering from diabetes; by injection of bifluorid solutions into the pockets I have been able with care and safety to scrape the roots clean and to get a fair amount of healing. In fact, teeth which have been very loose at the start have steadily improved, and pus, which flowed from nearly all parts of the mouth, has almost entirely disappeared. The discomfort which the patients experienced before they came to me has been relieved, and although they have not been cured, they are comfortable and I feel that there is every reason to believe that as time goes on they will perhaps continue to improve. One of these two patients had a lower six-year molar that could not be cured of the pus that flowed from around the anterior root. I scraped the pocket out but that did not improve it. The pulp was apparently healthy and normal, perhaps a little oversensitive, but it was only when I destroyed the pulp in that tooth that the pus ceased to form. I have noticed frequently in pyorrhea that a pocket from which the pus could not be eradicated would not heal up until an apparently healthy pulp was destroyed. It is easy to understand that the live pulp may be so infected with the overirritated peridental membrane that it may not be able to stand against the inroads of infection that tend to prolong the flowing of the pus around the pockets.

Dr. Virgil Loeb, St. Louis: A great fault in the study of diseases of the mouth is the omission or failure of many men to make a thorough examination of the oral cavity. Dr. Schamberg confined his remarks in this respect to medical men, but I think he should have made it broader and included the dental men as well. There are very few, I think, who take the time to make a thorough examination of the mucous membrane of the oral cavity; if this were done on every patient and only a single instance of the beginning of some malignant trouble were disclosed, it would be well worth while.

Dr. M. I. Schamberg, New York: I referred to men who attempt to treat cases of pyorrhea in diabetic cases without any regard to the underlying cause. I treat diabetic cases constantly and have often noticed after local treatment that there has been a diminution of glycosuria. I approach these cases a great deal more cautiously than I do the so-called simple cases. Cases have been referred to me for treatment, after men, some of them pyorrhea specialists, have injured the patients materially by disregarding their systemic trouble. I have had a number of cases in which the floor of the antrum had sloughed away as the result of pyorrheal treatment applied in diabetic cases.

TEMPORARY TOXIC AMAUROSIS AND PARALYSIS FOLLOWING INJECTION OF ETHYL ALCOHOL INTO A CHRONIC EMPYEMA SINUS

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Alcohol amaurosis is usually due to chronic intoxication, following the abuse of distilled and malt liquors.

Acute alcohol amaurosis is comparatively rare, but even in these so-called acute cases, total or partial blindness has followed when whisky in excess has been drunk for several weeks. Methyl alcohol taken in toxic dose has produced blindness within twenty-four hours. De Schweinitz[1] says: "In so far as the visual effects are concerned the acute cases may be dismissed with comparatively short notice, inasmuch as, except in rare instances, the visual phenomena are of temporary character, and amblyopia, if it occurs at all, is exceedingly uncommon. The ocular symptoms consist chiefly in paresis of one or other of the external ocular muscles. . . . Now and then acute alcoholism seems to have been responsible for almost complete blindness without ophthalmoscopic change, rapidly disappearing under antiphlogistic treatment and total abstinence."

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[1] Baker, Edward H.: "The Natural Field of Dentistry," Dental Cosmos, 1912, liv, 663.

[1] De Schweinitz, G. E.: Toxic Amblyopias, 1896, p. 25.

I have been unable to find any record of pure ethyl alcohol amaurosis. The following case therefore presents features of sufficient interest to make it worth reporting. It was a case of acute amaurosis which occurred immediately after the absorption of 90 per cent. ethyl alcohol; the mode of entrance was the injection of about 25 c.c. of pure alcohol into a chronic empyema sinus through a cannula introduced into the sinus; the amaurosis was accompanied by temporary motor paralysis of both upper and lower extremities, and was followed by complete recovery.

The patient, I. S., aged 24, single, had always been well up to June 6, 1910, when he was operated on for gangrenous appendicitis. The wound was drained. Following this the patient developed a subphrenic abscess for which he was operated on July 8. One week afterward, symptoms of thoracic empyema appeared. July 15, 1910, a thoracotomy was performed, with drainage.

The appendix and subphrenic abscess wounds healed entirely, but a chronic empyema sinus developed, which was treated up to March 25, 1911, about ten months, without any sign of healing. There evidently was a communication between the sinus and the bronchus, because the first time I injected bismuth paste, the patient nearly choked in an effort to cough up and expectorate the bismuth paste which I injected. Repeatedly on the injection of bismuth paste although in smaller quantities injected slowly, he would cough and expectorate the bismuth.

This treatment lessened the discharge considerably for a while but eventually had to be given up since no benefit resulted. After the sinus narrowed down considerably I began to inject 95 per cent. ethyl alcohol into it, using a narrow cannula, and a 30 c.c. capacity syringe. The injections were repeated at each dressing without causing any untoward symptoms whatever until March 11, 1911, when, after I had injected the sinus with the alcohol, the patient without any warning slid off my table, landing on the floor in a perfectly limp condition. He was unconscious for a few seconds. Believing that he had fainted, I allowed him to stay on the floor until he recovered consciousness, when I asked him to help himself back to the table; but he replied that he was unable to move his legs. I picked him up and placed him on the table, when he assured me that he felt all right but that he could not see me. Absolute flaccid paralysis also was present in both upper and lower extremities. His mind was clear, speech normal, skin and lips normal in color, no cyanosis; pupils were moderately dilated and reacted to light. The patient was unable to see me or any object held up to him, but was able to distinguish light from darkness. Respiration was somewhat rapid and sighing; the patient was unable to move or lift either upper or lower extremities. This condition lasted about twenty minutes.

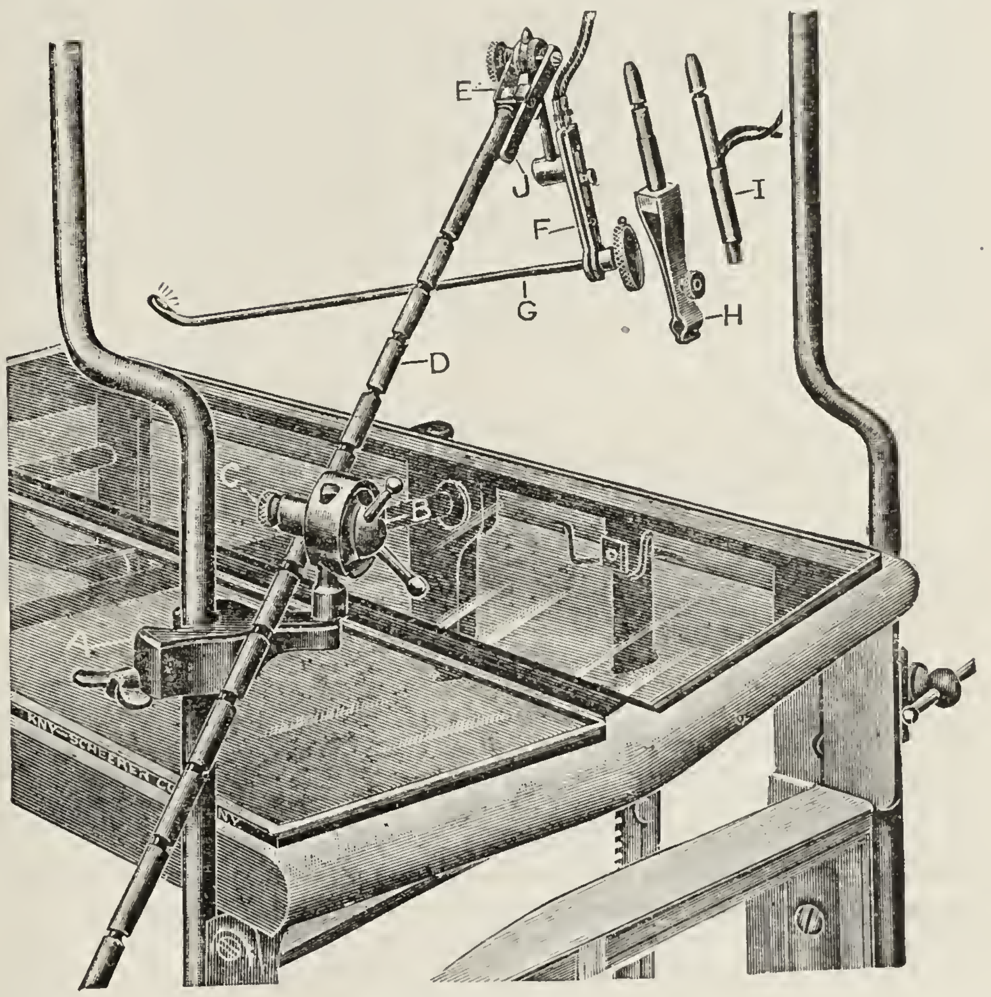
Cutaneous sensation was present. The patellar reflexes were exaggerated. Gradually the patient regained control of his extremities, first his legs, then his arms, accompanied by incoordination; that is, if I asked him to lift his leg he would do so in a jerky, uncertain, draggy fashion, then he would lose control again, the limb falling down entirely limp; or in attempting to lift his arm, he could not without simultaneously attempting to lift his leg as well. Muscle resistance was absent at the beginning but gradually returned in both upper and lower extremities. The patient stated that no matter how hard he tried he could not move or control his limbs. In about half an hour all signs of motor paralysis disappeared, and he could move and control his extremities as well as ever, walking without assistance. Complete amaurosis was present for about one hour, but gradually his sight returned so that four hours after the accident he was able to distinguish objects and shapes fairly well. Perfect vision was regained in about three days. A competent oculist examined his eyes half an hour after the accident: a slight congestion of the fundus was present. No other ophthalmoscopic change was noted. A month following I did a subperiosteal resection of portions of five ribs; the patient had a rather stormy convalescence but eventually recovered with absolute cure of his empyema sinus.

262 West One Hundred and Thirteenth Street.

CYSTOSCOPE HOLDER

Henry Dawson Furniss, M.D., New York
Assistant Attending Gynecologist, New York Post-Graduate Hospital
and New York Red Cross Hospital

In teaching cystoscopy in women the inability to hold steady the long male cystoscope so that demonstrations could be given the students led to the use of shorter instruments. These had some objections, among which was the fact that they are made in few of the different types; so a holder that would allow free manipulation of the cystoscope and that could be fixed in any desired position was a welcome device. I feel that the instrument here presented, which embodies many improvements suggested by use, serves all the purposes for which a holder is desired.



Cystoscope holder.

A is a removable piece designed to fit a leg-holder of any size from ¼ inch to ¾ inch. On the projection is a short rod over which slips B, this allowing easy removal of the holder proper. B is so designed that it allows an up-and-down, a circular and a twisting motion of the long rod D. All of these motions can be locked by the large wing nut on B. C is a screw that projects into the slots on the long rod D, thus preventing lengthwise motion; after adjustment of length for the particular table on which it is to be used, there is seldom any necessity for a change. The portion E is insulated from D by fiber washers, and thus short-circuiting is prevented. On the distal end of the spring J is a pin that projects into the slot cut in the piece that is directly connected to the cystoscope; this prevents slipping and allows rotary motion. These pieces are made for all cystoscopes with a rotary contact; F is for the Continental type, I for Wrapper instruments. H is a universal holder clamping around the cystoscope shaft. F and I also serve as electric connections. Examinations are made with the cystoscope attached to the holder. With most other holders, attachment is made after locating the part to be seen.

The advantages of using such an instrument are that the teacher can demonstrate to the student any part of the bladder, and also the student can leave the instrument in position to show that concerning which he wishes instruction. The instrument holds the cystoscope in any desired position for any length of time. If for any reason the examiner is interrupted and has to leave the table, it is not necessary to withdraw the cystoscope or to have some one else hold it; he has only to tighten the nut on B and the one on E. Where ureteral catheters are to be left in for any length of time, for the collecting of urine or washing out the renal pelvis, this instrument is of the greatest assistance.

For five months I have been using it not only in private, but more especially in teaching, which it has made immensely easier; I now regard it as almost indispensable.

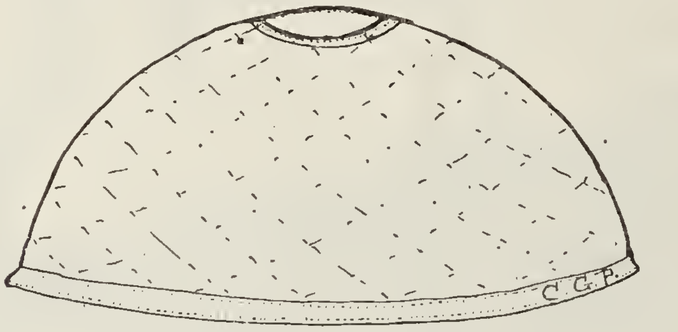
393 West End Avenue.

AN ETHER-MASK COVER

Carl G. Parsons, M.D., Denver

The accompanying illustration represents a cover which I have devised for a drop-ether mask. It is made by quilting cotton between two layers of No. 2 gauze, cutting a hole 1½ inches in diameter in the summit, taking out one or two wedge-shaped pieces at the base so as to cause the cover to fit the mask, and hemming all raw surfaces with tape.

The ordinary ether-mask is covered with a few layers of gauze. Ether is given by the drop method slowly at first, and as soon as the patient becomes accustomed to the vapor, the above-described arrangement is fitted over the mask, with the base carefully approximated to the patient's face, and the drug is then dropped onto the gauze through the aperture. By this method patients are put under and kept under the anesthetic with a minimum amount of drug, the anesthesia is much more uniform and there is no need of winding roller gauze or a cumbersome towel about the mask. The cover can be applied or removed in an instant. After each administration the cover should be washed and dried.



Ether-mask cover.

PENETRATING ABDOMINAL WALL WOUND BY REVOLVER BULLET, COMPLICATED BY TWENTY-TWO INTESTINAL PERFORATIONS; OPERATION AND RECOVERY

A. Belcham Keyes, M.D., Chicago
Professor of Gynecology, Chicago Policlinic; Assistant Professor of Gynecology, Rush Medical College; Surgeon to Cook County Hospital

History.—C. P., an Austrian, aged 35, a machinist, was admitted to my surgical service in Cook County Hospital, April 27, 1908, with a history of having been shot about a half-hour previously. The bullet had been fired by a man somewhat taller than himself who was standing to the left and somewhat behind him. The external wound apparently had not bled; neither had there been any coughing, vomiting or passage of blood from the rectum or bladder. Comparatively little pain was complained of in the abdomen itself but there was intense pain in the perineum and in the left side of the scrotum.

Examination.—The abdomen was slightly distended and the recti and oblique muscles were rigid, especially on the left side. The absolute liver dulness was lost. A small oval dime-sized wound was found in the left midaxillary line, on a level with the umbilicus, presumably the place of entrance of the bullet. The left side of the scrotum was somewhat discolored and very tender.

Operation.—Under ether anesthesia a median incision, 10 cm. in length, extending from midway to the ensiform downward to the left of the umbilicus to a point midway between this and the pubes was made. The abdominal cavity contained a slight quantity of fluid feces with much clotted blood and probably some bile. The first part of the jejunum examined showed eleven intestinal perforations; several were also found in the mesentery. Five of the intestinal perforations were closed with fine chromicized catgut, and about 10 inches of another loop with six perforations, and a badly injured mesentery and blood-vessels were exsected and a Murphy button inserted and doubly stitched with Lembert's sutures. Eleven more perforations were later found and sutured with fine catgut by Czerny-Lembert sutures. No more perforations being discoverable, the peritoneal cavity and intestines were carefully sponged clean with moist compresses wrung out of normal salt solution; the parietal peritoneum was closed with continuous catgut sutures, the recti fascia and skin with interrupted silkworm-gut sutures and the wounds dressed. No drain was inserted. The patient showed signs of shock and anemia from loss of blood but responded to a hypodermic of strychnin sulphate, one-fifteenth grain. Four hours after the shooting, he was put to bed in fair condition with weak but regular pulse and thoracic respiration.

Some interesting injuries caused by the ball noticed during the operation and in the exsected loop are shown in the diagram.

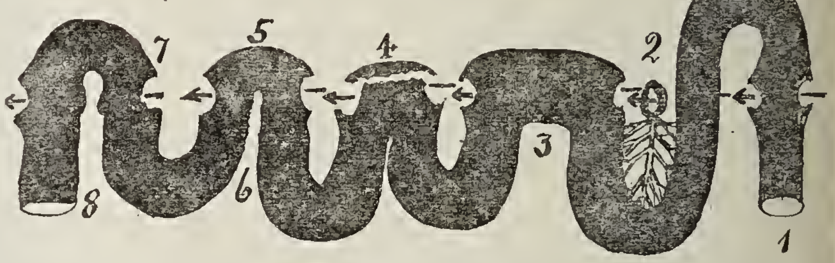


Diagram of peculiar injuries by bullet: (1) perforation of the bowel from side to side; (2) perforation of both layers of the mesentery, cutting the blood-vessels; (3) perforation of a bowel loop at its apex; (4) perforation near apex of small loop; (5) perforation at apex in a sharply bent loop; (6) intramesenteric perforation; (7 and 8) entrance of the ball lower in a loop of bowel, intramesenteric exit and reentrance, and final exit on a free surface of bowel.

Postoperative History.—An enema of glycerin and olive oil administered on the evening of the third day was expelled with some flatus and liquid fecal matter. The abdominal silkworm gut sutures were removed on the fourteenth day, the wound having healed by primary intention. A fifteenth-day radiograph showed the Murphy button in the left inguinal region, probably in the sigmoid. A pelvic radiograph on the seventeenth day failed to show the button, but revealed a 32-caliber bullet lying superficially just over the external inguinal ring, which was removed without anesthesia. Two subsequent radiographs also failed to reveal the button which had evidently been passed unnoticed by the patient (who was now permitted to go to the closet) on about the sixteenth day. The patient was discharged (May 24, 1908) on the twenty-seventh day as cured. May, 1911, three years later, I exhibited this patient before the members of the Chicago Medical Society (North Side branch) in a condition of perfect health. He works as a machinist, can lift 150 pounds and has neither disturbance of digestion nor pain. The abdominal wound is entirely devoid of any signs of hernia.

When asked as to how long before the shooting he had had his last meal, he stated that ten minutes before the shooting he had eaten a cheese sandwich and drunk two bottles of beer.

Beyond the interest the recovery has despite the large number of intestinal perforations, there is the fact that the radiograph, showing the bullet over the external ring, might easily have been misleading, causing at least an unfortunate delay, in the belief that the bullet had only contoured the abdominal wall.

In conclusion I wish to thank Drs. R. J. Pickard, E. B. Rogers, J. R. Kauffman and R. C. Menzies, interns, for their able assistance.

122 South Michigan Boulevard.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. ITS ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

AFRIDOL.—Afridol is sodium hydroxymercuric toluylate, $C_6H_3(CH_3)$ (COONa) HgOH, 2:3:1.

Afridol is an odorless, tasteless white powder, difficultly soluble in neutral or acid media, but soluble in ammoniacal solution containing ammonium chloride. Filtered aqueous solutions of afridol remain unchanged on the addition of ammonium sulphide solution or albumin solutions.

If afridol be boiled with hydrochloric acid, an odor of benzoic acid is produced and the cooled solution when saturated with hydrogen sulphide yields a black precipitate of mercuric sulphide.

Actions and Uses.—It is said to be of value for disinfection of the hands in surgical and obstetric work and for disinfection of various other parts of the body, as well as of instruments and other objects. It has also been recommended in the treatment of parasitic diseases of the skin and scalp, such as favus, acne, sycosis and seborrhea.

Dosage.—Marketed only as Afridol Soap (see below).

Manufactured by Farbenfabriken vorm. Friedr. Bayer, Leverkusen, Germany (Farbenfabriken of Elberfeld Co., New York). U. S. patent applied for. U. S. trademark No. 81,387.

Afridol Soap.—Afridol soap is a soap containing afridol 4 per cent.

If an aqueous solution of afridol soap be treated with either ammonium sulphide or albumin solution, no precipitate should be formed. If an aqueous solution of afridol soap be boiled with hydrochloric acid and the solution made alkaline with ammonium hydroxide, the addition of ammonium sulphide solution should yield a black precipitate of mercuric sulphide.

Actions and Uses.—(See Afridol).

Dosage.—Afridol soap is used in the same way as any other soap. For the prevention of boils the foam is generally allowed to dry or to remain on for at least ten minutes and then washed off.

Therapeutics

DISTURBANCES OF THE HEART

(Continued from page 1797)

TREATMENT OF ENDOCARDITIS

As mild endocarditis rarely occurs primarily but is almost always secondary to some acute disease, its immediate treatment is only a slight modification of that of the disease that is causing it. A complication that is so frequent should always be expected, and consequently warded off or prevented, if possible. Knowledge of the diseases that most likely cause endocarditis makes frequent heart examinations a necessity, to note when it arrives. While an extra heart tire, sleeplessness, the circulation of unnecessary toxins from a bad condition of the bowels and from improperly selected food all make this complication more likely, its occurrence is, nevertheless, often unpreventable.

The most efficacious preventive measures are sleep, rest, absence of pain, prevention of exertion, proper food that does not cause flatulence or other indigestion, good, sufficient daily movements of the bowels, the prevention of intestinal distention, and maintenance of a clean, moist surface of the body, produced by such sponging and bathing as the temperature demands.

The disease having developed, the indications for treatment are really few; in fact, the treatment is mostly negative. There is generally but little pain; the temperature from simple endocarditis alone is not high, and the acute symptoms tend to abate.

Local Treatment.—Endocarditis having been diagnosed, especially if there is palpitation or pain, the ice-bag over the heart is often of considerable value, but not so efficient as in pericarditis. It often tends to quiet the heart, and may be of some value reflexly in slowing the inflammation. If it causes restlessness, however, and does not diminish, or perhaps in some instances increases, the pain, it certainly should be stopped. Children, in whom this complication so frequently occurs, generally do not bear the ice-bag well. Sometimes it may be advisable to substitute warm applications, and often a great deal of comfort is derived from them, the patient soon going to sleep. One of the greatest values of either cold or hot applications is diminution of the discomfort from the cardiac disturbance, and the stopping of any pain that may be present. If they do not do this, there is no object in using either cold or heat.

The discomfort from blisters over the heart during the acute stage of endocarditis is greater than any good that they can do. In adults a few small blisters may be used intermittently around the borders of the heart, after the acute symptoms are over, to act reflexly on the heart and possibly aid absorption of inflammatory products. Sometimes improvement seems to follow such treatment; it certainly can do no harm.

During convalescence the skin over the heart may be painted with iodin, repeated often enough to cause stimulation without injuring the skin; it seems at times to be of value. Various iodin ointments or iodid ointments have been used, but they probably have no more value than the administration of small doses of iodid.

Systemic Treatment.—As this complication most frequently occurs during acute rheumatism, the question arises as to the value or harmfulness of salicylates and alkaline drugs. With our recent better understanding of the action of pure salicylates on the heart (either natural or synthetic salicylic acid, which have been shown to act identically, if equally pure, we must believe that in any ordinary dosage they will injure the heart but rarely. While salicylic acid will not prevent endocarditis, it should be continued, if it is benefiting the arthritis. In other words, the indication for its use depends on its effect on the joints. As it acts at times almost as a specific in rheumatism, it would seem that it should be of value in the endocarditis caused by rheumatism. On the other hand, the endocarditis occurs during the second or third week of acute rheumatism, after the blood has been thoroughly saturated with salicylic acid. Therefore it certainly does not tend to prevent rheumatic endocarditis; hence for this complication alone salicylic acid is not indicated.

Anything that tends to increase the acidity of the tissues and to diminish the alkalinity of the blood, whether from starvation or other causes, seems to produce endocardial and myocardial irritation, if not actual inflammation. Therefore in a disease like rheumatism that seems to be made worse by anything that increases the acidity, alkalies are obviously indicated, and it is probable that an increased alkalinity of the blood tends to prevent endocardial irritation, and may soothe an inflammation already present. Until we have some positive knowledge to the contrary, alkalies should be freely administered during endocarditis, especially during rheumatic endocarditis. Potassium citrate in 2-gm. (30-grain) doses, in wintergreen water, should be given every three to six hours, depending on how readily the urine is made alkaline. This may be given with the salicylic acid treatment, and also when the salicylic acid has been stopped. It may be well, if sodium salicylate is being used, to give also sodium bicarbonate, the sodium bicarbonate often preventing an irritation of the stomach from the sodium salicylate, the dose being equal parts of the sodium salicylate and the sodium bicarbonate administered in plenty of water. If some other form of salicylic acid is preferred, novaspirin, which is methylene-citrylsalicylic acid and contains 62 per cent. of salicylic acid, is perhaps the least irritant to the stomach of the salicylic preparations. This drug is decomposed in the intestine into its component parts, salicylic acid and methylene-citric acid. If this drug is combined with sodium bicarbonate, the disintegration into its component parts would be likely to occur in the stomach.

It is essential for the welfare of the patient, especially after a long illness before the complication of endocarditis could occur, and in rheumatic fever, in which all meat and meat extractives have been kept from the diet, that small doses of iron should be administered daily. Not only the fever process, but the salicylic acid tend to prevent the healthy normal growth of red corpuscles, and such patients suffering from rheumatism are often seriously anemic after the acute inflammation has ceased. The iron administered may be 5 drops of the tincture of the chlorid, in lemonade or orangeade, twice in twenty-four hours (and it should be remembered that lemon and orange burn to alkalies in the system and do not act as acids); or 0.1 gm. (1½ grains) of reduced iron in capsule twice in twenty-four hours, or a 3-grain tablet of *Eisenzucker* (saccharated oxid of iron) twice in twenty-four hours.

As so many times repeated, real pain must be stopped, and morphin, either by the mouth or hypodermatically, should be used to the point of stopping such pain. If the patient is a young child, the sulphate of codein or the deodorized tincture of opium may be used, in the dose found sufficient, and either one will act satisfactorily. The dose given should be small and repeated sufficiently often to stop the pain. The dose necessary for the given individual will soon be learned, and that dose may be repeated at such intervals as the condition may require. Sometimes the hypnotic selected, if one is needed, will be sufficient to quiet the cardiac aches or pains.

If there is much restlessness and the circulation is good, that is, if myocarditis is probably not present, the bromids may be of great value, especially in children. The dose should be sufficient to quiet the nervous system. The drug may be discontinued after a few days, if the conditions improve. If the bromid, except in large doses, will not cause sleep, a sufficient dose of chloral should be given. Chloral is one of the most satisfactorily acting drugs to produce sleep and to cause cardiac rest that we have. While it should not be given if there is real cardiac weakness, the good that it does is so much greater than the possible bad effect on the heart, that it should not be forgotten for some newer hypnotic. The worst part of this drug is its taste, and the best way to administer it is to have it in solution in water and the dose given on cracked ice with a little lemon juice, to be followed by a good drink of water and a piece of orange pulp for the patient to chew. Ordinarily a bad-tasting drug such as chloral is well administered in effervescing water, but effervescing waters are generally inadvisable when there is any kind of inflammation of the heart, as they are likely to cause distention of the stomach and pressure on the heart. Some physicians prefer chloralamid as a less disagreeable drug and one that acts almost as efficiently as chloral. As the dose of this must be larger than the dose of chloral, it is a question of doubt as to which is the better drug to use. Of the newer hypnotics, veronal-sodium (sodium-diethyl-barbiturate) is among the best. It acts quickly, is less depressant and is a safer salt than most of the other newer hypnotics. It is the readily soluble sodium salt of veronal (diethylbarbituric acid). When combined with any active drug, sodium seems to make it less toxic and less depressant. The dose of this drug is 0.2 to 0.3 gm. (3 to 5 grains).

If the patient is weak, the circulation depressed, the blood-pressure low, and the heart rapid, the drug advisable to produce rest and sleep is almost always morphin or some other form of opium. Morphin, with few exceptions, is a cardiac tonic and a cardiac stimulant, unless the dose is much too large. As long as the bowels are daily moved and the food is not given at the time of the full action of the morphin, when digestion might be delayed or interfered with, in most patients the action of this drug during serious illness is entirely for good. The greatest mistake in using morphin for the production of sleep, or for physical and mental rest and comfort when there is not severe pain, is in giving too large a dose. If pain is not severe, or is due to inflammatory distention of some undilatable part, to pressure on some nerve, to distention of some tube by a calculus or to some serious injury to the nerves, large doses of morphin are not needed. Small doses will act much more efficiently. It is excessively rare that a hypodermic of one-fourth grain of morphin sulphate is needed, except for the conditions enumerated. It is often a fact that so small a dose as one-eighth grain of morphin or even one-sixth grain will cause sufficient stimulation of a nervous patient, because its primary stimulant effect on the spinal cord is greater than its depressant effect on the brain, to require another dose (one-fourth grain altogether) to give such a patient rest. On the other hand, this patient may many times be quieted by one-tenth grain of morphin sulphate on account of the size of the dose being not sufficient to stimulate the spinal cord. Many a time clinically when one-eighth grain has failed, a dose of one-fourth grain having been apparently necessary, a change to one-tenth grain has proved entirely and perfectly satisfactory, much to the surprise of the attending physicians.

As intimated above in the paragraph on "prevention," the diet during endocarditis must be carefully regulated. It must be sufficient, it must be appropriate for the disease in which the complication occurs, but it must be in such dosage and must be administered with such frequency as to cause the least possible indigestion. Large amounts of milk are rarely advisable. Too much milk is certainly given, even in rheumatism. While pretty well tolerated by children, it is often badly tolerated, as far as digestive symptoms are concerned, by adults. The amount of liquid given should be governed by the amount of urine passed and by the amount of perspiration. The patient should not be overloaded with liquid if he does not need it.

If the bowels are known to be in excellent condition and not loaded with fecal matters, brisk catharsis is not needed simply because endocarditis has developed. If the bowels have been neglected, a small dose of calomel, aided by a compound aloin tablet, is necessary and good treatment. Subsequent movements of the bowels should be daily obtained by vegetable laxatives with occasional enemas, as needed. With an inflammation of the heart and the possibility of myocarditis developing or being actually present, it is not advisable to use salines freely or often.

Whether any drug should be used which acts directly on the heart is often a question for decision. As endocarditis is generally secondary to some acute disease, the patient has become weakened already and the circulation is not sturdy; therefore such a drug as aconite is probably never indicated. The necessary diminished diet, catharsis, hypnotic, salicylic acid and alkalies all tend to quiet the circulation and diminish any strenuosity of the heart that may be present. Unfortunately, during fever processes digitalis in ordinary doses rarely slows the heart; and while it might slow the heart if given in large doses, it would also cause too powerful contractions of the ventricles. Digitalis is inadvisable if there is much endocardial inflammation, and especially if there is supposed or presumed to be myocardial inflammation. If a patient had already valvular disease from a previous endocarditis, and during this attack insufficiency of the heart was evidenced by pendent edemas, digitalis should be administered; but it probably should not be given to other patients during the acute period of inflammation.

During rheumatism the peripheral blood-vessels are generally dilated and the skin perspires profusely. This is caused not only by the rheumatism, but also by the salicylates. The surface of the body should be sponged with cold, lukewarm or hot water, depending on the temperature, especially of the skin. The cold water will reduce the temperature and tone the peripheral blood-vessels; the hot water, if the temperature is low and the skin moist and flabby, will cleanse it and also tone the peripheral blood-vessels. If the blood-vessels are dilated and the perspiration profuse, atropin is indicated, both as a cardiac stimulant and contractor of the blood-vessels and as a preventer of too profuse sweating. The dose should be from 1/200 to 1/100 grain for an adult, given two or three times in twenty-four hours, depending on its action and the indications. It should be remembered that atropin is not a sleep-producer; it may stimulate the cerebrum. Therefore at night it might well be combined with a possible necessary hypodermatic injection of morphin.

The question of the advisability of strychnin is a constant subject for discussion. Strychnin is overused in most patients who are seriously ill. In a patient in whom we are trying to cause nervous and muscular rest strychnin is certainly contra-indicated. On the other hand, if the heart is acting sluggishly, the peripheral circulation is imperfect, and atropin is not acting well, it is advisable to give strychnin in a dose not too large and not too frequently repeated. Strychnin should be avoided, if possible, in the evening so that the patient may sleep. Whether it should be given by the mouth or hypodermatically would depend entirely on the seriousness of the condition. Once in six hours is generally often enough for strychnin to be administered unless the dose is very small.

It is rarely, if ever, advisable to use alcohol. In certain instances, however, especially in older patients who are accustomed to alcohol, a little whisky administered several times a day may act only for good, both as a food and as a peripheral dilator. But it must be remembered that alcohol is not a cardiac stimulant, and that a large dose will be followed by more cardiac depression. Nitroglycerin may act as well as whisky in the kind of cases mentioned. Caffein stimulation in any form is generally inadvisable during inflammation of the heart.

The duration of acute endocarditis varies greatly; it may be two or three weeks, or the inflammation may become subacute and last for several months. Although mild endocarditis rarely causes death of itself, it may develop into an ulcerative endocarditis, and of course then be serious *per se*. On the other hand, it may add its last quota of disability to a patient already seriously ill and death may occur from the combination of disturbances.

As soon as all acute symptoms have ceased, rheumatic or otherwise, and the temperature is normal, the amount of food should be increased; the strongly acting drugs should be stopped; especially the alkalies should not be given too long, and the salicylates should only be given intermittently, if at all; iron should be continued, massage should be started, and iodid should be administered, best in the form of the sodium iodid, 0.1 to 0.2 gm. (1½ to 3 grains), twice in twenty-four hours, with the belief that it does some good toward promoting the resorption of the endocardial inflammatory products and can never do any harm. Prolonged bed rest must be continued, visitors must still be proscribed, long conversations must not be allowed, and the return to active mental and physical life must be most deliberate.

No clinician could state the extent to which the valvular inflammation will improve or how much disability of the valves must be permanent. It is even stated by some clinicians that a rest in bed for three months is advisable. While this is of course excessive, certainly when the future health and ability of the patient are under consideration, and especially when the patient is a child or an adolescent, time is no object compared with the future welfare of the individual's heart. It is one of the greatest pleasures of the clinician to note such a previously inflamed heart gradually diminish in size and the murmurs at the valves affected gradually disappear. Although they may have disappeared while the patient is in bed, he is not safe from the occurrence of a valvular lesion for several months after he is up and about.

While the discussion of hygiene would naturally be confined to the hygiene of the disease of which the endocarditis is a complication, still the hygiene of its most frequent cause, rheumatism, should be referred to. Fresh air and plenty of it, and dry air if possible, is what is needed in rheumatism, and a shut-up, overheated and especially a damp room will continue rheumatism indefinitely. It is almost as serious for rheumatism as it is for pneumonia. Sunlight and the action of the sun's rays in a rheumatic patient's bedroom are essential, if possibly obtainable.

As so many rheumatic germs are absorbed from diseased or inflamed tonsils or from other parts of the mouth and throat, proper gargling or swashing of the mouth and throat should be continued as much as possible, even during an endocarditis.

(To be continued)

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[*For other information see second page following reading matter*]

SATURDAY, NOVEMBER 23, 1912

SOCIALIZING THE BRITISH MEDICAL PROFESSION

As our readers are aware, if they have followed our London letter from week to week, a bitter conflict has been going on in Great Britain over the terms of the so-called Insurance Act. It is a peculiar fact that although this law is probably the most revolutionary, so far as medical practice is concerned, of any measure yet introduced in any English-speaking country, the controversy between the government and the physicians has been almost entirely over the question of compensation, and not over the principles on which the law is based. And yet, if we are not mistaken, this law marks the beginning of the end of the old system of the individual practice of medicine and of the old relationship between patient and physician — the beginning of a new era, both for society and for physicians. It provides for nothing less than an assumption, on the part of the government, of the responsibility of providing proper medical care for citizens who are financially unable to secure it for themselves. Under the terms of the act, all persons whose total annual income is less than $800 (£160) will be entitled to medical services furnished by the government and paid from a fund made up jointly by workmen, employers and the government. Persons having an income above $800 will continue to provide their own medical services as heretofore — for the present. It is estimated that approximately 15,000,000 of the inhabitants of the United Kingdom are by the terms of this act taken out of the field of private practice.

The effect of such a law can be nothing less than revolutionary, as far as the economic conditions of the medical profession are concerned. That the discussion has centered almost entirely around the question of compensation shows that physicians have no objection to being made state health officers or to having the present system of private practice largely reduced, if not abolished, so long as they are adequately compensated for their work. Another significant fact, showing both the disregard of the medical profession by the average politician and the evident lack of understanding between the medical profession and the public, is that, in drafting his bill, the Chancellor of the Exchequer made little if any effort to find out what provisions would be satisfactory to physicians themselves although the burden of the new system would fall entirely on the physicians. The British Parliament passed the bill at the personal insistence of Mr. Lloyd George, in spite of the opposition of the British Medical Association, which protested, among other things, that the compensation contemplated was inadequate. Following the passage of the bill, the majority of the profession in Great Britain refused to work under the law in its present form, and have demanded an increased compensation, as well as the modification of some other features.

The question of a fair and adequate compensation for physicians is, of course, vital. It is, however, largely a local question, since a standard of compensation which might be perfectly suitable to one country, or to one locality, would not necessarily be fair to another. Physicians in the United States will, therefore, be more interested in the general plan of the measure. The amount of compensation and the fixing of a maximum income for those coming within the provisions of the law are incidental questions. The important feature is the recognition of the fact that it is the duty of society, as represented by the government, to furnish medical treatment for those who are unable to secure it for themselves. It also means the recognition of the modern physician as a health officer of the state, working for the general good, rather than as a private, professional or business man.

There is room for much speculation as to the ultimate results. For one thing, it practically eliminates the necessity for medical charity and so stops the enormous drain on physicians which has resulted therefrom. If it is true, as was reported several years ago by a committee of one of our large local organizations, that 25 per cent. of the professional work done by physicians is entirely gratuitous, the abolition of this enormous nonproductive class of work would be beneficial. Another important consideration is that the adoption of such a plan would do away with any possible mercenary motive which might be alleged against the individual physician or the medical profession as a whole, as a reason for any indifference or apathy toward the development of preventive medicine. A third and by no means less important result, will be that those persons who, under the present private practice system, are the least able to consult physicians frequently, and who are yet most exposed to and susceptible to preventable diseases, can secure the advice and services of medical men before rather than after the disease has developed. That some form of periodic, systematic medical inspection will develop out of the state system of medicine thus created in the United Kingdom seems probable.

Last is the effect which such a measure will have on medical education and the personnel of the profession. If the state assumes the responsibility of providing medical services for any large proportion of its citizens, it must necessarily pay strict attention to the quality of service which it provides, as a physician working under the Insurance Act will be necessarily a representative of the state. This will make it necessary for the government not only to exercise more rigid supervision over medical colleges and the character of medical instruction, but also to adopt some system which will prevent those already qualified to practice from becoming inefficient through laziness or indifference. This necessity has already been recognized in several branches of our own government. For instance, in our Army and Navy, all officers not only are required to pass rigid examinations at the time of their appointment, but are also required to pass examinations at stated intervals, for service and promotion, on pain of compulsory resignation from the service if they fail to qualify. Such a plan compels these officers to keep up with progress in the practical and technical work of their profession.

Physicians in the United States will be interested in the development of this plan in Great Britain principally on account of the light it will throw on such a plan in this country, for the possibility that the adoption of some arrangement of this sort will sooner or later be considered on this side of the Atlantic may be acknowledged. The prevention of disease is becoming more and more recognized as a social and not a professional duty. Most preventable diseases to-day are due to sins of the community rather than to sins of the individual. The state in the future must protect the citizen against disease just as it now protects him from foreign invasion. In fact, the majority of our most dreaded diseases are foreign invaders, as far as civilized nations are concerned.

The lesson which American physicians can learn from the experience of their British brethren is the importance of educating the public on health matters, and of a close understanding and sympathy between the public and physicians. If the relations between the British medical profession and the British public had been as intimate as those which fortunately are now coming into existence between physicians and the people in this country, it would have been impossible for the government to introduce or champion a bill placing such a burden on the medical profession without providing compensation which was fair and adequate. Physicians in all lands and in all times have been generous beyond all other classes in charitable deeds. Yet the physician to-day, as never before, must live comfortably and must have money to pay for instruments, books, journals and graduate instruction, if he is to be able to give his patients such services as they need and as the times demand. The physician of the future, as the official guardian of the public health, must be assured a compensation which will enable him to do his work so that the lives of the people may be protected. If the people understand the importance and value of proper medical services, there will be no difficulty about securing fair compensation.

THE PANCREAS AND DIABETES IN THE LIGHT OF NEW EXPERIMENTS

Despite the numerous attempts which have been made from time to time to unravel the secret of the mechanism of diabetes, and despite the failure of any of the proposed theories to afford a convincing solution of the difficulty, the problem retains a perennial interest. For the clinician there is involved the possibility of discovering a therapeutic procedure which would be of the utmost importance for the welfare or rescue of an increasing number of patients; while the physiologist confidently expects to find, in the unraveling of the etiology of diabetes, clear indications of the way in which the foodstuffs and notably the carbohydrates are converted into their normal end-products in the organism.

In a previous editorial,[1] reference was made to the possible relation of the liver to certain types of glycosuria. The undoubted involvement of the pancreas in relation to some forms of diabetes, at least, may be assumed to be familiar. The classic studies on the removal and the transplantation of that organ make it more than probable that the action of the pancreas is exerted through the circulation rather than by intermediation of the nervous system. Presumably there is a chemical factor concerned. The most simple and direct hypothesis assumes that there is produced in the gland some substance — or a hormone, in terms of the recent physiology — which is necessary for the assimilation or utilization of sugar by the tissues. Although the inability to use or oxidize carbohydrate is the conspicuous feature of the diabetes, it is further noteworthy that the utilization of other food derivatives may also be greatly impaired. Amino-acids are said to be excreted in some cases; and the final fatal outcome is commonly characterized by an accumulation of oxybutyric acid and its companions — products associated with the defective catabolism of fats.

There are, however, other plausible hypotheses regarding the pathologic defect underlying the diabetic insufficiency. It has been asserted that the primary difficulty is an increased formation and distribution of sugar in the liver, this organ having become freed from an inhibitory influence previously exerted on it by an assumed internal secretion of the pancreas. Here it is overproduction or failure to conserve carbohydrate properly, rather than inability of the tissues of the body to utilize sugar, which is made to account for the phenomena. Again, it has been suggested that the pancreas ordinarily furnishes some antidiabetic product, acting like an antitoxin to prevent the accumulation in the organism of products which would otherwise injure the sugar-assimilating functions of the cells. The theory of the antitoxic action of internal secretion has been a favorite one in certain quarters and has often been called on to explain the function of the ductless glands. In addition to all these is the vaguer suggestion that the action of the pancreas is not a direct one, but involves the interaction of other organs, such as the thyroid and suprarenal glands.

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[1] Drugs, Diabetes and the Liver, THE JOURNAL A. M. A., Oct 19, 1912, p. 1460.

There is every reason to believe that the muscles are *par excellence* the tissues in which the ultimate consumption of sugar in the body takes place. The conspicuous energy-changes leading to mechanical work occur in the muscles; and because of their predominant bulk and physiologic activity they stand foremost as the organs of metabolism. Much would be gained, therefore, if it could be demonstrated that there is a difference between the muscles of the normal and of the diabetic individual in respect to the capacity to consume sugar. Knowlton and Starling[2] have devised a method for maintaining the heart and lungs of a mammal for many hours in a state approximating normal, while these organs are artificially fed with blood. This has made it possible to compare the performance of heart muscle from various subjects in relation to the character of the blood supplied and the inherent properties of the tissues themselves. Diabetes was produced in animals by removal of the pancreas, and the hearts of such individuals were employed for comparison with the hearts of healthy subjects. The heart muscle of dogs, fed with normal blood, consumes about 4 mg. of glucose per gram of heart per hour. This power of consuming sugar is reduced to a minimum or disappears altogether in hearts taken from animals which have undergone complete excision of the pancreas. The addition of a boiled extract of the pancreas to the blood circulating through the heart of a diabetic animal restores to the latter the power of utilizing the glucose of the circulating blood. From such facts the impression is gained that the pancreas normally produces a substance which is continually discharged into the circulating blood — a pancreatic hormone — the presence of which is a necessary condition for the assimilation of circulating glucose. Removal of the pancreas brings about the disappearance of the substance from the blood and therefore deprives the tissues of the possibility of utilizing carbohydrates as sources of energy. Knowlton and Starling frankly admit that other explanations are not absolutely excluded, however plausible the above deduction may appear. The well-known earlier contributions of Professor Starling's laboratory, which have led to the newer conception of hormones in general, inspire confidence in the tentative hypothesis suggested by the perfusion of the isolated heart and assure it a respectful hearing.

THE RESUSCITATION OF THE HEART

More than a quarter of a century ago the physiologist Schiff demonstrated on animals the possibility of resuscitating the apparently dead by means of massage of the heart. Enough experience has been gathered in the meantime to encourage the continuance of this method in appropriate cases. Our knowledge of the working of the heart — its innervation, the coordination of its parts, the intrinsic and extrinsic factors on which a normal cardiac functioning depends — have been so widely extended in the past few years that there is hope of the continued fruitful application of these newer acquirements in the domain of medical practice.

Even under what appear to be most favorable conditions, massage often fails to make the heart beat. Irritability and the power of contraction may be maintained in the organ; but the inner stimulus may be lacking and spontaneous rhythmicity fail to develop. Professor Joseph Erlanger of the Washington University Medical School in St. Louis, to whom science owes numerous valuable contributions in the domain of cardiac physiology, has offered some promising suggestions bearing on the resuscitation of the heart.[1] Contraction of the ventricles can frequently be induced by the more familiar methods. Direct electric stimulation of the ventricles is fraught with considerable danger, since it is extremely liable to set up fibrillation. In attempting to initiate the rhythm of the heart in some other way, Erlanger has proposed to supply, if possible, the impulses along the usual path by which the auricles are normally started beating. The function of the sinus region as a cardiac pace-maker is now well known. Experiments on isolated heart preparations have shown that whereas stimulation of other parts of the auricle rarely if ever results in the development of a series of beats, short periods of tetanic stimulation of the sinus region materially increase the carrying power, into the less rhythmic regions of the auricle, of the impulses originating in the sinus. In this way previously quiescent outlying regions may begin to respond to sinus impulses, or a feebly beating outlying region may begin to beat more strongly.

Since it has been demonstrated on the freely exposed heart that stimulation of the sinus region is a valuable adjunct to massage in the resuscitation of the heart, Erlanger succeeded in applying this principle without formidable surgical procedure such as the extensive opening of the chest requires. A sound carrying a stimulating electrode can be inserted through a small costal interspace opening so that its point will reach the sinus region of the heart exactly, without encountering any resistance whatever. Unipolar stimulation of the sinus can then be employed as an adjuvant to subphrenic cardiac massage. The method has been successfully applied to animals apparently dead from the effects of chloroform in the usual way. Artificial respiration by the insufflation method of Meltzer and Auer is quickly started, the stimulating sound inserted, and the massage given through an incision in the abdomen. The value of the procedure as an accessory in permanent resuscitation has been demonstrated in enough trials on dogs to indicate its feasibility in man. The accidents due to experimental manipulation were few, though there are obvious sources of danger, such as puncture of the heart or lungs; but the respiratory center may fail to recover even when the cardiac performance becomes satisfactory.

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[2] Knowlton, F. P., and Starling, E. H.: Experiments on the Consumption of Sugar in the Normal and Diabetic Heart, Jour. Physiol., 1912, xlv, 146. The method is more fully detailed in the Journal of Physiology, 1912, xliv, 206.

[1] Erlanger, J.: Sinus Stimulation as a Factor in the Resuscitation of the Heart, Jour. Exper. Med., 1912, xvi, 452.

The results thus achieved experimentally will doubtless encourage others to apply this method of resuscitation to man when a favorable opportunity arises. The occasional death from an overdose of chloroform on the operating-table furnishes an illustration of the possibilities always liable to arise. Animal experimentation in the hands of competent workers has contributed another example of its beneficent aims and its potent helpfulness.

THE ENTRANCE AND EXIT OF SUBSTANCES INSOLUBLE IN WATER IN THE ORGANISM

The mode in which the organism eliminates water-soluble substances that are not burned up in the nutritive processes is familiar. They leave the body through the kidneys and are discharged in the urine, unless perchance the path of excretion is into the intestine, when they pass out with the feces. In the latter way iron, calcium and magnesium, for instance, may become eliminated. Familiar drugs and poisons likewise take one of these channels, the kidneys acting *par excellence* as the excretory organs. Only in the case of volatile substances are the lungs called into play for this function.

It happens occasionally that compounds which have only a sparing solubility in water reach the circulation. How they penetrate the alimentary wall has been somewhat of a puzzle. A few years ago, when it was still supposed that fats were absorbed as such in emulsion, and that they traversed the intestinal mucosa in the form of minute globules which reappeared in the lymph-stream of the lacteals beyond the absorbing membrane, it was not difficult to explain the similar translocation of other particles which are insoluble in the intestinal contents. To-day, however, it is almost universally taught that fats are not only emulsified, but actually hydrolyzed in the digestive processes; so that it is not neutral fats, but rather the products of the lipolytic change—glycerol, soaps and fatty acids—which find their way into the absorbing mucosa. Digestion, that is, hydrolytic cleavage, is accordingly just as fundamental a prerequisite for the utilization of fat as it is for the absorption and assimilation of the other groups of nutrients. In line with this is the evidence that unsaponifiable — that is, indigestible — substances like mineral oils or petrolatum fail to enter the circulation and that they pass through the alimentary tract unchanged, as a rule at any rate. This fact forms the basis for the use of petrolatum by some clinicians in the relief of constipation. The soft, unabsorbable residue furnishes a suitable texture to the alimentary contents and a bulk which is conducive to spontaneous evacuations. Conversely the emulsified fat, once it has reached the blood, rarely finds its way out through the walls of the kidney tubules except in most unusual circumstances leading to lipuria. The secretory and absorption membranes are as a rule impervious to suspensions such as the fat globules represent.

There are substances which lack the property of solubility in water but are soluble in fats and oils. The chlorophyl of the green vegetables and the coloring-matter of butter and egg-yolk are familiar illustrations; while a number of common drugs might be cited as additional examples. Do they ever leave the lumen of the bowel in their transit along the digestive tube, or are they always lost with the feces? Recent investigations on the behavior of fat-soluble dyes are likely to throw a new light on this question.[1] Scarlet-red, which has lately received notice as a therapeutic agent, Sudan III, indophenol and annatto are types of these stains which are insoluble in water, soluble in fats and comparatively harmless. Some of the dyes of this class have long been in use for coloring certain food materials artificially. When they are introduced into the organism by various paths they are deposited in the adipose tissue and bone-marrow, which is rich in fatty materials. In investigating the mode of entry and exit of these substances, Mendel and Daniels have found that all are strikingly soluble in bile or solutions of the bile salts. When they reach the intestine, therefore, they can enter the portal circulation dissolved in reabsorbed bile or can find their way into the organism in company with the fat or its derivative fatty acid. They do not pass beyond the liver in the one case, or the lacteals in the other, unless fat is present to transport them; for they cannot travel in solution in the fat-free blood-plasma. These dyes follow the fat to the liver under conditions in which such migration takes place either from the fat depots or the circulation itself. In the hepatic cells, however, the dye is separated from the fat and secreted along with the bile into the intestine. From here it may be reabsorbed as before and a cycle of travel established, until after gradual losses the last of the pigmentary substance escapes with biliary residues in the stools.

The significance of these findings is more far-reaching than a hasty consideration may disclose. They show the bile in the important rôle of a solvent for substances which are insoluble in ordinary watery vehicles or even in blood; and by virtue of this property such compounds may be carried both into and out of the circulation. If they find a suitable carrier, like fat, they continue to travel in the body along with this constituent; but in its absence they are forced to make their exit again along with newly secreted bile. The phenomenon is one which doubtless applies to all compounds not transformed in the body, which are more soluble in bile than in water or serum. It is well known that the bile furnishes the normal channel of elimination of numerous substances.[2]

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[1] Mendel, Lafayette B., and Daniels, Amy L.: The Behavior of Fat-Soluble Dyes and Stained Fat in the Animal Organism, Jour. Biol. Chem., 1912, xiii, 71.

[2] Compare, for example, Abel and Rountree, Jour. Pharmacol. and Exper. Therapeutics, 1909, i, 231

and it is reasonable to assume that such substances belong to the solubility category just outlined. One may stop to speculate on the possible therapeutic properties of a compound which can thus be made to traverse the paths of the biliary secretion which are occasionally the routes of bacterial invasion.

When the fat-soluble dyes (and presumably this is true for comparable drugs) are transported in the organism with an abundance of food-fat they may find their way into the mammary secretion, according to the observations of Mendel and Daniels. One can thus understand how the color of the milk-fat may be influenced by the content of lipochromes in the food; and the facts of daily experience receive a logical explanation. The Yale investigators have never found dye in the fetus or newly born young when the mothers were fed on stained food. The failure to traverse the placenta emphasizes anew the barrier which this membrane offers to the passage of substances through it and recalls the much-debated question of the real origin of fetal fat.

THE CLINICAL MANIFESTATIONS OF EPIDEMIC SORE THROAT

There is a pronounced resemblance in the symptoms and clinical course of the various milk epidemics of sore throat to which attention has been directed of late. This is shown clearly in the reports of the Christiania, Boston and Chicago[1] outbreaks. In all three the disease is described as beginning suddenly, with or without chill, followed by fever, muscular pain, headache, sometimes nausea and vomiting, prostration, and the usual local symptoms of a more or less severe follicular and membranous tonsillitis and pharyngitis. In the Chicago epidemic the pulse seemed relatively slow, and Brooks[2] also notes that in the outbreak described by him the pulse-rate was not increased in proportion to the fever. Naturally diphtheria was first suspected and in Christiania the notice of the health department was aroused by the large number of throat cultures sent in by physicians and found to consist of streptococci only. Usually the lymph-nodes in the neck became enlarged, sometimes very much so, but in some cases they were tender without marked swelling. A moderate leukocytosis has been noted.

In most cases of the recent epidemics the attack would subside rather abruptly after a few days, the patient remaining prostrated, however, and regaining strength only slowly; but not infrequently a second attack with even severer symptoms than the first would set in after a week or so of improvement. This tendency to relapse has been noted in the earlier epidemics also.

The great danger in epidemic sore throat lies in extension and generalization of the infection, and it is this tendency which stamps the disease as peculiar and as due to a virus of special virulence. In the recent epidemics, besides abscesses in the neck, often deep-seated, there were encountered otitis, glossitis and other local complications, erysipelas, purpuric and scarlatiniform eruptions, acute articular rheumatism or conditions indistinguishable therefrom with or without endocarditis, and also suppurative arthritis, pneumonia, peritonitis and other septicopyemic manifestations. Instances of phlegmonous angina have been described. Davis[3] observed that when there was pronounced glandular involvement of the neck, cultures of the blood were usually sterile; while in many cases with no special enlargement of the glands, streptococci would be obtained, and in such cases visceral lesions were common. In the Boston epidemic[4] the gravity of the complications seemed most serious in persons between the ages of 40 and 60. "Cambridge is like a city of the plague. Whomever one meets the talk is all of who is ill, who has had a relapse, who has died." In children there seemed to be a degree of relative immunity, and when the infection took hold in children the symptoms were gastro-intestinal in nature (Darling).

Statistics giving the relations of the various outstanding manifestations of general infection to the different age periods are not available, nor is anything reliable known in regard to the death-rate. That it may be high, higher perhaps than at first expected, would seem to be indicated by the observations of Capps and Miller on a group of 173 cases in which nineteen deaths occurred; it is probable, however, that these were all exceptionally severe cases. It is of interest that of the nineteen that died nine had peritonitis; in other epidemics also peritonitis is mentioned as present in about half of the fatal cases.

Preble,[5] in commenting on the peculiarities of the clinical picture of the Chicago cases, states that a temperature of 102 might be associated with a pulse of 40, and one of 104 or 105 with a pulse between 80 and 90. He noted also that even in prolonged cases, extending over months, there would be little anemia, and that jaundice was rare, all of which leads him to suggest that possibly it concerned infection of some other type than with the ordinary streptococcus.

In order to secure a more accurate knowledge of the nature of the disease in question, there is need now of careful and systematic study on a comprehensive scale of many individual cases during their entire course. Unquestionably a great deal of interest and practical value would be brought to light if studies of this kind could be undertaken from the very onset of epidemics, and for this reason as well as in the interest of prompt prevention of further spread, special efforts should be made to recognize outbreaks in the earliest stages. Only in this way can we learn whether we are dealing with more than one disease, whether milk may convey still unknown diseases which like scarlet fever and small-pox open the door to streptococci, or that it concerns, as is now taken for granted, only the varying manifestations of primary streptococcus infection.

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[1] Capps, Joseph A., and Miller, Joseph L.: The Chicago Epidemic of Streptococcus Sore Throat and Its Relation to the Milk-Supply, The Journal A. M. A., June 15, 1912, p. 1848.

[2] Brooks: Lancet, London, 1910, ii, 1391.

[3] Davis, David J.: Bacteriologic Study of Streptococci in Milk in Relation to Epidemic Sore Throat, The Journal A. M. A., June 15, 1912, p. 1852.

[4] Winslow: Jour. Infect. Dis., 1912, x, 73.

[5] Sore Throat and Milk-Supply, abstract of discussion, The Journal A. M. A., June 22, 1912, p. 1933.

"FROM THE EAST, LIGHT"—AND DISEASE AND DEATH

Ex oriente lux has long been an adage emphasized by those whose education or habits of thought were more or less derived from Eastern sources. That the sun's lighting comes from the East is an accident of the earth's direction of rotation; and that from the Orient first came the semicivilized races to start a better civilization in the Occidental world is also due to another "accident"— that of climate, which allowed man to rise out of savagery. The half-way house, as it were, of the migrating Oriental was the Mediterranean semicivilization, which bore within its blood the germs of its own death, and which was illustrated in the fall of the Roman Empire.

The heart of orientalism is belief in the supremacy of fate, which cannot be withstood or surmounted. This implies slavery to disease and death. The Oriental supinely accepts disease, even when plainly due to his own sin or recklessness or when easily obviable or curable; as the unalterable law of fate, either as punishment for spiritual sin or as the vindictiveness and tyranny of his irresponsible and unseen rulers. A contradictory attitude characterizes the Occidental point of view. Disease and premature death are not the result of fate, but may be precented or cured. The history of medicine and of diseases everywhere demonstrates this truth. The best illustration is the marvelous statistical record of suddenly occidentalized Japan in her late war as regards the death-rate of her soldiers.

Compare that with the reports which come as we write of the Turkish conditions in Constantinople. This city of over a million inhabitants, in constant touch with our Western civilization, is sewerless and so insanitary that the banished "street scavengers," the dogs, would have partly prevented the present unspeakable accumulations of filth "even in the most important thoroughfares." Cholera, Asiatic cholera, small-pox and typhus are reported to be raging, and Occidental Europe, despite all its hygiene and medicine, may soon be overswept by these dread diseases.

The lesson to be learned, treasured and put into action, is that for self-protection, if not for a better motive, scientific medicine should be organized and should extend its power — its gospel — to these laggards in civilization in Oriental countries. Hygiene and preventive medicine are their greatest need, to give it to them our greatest privilege and duty. The medical missionaries have done much to break the news to the Oriental, but they have had so little power and their number has been so few that their work has been largely individual and curative rather than social and hygienic. Here is a sadly neglected opportunity for the thousands of philanthropic capitalists of our Occidental nations to lift the Oriental world out of its disease-scourged and death-bitten fatalism. We in the West have the right to demand in self-defense, if for no other reason, that the greatest evils of life shall not be loaded on us by the inefficiency and laziness of a nerveless fatalism. The medical profession is prepared and able to second such a hygienic crusade.

Current Comment

SUGGESTION AND SUICIDE

That the suggestive effect of reading details of suicides is a powerful factor in the causation of suicide among susceptible persons is recognized. The suggestion is more likely to have influence when in the account of the suicide some poisonous article commonly found in households, such as phenol, Lysol and Rough on Rats, is named as the agent employed by the suicide. In New South Wales newspapers have been asked by the pharmaceutical board not to publish the names of poisons used by suicides. In several instances leading newspapers have heeded this request, particularly in connection with Lysol poisoning cases, which are numerous in all the states of the commonwealth.[1] The House of Delegates of the American Medical Association, in 1910, adopted resolutions[2] to the effect that the publication of details of suicides in newspapers is one of the potent causes of other suicides through suggestion, and it was recommended to the public press that the details of suicides be omitted from publication. In an editorial[3] referring to this action of the House of Delegates, we made certain recommendations, by which the influence of the publication of details of crime might be tested. While it is the consensus of opinion that the publication of details of suicides does promote further similar acts, the newspapers assert that it is their duty to publish the news. In adopting this attitude the newspapers are assuming a serious responsibility, and some authoritative restriction of such publication would seem to be desirable. A definite and strong expression of public opinion against this practice would no doubt have a better effect even than legal enactments.

THE DEATH OF THE HEART

Many a physician will recall the lesson in elementary physiology which introduced him to what Huxley fancifully called the "tripod of life": the brain, lungs and heart. The heart is the last leg on which life ultimately stands, and it becomes a matter of no little interest to know how the most vital of organs enters the state known as death. What is the last part to die? The stimulus of the heart-beat apparently originates in the region at the junction of the superior vena cava with the right

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1. Pharm. Jour., Oct. 12, 1912, p. 449.
2. The Journal A. M. A., June 18, 1910, pp. 2072 and 2076.
3. The Journal A. M. A., July 10, 1911 p. 30

auricle. Here rhythmicity is most highly developed and here it has been assumed that life takes its last stand at the spot where the cardiac pace-maker is located. In the hospital of the Rockefeller Institute for Medical Research at New York, Dr. G. Canby Robinson[1] has made records from patients before and during the actual stoppage of the heart, using the electrocardiograph, which can be employed without disturbing the individual in any way. Cardiac activity in some form or other may persist for more than half an hour after all the usual clinical signs of death have occurred — after respiration has finally ceased, when no heart signs can be heard, and muscular relaxation and the general appearance of the patient indicate that death has ensued. There was no uniformity in the changes in the mechanism of the heart-beat. Sometimes the ventricular outlasted the auricular activity; in other cases this was reversed; or the two parts of the heart were found to cease synchronously. Complete dissociation between the two divisions of the heart, ventricular fibrillation and other disturbances of coordination were among the phenomena noted. In view of such an inconstant variety of lethal phenomena Robinson is led to conclude that when death occurs from an acute infectious disease "there is no one point in the human heart which may be considered as the *ultimum moriens.*"

A PREMATURE PUFF

The National League for Medical Freedom issues a monthly publication called *Medical Freedom.* In its October, 1912, issue, it quotes a somewhat lengthy article from the New York *Telegraph.* Part of this article follows:

> In view of the restoration to health of Miss Mabel Hite, the actress, it seems to be proper to point out to physicians that if they wish to wage successful war on Christian Science healers, they should accomplish what those earnest men and women do. Miss Hite is a popular actress known all over the country, and the theater-going public was shocked several months ago when it was announced on the authority of physicians that her days were numbered—she is only 26 years old.
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> She was under the care of doctors. They used their knives on her body and dosed her with their drugs. "Affliction sore long time she bore; physicians were in vain." They told the public that she would die; and her manager called up the *Morning Telegraph* office and announced that the doctors had given her up. It was published broadcast.
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> Then Miss Hite herself was told that she could not live, and at the suggestion of her mother she turned to Christian Science. Soon she was able to leave her bed; her weight increased; she went out for rides, and last Saturday attended a baseball game. She is on the road to recovery.
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> Now the doctors were mistaken when they announced that she was dying, and Christian Science cured her. The public will believe with Miss Hite that the healers of Mrs. Eddy's church have made her well. They robbed death of its terrors, got her in a calm frame of mind, set their wills and hers to work, and the young woman began to get well.
>
> All this leads us to say that physicians who make mistakes in a matter of life and death should go slow in their criticism and their warfare on healers who really heal.

To all of which it is unnecessary to make any detailed reply, as the newspapers report that poor Mabel Hite died of cancer, Oct. 22, 1912.

THE TOXICITY OF THE URINE IN MEASLES AND OTHER INFECTIOUS DISEASES

It has been shown by Pfeiffer[1] that in anaphylactic shock and peptone poisoning the urine becomes extremely toxic. Aronson[2] has further demonstrated that in poisoning with Friedberger's anaphylatoxin, so-called, and also with poisons made of typhoid bacilli a similar toxicity occurs, and Esch[3] has demonstrated its occurrence in eclampsia. On the basis of this work, Aronson and Sommerfeld[4] have studied the toxicity of the urine in measles. The observation of von Pirquet that in measles during the exanthem there occurs an indifference to tuberculin in patients who have previously reacted strongly, they would explain as the result of an increased resistance to anaphylactic poisons in this disease. They found that during the attack there was a remarkable increase in the toxicity of the urine. Guinea-pigs injected intravenously with 2 c.c. of urine from healthy patients showed no noticeable reactions, but animals injected with urine from measles patients died usually in a few minutes or else became extremely ill, the symptoms resembling those of anaphylactic shock. Doses as small as 0.5 c.c. were found to bring about typical reactions. The toxicity of the urine is not parallel to the severity of the illness, to the diazo reaction or to the passing of the exanthem. There is no rule as to the duration of the excretion of toxic urine, nor does the toxic action bear any relationship to the specific gravity. The toxicity is not lost by boiling or freezing, but the toxic substance is dialyzable. On reinjection it was found that a first dose gave no protection, and horse-serum also failed to protect. In a study of other infectious diseases it was found that a similar toxicity occurs in serum disease, whereas in scarlet fever no such poisonous urine is excreted. Aronson and Sommerfeld believe that whereas in measles the exanthem is an expression of anaphylaxis, in scarlet fever it is the direct result of the action of the causal organism on the skin. In typhoid, tuberculosis, diphtheria and pertussis the urine was found to be innocuous. These results are of interest and, if corroborated, may prove of importance. The demonstration of a relationship between measles, eclampsia, serum disease and poisoning with anaphylatoxins may be of value in determining the nature and etiology of the first two. It is also suggested that as an aid in differential diagnosis between measles and scarlet fever, between serum disease and scarlet fever and in other exanthems, this reaction may prove of considerable practical value.

THE PHYSICIAN IS RESPONSIBLE

We present this week in the Propaganda for Reform department some facts regarding a widely advertised pseudomedical fraud — Duffy's Malt Whiskey. While this preparation is not so widely advertised in medical journals as it was, it still appears in the following:

Buffalo Medical Journal
Medical Standard
Medical Summary
Therapeutic Record
Charlotte Medical Journal
Medical Brief

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[1] Robinson, G. Canby: A Study with the Electrocardiograph of the Mode of Death of the Human Heart, Jour. Exper. Med., 1912, xvi, 291.

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[1] Pfeiffer: Ztschr. f. Immunitätsforsch. u. exper. Therap., 1911, x, 550.

[2] Aronson: Berl. klin. Wchnschr., 1912, xlix, 14.

[3] Esch: München. med. Wchnschr., 1912, lix, 461.

[4] Aronson and Sommerfeld: Deutsch. med. Wchnschr., 1912, xxxviii, 1733.

PROGRESS AND REACTION

The influence of the propaganda against medical fakes is repeatedly shown and in no way better than in the changing attitude of publishers toward the admission of advertising matter. To the disgrace of the medical profession it must be said that as a class the publishers of lay journals are showing a greater desire to rid their advertising pages of fraudulent medical advertisements than are the publishers of medical journals. Hardly a week passes without some evidence of the fact. This week we have received a copy of the *Pulaski County Democrat*, a newspaper published at Winamac, Ind. By the same mail we also received a copy of a Colorado medical journal—the *Denver Medical Times*. The newspaper has an editorial entitled "Advertising Fakes," in which[1] the editor tells why the publishers turned down an advertising contract for the "consumption cure" fraud, "Nature's Creation." The medical journal, on the other hand, has an editorial entitled, "The Medical Index Expurgatorius and Independent Journalism," in which the editor boasts of the fact that the proprietary preparations advertised in his journal are not confined to those that have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies. Incidentally he takes the opportunity to attempt to belittle both the Council and the American Medical Association. A glance at the advertising pages of the *Denver Medical Times* makes plain why the publishers of that journal are not willing to accept the findings of the Council on Pharmacy and Chemistry. Practically the whole of its advertising receipts are derived from the exploitation of proprietaries that either have not been approved by the Council or have at various times been shown to be fraudulent or worthless. "Nature's Creation" was examined in the Association's laboratory and found to be essentially a solution of potassium iodid in water and alcohol. To sell such a mixture as a cure for consumption is of course a fraud. When the *Pulaski County Democrat* was offered an advertising contract for the stuff, the publishers wrote to The Journal for information. On receiving the data furnished, they naturally refused to lend their advertising pages to perpetuate the fraud. "Papine," when examined in the Association's laboratory, was found to be essentially a watery-alcoholic solution of morphin with glycerin. It is sold under the claims that it does not "show habit-forming tendencies" and "does not suppress the secretions." Such claims for a disguised morphin preparation are just as fraudulent as the claims made for Nature's Creation; but the *Denver Medical Times* is perfectly willing to sell its pages to exploit this preparation—and many others that are just as bad—and to blackguard those men whom the American Medical Association has seen fit to appoint to investigate and expose fakes of this kind. Though it is typical of over two hundred medical journals published in this country, its importance as a medical journalistic factor would not have warranted its mention but for the coincidence of its arrival in the same mail with the *Pulaski County Democrat*. The attitude of the *Pulaski County Democrat* is typical of a large class of conscientious newspapers. The attitude of the *Denver Medical Times* is equally typical of a large class of self-styled independent medical journals—and the medical profession is to blame! Will physicians clean up abuses of this sort within the profession on their own initiative or will they wait until an outraged public opinion forces them to do so?

Medical News

CALIFORNIA

Commission to Name Health Director.—The Oakland Civil Service Board has decided to throw open the eligibility list for candidates for head of the department of health of the city to practitioners all over the United States, and the following committee has been named to act with the civil service board to make the selections: Dr. W. F. Snow, Sacramento, secretary of the State Board of Health; Prof. Charles Gillman Hyde, head of the Board of Sanitary Engineering in the University of California; Dr. George W. Shaw, director of the State Hygienic Laboratory, and Drs. E. N. Ewer and H. G. Thomas, Oakland.

Medical Board Upheld.—Judge Sturtevant, in a decision made October 29, held that issuance of permits to medical specialists to practice their so-called specialties in California, without regular licenses to practice, is contrary to the constitution. The question was raised by a mandamus petition made by John L. Bohannon to compel the state medical board to issue him a permit to practice as a cancer specialist, declaring that he had conformed to all the regulations of the medical practice act, by showing that he had practiced his specialty for thirty-five years and for fifteen years of that time in the state. Judge Sturtevant's decision upholds the action of the medical board.

ILLINOIS

Contagious Disease Hospital.—It is reported that $65,000 has been raised for the North Shore Contagious Disease Hospital, Evanston. This leaves $35,000 to be subscribed.

One-Fifth of Town Ill with Typhoid.—The State Board of Health received notice, November 11, that sixteen cases of typhoid existed in Hillview, Green County, a village with a population of eighty. Dr. J. C. Westervelt, Shelbyville, assistant secretary of the state board, has been sent to Hillview to make investigations.

Personal.—Dr. Clarence E. Holmberg, Springfield, was seriously injured in a runaway accident November 12, and is under treatment in St. John's Hospital.——Dr. J. F. Blackwelder, Litchfield, was painfully injured in a runaway accident, November 11.——Dr. J. M. Hoyt, Fillmore, has been appointed local surgeon of the Clover Leaf System.——Dr. E. M. Eckard, Peoria, has been elected coroner of Peoria County.

Chicago

Larger Appropriation Needed.—Health Commissioner Dr. George B. Young has asked for an appropriation of $886,000 for the Health Department for 1913, an increase of $166,000 over the appropriation of 1912. This appropriation will include the money necessary to aid in the enforcement of the milk, cold storage, drinking-cup and towel ordinances and will provide also for the required addition to the corps of inspectors.

INDIANA

Physicians Equip Surgical Ward.—Physicians of Indianapolis have contributed the necessary funds to equip the surgical ward of the new building of St. Vincent's Hospital. The new institution will have accommodation for five hundred patients.

Personal.—Dr. C. B. Stemen, Fort Wayne, who has been ill for three weeks, has recovered.——Dr. E. A. Edmonds, Hebron, was seriously burned while assisting in putting out a fire at Hebron, November 7.——Dr. John M. Cunningham has succeeded Dr. Eugene B. Mumford as inspector of contagious diseases in the city board of health of Indianapolis.

KENTUCKY

Health Department Bulletin.—The monthly bulletin of the Louisville Health Department has appeared, bearing the title *Health and Hygiene*. In the November issue the bulletin features the hookworm investigation and also gives a number of terse health rules.

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[1] This editorial is reproduced in full in the Propaganda for Reform department, this issue.

Personal.—Dr. William A. Young, Newport, has been appointed surgeon-in-chief of the Cincinnati Division of the Chesapeake and Ohio Railroad and Drs. Carey E. Wamsley, Newport, and S. P. Garrison, Bellevue, have been appointed assistant surgeons.——Dr. John W. Scott, Lexington, while on his way to New York, was stricken with appendicitis and was operated on in a hospital in Altoona, Pa.——Dr. J. T. Crice, assistant superintendent of the Central Kentucky State Hospital, Lakeland, has resigned.——Dr. Henry G. Hartman, Louisville, is suffering from septicemia following an injury to the right hand received while cranking his automobile.

Trachoma.—At the regular bi-monthly meeting of the Kentucky State Board of Health held in Louisville, November 14, one of the principal matters discussed was the report of Passed Assistant Surgeon John McMullen, U. S. P. H. Service, on trachoma as it exists in the mountains of Eastern Kentucky. The investigation included six mountain counties and one adjacent county. In all 3,974 persons were examined, 12½ per cent. of whom were found to be suffering from trachoma. For the purpose of this report, diagnosis was made only in positive cases, the suspicious or possibly incipient cases not being included. In Knott County about 18 per cent. were affected by the disease, including two out of twelve school children. In 400 persons not in schools, 102 cases of trachoma were found. In about 1,059 individuals examined in this county, 221, or about 20 per cent., were found to be suffering from trachoma. In the schools, the percentage of trachoma varied from 2 to 44 per cent., with a general average of about 18 per cent. In Perry County 310 persons were examined, 52 of whom, or about 16 per cent., had trachoma. In Breathitt County out of 614 persons examined, 12 per cent. were found to have trachoma. In Lee County, out of 668 pupils examined, 8 per cent. were found to have the disease. In Clark County in the Blue Grass region, in eleven schools containing 436 children, about 3 per cent. were found to have trachoma. The cure of existing cases is a problem which will require time and money. It was suggested that if possible a clinic, such as is now being held by Dr. J. A. Stucky in Lexington under the auspices of the W. C. T. U. Settlement School at Henderson, Knott County, should be established, that accurate records should be kept of the cases, and district nurses sent to follow the patients up, and see that the directions of the physicians are carried out. A system of movable or field hospitals should also cover the same territory periodically, in order to see the old patients and also any new patients, just as is now being done in the hookworm dispensary system.——The State Board of Health has decided to petition the United States Public Health Service to detail two men and such aids as may be necessary, to establish a series of dispensaries in cooperation with the Rockefeller Sanitary Commission and the State Board. In these dispensaries attention should be given to trachoma, tuberculosis, hookworm, pellagra and typhoid fever.

LOUISIANA

Sanitary Science at Tulane.—Three series of courses in sanitary science were started at Tulane University this session for medical science and engineering students specializing in sanitation. The medical graduates of this course expect to become health officers or members of boards of health; the science graduates, experts on sanitary biology, and the engineering, sanitary engineers. At Tulane the engineering and sanitary laboratories are on the same campus, and the School of Tropical Medicine has at its service the Charity Hospital clinics. In the senior class of the sanitary engineering course, instructions are to be given in water-supply, framed structures and reinforced concrete construction by Prof. Donald Derickson, formerly of Cornell University, and instruction in laboratory work and in sanitary microbiology will be given by Dr. Creighton Wellman and his assistants in the School of Tropical Medicine.

MARYLAND

Personal.—Dr. Jeptha E. Pitsnogle, Hagerstown, sustained serious bruises by the caving in of a well, recently.——Dr. Charles G. Hill, alienist of the Mount Hope Hospital, was struck by an automobile, November 12, and seriously injured.

New Officers.—Washington County Medical Association at Hagerstown, November 15: president, Dr. W. M. Reichard, Fair Play; secretary, Dr. W. D. Campbell, Hagerstown.

Baltimore

New Emergency Ward at Hospital.—The Baltimore and Ohio Railroad has decided to build an emergency ward at the Maryland University Hospital to cost about $5,000 and be in charge of Dr. Page Edmunds.

Hospital Fund Grows.—The building fund of the South Baltimore Hospital now amounts to $16,000. The trustees have decided not to commence work on the building until $20,000 has been secured.

Personal.—Dr. John C. Harris, an old practitioner of Baltimore, was stricken with cerebral hemorrhage October 31.——Dr. G. Milton Linthicum has been appointed assistant surgeon of the Fifth Infantry, N. G. Md., vice Dr. W. P. Morrill.——Dr. H. W. Kennard has been appointed assistant superintendent at the School for the Feeble-Minded, Owings Mills.

MISSISSIPPI

Vital Statistics Law Obeyed.—Reports from the Mississippi State Board of Health indicate that the vital statistics law, which went into effect November 1, is being conformed to, with very few exceptions, by physicians throughout the state.

Health Day.—Health Day was observed in Mississippi November 20. The exercises of the day were carried out by the State Board of Health, with the cooperation of the School Improvement Association and the Mississippi Federation of Women's Clubs.

NEW YORK

Small-Pox.—The State Health Department has been notified that there are seventeen well-developed cases of small-pox in Hancock, Delaware County.

Child Hygiene Bureau Opens.—The Bureau of Child Hygiene of the Buffalo Department of Health was opened October 24, with Dr. D. V. McClure in charge.

Personal.—Dr. C. S. Albertson has been elected president, Dr. James K. Stockwell, vice-president, and Dr. G. C. Elder, secretary of the medical staff of the Oswego Hospital.——Dr. and Mrs. A. J. Avery, Northville, celebrated their golden wedding anniversary recently.——Dr. James H. Donnelly has been appointed tuberculosis inspector by the health officer of Buffalo.

County Fair Health Exhibits.—The Bulletin of the State Department of Health for October describes the health exhibit which was exhibited by the department at a series of county fairs, acting in cooperation with the New York State College of Agriculture at Cornell University. A special circular entitled "Health Hints for Country Households," was distributed at the fairs; at Batavia 1,750 of these were put in farmers' wagons. Prof. H. N. Ogden of Cornell University and of the division of publicity and education of the department was in charge at the county fairs and was called on to answer many questions regarding ventilation, diphtheria antitoxin and adenoids. Antagonism to vaccination was frequently voiced and showed the need of educational effort in this direction. It is estimated that the exhibit has been visited by not less than 30,000 people.

New York City

Cancer Research Fund for Columbia.—Executors of the estate of George Crocker have filed their final accounting with the courts which shows that Columbia University has received from the estate $1,563,000 for the cancer research fund.

Reception to Dr. Carrel.—A reception was given in honor of Dr. Alexis Carrel of the Rockefeller Institute of Medical Research at the New York University, November 16, when the French ambassador delivered to Dr. Carrel the Nobel prize in medicine for 1912.

University Club Entertains Surgeons.—The University Club, Brooklyn, gave a dinner November 9 at which 300 were present, and among the guests of honor were Mr. W. Arbuthnot Lane, London, England, and Drs. William J. Mayo, Rochester, Minn., John B. Murphy and Albert J. Ochsner, Chicago; Robert C. Coffey, Portland, Ore.; George W. Crile, Cleveland, and Edward Martin and John Clark, Philadelphia.

Public Clinics.—The Department of Public Charities of the city of New York has issued orders which were communicated to the Academy of Medicine on November 7, that on and after the first of October, 1912, all clinics held in the amphitheater and operating-rooms of the hospitals of the Department of Public Charities shall be open to duly licensed graduates in medicine and to students in all regular organized medical schools and colleges. It was also ordered that tickets should be issued by the secretary of the Department of Public Charities for distribution by the secretaries of the several medical schools and societies of the City of Greater New York, which would entitle the registered holders thereof to admission to these clinics.

OHIO

New Officers.—Second District Medical Society at Dayton, October 24: Dr. W. H. Humphrey, Yellow Springs, president.

——Tenth District Medical Association at Mount Gilead, October 15: president, Dr. J. H. Jackson, Edison; secretary-treasurer, Dr. J. J. Coons, Columbus. The next meeting will be held in Columbus.——Seventh District Medical Association at Coshocton, November 7: president, Dr. E. B. Shanley; secretary, Dr. E. D. Moore, both of New Philadelphia.

Hospital News.—The entire building fund of $325.000 and $80.000 of the endowment fund have been raised for the new proposed Babies' Hospital, Columbus.——Dominican Sisters have opened a free dispensary in Columbus for the sick poor, in cooperation with the local society of St. Vincent de Paul. ——Creditors of the Eddy Road Hospital, Cleveland, are said to have filed a bankruptcy petition in the federal court and asked for a receiver.——The name of the Women and Children's Free Medical and Surgical Dispensary, Cleveland, has been changed to the Woman's Hospital of Cleveland.

Personal.—Dr. W. M. Bucher, Cleveland, has been appointed superintendent and resident physician of the Municipal Tuberculosis Sanatorium at Warrensville.——Dr. G. W. Garrison, Utica, is reported to be seriously ill as the result of a cerebral hemorrhage.——Dr. William T. Miller, Cleveland, has been reappointed a member of the State Board of Health.——Dr. James McKinley, Harrisburg, is reported to be seriously ill with nephritis.

PENNSYLVANIA

The Cost of Small-Pox.—Pittsburgh expended $42,624.91 in its recent efforts to avert an epidemic of small-pox.——The expense of the recent small-pox epidemic to Carbondale as estimated by the State Department of Health is $31,000.

Contagious Diseases.—In spite of the efforts to check the spread of diphtheria in Allentown, eight new cases were reported on November 11, making a total of 125. Dr. C. J. Hunt, associate chief medical inspector, found that cases were not properly followed up by health officers and all cases were not isolated. The reports of the health department, Harrisburg, show 11 cases of the disease reported in August, 30 in September, 95 in October and 24 so far this month.——Pittsburgh has succeeded in stamping out epidemics of small-pox and diphtheria, only to be followed by one of measles, 1,500 cases of that malady having been reported to the department of health of Allegheny County up to November 14.

Personal.—Dr. D. E. Sable, police surgeon of Pittsburgh, is under treatment at the South Side Hospital for a nervous breakdown.——Dr. Guy A. Gerberich, Lebanon, who has been seriously ill with typhoid, is reported to be improving.——Dr. W. H. Robinson, Pottsville, is reported to be seriously ill. ——Dr. George R. Reich and family, Marietta, have returned after a stay of several months in Bassano, Canada.——Dr. George W. Seibert, Lebanon, who spent the summer recuperating in the Mound Valley region, has returned and resumed practice.——Dr. J. M. Maurer, Shamokin, who has been seriously ill, is reported to be improved.——Dr. Ulysses E. Dornsife is reported to be ill at his home in Tunkhannock.——Dr. George Romig, Allentown, fractured his arm while cranking his automobile, October 28.

Philadelphia

Physicians' Home Urged.—At the meeting of the members of the Aid Association of the Philadelphia County Medical Society, November 11, Dr. Roland G. Curtin urged that steps be taken to establish a home in Philadelphia for aged and destitute physicians and their wives.

Portraits Presented to the College of Physicians.—At the meeting of the College of Physicians, November 6, portraits of the late John H. Musser, Isaac Hays and Wharton Sinkler were presented to the college by Drs. George A. Piersol, George E. DeSchweinitz and James C. Wilson, respectively.

To Collect Criminal Statistics.—The collection of statistics relating to crime in Pennsylvania is to be undertaken by the state branch of the American Institute of Criminal Law and Criminality. The committee selected to prepare this report consisted of Edward Linsey, John Lysle and Prof. William E. Micklé of the University of Pennsylvania.

New Dispensary for Tuberculosis Opened.—The free dispensary system, being built up by the state in its fight against tuberculosis, opened a new branch at 1126 South Twenty-Sixth Street, for the benefit of the Woodland and Darby sections of the city. This is the third branch now operating in this city and the one hundred and sixteenth to be established in the state. Dr. S. J. Repplier has been placed in charge of the new branch and will have two assistants and four nurses, the latter under the direction of Miss Alice O'Halloran. The dispensary will be open from 10 to 12, on Mondays, Tuesdays and Wednesdays. A staff of visiting nurses will investigate conditions in patients' homes and such applicants as are found to be in need of extended treatment will be entered at the Mount Alto Sanatorium.

TEXAS

New Clinic to Open.—A free surgical clinic is to be located at the Kenney Sanatorium, San Antonio, the latter part of December. Ten rooms of the new fifty-room addition to the sanatorium will be set aside for the treatment of cases from this clinic.

Medical Library Inaugurated.—The Dallas County Medical Society has started a library in the Southwestern building which is open to physicians and surgeons of Dallas. At present the library contains about one hundred medical journals and standard books of reference on various subjects in medicine.

Hospital News.—Contracts have been awarded for the erection of a fourteen-room hospital for Dr. R. M. Prather, Beeville.——Plans have been approved for the improvement and enlargement of the Temple Sanitarium to cost about $40.000. ——Plans are being considered for the remodeling of the Arlington Hotel, Marlin, and its conversion into a hospital.

GENERAL

New Officers of Southern Medical Association.—At the sixth annual meeting of the Southern Medical Association held in Jacksonville, Fla., November 12-14, the following officers were elected: president, Dr. Frank A. Jones, Memphis, Tenn.; vice-presidents, Drs. Stuart McGuire, Richmond, Va., and J. D. Love, Jacksonville, Fla., and secretary-treasurer, Dr. Seale Harris, Mobile, Ala. Lexington, Ky., was selected as the next place of meeting.

Mr. Flexner with General Education Board.—The General Education Board of 17 Battery Place, New York, announces that Mr. Abraham Flexner has become a member of its staff. Mr. Flexner is the author of "The American College" (1908), and of the bulletins on "Medical Education in the United States and Canada" (1910) and "Medical Education in Europe" (1912) issued by the Carnegie Foundation for the Advancement of Teaching.

The Congress on Mental Hygiene.—This organization which was in session during the last week at the College of the City of New York excited a great deal of interest and was not without practical results. An appeal for subscriptions was made to further the plans for a nation-wide educational campaign on mental hygiene, which resulted in the announcement that an unnamed philanthropist would give $50,000 toward an endowment fund for the purpose provided $200,000 could be raised from other sources. A large part of the hoped-for endowment would be applied to the establishment of research laboratories and hospitals in various parts of the United States where investigations in regard to the causes and cure of insanity can be carried on extensively.

Cholera.—Reports to the U. S. Public Health Service and press reports indicate that cholera is present to a very serious extent in various parts of the world, the most menacing situation perhaps being in the war-zone in Turkey. Official information concerning the cholera is meager or absent; but the belated and imperfect press reports indicate that cases are occurring in large numbers particularly among the Turkish and Bulgarian troops in the field and fortifications near Constantinople and also among the refugees in the city of Constantinople. Some newspaper reports give the number of cases occurring daily as up in the hundreds or even thousands. It is also reported that the troops of the allies contain many victims of the disease. On account of poorly-organized medical and sanitary forces, poor equipment, lack of food supplies, etc., the epidemic may assume tremendous proportions. On account of poor communication and probable suppression of news, the exact conditions cannot be stated.——No cholera was reported from Italy during the past summer except at Cagliari, Sardinia, where about seventy cases have occurred since August 1. ——The disease is present in many places in Japan but no large outbreaks have occurred, and public water supplies apparently are not infected.——The disease is also widely scattered throughout Southern Asia. The Public Health Service is carefully watching the situation and taking necessary precautions to prevent the importation of the disease from Europe. Reduced immigration and transshipment and the careful inspection of immigrants from Eastern Mediterranean points before embarkation at European ports will enable the authorities to keep the situation well in hand, and the danger of the entrance of cholera into the United States is probably slight.

The large number of cases in the war zone, however, affords a serious focus of infection from which the disease may spread to a considerable extent throughout Southern Europe and so to the United States.

Clinical Congresses.—The week of November 11 was most notable in New York for medical and surgical activity. In addition to the third annual session of the Congress of Clinical Surgeons of North America, many other organizations concerned with subjects pertaining to medicine and surgery held meetings. The Congress of Clinical Surgeons was perhaps the largest assembly of surgeons that the world has ever witnessed, there being over 2,600 registrations. The days were devoted to clinics and the evenings to scientific meetings. There were as many as 180 to 190 clinics in progress and 300 to 800 operations performed daily. One of the clinics most largely attended was that given by Mr. W. A. Arbuthnot Lane of London at the new Policlinic Hospital when between four and five hundred were present in the amphitheater. The clinics were so arranged that each visitor could see the most possible of the work being done in his specialty. The scientific sessions were held in the ball-room of the Waldorf-Astoria with the exception of the Thursday evening meeting which was held in the Academy of Music, in Brooklyn, where the congress was the guest of the King's County Medical Society. At the closing executive session of the congress resolutions were presented by Dr. Franklin H. Martin recommending that a special college of surgeons be established with power to grant a supplementary degree to the degree of medicine, which should be a fellowship in the proposed college. This would be equivalent to a postgraduate degree similar to the F.R.C.S. of Great Britain. Resolutions were also passed recommending a campaign of publicity on the subject of cancer of the cervix and a committee of five, consisting of Drs. Thomas S. Cullen, Baltimore; Howard C. Taylor, New York City; C. Jeff Miller, New Orleans; F. F. Simpson, Pittsburgh, and E. C. Dudley, Chicago, was appointed by the president to disseminate this information by having articles written to be published in the daily press or weekly and monthly magazines as might prove most expedient. The membership of the congress was so large that some method of limiting it to 2,000 members is under consideration. The officers elected for the following year were: president, Dr. George Emerson Brewer, New York; vice-president, Dr. W. W. Chipman, Montreal; general secretary, Dr. Franklin H. Martin, Chicago; general treasurer, Dr. Allen B. Kanavel, Chicago, and chairman of the committee on arrangements for 1913, Dr. E. Wyllys Andrews, Chicago. The nominating committee recommended Chicago as the next meeting place.

FOREIGN

The Red Cross at the Seat of War.—The Italian Red Cross expedition from Bari consisted of ten physicians, forty nurses and 150 beds with full equipment, according to the *Policlinico*. This expedition went to Montenegro and a similar expedition to Greece. The Red Cross of Montenegro is collecting subscriptions to fit out an expedition, and the Italian society is also equipping at Turin a complete ambulance service to proceed at once to Montenegro. The German Red Cross has equipped three expeditions and a large number of German physicians have gone from Germany to the seat of war. Drs. A. Dilger and A. Meyer of Heidelberg, with Professor Colmers of Coburg have gone to Bulgaria, with Drs. Kirschner and Schubert. From Switzerland have gone to Servia, Drs. Stierlin, Socin and Vischer of Basel, with several Danish physicians. Professor Coenen of Breslau has gone to Greece, and Drs. Liebert and Hitzler have gone to Turkey. The Austrian Red Cross has also sent expeditions and materials to Montenegro and Bulgaria. It is stated that the officers of the Austrian society have been authorized to spend up to $40,000.

LONDON LETTER

(From Our Regular Correspondent)

London, Nov. 9, 1912.

The National Insurance Act

The new offer of increased remuneration to the physicians by the government (described in my previous letter) is receiving the careful attention of the British Medical Association. The council has issued a report to the divisions and representative body in which it is pointed out that a new situation has arisen, though many of the association's demands have not been granted. With regard to the income limit of ten dollars a week for insured persons, which it will be remembered was one of the association's "six points," the regulations of the act require the surrender of the principle of central bargaining and leave to the profession in each area to obtain such an income limit as they desire and are strong enough to enforce. Another of the cardinal points is that all questions of professional discipline should be decided exclusively by a body or bodies of physicians. While this demand has not been completely met an endeavor has been made to satisfy the desires of the profession while meeting the public demands for some representation of public interests on the tribunal established to hear complaints in which physicians are involved. The procedure in the case of charges brought by one physician against another and of charges brought by a patient against a physician, or vice versa, is explained in the regulations. The report concludes that while the proposed tribunal appears to offer a measure of security for a fair inquiry no regulations can be satisfactory which do not provide for right of appeal to a medical tribunal. With regard to the amount of remuneration the government's last offer is a capitation fee of two dollars from which deduction of thirty-six to fifty cents will be made for drugs while the association demands the same amount without any deduction for drugs.

The British Medical Association has addressed a letter of inquiry to the Chancellor of the Exchequer, Mr. Lloyd George, asking him to elucidate further several points in his recent address to the insurance commissioners, embodying his last offer (reported in my previous letter). The increased services of which he spoke mean an increased service as compared with that which has been obtained in lodge practice in the past or which the great majority of the insured in view of their restricted means could not afford to obtain on private lines. The standard which it is hoped that the physicians attending insured persons will reach and maintain is that which the best opinion in the profession itself would expect from a general practitioner in his ordinary work. The government fully recognizes that the professional instinct of the majority of physicians will lead them without further stimulus to do all that can reasonably be expected in the interest of their patients. With regard to the "modern methods of diagnosis" mentioned in his speech, the chancellor explains that physicians will not be expected to undertake work requiring skill and experience beyond that which the ordinary general practitioner can properly be expected to possess. If methods of investigation beyond his scope are necessary, he will only have to advise the patient as to the steps he should take. The physician will be expected to avail himself of all such facilities in the shape of expert assistance in investigations useful for proper diagnosis and treatment. In so far as such facilities do not exist, the government hopes that means will be found for encouraging their development and organization in due course.

A National Memorial to Lord Lister

At the Mansion House (the official residence of the Lord Mayor of London) a large and influential meeting was held for the purpose of establishing a fund for a memorial for the late Lord Lister. It is proposed that this shall take the form of a medallion in Westminster Abbey, a monument in the metropolis and an international Lister Memorial Fund for the advancement of surgery. The Lord Mayor presided and there were present some of the most eminent men in science (Lord Avebury, Sir Archibald Geikie, president of the Royal Society), in medicine (Sir Rickman Godlee, president of the Royal College of Surgeons, Sir Thomas Barlow, president of the Royal College of Physicians, Sir Francis Champneys, president of the Royal Society of Medicine, Professor Saundby, Sir William Osler, and Prof. Howard Marsh), and in politics (Lord Haldane, the Lord Chancellor and Lord Cromer).

The Automobile Death-Roll

The automobile peril described in a previous letter to The Journal continues to exercise the public and has led to questions in the House of Commons. Recent figures show that up to Oct. 7, 1912, 118 people were killed in the streets of London this year. On one day, September 19, as many as four persons were killed. Replying to a question, Mr M'Kenna, the Home Secretary, said that if, as a result of coroners' inquiries, criminal negligence were proved, proceedings would be taken. It was pointed out that at coroners' inquests the motor-bus companies were always represented by lawyers, whereas the relatives of the persons killed were generally too poor to be legally represented. He said that the public has the protection of the coroner and jury. When asked why motor vehicles were permitted to travel in the streets at excessive speed, seeing that the law provides that no motor vehicle should travel at a speed dangerous to the public, he replied that, in 1911, 893 drivers of motor-cabs or omnibuses and 3,556 drivers of other motor vehicles were prosecuted in London for dangerous driving and that he was issuing instructions for the more stringent punishment of dangerous, negligent and reckless driving.

Maternity Benefit in Australia

The Federal Senate of the Australian Commonwealth has passed the third reading of a bill providing for the payment of a bonus up to a maximum of $25 in respect of every child born in Australia of white parentage. The payment has already begun. This sum is much greater than the maternity benefit in the old country provided for by the national insurance act, which amounts to only $7.50, but it must be borne in mind that here the purchasing power of money is much greater than in Australia.

Death Under Stovain

A man, aged 68, has died under spinal anesthesia induced by injection of stovain for an abdominal operation at St. Thomas' Hospital. After the operation had been satisfactorily performed his breathing became shallow, and although artificial respiration was resorted to and the heart was massaged, death took place in a few minutes. At the inquest the anesthetist explained that he had administered stovain in 350 cases and that this was the first patient he had lost.

PARIS LETTER

(From Our Regular Correspondent)

Paris, Nov. 1, 1912.

Personal

Dr. Bégouin, *agrégé*, has succeeded Professor Chavannaz as professor of clinical gynecology at the Faculté de médecine of Bordeaux.

The death is announced of Dr. Henri Dor, aged 78. Dr. Dor was born at Vevey, Switzerland, and had been professor of ophthalmology at the Faculté de médecine at Berne. In 1876 he went to Lyons where he founded an independent eye clinic and the *Revue générale d'ophthalmologie.*

Dr. Paul Segond, professor of clinical surgery at the Faculté de médecine de Paris, has died of uremia at the age of 61. Dr. Segond was the son of Dr. L.-A. Segond. He received his medical degree in 1880 and three years later became *agrégé* of surgery and surgeon of the hospitals of Paris. In 1905 he obtained the chair of operative medicine and in 1907 he was named professor of clinical surgery, succeeding Professor Terrier. Since 1909 he had been a member of the Académie de médecine and last year was president of the Congrès français de chirurgie. Paul Segond wrote little but he possessed rare qualities as a surgeon. He had specialized in gynecologic surgery and through his facility in vaginal operations had perfected considerably the removal of uterine fibromas through the vagina.

Annual Meeting of the French Surgical Society

The twenty-fifth meeting of the Association française de chirurgie was held in Paris, October 7-12, with Professor Delorme, medical inspector general of the army health service, president. The meetings of the congress as usual were well attended not only by French surgeons but by surgeons from abroad.

PRACTICE OF SURGERY IN WAR

In his opening address the president regretted that no place is now given by the society, as formerly, to the subject of surgery in war. He gave a summary of present practice, which in some respects differs from ordinary surgery, as has been clearly shown in recent wars. One of the clearest examples is laparotomy in wounds of the abdomen by small projectiles. In the South African war leading surgeons were sent by the British government to the field of battle and they were surprised at the treatment of these wounds. Spontaneous healing was permitted systematically instead of direct intervention. Operations were done with the same care and skill as in hospitals in large cities, but the mortality among those operated on was greater than among those who were not operated on after being wounded. This was the experience in Cuba and in Manchuria, and can readily be accounted for. It is not possible to have the same mastery over conditions on the battle-field that one can have in a regular hospital, and an abdominal wound by a bullet from a distance is not so severe as one from the muzzle of a revolver; finally, in adding a new traumatism to one which already exists the surgeon interferes with spontaneous encapsulation and is liable to spread infection.

Surgery in war should have simplicity as its end. Delorme, although he believes in intervention at once in cases of severe wounds of the abdomen, lungs or heart, as a general rule nevertheless considers that in war intervention is contra-indicated.

DIAGNOSIS AND TREATMENT OF CICATRICIAL STENOSIS OF THE ESOPHAGUS

There was an interesting discussion as to the relative value in diagnosis of skiagraphic and fluoroscopic examination compared with esophagoscopy. According to Dr. Guisez of Paris, the Roentgen rays give two kinds of information; with the use of bismuth wafers they show the location of the trouble and with bismuth lactate they show the form and size of the stenosis. The fault of the rays is that they do not show the nature of the stenosis. Esophagoscopy alone can do this. As to treatment, one obtains the impression on reading the literature that when catheterization is impossible in the usual way, surgeons resort to severe operations which could have been avoided if they had tried dilatation with esophagoscopy, which, according to Guisez, succeeds in 95 per cent. of cases; and when ordinary catheterization is impossible, catheterization from below should be employed through a large opening in the stomach. Dr. Moure of Bordeaux believes that in careful hands simple methods usually give good results, but in severe cases one should not wait too long before making a stomach opening, for gastrostomy often permits catheterization and dilatation from below at the same time saving the patient from death by inanition. According to Dr. Depage of Brussels, retrograde dilatation is one of the best methods, provided that the stomach opening is large. Professor Forgue of Montpellier emphasized the usefulness of gastrostomy, as there are many constrictions impassable until gastrostomy has been done. Dr. Delagénière of Mans also expressed the opinion that the stomach operation has great importance. Under certain conditions it is enough to open the stomach, permitting complete relaxation of the esophagus, to overcome the stenosis. Professor Villar of Bordeaux, who described the first esophagostomy by the posterior mediastinal route in 1892, is of the opinion now that this is an operation to be avoided. In fact, severe operations for impassable stenosis ought to be discarded in favor of gastrostomy. According to Dr. Berard of Lyons, one should always begin in examining a patient by fluoroscopy and skiagraphy, for no matter how desirable esophagoscopy is, there are times when it cannot be done. This likewise was the opinion expressed by Professor Roux of Lausanne, according to whom it is easier for an ordinary practitioner to open the stomach than to employ the methods of the specialists. Dr. Moure, although a specialist, was unwilling to say that esophagoscopy is a panacea, because failures have been attendant on its use and even death has been caused.

EXAMINATION BY ROENTGEN RAYS IN SURGICAL AFFECTIONS OF THE STOMACH AND INTESTINES

Drs. Béclère of Paris and Mériel of Toulouse said that examination by Roentgen rays of the stomach and the intestine is the best method for showing the location, the relations, the form, the dimensions and the muscular functions of a large part of the alimentary tract. Latent ulcers are thus shown, beginning stenoses and tumors which ordinarily escape palpation. To clinical examination the Roentgen rays bring an element of exactness in the diagnosis of lesions, taking the place of exploratory laparotomy; and by permitting earlier intervention, they make surgical success possible in more cases with more lasting cures. Nevertheless, Professor de Quervain of Basel has shown the mistakes to which a Roentgen-ray examination may lead and has pointed out that this method has not superseded the clinical examination, for a simple examination with one or two hands often corrects errors which would have been made had the evidence of the rays alone been depended on. In regard to the stomach, for instance, exaggerated peristalsis, usually an indication of organic pyloric stenosis, may be simulated by involuntary contractions of the stomach such as are found in tabes. Ulcers and cancer located high near the cardia escape ordinary investigation, although it is easy to demonstrate them if the patient is placed in the right lateral decubitus or in a slanting position with the head low. The defective image of the pyloric region, the most important sign of cancer here, often results from insufficient emptying of the stomach before the test is made. In cases of doubt, examination in the right lateral position is an important adjunct. In other cases the defective image is clearly indicative of a tumor of the kidney, spleen, intestine, pancreas or one starting from the gall-bladder. As for the large intestine, skiagrams are often more difficult to interpret than those of the stomach, and it is not advisable to depend too much on bismuth injections for determining the form and the position of the large intestine. The method of choice is the administration of bismuth by way of the stomach with examination after from eight to twenty-four hours. Numerous mistakes are made in the diagnosis of stenosis. The tapering form of the fecal mass, so frequent as a rule in the lower part of the colon, should not be interpreted as a sign of stenosis unless it recurs regularly in several skiagrams at the same place. Dr. Girard of Geneva calls attention to toxic symptoms following the use of bismuth subnitrate in skiagraphy. He prefers to use zirconium oxid although its opacity is a little less than that of bismuth. Barium sulphate recently has caused severe symptoms probably on account of impurities. Professor Hartmann of Paris is of the opinion that the stomach does not have the exact position which skiagrams indicate. He advises interpreting them with careful attention to anatomy, for every surgeon knows that in some wounds of the abdomen in which the intestine alone is involved, the stomach also would have had to be wounded if it were as low as the skiagram shows it to be. It is probable that the weight of the bismuth has an effect. In intestinal work, Hartmann prefers fluoroscopy, but it is necessary here to be on one's guard against intestinal contractions which under the influence of bismuth simulate a stenosis which does not exist. Bismuth should be taken by the mouth and examinations should be made at half-hour intervals that its retardation or stopping may be observed. Bismuth injection should not be used excepting for affections located low in the pelvic colon.

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, Nov. 2, 1912.

Clinical Position of So-Called Genuine Epilepsy

At the annual meeting of the German Neurologic Association, recently held at Heidelberg, the still unsolved question of the existence of genuine epilepsy was discussed by the distinguished investigators Professor Redlich of Vienna and Binswanger of Jena. According to Redlich, true epilepsy, in the ordinary sense, cannot be etiologically distinctly defined; at the most, an artificial boundary line can be drawn in this way. Neither does the form of attacks give any certain indication for the separation of genuine from organic epilepsy. Paralytic phenomena after the attacks, or symptoms of defective brain action in the intervals are more frequent and more intense in organic epilepsy, but occur also in the ordinary epilepsy. Permanent indications of mental defects (epileptic dementia) are very common in ordinary epilepsy, but may be absent; they also occur, on the other hand, in organic epilepsy if it had its beginning in childhood or youth. In the organic epilepsy there are found, in addition to the focal affections, diffuse changes, which may also occur in so-called genuine epilepsy. This disease also has a pathologic anatomy, and there are transitions between the two forms. The best plan is to drop altogether the name "genuine epilepsy" and for the present to define only the chronic form of epilepsy. Opposed to this there is acute epilepsy and cases of occasional epileptic attacks. The latter have a variable significance. In part of the cases there is possibility of a transition to chronic epilepsy. It is important in future to study the individual predisposition to epilepsy, originating under different conditions from the varying capacity of the brain for the epileptic reaction and to study the pathogenic conditions under which the epileptic seizure develops. In this way, actual insight into the pathology of epilepsy might be obtained.

THEORIES OF EPILEPSY

According to Binswanger, the clinical position of so-called genuine epilepsy affords at present opportunity for only a difficult and incomplete discussion. There are two directions in which the conception of "epilepsy" is progressing: The one is concerned almost exclusively with an anatomic and etiologic demonstration, and has established the view that the entire field of epilepsy must be separated from the functional neuroses and be classed with the organic diseases of the brain. The other direction retains the clinico-symptomatologic conception. According to the first view, the pathologic process in epilepsy is a chronic progressive one, which is manifested less in the seizures than in the various symptoms which occur during the intervals and in the progressive mental decay. Certain clinical facts, however, do not harmonize with this conception. Only part of the cases follow the chronic progressive course with mental deterioration (epileptic dementia). Further, there is a group in which a mental change without doubt occurs, which, however, does not consist in a deficiency of the mental processes, but in a peculiar change of character. These psychopathologic manifestations are sometimes stationary, sometimes they are subject to considerable variations, and occasionally they completely disappear. In the latter case it can generally be established that they were directly related to the paroxysmal pathologic condition.

Then there is a form of epilepsy, hitherto underestimated in its frequency and importance, which aside from the epileptic paroxysm or its equivalent, affords no evidence of any sort of psychic abnormality. This group includes people who rank intellectually very high. The majority of those so afflicted carry on their business and show no retrogression of their mental powers up to an advanced age. Further there are epileptics without dementia who may be regarded as having entirely recovered. According to Binswanger's own experience the number of these is even greater than has been estimated. Quite natural reasons (the disinclination of the patients to speak of their previous affection) make it difficult for us to obtain an exact numerical insight into this important question.

Considering the above clinical facts, the other theory of epilepsy regards the epileptic convulsive paroxysm as the most important in the clinical picture, and classifies under this disease only those cases in which at some period of life genuine epileptic seizures have occurred. Simple as this classification may be in the majority of cases of epilepsy, it is very difficult in the borderland cases. The groups of psycho-asthenic convulsions, of frequent slight attacks of narcolepsy, and emotional brain storms surely, in the majority of cases, do not belong to this conception of epilepsy.

ANATOMIC BASES OF EPILEPSY

The adherents of the purely anatomic epilepsy base their views almost exclusively on the investigations of Alzheimer, who has shown that in about 40 per cent. of all cases of genuine epilepsy there is a peculiar pathologic anatomic lesion, which should be designated as Alzheimer's gliosis. It affects the most superficial layers of the cortex, and particularly the cortical layer of the spinal cord and the layer of the small pyramidal cells. It is characterized by the fact that the increased gliomatous tissues to a certain extent fit into the architecture of the cerebral cortex. Alzheimer considers the defects of tissues and the consequent epileptic dementia as a result of the epileptic seizures, a conception which Binswanger has advocated for years. Accepting these data, one is justified in retaining the anatomic-etiologic group of epilepsy of organic origin, to which only those cases should be added in which macroscopic and microscopic recognizable lesions of the brain have caused the epileptic affection. These are in particular retarded development, such as diffuse lobar and focal sclerosis, fetal and post-fetal inflammatory degenerative processes, and acute focal affections of the nature of infectious encephalitis. They all may lead to idiocy and imbecility with epilepsy, or to cerebral infantile paralysis with epilepsy. Still, epilepsy may occur as a result of focal lesions due to acute infectious encephalitis, without retarded mental development.

The anatomic bases of the epilepsy may be disclosed in some of the cases by the peculiar way in which the epilepsy develops, or by distinct symptoms in the intervals and after the paroxysms. In other cases the infectious encephalitic affection remains completely concealed during life. Under organic epilepsy, according to the clinical-etiologic point of view, may be included the toxic, traumatic, chronic infectious and arteriosclerotic epilepsies. But even in these groups anatomic changes may be recognized, which certainly have some influence on the development, as in traumatic epilepsy. A sharp separation of organic epilepsy is consequently, as a general rule, impracticable. Only one group is left, that in which the epileptic disease has developed on the basis of a hereditary and congenital predisposition, or one acquired in early childhood without external cause. In some cases the conditions of the origin of this constitutional form of epilepsy are still entirely unknown. Yet, certain microscopically demonstrated hypoplasias of the brain permit the conclusion that in these constitutional forms finer morphologic defects in development play a rôle. Moreover, it is very probable that the sclerosis of the cornu ammonis, which is found in 50 per cent. of the cases of genuine epilepsy, belongs in this group of primary hypoplastic pathologic processes.

DISTURBANCES OF A DYNAMIC FORM

There still remains a group of uncertain etiology, which may, for the present, be designated as a purely dynamic form. This term is based on the assumption that the epileptic pathologic process, which Nothnagel called the "epileptic transformation," depends on a disturbance of the dynamic equilibrium of the central nervous system, a pathologic counteraction of exciting and inhibiting processes within the functioning organs. These disturbances of dynamic equilibrium lead to the epileptic paroxysm, which in the sense of Jackson and Gowers may still be regarded as a process of discharge of a condition of extreme tension. These dynamic disturbances, which in the completely developed epileptic convulsive attacks set in motion a peculiar epileptic mechanism, and in the incomplete attacks only a part of the same, may be, moreover, caused by the most various injurious influences, acting as a rule in a chronic manner; sometimes by circumscribed, more or less extensive foci either within or outside of the brain and sometimes by toxic or general traumatic injuries which occasion this specific transformation by means of chemical disturbances of nutrition within the functioning cortical substance. Thus it is explained that in spite of the most various causes a disease can develop which with regard to its origin and course presents the most manifold individual variations, but on account of the common faculty of characteristic paroxysmal symptoms may even to-day be regarded as a clinical entity.

VIENNA LETTER

(From Our Regular Correspondent)

Vienna, Oct. 20, 1912.

The Program of Medical Lectures at the Vienna University, 1912-1913

In the winter term of the Vienna medical school there will be given 468 different lectures and classes for students and postgraduates, eleven more than last year. The number of lecturers is also high, there being thirty-two ordinary professors, ninety-four extraordinary professors, and 152 privatdocents and assistants. It is interesting to see how these numbers are divided among the various branches of our art. There will be given four classes in history of medicine (which of late has become a favorite study here), twelve in histology and anatomy, fourteen in physiology, thirteen in medical chemistry, thirty-six in pathology and pathologic anatomy, eleven in materia medica, 102 in internal medicine, nineteen in laryngorhinology, nineteen in pediatrics, thirty-nine in surgery, eleven in dentistry, thirty-two in otology, thirty-one in ophthalmology, forty-two in gynecology and obstetrics, forty-two in dermatology, including syphilis, twenty-four in psychic medicine and seventeen in forensic, social and hygienic medicine. The increase in classes for specialists in otology, rhinology and laryngology is notable in late years. The number of regular students at the medical school during the last (summer) term was 2,057, against 1,880 during the preceding summer term; among them were 125 women (ninety-eight in the corresponding period of 1911). The constant increase of medical students during the last twelve years is noted, and is stronger than the increase of the population in this country. On the other hand, on account of the present war which requires military service from all able-bodied men in the Balkan States, we expect for the coming term a much smaller number of students from those countries. Otherwise, we would again encounter the usual difficulties of accommodating all those desiring to work in our medical and scientific institutions, which have led to energetic protests on the part of students against the government's parsimony in this particular branch.

Honors to Professor Kassowitz

The well-known specialist for diseases of children, Professor Kassowitz, recently celebrated his seventieth birthday and was the recipient of numerous honors on this occasion. The official congratulation took place at the meeting of the pediatric section of the Medical Society of Vienna, when the Faculty of Medicine, the Senate of the University, the Hungarian Society of Physicians and numerous corporations tendered their congratulations by delegates. A *Festschrift* was published in honor of the scientist, who on this occasion delivered a most interesting lecture on "Facts and Theories and Their Influence on Natural Science and Medicine." He emphasized the necessity of being on the lookout for unverified popular theories. Professor Kassowitz is also at the head of the anti-alcohol movement in this country.

An Annex to the Anatomic Institute

The number of students who can be accommodated in the anatomic institutes of Vienna is altogether out of proportion to the number who apply for admission. The government has hitherto paid no attention to the demands of the medical faculty and the students who asked for new facilities but now has granted an appropriation for a third anatomic theater capable of holding, like the present two, 250 students, making a total capacity for 750 students. In one or two years the institute will be enlarged by adding a large museum and laboratory hall. At a meeting of students the addition of the two dissecting-rooms was declared insufficient and the erection of an appropriately large institute was urgently demanded.

Marriages

William Henry Beardsley, M.D., Springfield, Mass., to Miss Anna Jackson Harkness of Springfield, Vt., October 29.

Frederick N. Henderson, M.D., Rockville, Md., to Miss Gussie Glenn Lamar, at Memphis, Tenn., November 3.

Henry Dawson Furniss, M.D., New York City, to Miss Ruth Kellogg Pine of Troy, N. Y., November 18.

William Edward Hartigan, M.D., to Miss Gertrude Gladding, both of Norwich, N. Y., November 7.

Alfred Lawrence Rhoads, M.D., Scranton, Pa., to Miss Lou Eagles of Stroudsburg, Pa., November 12.

Robert Page Cook, M.D., Front Royal, Va., to Miss Nellie V. Jones, at Front Royal, November 2.

Edward Harris Goodman, M.D., Philadelphia, to Miss May Dudley of Camden, N. J., November 9.

James Alexander Craig, M.D., Gary, Ind., to Miss Mary Arnold of Lebanon, Pa., November 12.

Robert Lewis Rhodes, M.D., Roanoke, Va., to Miss Margaret Farmer of Louisville, Ga., October 25.

Benjamin Franklin Saylor, M.D., Redding, Cal., to Miss Alice Taylor of St. Louis, November 7.

George Rinehart, M.D., Cassville, W. Va., to Miss Lena Grace Core, at Cassville, November 8.

Judson E. Hair, M.D., to Miss Ivy J. Kinney, both of Baltimore, in Philadelphia, October 23.

Abraham Potasnic, M.D., Meridian, Miss., to Miss Dora Cohen of Milton, Fla., October 6.

Jackson R. Campbell, M.D., to Miss Mary Anderson, both of New York City, November 7.

Thomas Rodney Chambers, M.D., to Miss Martha V. Sisson, both of Baltimore, November 6.

Judson Teeter, M.D., to Miss H. Elizabeth Seng, both of Pleasant Hill, O., November 10.

Wesley Hartman Rennie, M.D., U. S. Navy, to Miss Lita Jaques of Chicago, November 7.

Frank K. Roy, M.D., Clarence, Mo., to Miss Pearl Keller of Kansas City, Mo., November 2.

Harry James Hoag, M.D., to Miss Elizabeth Dunn, both of Mora, N. Mex., September 25.

Frank Asbury Osincup, M.D., to Miss Mary Wodring, both of Waverly, Ia., November 7.

George B. Fletcher, M.D., Lonoke, Ark., to Miss Vera Blood of Grayville, Ill., October 23.

Wilson J. Ferguson, M.D., to Miss Willa Burke, both of Sedalia, Mo., October 31.

William Eby, M.D., to Miss Ruby I. Thompson, both of Baltimore, October 26.

Joseph C. Friedman, M.D., to Miss Beatrice Shaffner, both of Chicago, November 12.

Deaths

John William Mallet, M.D. Tulane University, New Orleans, 1868; a member of the Medical Society of Virginia and a chemist of distinction; died at his home in Charlottesville, November 7, from pulmonary embolism, aged 80. He was graduated from the University of Dublin in 1853 and a year later became assistant professor of analytical chemistry at Amherst (Mass.) College; and from 1855 to 1860 he was professor of chemistry in the University of Alabama, Mobile. During the Civil War he served in the Confederate service and was in charge of the ordnance laboratories. At the close of the war he was made professor of chemistry in the University of Louisiana and later professor of analytical, industrial and agricultural chemistry at the University of Virginia, active from 1872 until 1908, and professor emeritus since that time. Dr. Mallet had also served at various times as professor or lecturer at Johns Hopkins University, Baltimore; the University of Texas, Galveston, and Jefferson Medical College and for three terms was a member of the United States Assay Commission. He had been honored by the degree of Ph.D. from the University of Göttingen and that of LL.D. from William and Mary College, the University of Mississippi, Princeton University, Johns Hopkins University and the University of Pennsylvania. Dr. Mallet was a frequent contributor to the chemical literature; he was a member of scientific bodies at home and abroad and was one of the most distinguished chemists of the United States.

Robert Fletcher, M.D. M.R.C.S., England, 1844; principal assistant librarian in the library of the surgeon-general's office, Washington, D. C., since 1886; died in his apartment in Washington, November 8, aged 89. Dr. Fletcher was born in Bristol, England, March 3, 1823. He served throughout the Civil War, first as surgeon of the First Ohio Volunteer Infantry, then successively as assistant surgeon, and surgeon, U. S. V.; and was mustered out in 1867. He was a member of the American Medical Association; Medical Society of the District of Columbia; National Geographic Society; Philadelphia College of Physicians and other learned societies. In 1910 Dr. Fletcher was awarded the gold medal of the Royal College of Surgeons of England in recognition of his distinguished services in connection with the indexing of the catalogue of the Surgeon-General's Library. He was lecturer on medical jurisprudence from 1884 to 1886 and professor from 1886 to 1888 in the Columbian University, Washington, and later was lecturer on forensic medicine in Johns Hopkins University. He was a frequent contributor to the literature of the history of medicine and anthropology.

Franklin Buchanan Smith, M.D. University of Pennsylvania, Philadelphia, 1878; a member of the American Medical Association; once president of the Medical and Chirurgical Faculty of Maryland, and for several terms president of the Frederick County Medical Association; first health officer of Frederick City and County, Md.; a member of the State Board of Medical Examiners since its organization in 1892; for ten years a member of the local U. S. Pension Examining Board; for eight years physician to Montevue Hospital; and for more than twenty years local surgeon of the Baltimore and Ohio and Pennsylvania systems; died at his home in Frederick, November 5, from typhoid fever, aged 56.

Bradford S. Galloway, M.D. University of Michigan, Ann Arbor, 1880; for twenty-three years a practitioner of Leadville, Colo.; chief surgeon of the Colorado Midland Railway for three years and local surgeon for the Colorado Southern Railway for twenty years; who moved in 1901 to Denver and two years later to Goldfield, Nev., and had been for four years a resident of Los Angeles; died suddenly in a restaurant in that city, November 2, from embolism, aged 58.

John Denham Palmer, M.D. University of Maryland, Baltimore, 1872; of Jacksonville, Fla.; a member of the Florida Medical Association; formerly chief surgeon of the F., E. and P. Railroad; who took a prominent part in the yellow-fever epidemics in Memphis, Tenn., and Fernandina and Jacksonville, Fla.; died in St. Luke's Hospital, Jacksonville, from the effects of an accidental gunshot wound, November 3, aged 62.

John T. Mitchell, M.D. Jefferson Medical College, 1880; a member of the Missouri State Medical Association; for twenty-five years a practitioner of Kansas City; professor of anatomy in the Western Dental College and lecturer in the Kansas City School of Pharmacy; died in St. Luke's Hospital, Kansas City, November 4, from pneumonia, aged 65.

James Stuart Dickey, M.D. Queens University, Belfast, Ire., 1910; senior demonstrator of anatomy in his alma mater; professor of anatomy in the Western University, London, Ont.; committed suicide in the pathologic laboratory of that institution September 21, by gas asphyxiation while suffering from melancholia, aged 30.

Lucius Wadsworth Clarke, M.D. University of Vermont, Burlington, 1863; assistant surgeon of the Thirteenth Connecticut Volunteer Infantry until the close of the Civil War; for forty-six years a practitioner of Cambridge, Wis., and for two years president of the village; died at his home, November 3, from senile debility, aged 81.

John Thomas Duncan, M.D. University of Toronto, Ont., 1882; of Toronto; for many years lecturer in anatomy at the Medical College for Women and oculist to the Western Hospital; who retired from practice about six months ago on account of bronchitis; died in California, November 4, aged 59.

Lewis John Davis, M.D. University and Bellevue Hospital Medical College, 1899; of Watertown, N. Y.; was found dead in his room in the Hotel Marlborough, New York City, November 4, it is believed from the effects of an overdose of morphin, aged 45.

William H. Robinson, M.D. University of Pennsylvania, Philadelphia, 1868; for several years visiting physician to the Pottsville Hospital; a member and for several years president of the Pottsville City Council; secretary of the Board of Health, and registrar of the State Department of Health; died at his home, November 4, from disease of the kidney.

Lynn Boyd Graddy, M.D. University of Nashville, Tenn., 1874; once president of the Tennessee State Medical Association and Nashville Academy of Medicine; for twelve years professor of diseases of eye, ear, nose and throat in his alma mater; from 1884 to 1888 a resident of Omaha; died at his home in Lexington, Tenn., November 11, aged 67.

Louis S. J. Gessner, M.D. University of Heidelberg, Germany, 1858; assistant surgeon of the Thirty-Seventh Ohio Volunteer Infantry during the Civil War; a pioneer practitioner of Sandusky County, O.; died at the home of his daughter in Fremont, November 4, from paralysis, aged 82.

Walter Henry White, M.D. Boston University School of Medicine, 1882; a member of the American Medical Association; formerly president of the American Electro-Therapeutic Association and associate editor of *Advanced Therapeutics;* died at his home in Boston, about November 6, aged 66.

Marietta Huntington Crane Woodruff, M.D. New York Medical College and Hospital for Women, New York City, 1874; one of the first women to practice medicine in New Jersey; died at her home in Boonton, November 6, from hemorrhage following an attack of coughing, aged 75.

Randolph Littrell Collins, M.D. Medical College of Virginia, Richmond, 1910; of Woodlawn, Va.; a member of the American Medical Association; died in the University Hospital, Richmond, November 3, from peritonitis following an operation performed several days before, aged 25.

Benjamin F. W. Urban, M.D. University of Pennsylvania, Philadelphia, 1869; court crier of Court No. 2, Lancaster, Pa.; clerk of the Quarter Sessions Court for two terms; a veteran of the Civil War; died at his home in Lancaster, November 3, from angina pectoris, aged 66.

Claudius Galen Treichler, M.D. University of Pennsylvania, Philadelphia, 1865; a member of the American Medical Association and a fellow of the American Academy of Medicine; died at his home in Honeybrook, Pa., November 2, from heart disease, aged 72.

John Eugene Monroe, M.D. Cleveland University of Medicine and Surgery, 1893; for nineteen years a practitioner of Orange, Mass.; died in the Memorial Hospital, Worcester, Mass., November 5, after an operation for the removal of carbuncle, aged 53.

Frank Lincoln Hamilton, M.D. University of Pennsylvania, Philadelphia, 1893; a member of the Medical Society of the State of Pennsylvania and for eighteen years a practitioner of Chester; died at his home, November 4, from cerebral hemorrhage, aged 47.

Charles C. Knapp, M.D. University of Tennessee, Nashville, 1893; a member of the American Medical Association and a specialist on diseases of the eye; died at his home in Zanesville, O., November 5, from cerebral hemorrhage, aged 48.

Thomas Benton Marquis, M.D. Bellevue Hospital Medical College, 1877; since 1882 president of the local board of pension examining surgeons of Lisbon, O.; died at his home, November 5, from uremia, following pneumonia, aged 58.

Clarence Albert Baker, M.D. College of Physicians and Surgeons, New York City, 1886; health officer of the town of Brookhaven and physician of Suffolk County; died at his home in Yaphank, L. I., New York, November 8, aged 50.

Emory Strickler, M.D. Eclectic Medical Institute, Cincinnati, 1865; first superintendent of Schools of Harrison County, Va.; a veteran of the Civil War; died at his home in Shinnston, W. Va., October 25, from senile debility, aged 84.

Leo H. O'Meara, C.M., M.D. Queens University, Kingston, Ont., 1911; formerly of Fallowfield and Ottawa, Ont.; surgeon to the Algoma Central and Hudson Bay Railroad; was accidentally drowned at Hobon, Ont., November 2.

Andrew Thomas Brenton (license, Iowa, 1887); an early practitioner of Sac City, Ia., but for a few years past a resident of Florida; died at the home of his son in Havelock, Ia., October 26, from cerebral hemorrhage, aged 69.

William Marmaduke Owen (license, Jefferson County, Ala., 1887); a Confederate veteran and for forty years a practitioner of Texas, and Jonesboro, Ala.; died at the home of his son in Dora, Ala., November 5, aged 77.

Willard P. Brickley, M.D. American Medical College, Cincinnati, 1856; one of the founders of the Physio-Medical College of Indiana, Indianapolis; a resident of Madison County, Ind., for seventy years; died at his home in Anderson, November 10, aged 89.

Homer Simpson Bell, M.D. Dartmouth Medical School, Hanover, N. H., 1873; for many years a practitioner and town clerk of Granby, Mass.; died at his home in Springfield, Mass., November 3, from diabetes, aged 61.

Jacob Ellsworth Ernest, M.D. Jefferson Medical College, 1892; formerly of Williamsburg, Pa., but since 1896 a practitioner of Johnstown, Pa.; died in the Johnstown City Hospital, November 1, aged 48.

Marion Francis Shaw, M.D. Bellevue Hospital Medical College, 1884; formerly health officer of Hood River County, Ore.; died on his ranch near Hood River, October 31, from heart disease, aged 54.

David Henry Agan, M.D. Bellevue Hospital Medical College, 1879; a member of the Medical Society of the State of New York; died at his home in New York City, November 6, aged 64.

Joseph E. Fopeano, M.D. Long Island College Hospital, Brooklyn, N. Y., 1889; a member of the Medical Society of New Jersey; died at his home in Hoboken, October 4, aged 56.

Thomas Stanhope Henry, M.D. Medical College of Virginia, Richmond, 1866; of Brookneal, Va.; died November 11, at the ancestral home of the Henry family, Red Hill, Va., aged 80.

Andrew H. Diven (license, Oregon, 1889); a practitioner of Pennsylvania from 1861 to 1889 and thereafter a resident of Portland, Ore.; died at his home, October 30, aged 76.

William H. Dorsey, M.D. Georgia College of Eclectic Medicine and Surgery, Atlanta, 1897; died at his home in Griffin, Ga., October 26, from cerebral hemorrhage, aged 42.

Simeon G. Story, M.D. University of Toronto, Ont., 1893; one of the best known practitioners of Kent County, Ont.; died at his home in Blenheim, November 4, aged 47.

Henri Riedelle Thayer (license, Mass., act of 1894); for thirty-five years a resident of Boston; died at his home, November 1, from senile debility, aged 93.

James Edward Gregory, M.D. Illinois Medical College, Chicago, 1905; a colored practitioner of Gainesville, Tex.; died at his home November 7, from pneumonia.

Edgar DuBois Biddle, M.D. Missouri Medical College, St. Louis, 1880; of Patoka, Ind.; died in a hospital in Chicago, November 7, from paralysis, aged 55.

Elwood MacDonald Blakely, M.D. Manitoba Medical College, Winnipeg, 1907; was found dead in his office in Elm Creek, Man., about October 31, aged 30.

Raymond Albert Young, M.D. University of Michigan, Ann Arbor, 1909; died at the home of his parents in Grand Rapids, Mich., November 2, aged 26.

Henry George Small, M.D. College of Physicians and Surgeons, New York City, 1875; died at his home in Brooklyn, N. Y., November 8, aged 60.

Edmund H. Packer, M.D. Homeopathic Medical College of Pennsylvania, Philadelphia, 1867; died at his home in Lowell, Mass., October 10, aged 68.

William A. Edwards, M.D. Physio-Medical College of Indiana, Indianapolis, 1898; died at his home in New Douglas, Ill., October 22, aged 41.

William W. Jones, M.D. Eclectic Medical Institute, Cincinnati, 1881; died at his home in Utica, N. Y., November 8, from nephritis, aged 55.

Joseph Pfeiffer, M.D. University of Giessen, Germany, 1853; died at his home in New York City, October 31, from senile debility, aged 85.

Almond A. Stuart (license, Indiana, 1897); was shot and killed in the door-yard of his home at Fortville, Ind., November 7, aged 68.

Joseph W. Kitten, M.D. Jenner Medical College, Chicago, 1906; died at his home in Chicago, November 2, from pneumonia; aged 44.

William Commons, M.D. Medical College of Ohio, Cincinnati, 1863; died at his home in Union City, Ind., October 27, aged 76.

W. C. Ashley, M.D. Atlanta (Ga.) Medical College, 1884; died at his home in Ocilla, Ga., November 9, from nephritis.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

DUFFY'S MALT WHISKEY

"Patent Medicine" or Poor Liquor—Which?

What is this widely advertised fraud, sold as a "consumption cure," claimed to be the "greatest known heart tonic" and a preparation that "builds up the nerve tissues, tones up the heart, gives strength and elasticity to the muscles and richness to the blood?" The answer to this question will be found to depend, apparently, on when it is asked.

During the Spanish-American war Duffy's Malt Whiskey qualified as a "patent medicine" by the payment of the special tax that was put on nostrums as a means of raising revenue. In a circular issued at that time by the Treasury Department it was stated:

> "The Duffy Malt Whiskey Company have, by evidence under oath filed in this office, shown that their compound called 'Duffy's Pure Malt Whiskey' is composed of distilled spirits in combination with drugs. . . . "

On the other hand, even while the Federal Government was declaring the stuff a "medicine," the Supreme Court of the state of New York decided that Duffy's Malt Whiskey was not a medicine but a liquor and that persons selling it would be required to pay the same excise tax and to procure the same liquor-tax certificate that were required of the sellers of any other whiskey. The way in which the New York courts came to pass on this question is an interesting chapter in "patent medicine" history.

THE PAXSON CASE

A New York City druggist named Paxson sold Duffy's Malt Whiskey without first having paid the liquor license. The New York state excise department proceeded against the druggist for so doing. Paxson's defense was that Duffy's Malt Whiskey was not a liquor but a medicine and it was, therefore, not subject to the liquor laws of the state of New York. When the case came to trial, the New York authorities called as witnesses three chemists, Dr. Joseph De Guelmee, Dr. Charles A. Crampton and Dr. Edward W. Wheeler.

WHAT THE CHEMISTS FOUND

Dr. De Guehuee, who at that time was chief chemist in the Health Department of the City of New York, testified that he had analyzed Duffy's Malt Whiskey and he reported in part:

> "I found the contents of the bottle to be whiskey, with a little cane sugar added to it, a sweetened whiskey . . . I found no other ingredients. My examination would have revealed any other ingredients present in quantities sufficient to be determined by chemical analysis."

Dr. Crampton, the chief chemist of the Internal Revenue Bureau of the Treasury Department in Washington, reported his results in part as follows:

> "I have made an examination of the substance known as Duffy's Malt Whiskey . . . I found it contained no medicinal ingredients outside of the alcohol in the whiskey. . . . It is whiskey of a very poor quality as a beverage . . . it is not whiskey which, according to the pharmacopeial standard has been aged. . . . The taste of this bottle is indicative of a rather poor quality of whiskey, what is known as young whiskey or raw whiskey; it has not the full flavor and aroma of an aged whiskey."

Dr. Wheeler, a chemist of the New York state Department of Agriculture, testified that he had analyzed Duffy's Malt Whiskey:

> "In my opinion, there is no appreciable drug or medicine in Duffy's Malt Whiskey. There was about 1 per

cent. of solids in the bottle which I analyzed. The solid was largely sugar. There was coloring matter."

WHAT THE DUFFY PEOPLE CLAIMED

The courts assessed against Paxson a judgment of more than $700. Paxson then appealed the case to the New York Supreme Court, which refused to set the judgment aside and assessed him further costs for the refusal. Then the Duffy Malt Whiskey people showed their hand. They took up the matter and a motion for a new trial was argued on the ground that new and important evidence had been found. In affidavits submitted by the Duffy Malt Whiskey Company, Clarence E. Sherin, president of the concern, declared that Duffy's Malt Whiskey contained, in addition to alcohol, the following drugs:

Fluid extract calumba (columbo)
Fluid extract hydrastis (golden seal)
Fluid extract parcira (Parcira Brava)
Fluid extract taraxacum (dandelion).

Dr. Richard Curran, Rochester, N. Y., declared under oath:

> "That he personally prepares the tincture made from the following drugs, viz.: Fluid Extract Calumba (Columbo), Fluid Extract Hydrastis (Golden Seal), Fluid Extract Pareira (Pareira Brava), Fluid Extract Taraxacum (Dandelion), under direction of the Duffy Malt Whiskey Company, which tincture he knows to be used in the preparation of the medicinal compound known as Duffy's Pure Malt Whiskey. His knowledge that these medicinal agents are used is because of the fact that he personally delivers the same to Walter J. Duffy, vice-president of the Rochester Distilling Company."

He further declared:

> "That he himself personally makes the medicinal tincture, and from his own knowledge, says that the character of the product and its effect on the system is in marked contrast with any straight whiskey; in fact, he regards it as a whiskey in name only; a medicine of the greatest value, in fact."

It will be noticed that the *amounts* of the drugs alleged to be put in the whiskey are not given. Further affidavits were filed in the case from several Rochester physicians each of whom had some words of praise for this stuff.

SOME SWORN TESTIMONIALS

Dr. William B. Conner regarded Duffy's Malt Whiskey "as a valuable curative agent" which he had "had occasion to use . . . in his practice."

Dr. W. Hobart Curtis affirmed that "the effect of Duffy's Pure Malt Whiskey is different from that of any other whiskey. . . ."

Dr. Edwin S. Hayward, Jr., swore that he considered the stuff "a medicine of widely acknowledged value" and that it has been his habit to prescribe it "in cases where the activities have been at low ebb."

Dr. Harry M. Schall declared under oath that "on numerous occasions he has used Duffy's Pure Malt Whiskey in his practice."

Dr. J. Sherburne Read declared that "Duffy's Pure Malt Whiskey has been used and prescribed by him for a number of years." Incidentally it may be mentioned that Dr. Read at present is the "director" of the Okola Laboratory, a fraudulent mail-order medical concern operated by the Neal-Adkin syndicate.

Dr. George W. Goler, who at that time was health officer of the city of Rochester, declared that he "has been informed of the drugs used in medicating Duffy's Pure Malt Whiskey and with this information and his knowledge of the power of such drugs, he is free to say that the quantity and quality of the medicines so employed substantially transform the liquor from the condition of being purely a whiskey to a medicated compound."

Dr. John A. Stapleton deposed that "he was made acquainted with the method of medicating Duffy's Pure Malt Whiskey and the drugs employed for the purpose" and was "of the opinion that the liquor during such medication undergoes a decided change."

Dr. J. J. A. Burke swore that "he was aware from the beginning that Duffy's Pure Malt Whiskey was being medicated" and further that he "knew of the ingredients employed for the purpose and thought them good."

Dr. Richard M. Moore declared that he was "convinced that the liquor can *no longer* be considered a stimulant pure and simple, but a medicated combination by the solvent power of alcohol." [Italics ours.—Ed.]

Dr. William M. Barron stated that "he knows the remedies employed in medicating Duffy's Pure Malt Whiskey" and "unhesitatingly considers that this whiskey is changed in a marked degree by the introduction of these drugs."

Thus did these Rochester physicians solemnly declare that Duffy's Malt Whiskey was a "patent medicine" and not a cheap whiskey. Nevertheless, the analyses made by three chemists, working independently, conclusively proved that there were no drugs present in sufficient quantities to be demonstrable by chemical analysis! Again it should be noted that while the Duffy concern swore that drugs were put into its whiskey, it was careful to avoid giving any information regarding the quantities of the drugs that were alleged to be added.

The state chemists of North Dakota subjected this product to chemical analysis and in the Agricultural Experiment Report for 1906 declared:

> "Analysis indicates it to be nothing more than neutral spirits, colored and flavored. The amount of solids is high because it has syrup added to make it 'smooth' and give it flavor."

POLITICAL INFLUENCE PROTECTS A FRAUD

For years, Duffy's Malt Whiskey has gone out to the public with the most flagrantly false and fraudulent claims made for it on the wrapper around the bottle. The government officials finally took action and in 1908 a quantity of Duffy's Malt Whiskey was seized on the charge of being adulterated and misbranded under the Food and Drugs Act. What happened? It appears that the Hon. James Breck Perkins, member of Congress from Rochester, at once "got busy."

At the time of the prosecution by the state of New York, Mr. Perkins was attorney for the Duffy Malt Whiskey Company and it was he who filed the brief in behalf of the company in support of the motion for a new trial. Mr. Perkins, at that time, was apparently highly incensed by the activities of the state authorities against Duffy's Malt Whiskey. In closing his brief at that time, Mr. Perkins expressed himself thus:

> "It does not seem to me that the officers who represent the state in any proceeding, and certainly not in criminal proceedings, are required to exhibit so extreme a zeal."

Apparently zeal, in a public officer acting against large vested interests, however fraudulent, is something that Mr. Perkins would not tolerate. It is not surprising, then, that when the Department of Agriculture seized a large consignment of Duffy's Malt Whiskey, Congressman Perkins should rush to the rescue. The incident was described somewhat fully by *Collier's* at the time. According to that paper, Perkins wrote his first letter on the official stationery of the House Committee on Foreign Affairs of which committee he was a member. It read in part:

> "The Duffy Malt Whiskey Company . . . is controlled by our most prominent and leading citizens and *I trust matters can be adjusted in such a way as not to injure a long established industry.*"

He wrote a second letter, it is claimed, this time on the official stationery of the Printing Committee. In addition, letters were written by various other prominent politicians of western New York and a dozen personal visits were made to Washington. No less than six different officers of the Department of Agriculture are said to have been written to. The hearing was postponed time and again. Finally, it was set for a definite date but before that time arrived it was again postponed. This, it must be remembered was in 1908. In the latter months of 1910, The Journal attempted to get some information regarding the status of the case: We were told that the case was still pending. It is now almost 1913 and so far as we can learn, the case is still pending! *Collier's*, in closing its article regarding this disgraceful piece of political activity says:

> "Consider, now, one question: Was Perkins paid for what he did? Did he make that long hot trip from Rochester to Washington the night of July 16—Congress not being in session—from motives of public duty, or did he get money for it? If he

got money he is guilty of exactly the same crime as that for which Senator Burton of Kansas went to the penitentiary. For the immediate activity of the Secret Service men there is no more pressing need than the investigation of whatever checks may have passed during the last eight months from the Rochester manufacturers of Duffy's Malt Whiskey (Walter J. Duffy, president) to the Rochester law firm of Perkins, Duffy & McLean (this latter Duffy being J. P., son of Walter J.).

"But whether Congressman Perkins has been guilty of a crime is not the point of this article. What is important is to let all the people know how necessary is their constant vigilance and support to see that the Pure Food Law is carried out. If you were an obscure subordinate in the Department of Agriculture or the Department of Justice, if you had no motive to proceed against a swindling patent medicine or an adulterated food except your own conscience, if your first move met with personal protest from the congressman who controlled your salary, your promotion, and your official existence, how soon would you grow tired? The enforcement of the pure food law needs all the encouragement and enthusiasm that the public can contribute; there is no trouble about the enthusiasm of the opposition—that is a matter of dollars and cents, and it is working twenty-four hours a day."

"DUFFY'S ANNUAL"

Every bottle of Duffy's Malt Whiskey is wrapped in a large circular called "Duffy's Annual." This "Annual" consists, largely, of testimonials from laymen and physicians. We have on file one issued in 1901 and another issued in 1911. There are noticeable differences between the two circulars. In the earlier annual much is made of the statement that Duffy's Malt Whiskey contains no fusel oil; nothing is said on this point in the later circular. The 1901 issue comes out frankly with the falsehood that Duffy's Malt Whiskey "cures consumption," etc. In the 1911 circular the "lie direct" has given place to the "lie with circumstance." The earlier circular contains a long testimonial from Willard H. Morse and the Duffy company at the conclusion of the testimonial adds:

> "Dr. Morse is not only an M.D. and an F.S.Sc., but is a well-known therapeutist and a consulting chemist of national reputation."

The facts are that Willard H. Morse is a professional testimonial writer who has issued fake analytical reports for some of the biggest frauds on the American market. The title "F.S.Sc." is one that is given—price $5 (1 guinea)—by a fraudulent organization in London that styles itself the Society of Science, Letters and Art. This title is very popular with "patent-medicine" fakers.

The earlier "Annual" recommends Duffy's dope for "painful and irregular periods"—pathologic states about which the later one says nothing. The 1911 circular "features" a testimonial from the "Hon. Richard Curran, M.D., formerly mayor of Rochester." This testimonial may carry weight with those who do not know that Dr. Richard Curran is in the employ of the Duffy's Malt Whiskey Co. He it was, as we have shown, who testified in May, 1905, that he prepared the various drugs which were put in Duffy's Malt Whiskey. But we have on file a letter written in 1910 by Dr. Curran—and written on the stationery of the Duffy Malt Whiskey Company—in which he declares:

> "Duffy's Pure Malt Whiskey is not a patent medicine, but a refined medicinal whiskey, made from choice materials and complies with the test requirements of the United States Pharmacopeia."

Does this mean that the Duffy product of to-day is different from that sold five or six years ago? It would seem so. Some of the more recent pamphlets sent out by the Duffy Malt Whiskey Company contain what purport to be analyses made by chemists. One of these is from Joseph De Guehuee who, it will be remembered, when testifying in 1905 as chief chemist of the health department of the city of New York, declared that he found this product to be "whiskey with a little cane sugar added to it." But Dr. De Guehuee later became associated with the Lederle Laboratories and in that capacity he declared: "Duffy's Pure Malt Whiskey is free from added sugar . . ."

We have been asked at various times whether the testimonials of Duffy's Malt Whiskey purporting to come from physicians are genuine. Investigation of a large number of them indicates that the testimonials as now published are documentarily genuine. Evidently the Duffy Company has found that it is no longer necessary to "fake" testimonials,[1] as it has done in the past.

Of 104 physicians who had written testimonials for Duffy's Malt Whiskey, 5 are members of the American Medical Association, and 18 have written testimonials for other nostrums. From our files it appears that some of the 104 testimonial-givers are either advertising quacks or are connected with fraudulent medical concerns. It is not difficult to estimate the scientific value of testimonials that come from such sources.

CONCLUSION

We may accept the statement of the state chemists of North Dakota that the stuff is plain alcohol with syrup added to give it "smoothness" and coloring added to make it look like whiskey; or we may believe the federal chemist who declared it simply "whiskey of a very poor quality;" or we may think that Chemist De Guehuee was right when he said it was "whiskey, with a little cane sugar added to it;" or we may prefer Dr. De Guehuee's later pronouncement that the stuff "is free from added sugar;" again we may feel that Dr. Curran's early declaration is worthy of attention and that Duffy's Malt Whiskey contains drugs and is "a medicine" or possibly we may take Dr. Curran's later statement that the product is merely a whiskey as defined by the Pharmacopeia. But whether we consider Duffy's Malt Whiskey a "patent medicine" or a low grade "booze" makes little difference. On one point we can agree unanimously; the stuff is an impudent fraud. As we have said elsewhere: A high grade whiskey has but a limited place in therapeutics; Duffy's Malt Whiskey has none.

ADVERTISING FAKES

This from the Pulaski County *Democrat* of Winamac, Ind., November 14, is commented on editorially this week:

"The *Democrat* received a few days ago a proposition to publish considerable advertising matter boosting a 'patent medicine' called 'Nature's Creation,' which is asserted in the strongest language to be a cure for consumption. The offer meant quite a sum of money to us, but we refused to have anything to do with it.

"The reason for our action is that we do not knowingly advertise any article that is a fake, and we have what we believe to be reliable and authentic information that this pretended cure is a fake, a fraud, and that it will *not* cure consumption; therefore were we to advertise the stuff to do what it cannot, and thereby induce ailing persons to depend on a worthless nostrum until death resulted, our own skirts could not be clean morally.

"Our information is that this 'Nature's Creation,' now emanating from Columbus or Indianapolis, or both, was exploited in Chicago not very long ago as an 'absolute cure' for syphilis; but as the public became more and more interested in the subject of tuberculosis during the last four or five years the stuff has been changed to a consumption specific—probably more sale for it thus than for syphilis.

"We have a list of forty-five Columbus, Ohio, persons who are alleged to have taken this 'cure for consumption'—and died; we have not heard of any cured by it. It might be the proper thing if suicide is the object."

Correspondence

Dr. Robert Fletcher: An Appreciation

To the Editor:—With the death of Dr. Robert Fletcher, principal assistant librarian of the Surgeon-General's Library for nearly thirty-five years, there passed away a nestor of medicine who was looked up to and honored everywhere for his intensive labors in medical bibliography, his rare scholarship and that courteous and cheerful spirit of helpfulness which, in the words of Dr. Howard Kelly, "has endeared him to the entire profession of the United States." Almost 90 when he died, his span of life, like Heberden's, extended over nearly a century, and with Heberden the scholar, as distinguished from the clinician, he had many points of resemblance. In his lifetime, he had seen and met personalities so various and so widely separated in time as Sir Astley Cooper and Halsted, Daniel Drake and Sir William Osler, Emerson and the philosophers and poets of a later period. A native of England, he had served his adopted country for fifteen years with distinction as an army surgeon during the Civil War and afterward, and he was buried at Arlington with the honors commensurate with the military rank he attained.

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[1] Some testimonials investigated a few years ago by THE JOURNAL were shown to be fraudulent. See THE JOURNAL A. M. A., Dec. 16, 1909, p. 1890.

Dr. Fletcher was born in Bristol, England, on March 6, 1823. He studied law under his father, a Bristol attorney, for two years before taking up medicine. He spent five years at the Bristol Medical College and the London Hospital, being, at the time of his death, the oldest living graduate of the latter institution. He became a member of the Royal College of Surgeons and the Society of Apothecaries in 1844. In his youth, Dr. Fletcher was attracted by American institutions, and, crossing the ocean with his young wife, settled in Cincinnati in 1847. During the Civil War, we find him surgeon of the First Regiment of Ohio Volunteers in 1861, and after three years active service in the field, commissioned as surgeon, U. S. Volunteers, in charge of Hospital No. 7 at Nashville, Tenn., and subsequently medical purveyor of the Army at the same post. At the end of the war, he was brevetted lieutenant-colonel and colonel, U. S. Volunteers, for his faithful and meritorious services. In 1871, he was on duty in the Provost-Marshal's bureau of the War Department active in the preparation of the two volumes of anthropometric statistics issued by that office (1875) and the author of the treatise on anthropometry in the same work. In 1876, he became associated with Dr. John S. Billings in the Library of the Surgeon-General's office, and his important labors on its index-catalogue extended from the date of publication of its first volume in 1880 to the last year of his life, a period of thirty-three years. Of the value of this phase of Dr. Fletcher's work, it is only necessary to quote the judgment of Dr. Billings himself that "the accuracy and typographical excellence of the volumes are largely due to his careful and skilful supervision." The same painstaking care in preparation and proof-reading are evidenced in the *Index Medicus*, in the redaction of which Dr. Billings and Dr. Fletcher were associated as editors for twenty-one years (1879-99) and of which Dr. Fletcher was editor-in-chief for nine years, after the journal was revived by the Carnegie Institution in 1903. From his early studies in law, Dr. Fletcher acquired a deep interest in medical jurisprudence and was lecturer on this subject at the Columbian University, Washington, D. C., 1884-1888, and at the Johns Hopkins University, 1897-1903. He was president of various scientific societies in Washington and the recipient of many honors, most prominent of which were the banquet given to him by leading members of the profession on Jan. 11, 1906, and the unique award of the gold medal of the Royal College of Surgeons in 1910, a distinction which had been conferred on only eleven physicians in ninety years, most prominent of whom were Parkinson (1822), Thomas Bevill Peacock (1876), Richard Owen (1883), Sir W. J. Erasmus Wilson (1884), Sir James Paget (1897) and Lord Lister (1897). Only a few days before his death Dr. Fletcher was pleased to receive a degree in medicine from the institution which he had first attended in his native town. A severe attack of diphtheria in the spring of 1911 brought on a condition of enfeebled health which he bravely weathered but to which he gradually succumbed, dying on the morning of Nov. 8, 1912.

In personality, Dr. Fletcher was a dignified, stately gentleman of the old school, much admired and respected by old and young alike for his cheerful stoicism and military promptitude, his ready wit and courtly ways, and his literary productions were the expression of his personality. These are doubly attractive through the simple and direct manner in which the results of exhaustive research are conveyed and a certain strain of grave irony in which, as we have said, he resembles Heberden. His earlier essays were entirely in the field of anthropology and include, besides the statistical and anthropometric treatise above referred to, the pioneer monograph in English on "Prehistoric Trephining and Cranial Amulets" (1882); with interesting contributions on Paul Broca (1882), "Human Proportion in Art and Anthropometry" (1883), "Tattooing Among Civilized Peoples" (1883), "Myths of the Robin Redbreast in Earlier English Poetry" (1889), "The New School of Criminal Anthropology" (1891), "Anatomy and Art" (1895), and "Scopelism" (1897), the latter being also the first paper on the subject in English. A short paper on "Columns of Infamy" will soon appear in the American Anthropologist (No. 4, 1912). Dr. Fletcher's affiliations with the Medical Faculty of the Johns Hopkins University led to the production of a number of valuable papers on medical history, of which the best were his essays on "Medical Lore in the Older English Dramatists and Poets" (1895), "The Witches' Pharmacopeia" (1896), and "A Tragedy of the Great Plague at Milan in 1630" (1898). The former of these reveal his unusual offhand knowledge of English poetry; the latter is a remarkable piece of synthetic work, the story having been developed *ab initio* from a rare old Italian engraving. An unpublished essay on "Some Diseases Bearing the Names of Saints" will shortly appear in the *Bristol Medico-Chirurgical Journal*.

The profession will lose in Dr. Fletcher the accomplished bibliographer and medical scholar; his intimates will miss the high-minded, honorable gentleman, the staunch and loyal friend.

Fielding H. Garrison, M.D., Washington, D. C.

The New Hospital at Louisville

To the Editor:—I have just returned to Louisville after an absence of ten months spent on the Pacific Coast, and find many changes here in things medical. Chief among them is the creation of a million-dollar city hospital. I once heard it remarked that to judge any place correctly "one should look at the advantage of its public schools and the conditions of its cemetery." These may be good criteria, but I would add, "inspect the hospital intended for the treatment of the poor." Indeed, throughout Europe and this country as well, no greater problem confronts the medical profession than the proper management of these institutions.

You will permit, I am sure, some detailed mention of the superb building that is now nearing completion in this city. It may be that the erection of a similar institution is being contemplated elsewhere, in which case those who have charge of the matter may profit by reading this, or what would be better, may accept the invitation to come here and inspect the new building before completing their plans.

The hospital occupies a lot 727½ by 342 feet, located nearly in the center of the city. This is much to be preferred to a location in the suburbs, owing to the greater ease with which the patient may reach the hospital. The plans are on what might be termed a combination of the pavilion and cottage systems. The hospital consists of a central administration building, and four ward buildings, arranged symmetrically along a south connecting corridor, while the service, clinic and operating building and the psychopathic and special treatment building are on the north side of the corridor. Detached from the main group of buildings are the isolation buildings, help building, nurses' home and power plant. The buildings are generally of three stories with a high basement. The ward buildings have flat roofs with parapet walls, so that they may be used as roof-gardens for recreation and outdoor treatments. They have elevator service direct to the roof and will prove a valuable adjunct in the modern treatment of disease. All the buildings are constructed of concrete, reinforced by steel, and are believed to be fire-proof. There are no bells used, but all signals are given by electric lights communicating directly with the patient's bed. Each floor is a separate unit as far as unguarded intercommunication, transmission of noises and cross-infection are concerned.

The stairs throughout are monolithic, of reinforced concrete faced with terrazzo, are absolutely aseptic and are easily cleaned. The roof of the administration building has a semi-enclosed roof-garden, to be used as an outdoor ward for chilren, so that they may have recreation without disturbing the ther patients. It is roofed over and can be open or closed as esired.

One entire floor is taken up by operating-rooms and their djuncts. All specialties have their recognition in a separate nd distinct operating-room. Amphitheaters have been disensed with for obvious reasons, excepting that for medical eaching one is provided with a seating capacity of 450; clincal instruction will be given in small rooms provided with keleton iron stands.

The maternity wards are subdivided, with a ward for waiting vomen, two rooms for babies, a room for post-delivery cases nd one for convalescents, with special accommodations for atients who may be infected.

The hospital is provided with psychopathic wards, so that uspected persons may be restrained and treated without first eing declared insane by a jury.

I desire to call special attention to the fact that one of the nost important departments in this hospital is that of nursing, nd a special nurses' home has been provided. This is the nore important, as the training-school is maintained here. It s a maxim that has been proved true, that the better a hospital ares for its nurses, the better will be the class of women who nter the training-school. Each nurse is provided with a eparate room, plainly, neatly and tastefully furnished, each vith clothes closet, lavatory with hot and cold water, a small ombined desk and a wall bookcase. A small infirmary is uilt for those who may be ill. Special rooms afford opportuniies for nurses to entertain their friends, and small kitchens ave been built where nurses may prepare little treats for hemselves or their friends.

It would take pages to describe in detail this splendid hosital, but I will make this suffice. I believe that it is the most nodern and up-to-date hospital in the United States. It was rected under the supervision of a non-partisan commission on vhich was a physician, Dr. Ap Morgan Vance. Without disaragement to any one of the other distinguished and honored nembers of the commission, it can truthfully be said that much f the success in this great enterprise is due to Dr. Vance, who as been untiring in his work. Together with the others, Louisville owes him a deep debt of gratitude, and the medical profession here is proud of him and his work as evidenced in the result.

JOSEPH M. MATHEWS, Louisville, Ky.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter nust contain the writer's name and address, but these will be mitted, on request.

AVOIDANCE OF NERVOUS SHOCK IN ANESTHESIA

To the Editor:—1. Some time ago I saw in a lay paper the statenent that from Paris had come a feature in surgical procedures hat would rob operations of all their horrors: the hypodermic (or ntramuscular?) injection of ethyl chlorid a day or two before opertion to paralyze the fear-center in the brain. Please send me some letails or refer me to some articles regarding it. That, with peristence of local anesthesia for days after injection of urea hydrohlorid and quinin, would be very desirable.

2. Please tell me how reliable the Noguchi modification of the Wassermann test is. J. F. R.

ANSWER.—1. The newspaper report referred to by our correspondent is probably the result of a play of popular fancy on meager scientific basis. In our Paris Letter (THE JOURNAL, May 25, 1912, p. 1612), intramuscular etherization is mentioned. Dr. Descarpentries occasionally used an inhalation of thyl chlorid preliminary to the intramuscular injection of the ther. This method of intramuscular etherization has been ondemned by a number of Paris physicians, as will be seen in THE JOURNAL of July 27, 1912, p. 288. Considering the xtreme volatility of ethyl chlorid, one would hesitate to use it by hypodermic injection.

The aim of the procedure suggested seems to be the same as that of Crile's "principle of anoci-association." According to this, the effort is made to plan and carry out operations so as to prevent the formation of harmful associations and the discharge of nervous energy leading to exhaustion. This is done by avoidance of everything that may tend to cause the patient preliminary worry or fear, and by cutting off the brain from the operative area by local anesthesia in addition to general anesthesia during operation, and by local anesthesia alone for a considerable period after operation. See Crile: The Results of Operations, Especially Abdominal, Performed on the Principle of Anoci-Association, THE JOURNAL, July 13, 1912, p. 114. Watson's modification of Crile's procedure (*Med. Rec.*, Oct. 5, 1912, p. 617) is to put the patient under local anesthesia before beginning general anesthesia and to begin and finish the operation under local anesthesia alone.

2. Many observers believe that the Noguchi modification is as reliable as the original Wassermann method, and others consider it more reliable.

QUALIFICATIONS FOR PRACTICE IN WEST VIRGINIA

To the Editor:—Can an unregistered physician legally practice medicine in West Virginia as the hired assistant of a qualified and registered practitioner? In answering, please omit my name.

H. J. N.

ANSWER.—No person can practice medicine legally in West Virginia unless he holds a certificate issued by the State Board of Health. Section 4386 of Chapter 150 of the Code of West Virginia is as follows: "The following persons and no others shall hereafter be permitted to practice medicine in this state: 1. All such persons as shall be legally entitled to practice medicine in this state at the time of the passage of this act. 2. All such persons as shall be graduates of a reputable medical college, recognized as such by the State Board of Health, who shall pass an examination before said State Board of Health and shall receive certificates therefrom, as hereinafter provided."

THYMUS SUBSTANCE IN ARTHRITIS DEFORMANS

To the Editor:—Please refer me to any articles on the treatment of arthritis deformans with thymus gland. I read an article on the subject which appeared in THE JOURNAL, but am unable to find it again. C. T. PANKHURST, North Star, Mich.

ANSWER.—References to articles on the treatment of arthritis deformans with thymus substance were given in this department, Sept. 28, 1912, p. 1205.

FINLAY'S MOSQUITO THEORY OF THE TRANSMISSION OF YELLOW FEVER

To the Editor:—In your interesting answer (November 9, page 1733) to the question of Dr. F. J. McKinley concerning the relation of the mosquito to disease, you make no mention of Dr. Finlay of Havana, for whom some claim priority in the suggestion that the spread of yellow fever is due to the mosquito. I am sure that it will interest many of your readers to have the facts of this relation presented. JAMES TYSON, Philadelphia.

ANSWER.—To Dr. Carlos J. Finlay of Havana is generally awarded the credit for first explicitly pointing out the connection between the carrier and the disease. In 1881 Finlay advanced the theory of the conveyance of yellow fever by the bite of the mosquito and correctly distinguished the species of mosquito (*Stegomyia calopus*) which, as later proved by the experiments of the American Yellow Fever Commission, transmits the disease to man. He had not at that time the advantage derived by later investigators from knowledge of the rôle played by the mosquito in malarial fever and believed yellow fever to be conveyed from one patient to another by direct inoculation of a virus. While his experiments undertaken to prove the theory were uniformly unsuccessful, this detracts nothing from the value of the inductive reasoning by which he reached his conclusions. The dramatic interest attaching to the heroic work of the U. S. Army Yellow Fever Commission has tended to overshadow Dr. Finlay's work somewhat in popular estimation; but members of the commission in their published writings have acknowledged that they were working on the foundation supplied by Dr. Finlay's theory. No discovery in early literature of any casual hint or chance hypothesis as to the relation of mosquitoes to yellow fever will disturb Finlay's claim to credit as the man who for twenty years pertinaciously defended the theory single-handed in the face of an indifferent if not hostile public; but in this instance, as in many others, it is interesting to see how correct theories and suggestive observations remained sterile only because those who conceived the theories or made the observations failed to appreciate their value or perhaps lacked the patience, time or opportunity to follow them up. We felt that it was inappropriate to associate with such obscure and shadowy claims to recognition as those discussed November 9 the solid and undisputed facts as to Finlay's connection with the subject. Perhaps this was a mistake; at all events the neglect to mention Finlay was not prompted by a desire to depreciate his achievement.

IS LIGHT FATAL TO PLASMODIA?

To the Editor:—In The Journal, October 12, p. 1381, you write on "Cultivation of Malarial Plasmodia" and refer to an action of quinin.

The rediscovery of the filaria by observers in Egypt following its discovery by ————? was put off by the neglect to examine the patients after sunset, the parasite coming to the surface of the body in the dark. Negroes, native to Africa, become immune to malaria (and filariasis) by having skins impervious to light. The three substances causing death of the plasmodia are all substances which have the power of causing fluorescence. They are quinin, esculin and fraxinin.

Is it not likely, from these facts, that light or actinism is fatal to plasmodia and that exposure of patients to sunlight after introducing one of the above-named fluorescent substances would hasten recovery? Edmund D. Spear, M.D., Boston.

Answer.—The theory that the action of quinin on malarial parasites is connected with its property of fluorescence was advanced a number of years ago. While it is a curious circumstance that the substances enumerated by our correspondent are fluorescent, we do not think that the theory that fluorescence is necessary to a pharmacologic action is rational.

It is a remarkable fact that quinin exhibits fluorescence only when the haloid acids or salts are not present. Such salts as chlorids, bromids or iodids added to a fluorescent solution of quinin prevent the occurrence of fluorescence. Since the blood contains chlorids in a considerable quantity, it is not reasonable to expect the fluorescence of quinin to be exhibited in such a medium, and hence it would seem improbable that this property could affect the action of the remedy on the plasmodia. Moreover, certain cinchona alkaloids, such as cinchonin or cinchonidin are not fluorescent, but have a positive action on malaria.

NO SODIUM SALICYLATE HYPODERMIC TABLETS—NO ARTIFICIAL QUININ

To the Editor:—1. Why are not hypodermic tablets of sodium salicylate or any other salicylate preparation on the market for hypodermic use?

2. Is the quinin in common use natural or artificial, and, if the latter, does it possess the same antimalarial virtue as that derived from natural sources? Ralph S. Cone, M.D., Westwood, N. J.

Answer.—1. Sodium salicylate is not used for hypodermic injection because the dose is large, and, unless much diluted, would be likely to cause irritation. Usually this substance can be given by the mouth without inconvenience, and it has been proposed, in cases in which the stomach is rebellious, to administer it by rectal injection. We do not know that any proposal has been made to administer it hypodermically. It is not put up in the form of hypodermic tablets by the pharmaceutical houses, because there is no demand.

2. So far as we know, no artificial quinin has been put on the market. The quinin in commerce is obtained from the compounds of quinin existing in cinchona bark.

OINTMENT FOR CARCINOMA OF THE SKIN; TREATMENT FOR ALCOHOLISM

To the Editor:—1. Please publish the formulas of the ointment used to remove moles and carcinoma of the skin that you published several months ago. It was similar to the remedy Squibb & Sons sold.

2. Also refer to the page that contained the treatment for alcoholic patients. Ross C Martin, M.D., Kokomo, Ind.

Answer.—1. The ointment to which our correspondent refers is probably the proprietary Thoremedin. formerly called Thoradin, of which we published an analysis, March 9, 1912, p. 719.

2. The article entitled "The Treatment of Drug Addiction," by A. Lambert, was published in The Journal, Feb. 18, 1911, p. 503.

CONTINUED USE OF SODA IN HYPERCHLORHYDRIA

To the Editor:—Please answer the following in your Queries and Minor Notes Department, and do not publish my name: Can the continued use of sodium bicarbonate in 30-grain doses taken after each meal, say for a term of years, for hyperchlorhydria. do any harm? Could it be a possible factor in producing general pruritus? M. T. R.

Answer.—The dose mentioned will barely neutralize the acid in 500 c.c. of normal gastric juice. In case of hyperacidity it would not completely neutralize the acid. In case the alkali is completely neutralized by the acid in the gastric juice, as would probably be the case in presence of hyperacidity, sodium chlorid would be formed, so that the use of the sodium bicarbonate would be practically equivalent to the administration of a small dose of about 20 grains of sodium chlorid. Of course, it is not advisable to continue a single remedy for so long a time, and certainly it would be desirable to make frequent examinations of the stomach contents to determine that the hyperchlorhydria continues. The effect of the continued neutralization of the stomach contents might be to cause a frequent or continual alkalinity of the urine, which might have undesirable results. In general, however, the use of alkalies in hyperchlorhydria is productive of good and not harm.

BISMUTH PASTE

To the Editor:—Please publish formulas for bismuth paste as used by Beck and others. J. M. F.

Answer.—The following were recommended by Beck in his original article in The Journal, March 14, 1908, p. 868:

Formula of paste for diagnosis and early treatment:

℞

Bismuth subnitrate	1 part
Petrolatum	2 parts

Mix while boiling.

Formula of paste for late treatment:

℞

		gm.	
Bismuth subnitrate		30	℥i
White wax			
Soft paraffin	āā	5	āā, gr. 75
Petrolatum		60	℥ii

Mix while boiling.

Another formula was given in Dr. McKelvey Bell's article, The Journal, May 4, 1912, p. 1340:

℞

Bismuth subnitrate	1 part
White petrolatum	2 parts

Dissolve on hot water-bath, stirring until cool; then (still stirring) add 5 per cent. of iodoform (i. e., 72 gr.).

OXYPATHOR

To the Editor:—Can you give me any literature on the Oxypathor? There is a woman pushing it in Harrisburg. She has a sign on her door and travels from house to house trying to sell it for $35. One is on exhibition in a book-store window. It is a fake. They have sold a number, claiming that it cures all diseases. David J. Hetrick, M.D., Harrisburg, Pa.

Answer.—Our correspondent is right. The Oxypathor is a fake and one of the most impudent on the market. It used to be sold under the name "Oxygenator" and as such has been debarred by the Australian government from importation into that country; also, its sale was prohibited some time ago in the state of Vermont. The device is essentially a nickel-plated piece of gas-pipe filled with a crude mixture of inert substances, apparently iron-filings, clay and coke dust. This fraud is exposed at some length in a pamphlet issued by the American Medical Association entitled: "The Oxydonor and Similar Fakes," which will be sent on receipt of four cents in stamps. The same matter appears in the book "Nostrums and Quackery," price one dollar.

LITERATURE ON POSTGRADUATE WORK ABROAD

To the Editor:—Have you any bureau of information or literature which will give me valuable and necessary information for reaching and profiting by a course of study in the medical schools of Europe, particularly the schools in Berlin?

E. Hornibrook, M.D., Cherokee, Iowa.

Answer.—Our correspondent and a number of others who have made similar inquiries are referred to this department of The Journal, Oct. 5, 1912, p. 1310, Oct. 19, 1912, p. 1474, and April 8, 1911, p. 1056. The last reference is to a long article describing the facilities of the chief medical centers of Europe in detail.

SEXUAL DESIRE AFTER CASTRATION AFTER PUBERTY

To the Editor:—Please inform me if castration after puberty completely or only partially destroys the sexual desire; and also, if a double oophorectomy completely destroys or only partially inhibits the sexual desire in the female. P. T. R.

Answer.—It is usually believed that castration after puberty may permit the retention of a certain amount of sexual desire. This is certainly true in the case of double oophorectomy. In the latter case some women lose their sexual feeling, while others retain it apparently unimpaired.

CONVERSE TREATMENT FOR EPILEPSY

To the Editor:—Please tell me the composition of the Converse Treatment for Epilepsy. S. P. L.

ANSWER.—Practically every nostrum on the market sold for the self-treatment of epilepsy contains large quantities of bromids. These are taken by the patient in utter ignorance of the danger and in quantities that no physician with any respect for his patient's safety or his own good name would dare prescribe. Such heavy doses suppress the attacks but brutalize the patient and lead to a loss of mental and physical activity. The Converse Treatment for Epilepsy was analyzed by Prof. E. F. Ladd of the North Dakota Agricultural Experiment Station. Professor Ladd reported that the sample was an aqueous solution of several bromids with an aromatic galenical preparation, and that it contained:

Ammonium bromid	4.28	per cent.
Total bromin	10.396	per cent.

Professor Ladd added: "The total bromin calculated as the equivalent of potassium bromid would equal 15.486 per cent. But not all of the bromin is in combination with the potassium, for there are present in the preparation sodium bromid, potassium bromid, strontium bromid, ammonium bromid and iron bromid."

Medical Education and State Boards of Registration

COMING EXAMINATIONS

CALIFORNIA: Los Angeles, December 3-6. Sec., Dr. Charles L. Tisdale, 929 Butler Bldg., San Francisco.

DELAWARE: State Society and Homeopathic Examining Boards. Dover and Wilmington, December 10-12. Secretary of the Medical Council, Dr. Henry W. Briggs, 1026 Jackson St., Wilmington.

KENTUCKY: The Armory, Louisville, December 12. Sec., Dr. J. N. McCormack, Bowling Green.

MARYLAND: Regular, 1211 Cathedral St., Baltimore, December 10. Sec., Dr. J. McPherson Scott, Hagerstown; Homeopathic, St. Luke's Hospital, Baltimore, December 13-14. Sec., Dr. O. N. Duvall, 1326 N. Mount Street.

OHIO: Columbus, December 10-12. Sec., Dr. George H. Matson, State House.

PENNSYLVANIA: Philadelphia, December 3-5. Sec., Nathan C. Schaeffer, Harrisburg.

VIRGINIA: Richmond, December 17-20. Sec., Dr. Herbert Old, Norfolk.

Affiliation of Hospital with Medical School

The announcement has recently been made of an affiliation between the New York Hospital and the Medical Department of Cornell University in New York City. The terms of the copartnership are that in consideration of a substantial fund donated to the hospital to aid its future building projects, the institution gives to the medical college for purposes of teaching and research, one-half of its entire service, comprising medical, surgical and children's wards, in all about 150 beds. The exact amount of the gift has not been made public, but the donor, Mr. George F. Baker, is a member of the board of governors of the New York Hospital and is said to be deeply interested in medical education. He thus evinces his conviction that the greatest efficiency for both hospital and medical school is to be attained through coalition. This coalition is fully in accord with the principles long advocated by the Council on Medical Education of the American Medical Association. Already throughout the country fully a dozen coalitions between university medical schools and neighboring hospitals have been brought about. Each coalition strengthens the cause of higher medical education by increasing the opportunities of colleges in both undergraduate and graduate instruction, and by supplying them with the definite field for advanced research without which such work must always be restricted. The further announcement is made of the gift to the medical college by another philanthropist of a $1,000 annual fellowship in medicine to be allotted for work in the New York Hospital medical wards. The college, besides large building properties and equipment, now possesses an endowment for maintenance of $4,000,000, which places it among the highest-endowed medical schools in the country.

Georgia October Report

Dr. C. T. Nolan, secretary of the Regular Medical Examining Board of the State of Georgia, reports the written examination held at Atlanta, Oct. 8-10, 1912. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 80. The total number of candidates examined was 30, of whom 20 passed and 10 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Birmingham Medical College (1911) 85.5;	(1912)	80, 80
Howard University, Washington, D. C.	(1912)	87.5
Atlanta School of Medicine	(1912)	81.5, 85.5
University of Louisville	(1912)	85.5
Tulane University of Louisiana	(1912)	89.5
University of Maryland	(1912)	85.5
Maryland Medical College (1911) 81;	(1912)	85
College of Physicians and Surgeons, Boston	(1911)	86.5
St. Louis University	(1912)	84
North Carolina Medical College	(1912)	85
Leonard Medical School	(1912)	83.5
Medico-Chirurgical College of Philadelphia	(1906)	80
Med. Coll. of State of South Carolina (1901) 84.5;	(1912)	82
Chattanooga Medical College	(1908)	81
Westminster Hospital, London, England	(1897)	81
FAILED		
University of Louisville	(1912)	77.5
Maryland Medical College	(1911)	77
University of the South	(1905)	67.5
Meharry Medical College (1908) 77.5; (1912) 74, 75.5, 76, 77.5, 78, 78.5.		

Georgia Reciprocity Report

Dr. C. T. Nolan, secretary of the Regular Medical Examining Board of the State of Georgia, reports that twenty-three candidates were licensed by that Board through reciprocity from June 1 to Oct. 29, 1912. The following colleges were represented:

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Medical College of Alabama	(1894)	Florida
Northwestern University Medical School	(1911)	Iowa
Sioux City College of Medicine	(1897)	Nebraska
University of Louisville	(1909)	N. Carolina
Hospital College of Medicine, Louisville	(1897)	Kansas
Tulane University of Louisiana	(1910, 2)	Louisiana
Baltimore Medical College	(1903)	Maryland
College of Physicians and Surgeons, Baltimore	(1882)	Virginia
Johns Hopkins University	(1903)	Wisconsin
University of Michigan, Dept. of Med. and Surg.	(1912)	Michigan
Washington University, St. Louis	(1897)	Missouri
Barnes Medical College	(1903)	Missouri
Columbia University, College of Phys. and Surg.	(1901)	Dist. Colum.
North Carolina Medical College	(1907)	N. Carolina
Tennessee Medical College	(1896)	N. Carolina
University of West Tennessee	(1909)	Tennessee
Vanderbilt University	(1899) (1908)	Tennessee
University of Tennessee	(1891) (1901)	Tennessee
Memphis Hospital Medical College	(1910)	Tennessee
University of the South	(1908)	Tennessee

Minnesota October Report

Dr. Thomas S. McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the written examination held at Minneapolis, Oct. 1-4, 1912. The number of subjects examined in was 18; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 6, of whom 4 passed and 2 failed. Eighteen candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Johns Hopkins University	(1910)	88
Univ. of Mich., Dept. of Med. and Surg.	(1894)	80
Barnes Medical College	(1905)	80
University of Pennsylvania	(1911)	85
FAILED		
University of Louisville	(1911)	62
Hamline University	(1908)	71

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Northwestern Univ. Med. School (1910, 3)	(1911, 1)	Illinois
Rush Medical College (1898) North Dakota;	(1898)	Wisconsin;
(1911) Missouri; (1911, 2) Illinois.		
Bennett Medical College	(1912)	Illinois
Hahnemann Med. Coll. and Hosp., Chicago	(1910)	Illinois
State University of Iowa, Coll. of Med.	(1908)	Iowa
University of Louisville	(1911)	Kentucky
Baltimore Medical College	(1898)	N. Dakota
Univ. of Mich., Dept. of Med. and Surg.	(1905)	Michigan
Milwaukee Medical College (1911, 2)	(1912)	Wisconsin

Montana October Report

Dr. William C. Riddell, secretary of the Montana State Board of Medical Examiners, reports the written examination held at Helena, Oct. 1-3, 1912. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 29, of whom 25 passed and 4 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Bennett Medical College	(1900)	78.2
Hahnemann Medical College and Hospital, Chicago	(1900)	78; (1912) 75.
Chicago Coll. of Med. and Surg. (1911) 78.4;	(1912)	84.3
College of Physicians and Surgeons, Chicago	(1910)	79.9
Rush Medical College (1905) 78.4;	(1911)	80
Medical College of Indiana	(1905)	77.9
Keokuk Medical College (1907) 76.9;	(1908)	76.7
Baltimore Medical College (1898) 80.7;	(1903)	77.1
University of Michigan, Dept. of Med. and Surg.	(1912)	82.1, 83.7
Detroit College of Medicine	(1906)	78.6
University of Minnesota, Coll. of Med. and Surg.	(1910)	79.8
Creighton Medical College (1906) 77;	(1912)	81.9
University Medical College, Kansas City	(1912)	83.4
Jefferson Medical College	(1912)	80.4
University of Pennsylvania	(1910)	84.6
University of Vermont	(1910)	76.7
Milwaukee Medical College (1911) 80.8;	(1912)	79.9
FAILED		
College of Physicians and Surgeons, Chicago	(1910)	69.6
Georgetown University	(1903)	69.4
Michigan College of Medicine and Surgery	(1901)	73
Vanderbilt University	(1912)	73.4

Rhode Island October Report

Dr. Gardner T. Swarts, secretary of the Rhode Island State Board of Health, reports the written examination held at Providence, Oct. 3-4, 1912. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 80. The total number of candidates examined was 15, of whom 13 passed and 2 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
College of Physicians and Surgeons, Baltimore	(1912)	83.5
Harvard Medical School. (1895) 85.7; (1910) 86.2;	(1911)	88.2
Tufts College Medical School (1903) 85.2;	(1911)	82.3, 88; (1912) 83.4, 86.5.
University and Bellevue Hospital Medical College	(1910)	81.8
University of Pennsylvania	(1912)	89
Medico-Chirurgical College, Philadelphia	(1912)	81.4
Laval University, Quebec	(1911)	81.4
FAILED		
Baltimore Medical College	(1907)	68.9
Harvard Medical School	(1906)	76.2

Book Notices

Life and Letters of Dr. William Beaumont, Including Hitherto Unpublished Data Concerning the Case of Alexis St. Martin. By Jesse S. Myer, A.B., M.D., Associate in Medicine in Washington University, St. Louis. With an Introduction by Sir William Osler, Bt., M.D., F.R.S., Regius Professor of Medicine in Oxford University, England. Cloth. Price, $4. Pp. 317, with illustrations. St. Louis: C. V. Mosby Company, 1912.

William Beaumont, the first great American physiologist, was licensed to practice physic and surgery by the Third Medical Society of Vermont in 1812. He had then studied medicine for two years with Dr. Benjamin Chandler in St. Albans. One hundred years later, and fifty-nine years after his death in St. Louis, appears this complete story of his life and work. In the words of Sir William Osler, three generations have now been interested in the work of Beaumont as well as in "that fistulous Alexis" who was the, at times, elusive subject of his remarkable experiments. The chief facts of the life of Beaumont have become well known from the many addresses and sketches that have been printed about him and his work, but authentic sources for an adequate biography became available only recently when a wealth of family papers, records, manuscripts and letters were placed at the disposal of Dr. Myer, who has spared no pains in collating this vast material to the best advantage and in following every promising thread of information to its end. New England town records, the surgeon-general's office in Washington, various army posts, the scenes of Beaumont's activities, old newspapers and letters have been ransacked for information. Every page is a witness of labor of love on the part of Dr. Myer to give us a faithful picture of the great Beaumont in its proper setting so that we are able, "as it were, to see him alive." The illustrations and fac-simile reproductions of letters, documents and old newspaper notices are most interesting. Beaumont's letters and other writings reproduced unaltered in the various chapters serve to keep safe his individuality. The result is a book that it is a real pleasure to welcome; for it constitutes a contribution of the first importance not only to the history of medicine in America but to the history of physiology. It will take its place among the classics in medical biography and merits the widest distribution possible.

The Pituitary Body and Its Disorders. Clinical States Produced by Disorders of the Hypophysis Cerebri. An Amplification of the Harvey Lecture for December, 1910. By Harvey Cushing, M.D., Associate Professor of Surgery, the Johns Hopkins University. Cloth. Price, $4. Pp. 341, with 319 illustrations. Philadelphia: J. B. Lippincott Company, 1912.

The anxiously expected monograph on the hypophysis has at last made its appearance. Those who have followed the author's labors in this new field expected an authoritative work from his pen. This monograph more than justifies expectations. The subject-matter is largely drawn from an enormous personal experience with the clinical and surgical affections resulting from hypophyseal disorders, supplemented by experiments on animals. The theoretical views advanced are in keeping with the latest thought. The case reports are well worth studying for their intrinsic merits; they are concise and yet complete and indicate the author's participation, rather than the transcribing of an ordinary hospital record. The text is profusely illustrated with excellent reproductions from photographs of patients, and the microphotographs and radiographic pictures are exceptionally fine. As this book is the outgrowth of the Harvey lecture for 1910, its style in places is quite literary in character, but if anything this is a merit rather than a fault in a monograph dealing with so many new facts. Every line mirrors the author, being peculiarly cushingian in its positiveness. In his systematic summary of the entire subject Cushing gives due credit to every worker in this new field and his bibliography includes 256 references. While many of the views expressed will undoubtedly need modification as soon as new experiences accumulate, at the present time this monograph reflects the most modern and mature thought on the hypophyseal disorders.

Collected Papers by the Staff of St. Mary's Hospital, Mayo Clinic, Rochester, Minn. 1911. Cloth. Price, $5.50 net. Pp. 603, with 250 illustrations. Philadelphia: W. B. Saunders Company, 1912.

This volume includes the papers of the Mayo Clinic for 1911 and naturally a large variety of subjects is considered. The greater part of the book is devoted to the alimentary canal and the genito-urinary organs. Ductless glands receive a comparatively small share of attention. Of special interest is the group of papers on diagnostic aids, including radiographic diagnosis and the use of the cystoscope. The paper by Dr. J. H. Selby, on "Collaboration in Radiographic Diagnosis," is profusely illustrated. The papers on the ductless glands are by Dr. Charles H. Mayo, with one on "Parathyroids and Their Surgical Relations to Goiter" by Drs. Charles H. Mayo and Bernard F. McGrath. The book closes with an obituary of William Worrell Mayo, the father of the Mayo brothers, who died March 6, 1911, at the age of 92.

Lectures on General Anesthetics in Dentistry. Advocating Painless Dental Operations by the Use of Nitrous Oxid, Nitrous Oxid and Oxygen, Chloroform, Ether, Ethyl Chlorid and Somnoform. By William Harper DeFord, A.M., D.D.S., M.D., Dean and Professor of Oral Pathology and Anesthetics, Drake University College of Dentistry. Cloth. Price, $2.50. Pp. 312, with illustrations. Pittsburgh: Lee S. Smith & Son Company, 1912.

Many new appliances for the safe administration of anesthetics have been introduced to the profession during the past year. The second edition of this most valuable work is made necessary to bring the account of these later inventions up to date. The first chapter is devoted to the subject "Has the Dental Surgeon the Right to Administer General Anesthetics?"

After discussing the merits of general anesthetics the author concludes that the dentist has the right to administer them if he possesses the requisite knowledge, skill and experience. On the other hand, he has not the right to administer anesthetics unless he is familiar with their effects and can show his proficiency in this respect. The author then discusses the value of general anesthetics in dental operations. He shows the necessity of reducing pain to the minimum in the different operations, such as preparing cavities and extracting teeth. The subject of shock in preparing cavities of the teeth and a general discussion of anesthetics follow.

Pathologie des Herzens. Von A. Vogt, ö. Professor der allgemeinen Pathologie an der kaiserlichen Universität Moskau. Autorisierte Uebersetzung aus dem Russischen, von Dr. Julius Schutz. Paper. Price, 8 marks. Pp. 168, with 20 illustrations. Berlin: Julius Springer, 1912.

This monograph presents in clear, concise and readable form the essential facts of cardiac pathology, the subject being approached from the side of pathology rather than from that of the clinical manifestations, diagnosis or treatment. Cardiac diseases, as a rule, are clearly traced to anatomic lesions, and the proper emphasis is laid on the resulting disturbance of function. The subject is presented in the form of eight lectures. Facts are clearly distinguished from theory, animal experiment is often adduced in support of the views advanced, and a knowledge of the clinical manifestation of heart disease is evident. The author shows familiarity with the literature. There is a lack of discussion of some of the more recent work on the heart, which omission is frankly stated in the preface. An extensive bibliography is found at the end of the work.

The Practitioner's Visiting-List for 1913. Leather. Price, $1.25. Pp. 192. Philadelphia: Lea & Febiger, 1912.

Among the useful data in this visiting-list are: periods of dentition, weights and measures, comparative scales, examination of the urine, important incompatibles, poisons and antidotes, table of doses and therapeutic reminders. The best hint given, however, is in the first line: "Keep your visiting-list in such a way that you can fully explain it." This sentence alone is worth the price of the book, because physicians are sometimes haled into court because of a dispute about the bill for services rendered, and at such a time an "explainable" visiting-list has often been the means of securing a decision in the doctor's favor. This book is of convenient size, well bound in red leather, and printed on good strong paper. Provision is made for keeping a record of visits, vaccinations, confinements, addresses and a cash account.

The Cheerfulness of Death. By W. W. Keen, M.D., LL.D. Paper. Price, $0.15. Philadelphia: The Griffith and Rowland Press, 1912.

This neat pamphlet contains, besides helpful extracts from Holmes, Tennyson and Newman, words of Christian encouragement concerning the crossing of the bar and the life beyond. It is well designed to minimize the apprehension which a patient may have on considering the approach of death.

Medicolegal

Operating Without Consent of Patient—Common-Law Rule Must Be Adapted to the Employment of Anesthesia in Surgical Operations—Surgeon is Patient's Representative

(Bennan vs. Parsonnet (N. J.), 83 Atl. R. 948)

The Supreme Court of New Jersey holds that a verdict for $1,000 damages for alleged malpractice cannot be permitted to stand, being against the clear weight of evidence. It says that the plaintiff applied to the defendant to operate on a rupture in his left groin that had been unsuccessfully operated on two years before by another surgeon. On learning that the plaintiff was a poor man, the defendant engaged to operate free of charge. At the time fixed for the operation the plaintiff was placed under the anesthetic by two assisting surgeons who, when the defendant came into the operating-room, directed his attention to a rupture they had just discovered in the patient's right groin, which, on examination and the employment of the usual diagnostic tests, was determined by the three surgeons to be a serious menace to the patient and likely to cause his death should strangulation occur, dangers not to be apprehended from the rupture that had once been operated on. The defendant thereupon operated on the more serious rupture, intending to operate also on the other, which he was prevented from doing by the patient's condition under the anesthetic. The patient on being informed that the operation would be completed on a following day, apparently acquiesced, but later declined to go on with the operation, and brought this action against the defendant for assault and battery.

The trial judge charged the jury that the operation was a legal wrong to the plaintiff, unless he had consented to its performance, explaining to them that such consent as to conditions discovered after the operation had actually commenced might be inferred from circumstances, and that it should be inferred if the condition thus discovered endangered the life or health of the patient, leaving to them the question whether the condition for which the defendant had operated was of that character. On the question thus submitted to the jury, the evidence was overwhelming against the verdict. The testimony of unimpeached medical witnesses that the rupture that was operated on was a serious menace to the health of the plaintiff, and even to his life, should it become strangulated, was not even attempted to be contradicted. On this point the testimony of the witnesses, who had personal knowledge of the facts, was corroborated by that of a witness who was shown to be a surgeon of great experience and a recognized authority in his profession. A verdict rendered in the face of this testimony could rest only on the assumption of superior knowledge by the jury. The duty of the jury was to render a verdict on the evidence, and that it did not do.

The verdict must, therefore, be set aside without regard to whether the question that was left to the jury was or was not the precise question that should have been submitted to them, although the court thinks that it was not. It is true that the judge in his charge laid down the common-law rule with substantial correctness, but it is also true that the introduction of anesthesia into the practice of surgery has modified the application of the common-law rule in certain fundamental respects of which the law must take notice. The trial judge in his charge followed the opinion of Judge Brown in Mohr vs. Williams, decided by the Supreme Court of Minnesota, 95 Minn. 261, which, as annotated in 1 L. R. A. (N. S.) 439, correctly presents the common-law rule on the subject. That rule is thus stated in 1 Kinkead on Torts, p. 395: "The patient must be the final arbiter as to whether he shall take his chances with the operation or take his chances of living without it. Such is the natural right of the individual which the law recognizes as a legal one. Consent, therefore, of an individual, must be either expressly or impliedly given before a surgeon may have the right to operate." In general justification of this common-law rule, Judge Brown says in his opinion: "There is logic in the principle thus stated, for in all other trades, professions, or occupations contracts are entered into by the mutual agreement of the interested parties, and are required to be performed in accordance with their letter and spirit. No reason occurs to us why the same rule should not apply between physician and patient."

Without stopping to point out the fallaciousness of the premise that a surgical operation can be contracted for or performed according to plans and specifications, it is enough to say that the entire foundation of the supposed analogy is swept away by the surgical employment of anesthesia, which renders the patient unable to consent at the very time that the rule of the common law required that his consent be obtained; for in those days the patient (such was the horror of it) was a conscious participant in such surgical operations as were then performed, and as his consent could be obtained the rule of the common law was that it must be obtained. The surgical employment of anesthesia has, as matter of common knowledge, not only eliminated the possibility of obtaining the patient's consent during the operation, but has also had other radical effects of which notice must be taken. Thus it has rendered possible and of everyday occurrence surgical operations of a character and magnitude not dreamed of at the time the common law was in the making, and, as a matter of practical moment, has also advanced the period that marks the commencement of a surgical operation from the time when the patient's body is actually invaded by the knife to the time when the anesthetic is administered, or at least when the patient has succumbed to its influence. The employment of anesthesia has also postponed to this same period of relaxation and unconsciousness the making of that complete and final diagnosis of the patient's condition that at common law was made at a time when he could be both informed and consulted. By these considerations the scope of modern surgical operations has been greatly enlarged, and the legal rule applicable thereto extended beyond the emergencies of actual surgery to other matters more or less vitally affecting the patient's welfare. To meet these changed conditions, the rule of law must, in the interest alike of the patient and the surgeon, be adapted to the changes that have been so wrought, chief among which is the unconscious state of the patient at a time when by the common-law rule his consent must be obtained. To meet this fundamental change in the condition of the patient, it is imperative that the law shall in his interest raise up some one to act for him—in a word, to represent him in those matters affecting his welfare concerning which he cannot act for himself because of a condition that has become an essential part of the operation.

If such a representative has been chosen by the patient himself, the rule we are considering has no application, but, if no one has been so appointed, the law by its constructive power will raise up such a representative without which the welfare and even the life of the patient might be needlessly sacrificed. To meet the requirements of the case, such representative should not only keenly appreciate the nature of the duty that is thus cast on him, but also be possessed of the knowledge and skill to perform such duty with wisdom and promptness. He should also be one in whom the patient reposes confidence and on whose judgment he would presumably rely. The surgeon whom the patient himself has selected alone fills all of these requirements, and hence on him the law would cast the responsibilities of this office by the legal implication that the patient intended him to act for him when he had made no other selection.

This implication accords with those analogies of the common law by which prompt and timely aid to accidentally injured or unconscious persons is secured from those not expressly authorized to render it. And I (the court's opinion was prepared by Justice Garrison) have no doubt that, should such an accident occasion a depression of the skull that rendered the injured person unconscious, the consent of such person to the necessary surgical operation would be implied at common law, although I find no such reported case. A like analogy to some extent is found in the American decisions touching actions for compensation for services rendered to unconscious persons, a topic on which the English cases are silent owing to that hallucinatory honorarium on which the learned professions in Great Britain are supposed to rely for their subsistence. At bottom these analogies all rest on the maxim that one is presumed to accept that which is beneficial to him, a doctrine that, if applied to commerce and the transfer of property, should surely be applied where life and health are at stake.

The conclusion, therefore, to which the court is led is that when a person has selected a surgeon to operate on him, and has appointed no other person to represent him during the period of unconsciousness that constitutes a part of such operation, the law will by implication constitute such surgeon the representative pro hac vice (for this disability) of his patient, and will, within the scope to which such implication applies, cast on him the responsibility of so acting in the interest of his patient that the latter shall receive the full benefit of that professional judgment and skill to which he is legally entitled. Such implication affords no license to the surgeon to operate on a patient against his will or by subterfuge, or to perform on him any operation of a sort different from that to which he had consented or that involved risks and results of a kind not contemplated. As to such matters, the rule in question submits nothing to the judgment of the surgeon, who as the implied representative of his patient can under such implication truly represent him only in so far as he gives to him the benefit of his professional wisdom within the general lines of the curative treatment agreed on between them, unless, of course, a wider discretion has been accorded to him. Within such general lines, however, much is necessarily left to the good judgment of the operating surgeon, just how much will depend on the circumstances of the individual case.

If the surgeon transcends his implied authority as thus defined, the question of his skill and wisdom is irrelevant, since no amount of professional skill can justify the substitution of the will of the surgeon for that of his patient; but where this is not the case, and where the act done or the decision made in the interest of the patient is fairly within the implied duty and authority of the surgeon, the question for the jury is whether on the evidence it appears that such professional skill and wisdom as the patient was entitled to receive had been exercised by the surgeon in his behalf, not whether in the opinion of the jury the surgeon had acted wisely or whether the patient had been benefited.

Such being the question for the jury, the admissibility of the technical or expert evidence on which it rests presents, as in other cases of relevancy, a preliminary question for the court which in the present case the trial judge rightly resolved in favor of the admission of such evidence. A ruling that the operation that was performed by the defendant was of a different sort from that to which the patient had consented would be based on too narrow a view. The condition for the cure of which the plaintiff applied to the defendant was rupture. He was therefore presumed to have contemplated all of the risks incident to an operation for such a condition. Now rupture is simply a protrusion of the intestine. Whether it occurs on the right side or on the left the intestine is the same, the muscular wall is the same, and the operation is the same, and its dangers and the risks are the same.

The real question is one to be settled, not by authority, but by reason, and its importance is such that it touches at a vital point the interests of the entire public, any member of which may at any time suffer in life or health by the establishment of a rule that will paralyze the judgment of the surgeon and require him to withhold his skill and wisdom at the very juncture when they are most needed, and when, could the patient have been consulted, he would manifestly have insisted on their being exercised in his behalf. This concluding suggestion may perhaps be ethical rather than legal, but it does seem that in good morals a patient ought not, in his efforts to obtain a money verdict, to be permitted to repudiate the sound judgment exercised in his behalf by the surgeon of his choice, in whose judgment he would unquestionably have concurred.

Society Proceedings

COMING MEETINGS

American Physiological Society, Cleveland, Dec. 26-28.
Southern Surg. and Gynec. Assn., Old Point Comfort, Va., Dec. 17-19.
Western Surgical and Gynec. Assn., Cincinnati, Dec. 20-21.

MEDICAL SOCIETY OF VIRGINIA

Forty-Third Annual Meeting, held in Norfolk, Va., Oct. 22-25, 1912

The list of officers elected for next year was given in The Journal, November 2, page 1636.

Gastric and Duodenal Ulcer

Dr. J. S. Davis, Charlottesville: In one case of supposed stomach ulcer, with pain felt directly on swallowing, a prune-seed was found imbedded in the lower esophagus. Males predominate among gastric ulcer patients, text-books to the contrary notwithstanding. Hasty eating and worry predispose, and this makes doctors specially liable. In one case the odor of hydrogen sulphid was present and the colon bacillus was found. Of forty-five cases seen at the University of Virginia, twenty-five were gastric; only three occurred in colored persons, two of whom were bright mulatto; the ages were from 18 to 65. The impregnation test is of some value; in this test the patient swallows the end of a thread and retains it in the stomach all night; then it is withdrawn and examined for blood, bile, etc. Roentgen-ray examination will show deflection of the peristaltic wave at the ulcer.

Medical Treatment of Gastric and Duodenal Ulcer

Dr. J. G. Nelson, Richmond: Little that is new has been added in the last year or two. Why should not incisions and needle-wounds become ulcers? They do not. There is the same neuropathic condition, the same neuritis or definite microbic invasion. A local diminished resistance is now accepted as the most tenable theory. A large percentage of patients recover if properly handled. Acute non-perforating ulcer should be exempt from incision. Practically rest, regulation of the diet, bismuth and epinephrin make up most of the treatment, and of these rest is the most important. The stomach wall must be kept still. Rectal feeding may be used; no long tube is required, but injection should be made slowly, at six-hour intervals. Concentrated solutions of sugar are irritating, but cane-sugar less so than grape-sugar. Bismuth subcarbonate may be given in doses of from 300 to 400 grains; no constipating effect need be feared; or chalk, 1 dram in a little water, may be given. Treatment should be long enough, and the patient kept under observation a year or more. For hemorrhage, morphin is the best agent.

Surgical Treatment of Gastric and Duodenal Ulcer

Dr. Lomax Gwathmey, Norfolk: Bear in mind the possibility of acute perforation, and obtain prompt surgical consultation if this occurs. Acute hemorrhage is not always an indication for surgical treatment. Immediate gastrojejunostomy will control. Repeated hemorrhage demands operation. Experience makes me advocate early operation. It is important to recognize symptoms, and not to give cathartics or morphin, masking the symptoms for the surgical consultant. Right rectus incision gives the best results, and speed spells success. Look for multiple ulcers.

Pyloric Ulcer Secondary to Appendicitis, Colitis and Other Foci of Infection Within the Portal Area

Dr. G. Paul LaRoque, Richmond: Bacterial cultures are invariably positive in tissues taken from chronic gastric ulcer. Chronic appendicitis presents striking similarities, and also differences. As to ages, the average for appendicitis is 25 years, for pyloric ulcer 34, for biliary calculi 39, for duodenal ulcer 45, and for gastric ulcer 48. Acute ulcer can be produced by experimental infection. The first part of the duodenum soon will not be called duodenum at all, but part of the stomach. It has no valvulae conniventes. Pyloric ulcer is probably always primary.

DISCUSSION

Dr. W. P. Carr, Washington, D. C.: Slowing of food in the stomach, shown by skiagram, may be due to anatomic stricture or spasm of the pylorus; when the latter, on operation no apparent change is seen in the pylorus. It is produced by irritating substances in the stomach, acting either at long intervals or constantly. In all chronic ulcers, there is some form of obstruction. Patients may recover from acute ulcers, but they nearly always recur. The chronic ulcer is always surgical from the beginning. The coincidence of appendicitis, gall-bladder infections, etc., with stomach ulcer, does not show appendicitis, etc., to be the cause, but vice versa. Infection travels downward, not upward.

Dr. J. S. Horsley, Richmond: One point I wish to emphasize is that chronic indigestion, unrelieved by medicines in about six or eight months, is a surgical condition.

Dr. P. S. Roy, Washington, D. C.: In differential diagnosis, the hemoglobin index plays an important part. I recently had a patient, a neurotic girl of 22, with hematemesis, who had been treated by a distinguished Boston man. I found that this bore relation to menstrual periods. I treated only the nervous condition, and the patient seems to have recovered entirely. I do not think it common for cancer to start on ulcer.

Dr. I. S. Stone, Washington, D. C.: We see these associated lesions constantly in cases in which we operate, such as fibroid tumors, etc., when no suspicion of stomach ulcer exists.

Dr. George Tully Vaughan, Washington, D. C.: If symptoms are evident, submit the case to medical treatment for six or eight weeks; if no relief follows, then call in a surgeon. It is a mystery why surgeons hesitate to operate in acute hemorrhage. In nearly all other forms of acute hemorrhage they operate right away. The obvious thing to do is to stop the hemorrhage in gastric ulcer as in typhoid perforation. All agree as to the propriety of operating in chronic cases. Pylorectomy is the ideal operation for this condition. Take out the pylorus if your patient can stand it.

Dr. Kirkland Ruffin, Norfolk: The important thing to decide is whether the digestive disturbance comes from conditions in the abdomen or other general conditions. I operated in two cases of gastric disturbance in pellagra, the skin symptoms being dormant.

Old and Modern Theories of Fetal Development, with Report of a Case of Boy with Three Legs

Dr. Stuart McGuire, Richmond: This child was born with three legs of equal length, the third leg being attached to the pubes just above the penis. The mother was satisfied that it was the result of maternal impression. She was advised to wait till the child was 2 or 3 years old, and then have it removed. Nothing further was heard of the case until last summer, when the youth was brought to me, 13 years old. The leg had been carried doubled on the abdomen and held by a bandage. There was no patella, and the foot had nine toes. The leg was removed and the boy made a perfect recovery.

Protection and Repair of the Perineum

Dr. Greer Baughman, Richmond: I deliver with the patient in the lithotomy position until the head is about to be expelled. Then I bathe the vulva and thighs in sterile solutions, compound solution of cresol, etc., give an anesthetic to the obstetric degree, have the nurse extend the legs and evert the feet, bringing the thighs as close together as possible with the heels in and the toes out, and I gather up the fascia and try to deliver between pains. In delivering the shoulders I have to have more room, so I separate the thighs a little. The advantage of extending the thighs is that the skin from the buttocks is put at the disposal of the perineum. The method was suggested by Dr. Charles Robins. If tear occurs, I repair at once, using separate catgut suture for each tear; if the rectum is torn, silkworm-gut suture may be used.

Indications for Cesarean Section

Dr. Virginius Harrison, Richmond: Placenta praevia, eclampsia, contracted pelvis, tumors and cancer of the cervix, vagina or rectum, are the indications for the operation. The vaginal route is not indicated in many cases in my opinion; even if the child lives you generally have a badly torn perineum, and the other way you have a clean wound to heal. The vaginal route seems to be the choice of most operators in eclamptic cases. Physical incapacity of a senile uterus may be put down as a sixth indication. Inaction is the worst possible policy in eclamptic cases.

DISCUSSION

Dr. R. L. Payne, Norfolk: Mortality statistics on placenta praevia are unreliable. Repeated tamponades and repeated examinations are liable to infect. The proper treatment of placenta praevia begins when the hemorrhage begins and admits of no delay. We have no right to jeopardize the life of the mother while waiting for the viability of the child. Statistics do not show so favorably as to the lives of mothers; only a few more children are born, of whom a large percentage die later. The game is not worth the candle. Statistics come largely from the hospitals. Another argument against this is, if we establish this rule the mortality will be very high, because most patients cannot be taken to hospitals.

Dr. Stephen Harnsberger, Catlett: I have had three craniotomy and three placenta praevia cases; the mothers all lived and the children all died. In all six cases cesarean section should have been done. It is a justifiable and proper operation.

Dr. A. B. Hooe, Washington, D. C.: Dr. Harnsberger did not make it so emphatic as he should; the operation should be resorted to if speedy delivery is necessary, in eclampsia and placenta praevia especially. When disproportion between the size of the head and the natural passages exists, cesarean section is always resorted to. Perhaps epileptics are sometimes caused by the use of high forceps, or by the child remaining in the birth canal too long. I condemn high forceps.

Dr. W. E. McGuire, Richmond: Every case should be treated according to individual indications. I have never seen a case in which placenta praevia was an indication for cesarean section. Treatment should be given at the time of the first hemorrhage. I have never done cesarean section for hemorrhage, but have done it for dystocia and eclampsia.

Dr. George Tucker Harrison, Charlottesville: I use the abdominal way only in central implantation and in contracted pelvis. I have tried the old game of morphin and eliminatives, but the sooner you empty the uterus, the sooner you save the mother.

Treatment of Fracture of the Femur

Dr. A. R. Shands, Washington, D. C.: The chief responsibility is to prevent shortening, and muscle spasm the chief factor to overcome, a spastic contraction of the most powerful muscles in the body. Overcome the muscle contraction, hold the fragments in place and apply a spica from the nipple to the toes. Make a skiagram to see if leg is in proper position. If you cannot hold the fragments in apposition by reason of obliquity of the fracture, then operate.

DISCUSSION

Dr. S. S. Gale, Roanoke: Recently I visited a hospital in Colorado, and there saw three or four cases of fracture of the femur. I learned a point worth remembering, the use of a Buck's extension with excessive weight, 30 to 50 pounds, depending on the muscular strength to be overcome. I have tried it in one case, in a muscular colored man with fracture near the neck of the femur. My assistant put it up first, with 15 or 20 pounds. Pain persisted. I put on 50 pounds, the limb came down, the muscle was paralyzed, and the man obtained immediate relief from pain. I kept it on two weeks or more, when the muscle was thoroughly paralyzed; then I used a plaster cast. I prefer to plate or wire by the open method. Interposition of muscle tissue aften prevents union.

Dr. George Tully Vaughan, Washington, D. C.: It is much easier to use this in children than in adults. I have used Lane plates almost constantly in place of wire; they do not slip as wire does. Nevertheless they are necessary evils. Do not use them unless necessary.

The Work of Health Departments

Dr. E. C. Levy, Richmond: The Virginia Public Health Association has the most important function of any body of men in the state. Health officers should not only be trained in practical science, but should be conversant with the business end as well. Training as a physician does not train one as a health officer, but it will be many years before we have other than practicing physicians as health officers in the smaller places. If he cannot acquire the information before, he must do it after he is inducted into office.

A System of Segregated and Protected Prostitution

Dr. P. S. Schenck, Norfolk: The scope depends on the size of the town and the amount of funds. The per capita taxation required is greater in small communities than in large, 50 cents per capita in the smaller, and 40 cents in the larger cities per year. This expenditure pays large dividends in the way of inducing investments. There are only two cities in the United States, so far as I know, in which a systematic inspection of the segregated area is in operation; these are Norfolk and San Francisco. We require the landlady to report the arrival or departure of any inmate. On complaint of infection we send a police officer and a doctor. We have four inspectors. There was so much complaint from the U. S. Navy of men becoming infected at Norfolk that we had to do this. We invoked the aid of the police department and made a canvass of every house in the city. We inspect and take swabs; if clean we issue cards good for fifteen days. Each inmate is reported, and cannot "have company" unless she has her card posted in the room. A fine of $50 and costs is imposed for failure to comply with these requirements, repeated frequently if need be. If an inmate is found infected, she is put in quarantine and in charge of a physician. If she cannot pay she is treated by the city. Venereal diseases are not legally reportable here, but often are reported. If complaint is made to us of infection, and the man will cooperate, we send a police officer with him. He identifies the woman, and she is quarantined and treated. Our system has proved eminently satisfactory.

Dr. E. G. Williams, Richmond: Our work has reduced the number of typhoid cases in the state nearly one-half, and the cases of tuberculosis are reduced about 4,000. Curiously diphtheria has apparently increased. I think this is due to giving immunizing doses, which do not prevent the recipients from becoming carriers. The number of cases has increased, but the death-rate has decreased from 7 to 3.5 per cent.

The Cause of Death in Intestinal Obstruction

Dr. Harvey B. Stone, Baltimore: Three classical ideas are maintained: (1) general infection, (2) overwhelming nervous centers, (3) toxic absorption. As to the third, ideas have been vague, and our experiments on dogs bear on this particular idea. We were forced to the conclusion that the toxic material was the secretion from the mucous membrane, the obstruction leading to a perversion of its physiology, somewhat analogous to exophthalmic goiter. These observations confirm clinical experience as to drainage. We found that the toxin is much richer in the cases of high obstruction than in low. To correlate our experiments, we were fortunate enough to obtain similar material from two cases in man. This was as toxic as that from the dogs.

Dr. J. S. Horsley, Richmond: I have always had a suspicion that this material was in the mucous membrane, but why does it act this way? Is it caused by the interference with the lumen or with the circulation? I think it must be with the circulation. It has a practical bearing on, say, intussusception. In two cases of this I resected, and the patients recovered, while in a reduction in two cases, one patient died with high temperature and cerebral symptoms.

Blood-Pressure

Dr. J. W. Preston, Roanoke: I addressed a series of questions to five authors of leading text-books. 1. "Do your observations lead you to believe the normal blood-pressure during pregnancy, preceding the onset of labor, to be higher than in the non-pregnant?" B. C. Hirst and J. C. Edgar hold that there should be no rise; J. C. Webster states that there is usually a slight rise; E. C. Davis says that there is a uniform rise of from 10 to 30 mm. 2. "Do you find toxemias leading to eclampsia, either in the presence or absence of albuminuria, uniformly accompanied by an abnormal rise of blood-pressure?" All replied in the affirmative, including J. W. Williams, though Davis notes in certain desperate cases that it may be abnormally low. 3. "Do you consider blood-pressure estimation of material aid in the prognosis and treatment of such cases?" All replied in the affirmative, and Williams adds, "The higher the blood-pressure in the pre-eclamptic state, the less amenable I consider the patient to prophylactic treatment."

KENTUCKY STATE MEDICAL ASSOCIATION

Fifty-Seventh Annual Meeting, held at Louisville, Oct. 28-31, 1912

The President, DR. D. O. HANCOCK, Henderson, in the Chair

The officers elected were named, November 9, page 1726.

Serum Treatment of Cerebrospinal Meningitis

DR. DONALD K. CLARK, Louisville: The curative effects of the serum depend on its early use. This, in turn, depends on the early diagnosis. All suspicious cases should be subjected to lumbar puncture, and the spinal fluid examined for the meningococcus. By the early use of the serum the mortality may be reduced 15 or 16 per cent. The introduction of fluids into the spinal canal is never devoid of danger. No hesitancy should be felt about giving repeated doses of the serum. A case that does not respond to four doses may respond to eight or more.

Typhoid Carriers

DR. A. DIXON, Henderson: All carriers should have individual articles which they use in every-day life, such as dishes, basins, towels, etc. Water-closets used by carriers should receive regular and systematic disinfection, and carriers should be required to disinfect their hands after each visit to the water-closet. Thoroughly washing with soap and water suffices in carriers of some occupations, but if there is a possibility of the carrier handling foodstuffs, an antiseptic solution should be used in addition. The administration of typhoid vaccine as a cure for carriers seems to give better promise than any other procedure.

Blood-Pictures in Tuberculosis

DR. EVERETT MORRIS, Sulphur: Blood-pictures in pulmonary tuberculosis show, as a rule, a low percentage of hemoglobin, a normal or increased number of erythrocytes, a subnormal color-index, an increased number of leukocytes, an increase in polymorphonuclears and a decrease in mononuclears, small lymphocytes and eosinophils as the disease progresses. The transitional cells appear to remain constant without regard to stage, extent or activity of the infection. Leukocytic pictures in pulmonary tuberculosis portray more accurately the patient's resistive force than does the extent of the lesion. Arneth's differential neutrophilic count is practical and no examination is complete in tuberculosis without the blood-pictures.

Infant Mortality, Its Causes and Prevention

DR. HENRY ENOS TULEY, Louisville: As far back as 1893 it was shown by Eross, who studied the statistics of 1,439,056 children in sixteen large European cities, that 10 per cent. of the children born alive die within the first four weeks of life. This mortality was greatest on the first day and diminished each day as the child grew older. Further, congenital debility is given as a cause of death in 54 per cent. of infants which died within four weeks after birth. Prof. Irving Fisher states that in a series of 100 cases of premature births, 40 were preventable; of 100 children dying of congenital debility 40 might have been saved; and of 100 children dying of venereal diseases 70 might have been saved.

The question of feeding the new-born infant is paramount in a discussion of this subject. More cases of athrepsia, malnutrition and acute gastro-intestinal disturbances with a fatal ending have their origin in an improper diet during the first few weeks of life, than from any other cause. The community plan of caring for infant welfare is productive of the greatest good in the reduction of infant mortality. Wilbur Phillips has estimated that the average cost of caring by preventive methods for the health of one baby for one year is $6, and the average cost to parents in Milwaukee to rear babies to the average age to which they die (about four months), of paying for confinement, for baby carriages, doctor's bills, etc., is $120. He estimated then that saving the death of one baby would pay the community for providing medical and nursing supervision for twenty babies for an entire year. By establishing stations in the localities where statistics show the greatest morbidity and mortality to be, which would be a center for dispensing clean, cold milk for caring for the mothers of all babies in the district, and for providing medical and nursing service, to be paid for by the city, many babies will be saved to society and a great financial saving brought about to the community.

Self-Medication

DR. J. H. HOHNSTEDT, Fort Thomas: When the laity awakens to a realization of the harmful effects in the indiscriminate use of self-prescribed remedies, and gives them up for those scientifically indicated after an intelligent diagnosis has been made, we may look forward to a better race in which all preventable diseases will gradually be eliminated. The laity will learn that hygienic conditions and a properly prescribed remedy are essential to the preservation of health and the cure of diseases. The admissions to our insane and blind asylums will gradually decrease in number and our criminally defective will become fewer, thus permitting our asylums to become hospitals and homes for the sick and aged.

The Passing of Destructive Operations in Obstetrics

DR. EDWARD SPEIDEL, Louisville: Craniotomy is justifiable on the living child in undoubted cases of hydrocephalus. Under all other circumstances delivery should be effected by abdominal cesarean section, if not possible by the vaginal route. A destructive operation is necessary on the dead child in impacted shoulder presentations. In all other cases, delivery should be attempted by version, and in extreme cases of pelvic contraction, even the dead child should be delivered by cesarean section, as the safest and most conservative method for the mother.

Endometritis

DR. WILLIAM L. MOSBY, Bardwell: Curettage of the uterus should be done in the infectious and chronic forms of endometritis that have proved rebellious to local and constitutional methods of treatment. When inflammation exists in the adnexa with immovable uterus, sensitive to the touch, there is increased danger of lymphangitis or peritonitis. The dull curet, like the uterine sound in these cases, is equally to be condemned as it opens up new avenues, supplies fresh material for infection and is powerless for good. This important gynecologic operation should be done only under proper surgical environment and with sufficient surgical skill to promise the patient all that modern gynecology offers.

Pellagra as a Public Health Problem

DR. O. P. NUCKOLS, Pineville: A commission should have power to prosecute all measures of protection of the public, by having the power to isolate and remove to the hospital all patients with pellagra, within the hospital district, in whom a positive diagnosis can be made. All data connected with every case should be collected carefully and preserved, and each case made a special study. The commission should act in conjunction with the state board of health, and the county boards of health, in carrying out all measures of general sanitation in the pellagra district. The treatment carried out at the pellagra hospital should be of the most approved methods, including hydrotherapy and all other adjuncts that will be of advantage in arresting the disease. Until pellagra patients are segregated, and cease to be a source of further spread, pellagra will grow and flourish, but if it is dealt with promptly, scientifically and humanely, it will soon be a relic of history.

Pellagra in Eastern Kentucky

DR. J. H. HENDREN, Cary: The use of Indian corn and its products as a food has nothing to do with the cause of pellagra or with the continuation of its symptoms, even after it has been caused by some other agency. There is probably an intermediate host, but the evidence at the present time is not sufficient to incriminate the *Simulidae* of Sambon. No physician is justified in diagnosing a case as pellagra until the eruptive stage has appeared. Pellagra is not contagious *in utero*, nor can it be transmitted from mother to child through the medium of mother's milk. A large percentage of the cases appear to be associated with or are in the wake of some other disease, as measles or small-pox. The disease is caused by a microorganism. The germs of the disease are located principally in the brain and spinal cord, and ordinarily do not circulate in the blood-stream. The cure for pellagra will be found in the use of arsenical compounds, possibly one not yet brought out, and most probably one used intravenously. Until we know more of the cause of pellagra, segregation and prophylactic measures are useless. The eruption of pellagra is not due to the germs of the disease *per se*, but to the toxins generated by them. A large number of patients seem to develop an immunity to the disease, each attack growing less and less severe until the disease disappears. All proof of its transmissibility from person to person seems negative, although there is strong evidence that it is a house infection.

Acute Suppurative Otitis Media, Its Recognition and Treatment by the General Practitioner

Dr. C. T. Wolfe, Louisville: An important requisite to an early diagnosis is the ability to recognize a normal drum membrane. An early otoscopic examination will show a red and thickened drum membrane which, as the suppurative process advances, bulges into the external auditory canal, depending on the amount of secretion within the tympanic cavity. Soon the bulging seems to become particularly distinct in one or more segments, more especially in the posterior superior quadrant; in the more severe types large blebs may be present in the layers of the tympanic membrane. An incision should be made at this time, extending from Schrapnel's membrane to the floor, through the bulging part. This is imperative from the fact that should spontaneous rupture be permitted to occur, irreparable damage may be done to the drum membrane and other intratympanic parts from the pressure of the secretions. This operation is not difficult and the details are readily learned. We may look on the prognosis from a favorable point of view, provided that the case has been properly managed and has received modern treatment. The treatment resolves itself into two parts. The first consists in the alleviation of pain, evacuation of the pus from the middle ear, the maintenance of proper drainage and, if possible, the prevention of complications. The second consists in the removal of such factors as are conducive to a recurrence of the disease.

Diagnostic Errors in Diseases of Children

Dr. Robert H. Moss, Henderson: Every pediatrician of large experience knows that the pain of pleurisy and pneumonia in children is referred to the abdomen as frequently as to the chest. There are three things that a physician should always think of in the case of a child with an acute abdominal pain—pneumonia, appendicitis and intussusception—and I would emphasize most strongly the importance of careful and repeated examination of the lungs in all acute abdominal affections in early life. The inhalation of foreign bodies often gives rise to puzzling clinical pictures. The infant may have a suffocative attack, or paroxysm of coughing from which he quickly recovers; later on the symptoms of an acute bronchitis or pneumonia become manifest, and all too often the causative relation of the foreign body is unsuspected. I treated an infant for a bronchopneumonia for about two weeks, when one day during a severe paroxysm of cough, a wheat grain was expelled, after which recovery rapidly supervened.

Rachitis is considered by some authorities to be more frequently overlooked than any other disease. Doubtless one reason for the widespread failure to recognize this condition is that our attention has been generally centered on the changes; in other words, one of the terminal events. It is practically agreed by all pediatricians that underlying the syndrome there is a dietetic error, with a superadded digestive disturbance. Some authors contend that the accompanying indigestion is always present and is the chief contributory factor.

Management of Puerperal Eclampsia

Dr. W. B. Moore, Cynthiana: Many of the measures advocated from time to time in the management of eclampsia are worse than useless. Pilocarpin, at one time held in high esteem, is a dangerous drug in this condition. It strongly predisposes to pulmonary edema. The consensus of opinion to-day favors rapid delivery. The point in dispute is the method of emptying the uterus. This must depend on the condition of the cervix, the time of pregnancy, the surroundings of the patient and the skill of the attending physician. We believe that the greatest good to the greatest number will result from a campaign of education. Instruct the women of this country that any variation from normal health during the period of gestation may be the beginning of a serious condition, and that the safety of each lies in following the instructions of an intelligent physician. If this procedure is faithfully carried out, the management of eclampsia will be solved without the dangers of chloroform narcosis and surgical operations, in the desperate attempt to save these patients from an untimely grave.

Management of Placenta Praevia

Dr. Walker B. Gossett, Louisville: The first danger in placenta praevia is that of hemorrhage which may occur without any warning, the patient being at rest, or following coughing, sneezing, straining at stool or lifting. The degree of collapse will generally depend on the extent of the bleeding. The second danger is that of sepsis following the delivery, and these cases are more prone to puerperal sepsis; therefore absolute surgical obstetric asepsis must be observed; no objection can be made to the use of rubber gloves in these cases, as they have gone beyond physiologic labor and are in a pathologic condition. The first treatment for ordinary domestic practice, when the bleeding has to be arrested before labor has begun and when the cervix is not dilated, is the tampon; plug both cervix and vagina. When the cervix is dilated or dilatable to the extent of permitting two fingers being passed through it, I perform podalic version and deliver. As to rupturing the membranes, this should be done to the side if possible; if not, go through the placenta. Do not be hurried in the extraction of the child. The child's thigh and breech should be pushed through the cervix by the uterine contractors, not dragged through, unless there is some reason for making a quick delivery. I always depend on gauze plugging and my hand in these cases.

Perinephritis

Dr. W. L. Cash, Princeton: In the treatment of perinephritis, the patient should be put to bed and kept as quiet as possible throughout the attack. Hot fomentations or an ice-bag should be applied over the affected side, purgation should be by means of calomel, and urinary antiseptics should be given. If these measures fail to bring about resolution, and suppuration becomes inevitable, a poultice may be used to hasten the formation of the pus. When the abscess forms, the treatment is distinctly surgical. There should be free incision, thorough exploration and adequate drainage. The toxemia should be combated by generous diet, stimulants and tonics.

(*To be continued*)

COLLEGE OF PHYSICIANS OF PHILADELPHIA

Meeting held Oct. 2, 1912

The President, Dr. George E. deSchweinitz, in the Chair

The Spinal Cord in Pernicious Anemia

Dr. Robert N. Willson, Jr.: It is well to remember that there exist spinal cord and perhaps brain changes in every case of true pernicious anemia, and that many cases that fail of prompt recognition, owing to nervous symptoms, would at once become clear if this fact were kept in mind. The likelihood that both the clinical picture and the cord degeneration are secondary to and the direct result of a definite toxemia has been hinted at, but the nature and source of this toxin and its method of action are still matters of speculation. In my case there is a marked clinical indication of a pathologic intestinal process dating back to childhood and terminating only in the gastric crises which indicated, perhaps, the final influence of the auto-intoxication on the spinal cord. It seems evident that the toxemia led to the pernicious anemia, the spinal cord degeneration and sclerosis, and the fatal termination of the case.

Of no slight interest is the series of instances in the patient's near and immediate family connection of pathologic clinical pictures which suggested a definite relation between the pernicious anemia and combined sclerosis in my patient, the father's arteriosclerosis and uremic "stroke," the mother's aortic insufficiency and hepatic cirrhosis, with the renal sclerosis and angina pectoris of one aunt, and the pernicious anemia of another, to say nothing of the death of a third aunt (all three sisters of the mother) in an advanced stage of locomotor ataxia. The working of syphilis through the gastro-intestinal tract and its influence on the blood and on the spinal cord through a gastro-intestinal autotoxemia have not been so thoroughly considered, and this theory is offered not without a certain measure of plausibility in the case under study.

The Topography of the Valves of the Heart as Shown by the Roentgen Ray

Dr. George Fetterolf and Dr. George W. Norris: In the method adopted frozen sections of the thorax of formaldehyd-hardened cadavers were cut into horizontal sections an inch in thickness. Both sides of the valve leaflets of the exposed sections were painted with thick lead paint and photographed with the Roentgen ray. Fifteen bodies were thus studied with a view to determining the normal relationship of the cardiac valves to the anterior thoracic wall. Inasmuch as many of the bodies studied revealed pathologic topographic relations of the thoracic viscera, no normal standard could be established. The communication is therefore made in the nature of a preliminary report with a view to describing a hitherto unemployed and entirely feasible method of studying the position of the valves of the heart in health and disease.

Physical Examination of the Liver

Dr. Joseph Sailer: Examination of the liver involves: (1) The position of the upper border of liver dulness; (2) its contour; (3) the position of the lower border of liver dulness; (4) the position of the left border; (5) the character of the edge; (6) the character of the surface; (7) the palpability of the liver posteriorly which involves bimanual palpation; (8) the motility of the liver, and (9) the existence of pulsation.

DISCUSSION

Dr. Herman B. Allyn: In one of two cases seen last winter the patient was a boy who had a large liver as the result of cardiac disease. The boy developed late in the disease a fluctuating tumor on the surface of the liver at the usual site of the gall-bladder. This was supposed to be an enlarged gall-bladder, but later there appeared also other nodules about the size of marbles. The mass was distinctly fluctuating and, inasmuch as the blood gave a positive Wassermann, we looked on it as possible softened gummata. But at autopsy we found cysts beneath the serous coat of the liver. I never before saw nodules of this size and due to this cause. The other case was that of a woman with secondary sarcomatous mass developing beneath the left border of the liver which moved freely with respiration. It was found to be a mass connected with the omentum and not attached to the liver.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

November, CXLIV, No. 5, pp. 625-780

1 *Tertiary Syphilis of Liver. T. McCrae, Philadelphia.
2 *Maltose in Infant-Feeding. J. L. Morse, Boston.
3 Bismuth Poisoning. L. M. Warfield, Milwaukee, Wis.
4 *Weight Curves in Typhoid. W. Coleman, New York.
5 *Observations on Scarlet Fever, Diphtheria and Measles at Cincinnati Contagious Hospital. A. J. Bell, Cincinnati.
6 Studies on Motor Functions of Stomach by Use of Gastric and Duodenal Fistulas, Special Reference to Influence of Bitter Waters and Bitter Salts. T. R. Brown, Baltimore.
7 More Common Forms of Cardiac Irregularity, with Report of Case of Heart-Block. T. A. Claytor, Washington, D. C.
8 *Cryptogenetic Granulomatosis of Stomach. O. C. Gruner and E. J. Mullaly, Montreal, Canada.
9 Alimentary Hypersecretion of Chronic Ulcer as Shown by Lactose Test Meal. D. Roberts, Brooklyn.
10 Intermittent Spinal Claudication; Report of Two Cases. F. F. D. Reckford, Philadelphia.
11 Metastasis of Hypernephroma in Nervous System: Jacksonian Epilepsy Caused by Such Lesion. J. Collins and R. G. Armour, New York.
12 Metabolic Observations on Amyotonia Congenita. J. C. Gittings and R. Pemberton, Philadelphia.

1. **Tertiary Syphilis of Liver.**—Syphilis of the liver, McCrae says, presents a very varied clinical picture with prominent general symptoms in many cases, of which loss in weight is marked. The duration of the symptoms may be prolonged and there may be periods of improvement. Fever is a common occurrence. There are features suggestive of hepatic disease in the majority of the cases. Enlargement or tumor is the most common. This may suggest other conditions, especially malignant disease. General enlargement and the occurrence of nodules or large rounded masses are the most common. A striking feature is the relatively marked enlargement of the left lobe as compared with the right. The diagnosis may be obscured by other diseased conditions or the liver condition may be interpreted wrongly. Ascites is sometimes a difficulty. Knowledge of the features of hepatic syphilis and the therapeutic test are important aids. Treatment can influence the syphilitic process, but not its results (cirrhosis, amyloid).

2. Abstracted in The Journal, July 13, p. 139.

4. **Weight Curves in Typhoid.**—The results of Coleman's observation are summarized in one sentence. It is possible to maintain patients suffering from typhoid in weight equilibrium throughout the entire course of the disease by giving them sufficient food.

5. **Scarlet Fever, Diphtheria and Measles.**—During the last year observations were made by Bell on over 300 cases of scarlet fever. The following summary indicates the findings in the so-called classical symptoms and diagnostic signs: Scarlet fever, 315 cases. Onset with vomiting, 50 per cent.; onset with headache, 4 per cent.; onset with sore throat, 65 per cent.; eruption, whole body, 46 per cent.; eruption, partial, 35 per cent.; mouth pallor, 57 per cent.; rash on soft palate, 38.6 per cent.; membrane on tonsils, 29 per cent.; papillae enlarged, 56 per cent.; glazed tongue, 17.7 per cent.; anterior cervical glands enlarged, 95 per cent.; submaxillary glands enlarged, 72 per cent.; eruption gone from body, five and one-half days; desquamation began in six and three-quarter days; blood-count, leukocytes average, 17,000; polymorphonuclears, average, 78 per cent.; large lymphocytes, average, 6.3 per cent.; small lymphocytes, average, 10.1 per cent.; eosinophils, average, 2 per cent.; albumin, 11 per cent.; granular casts, 4 per cent.; hyalin casts, 2.5 per cent.; blood cells, 4 per cent.; myocarditis, 6 per cent.; irregular heart, 3 per cent.; murmurs, 8 per cent.; mastoiditis (no facial palsy in this series), 1 per cent.; arthralgia (all cases had an immunizing dose of diphtheria antitoxin), 6 per cent.; acetone, 49.5 per cent.; diacetic acid, 22.6 per cent.; indican, 73 per cent.; temperature gone in five and two-third days; nephritis, 2 per cent. The average white count of patients who died was 17.262. Preponderance of the staphylococcus may have influenced all leukocyte counts.

The so-called Pastia's sign in this disease, namely, the accentuation of the rash in the normal folds, especially on the anterior surface of the elbow, was not noticed except in a few instances, so that no significance has been attached to it. Of like importance is the Rumpel-Leeds phenomenon or the hemorrhages at the elbow from compression of the upper arm by means of a bandage.

With the use of the ordinary antistreptococcic serum made up of streptococci not from scarlet fever patients Bell has noticed little benefit even in doses of 80 or 90 c.c. in twenty-four or thirty-six hours. If, he says, it is used at all, it should be made from the streptococci from blood, throat or glands of scarlet fever cases. The results with these stock vaccines were not brilliant. Patients using vaccines had no local treatment. Irrigations were employed for the others. Except in one or two instances he could not see that the discharge was in any way modified by the vaccine, and on the whole those having local treatments ran a shorter course. The dosage in each case was started with about 200,000 and each succeeding dose was doubled at intervals of from two to ten days according to indications. This was carried up to 128,000,000 in some cases.

True relapses or reinfections were not observed, but delayed rashes occurred in one or two instances. Eighteen blood cultures were made during the year from scarlet fever patients. Of these nine were negative. In the other nine cases the *Staphylococcus pyogenes aureus* was recovered seven times and the *S. pyogenes albus* twice. The throat and nose cultures almost uniformly showed the presence of staphylococci, occasionally mixed with a few streptococci. Twelve cervical glands of scarlet fever patients were aspirated with aseptic precautions in an effort to corroborate the claims of Vipond made in the spring of 1911, that he had found the specific organism of scarlet fever in the glands of patients suffering from this disease. The cultures were sterile in nine cases; the *Staphylococcus pyogenes aureus* was isolated twice and the *B. pyocyaneus* once.

The following summary shows observations made on 76 cases of diphtheria: Onset with sore throat, 84 per cent.; onset with vomiting, 33 per cent.; membrane on tonsils, 85 per cent.; membrane on soft palate, 36 per cent.; inflammatory swelling, 30 per cent.; membrane gone on the average in two and seven-elevenths days; temperature normal on the average in three and three-quarter days; erythema (not from serum), 5 per cent.; urticaria (not from serum), 14 per cent.; otitis, 5 per cent.; albumin, 12 per cent.; adenitis, 47 per cent.; paralysis, soft palate, 5 per cent.; paralysis of other muscles, 4 per cent.; myocarditis, 16 per cent.; endocarditis, 28 per cent.; slow pulse, 4 per cent.; arthralgia, 2.6 per cent.; acetone, 28.5 per cent.; diacetic acid, 14 per cent.; indican, 32 per cent.; serum rashes, 16 per cent.; antitoxin, average dose, 40,000 units, highest dose, 355,000 units; blood-count: leukocytes, average, 13,633. The mortality for diphtheria as reported up to Jan. 1, 1912, was 3⅓ per cent.; while for scarlet fever it was 6.5 per cent.

8. **Granulomatosis of Stomach.**—The authors conclude that linitis plastica is not a new kind of morbid process, but is the effect of some chronic infective agent whose nature has not yet been determined. The process at work is often akin to the granulomatous process which occurs in mediastinal tissues and elsewhere; it is akin to the changes which occur in the course of some forms of tuberculosis and of diffuse sclerotic types of tertiary syphilis, and it is occasionally followed by the development of an epithelial growth, just as is sometimes noticed as a sequel to tuberculosis and syphilitic lesions. The disease known as linitis plastica, or cirrhosis of the stomach, only demands a separate name because it is clinically a simulator of true carcinoma. Its prognosis should be more favorable and its treatment by the surgeon more effective. The small degree of epithelial overgrowth which may be regarded by some observers as carcinomatous, is not really any greater in extent than are the atypical proliferations of epithelium which are known to result from the subcutaneous introduction of certain irritant lipoid soluble bodies. The suggestion is that the abnormal cells in this granulomatous tissue are pouring out substances which may excite the overgrowth of the glandular epithelial cells in the same way that many bodies (dimethylamidoazobenzol, amidoazotoluol, a-naphthylamine, methylimidazol, indol and skatol, etc.) were found to excite epithelial overgrowth by Wacker and Schmincke in 1911. This renders the development of carcinoma as a secondary process on a preexisting (often long-persistent) submucosal disease quite intelligible, and emphasizes the view which the authors would point out that the malignant change in this, as in "Hodgkin's disease," and in many lymphosarcomas (also in Paget's disease of bones), is not an inevitable sequence, but is superimposed by the succumbing of certain other tissues to the continued noxious action of abnormal cell-products.

Boston Medical and Surgical Journal

November 7, CLXVII, No. 19, pp. 639-671

13 Clinical Study of Respiration. D. L. Edsall, Boston.
14 *Pyelonephritis of Pregnancy and Puerperium. J. W. O'Connor, Worcester, Mass.
15 Adjustable Knee Support. H W. Marshall, Boston.

14. **Pyelonephritis of Pregnancy and Puerperium.**—From the study of twenty-nine cases and a review of the literature, O'Connor concludes that infection of the pelvis of the kidney invariably involves the parenchyma. Owing to its anatomic relations the right kidney is the more vulnerable. The disease is much more frequent than supposed; O'Connor estimates that it occurs once in every 3,000 cases. Malnutrition, constipation and tonicity of the abdominal muscles are predisposing factors; tendency to renal abnormalities on the right, dextro-torsion of the uterus and predominance of positions in the right oblique diameter favor the infection of the right kidney. Infection by the colon bacillus is the most common type, direct transmission through the intestinal walls being the probable mode of entrance. The pathologic picture shows the pelvis and ureter dilated with pus and miliary abscesses in and beneath the cortex. The cardinal symptoms are smarting micturition, chills, fever, nausea and vomiting, pain in the loin and elevation of pulse. The urine is turbid, purulent and albuminous. Tenderness in the region of the kidney is always present. Enlargement of the organ can be demonstrated in about one-fifth of the cases. Abortion and surgical kidney are the most common complications. The diagnosis can generally be made on physical signs and urine analysis, the differentiation from appendicitis presenting the greatest difficulty. Prognosis is usually good for the mother and less favorable for the child. Treatment by rest, sedation, catharsis and urinary antisepsis has met with success. The use of vaccines and pelvic lavage, if of any real value at all, entails dangerous delays and, being extremely technical, is beyond the scope of the rank and file of the profession. Early operation in cases that assume a surgical aspect is to be strongly recommended.

Bulletin of Manila Medical Society

September, IV, No. 9, pp. 155-160

16 Pathology of Infant Apropos of a Necropsy. F. Calderon, Manila.

California State Journal of Medicine, San Francisco

November, X, No. 11, pp. 449-490

17 Value of Prisms in Eye-Strain. A. S. Green, San Francisco.
18 Labor in Moderately Contracted Pelves, with Special Reference to Cesarean Section. H. J. Kreutzman, San Francisco.
19 *Operative and Postoperative Tonsillar Hemorrhage. W. S. Franklin, San Francisco.
20 Thrombosis of Sigmoid Sinus and Jugular Vein, from Direct Tympanic Infection of Jugular Bulb. Report of Two Cases. H. Hastings, Los Angeles.
21 *Some Opinions Concerning Tonsil Surgery. C. C. Stephenson, Los Angeles.
22 Review of Recent Italian Eye Literature. V. F. Lucchetti, San Francisco.
23 Patulous Anus: Its Clinical Significance. A. J. Zobel, San Francisco.
24 Stenosis of Duodenum Due to Gall-Stones; Operation; Recovery. W. C. Voorsanger and C. G. Levison, San Francisco.
25 Cancer of Uterus. E. C. Mann, San Diego.
26 *Pellagra in California. V. H. Podstata and O. C. Willhite, Livermore.
27 Significance of Bacteria in Milk. S. Levin, Napa.
28 Hereditary Pigmented Nevus. A. Soiland, Los Angeles.
29 Complete Transposition of Viscera. F. W. Birtch, San Francisco.
30 Case of Pyema. W. B. Coffey and W. T. Cummins, San Francisco.

19. **Operative and Postoperative Tonsillar Hemorrhage.**—Franklin says that no patient should be permitted to leave the operating table until both cavities are dry. Every case of delayed primary or secondary hemorrhage he has encountered has given evidence, while on the operating table, of a tendency to bleed. At present he sutures every case in which, after ten minutes from the enucleation, the bleeding has not been stopped. He sees no possible objection to this procedure. The deformity is no greater following sewing than due to the cicatricial contraction of the average healed case. Following hemorrhage it is well to put the patient on a saline injection given by the Murphy drop method, and if the loss has been considerable the foot of the bed should be elevated, and morphin given subcutaneously. He emphasizes the importance of treating tonsillar hemorrhage surgically, i. e., by mechanically compressing the bleeding vessels. The Mikulicz tonsil hemostat is an old-fashioned, barbarous instrument. When applied it is

extremely uncomfortable to the patient and has a constant tendency to become dislodged. If held sufficiently tight to retain its position, it keeps the patient awake with saliva flowing from his mouth, pain over the wound and angle of the jaw and causes the sponge to adhere firmly to the cicatrizing surface. Franklin does not consider it safe or good practice to rely on chemical means for control of bleeding. It must be remembered that vaso-constrictors cause a secondary dilatation of the blood-vessels.

21. **Tonsil Surgery.**—Stephenson believes that a tonsillectomy is as severe, and should be classed, in point of gravity, the same as an appendectomy. He holds that all hypertrophied tonsils without lesion or grave complications should be removed. All tuberculous tonsils with lesions should be treated medically and never surgically. All tonsillcetomies should be performed under general anesthesia, unless the condition of the patient is such that a general anesthetic would be dangerous. All tonsillectomies should be hospital cases, i. e., the operation should be performed in a hospital. All tonsillectomies should be followed by the passage of an adenoid curet. All curettages following a tonsillectomy should be followed by the passage of the finger. The hot wire ecraseur should never be used.

26. **Pellagra in California.**—The most important conclusion reached by the authors is that pellagra has been found to exist in three cases out of 180 consecutive cases admitted to a private sanatorium. None of the three cases was imported to the western coast, but evidently originated there. None of the patients belonged to the poverty stricken class of people. In all cases, however, nutritional disturbances preceded a long time the development of definite evidences of pellagra. In one case there is a definite history of long use of vegetable oils and this case happened to be the most acute, affecting the nervous system to the greatest extent and terminating fatally in the shortest time. All three cases evidently originated without any infection from similar cases and there is no evidence that anyone was so afflicted as a result of contact with them. While it is not claimed that pellagra had been a causative factor in the mental or nervous breakdown of any of the three cases, it is evident that in every case it has greatly and in a detrimental way influenced the mental and nervous condition. Cacodylate of sodium, tried in two of the three cases has not had any lasting beneficial effect on the disease. The same is true of all other treatment attempted.

Cleveland Medical Journal

October, XI, No. 10, pp. 693-762

31 Importance of Hospitals for Infants and Their Part in Prevention of Infant Mortality. L. E. Holt, New York.
32 History of Legislation in Ohio Regulating Practice of Medicine. L. H. Winch, Cleveland.
33 Treatment of Chronic Constipation. E. O. Houck, Cleveland.
34 Open-Air Schools of Cleveland. J. C. Placak, Cleveland.
35 Gastric Ulcer. J. Phillips and V. C. Rowland, Cleveland.

Journal-Lancet, Minneapolis

November 1, XXXII, No. 21, pp. 561-585

36 *Abdominal Incisions. R. E. Farr, Minneapolis.
37 *Phthalein Test in Group of Medical Cases. H. L. Ulrich, Minneapolis.
38 Our Duty to Public in Combat with Tuberculosis. W. A. Kriesel, Watertown, S. Dak.

36 and 37. Abstracted in The Journal, August 31, pp. 743 and 744.

Journal of Cutaneous Diseases, New York

November, XXX, No. 11, pp. 653-700

39 *Case of So-Called Prurigo Nodularis. J. Zeisler, Chicago.
40 Acanthosis Nigricans, with Report of Case. A. Schalek, Omaha, Neb.
41 Inquiry into Efficiency of Sulphur Lotions. O. H. Foerster, Milwaukee, Wis.
42 Diseases of Skin in Relation to Hepatic and Renal Disorders. L. D. Bulkley, New York.

39. **Prurigo Nodularis.**—Besides the general management by dietetic directions and the employment of internal antipruritics Zeisler made use of two rather powerful agents: a 10 per cent. chrysarobin varnish and repeated exposures to the Roentgen-rays. The latter had a curious effect. Under their influence the hard keratomatous growths seemed to soften and become transformed into vesicular lesions, which would gradually dry up and then could be easily removed *in toto*, leaving the underlying skin practically normal.

Journal of Indiana State Medical Association, Ft. Wayne

October 15, V, No. 10, pp. 419-464

43 Status of Medical Profession. W. F. Howat, Hammond.
44 Section on Ophthalmology and Otolaryngology of Indiana State Medical Association. G. F. Keiper, La Fayette.
45 Phthalein Test for Kidney Function. F. S. Crockette, La Fayette.
46 *Diagnosis of "Indigestion." J. V. Reed, Indianapolis.
47 *Treatment of Pulmonary Tuberculosis with Artificial Pneumothorax. W. A. Gekler, Rockville.

46 and 47. Abstracted in The Journal. November 2, pp. 1643 and 1644.

Journal of Outdoor Life, New York

November, IX, No. 11, pp. 257-286

48 Sleeping Out with Comfort. E. Cummins, Hinton, W. Va.
49 Clothing, Bedding and Furniture for Outdoor Life. T. S. Carrington.
50 A Sanatorium Commencement. A. M. Edwards, Monrovia, Cal.
51 Convalescent's Balcony Boxes. P. Lathyrus.

Kentucky Medical Journal, Bowling Green

October 15, X, No. 20, pp. 803-832

52 Pituitary Gland (a Pharmacologic Consideration). V. E. Simpson, Louisville.
53 Posture in Adolescent Period. J. D. Trawick, Louisville.
54 Vesical Papilloma. E. S Allen, Louisville.
55 Cerebrospinal Meningitis. D. K. Clark, Louisville.
56 Embryonic Mixed Tumor of Kidney. W. H. Wathen, Louisville.
57 Two Cases of Nasopharyngeal Polyps. G. C. Hall, Louisville.

Lancet-Clinic, Cincinnati

November 2, CVIII, No. 18, pp. 467-500

58 Infant-Feeding. M. Ostheimer, Philadelphia.
59 Differential Diagnoses Reported from Cincinnati Tuberculosis Hospital. C. S. Rockhill and K. Dunham, Cincinnati.
60 Median Harelip. J. Rarsohoff, Cincinnati.
61 Psychology of Sexual Inversion in Women. D. C. McMurthrie, New York.
62 Present Status of Roentgenotherapy in Gynecology. P. Shields, Cincinnati.

Medical Record, New York

November 9, LXXXII, No. 19, pp. 833-878

63 I. Some Data Concerning a Humoral Etiology of Spasmodic Asthma. II. Outline of Treatment in Accordance with Foregoing. B. Oettinger, Denver, Colo.
64 *Chronic Lymphatic Leukemia. M. B. Wesson, El Paso, Texas.
65 *Hemoptysis in Tuberculosis; Its Significance and Its Treatment. T. Frazer, Asheville, N. C.
66 Physician's Rôle in Preventive Medicine. D. B. Hardenbergh, Middletown, N. Y.
67 Effect of Experimental Hyperthermy on Opsonic Activity of Blood-Serum of Rabbit. G. A. Rueck, New York.
68 Unfortunate Predicament of Medical Profession. T. Dixon, Brooklyn.
69 Manic-Depressive Insanity. A. K. Petery, Norristown, Pa.
70 Case of Myopic Refraction Relieved by Eye Education. W. H. Bates, New York.

64. **Chronic Lymphatic Leukemia.**—The urine in the case studied by Wesson has been reduced in quantity, dark yellow to orange in color, turbid, specific gravity 1.025, acid reaction, no albumin or sugar. There is generally, in a twenty-four-hour specimen, a heavy, voluminous, brick-red sediment of amorphous urates. Not infrequently uric-acid crystals are present. A search for ferments in the urine disclosed the fact that there must have been some enzyme present (maltase) which had broken down the maltose molecule and that a proteolytic ferment was also present. There was no amylolytic ferment present. The presence of a fat-splitting enzyme was suggested but was not very positive at first; then it was quite evident that a lipase was present.

65. **Hemoptysis in Tuberculosis.**—Although there exists considerable difference of opinion as to the causes of hemoptysis. Frazer says there is practical uniformity in the methods employed in the treatment of this condition, despite the use of drugs apparently antagonistic in their action and other minor details. The first indication is to reduce blood-pressure. As hemoptyses are sometimes preceded by a sense of tightness in the chest or by the presence of blood-streaked sputum, it may be possible to prevent their occurrence by insisting on absolute rest and by the administration of a drug—such as the nitrites

—with the view of decreasing vascular pressure. Either of the following may be used:

℞	Gm. or c.c.		
Sp. nitroglycerin	1		♏ xv
Aquæ	60	or	℥ ij
M. S. Dose: ʒ j.			

℞	Gm. or c.c.		
Sodii nitritis	1		gr. xv
Aquæ	60	or	℥ ij
M. S. Dose: ʒ j.			

A teaspoonful of either of the above may be given every four hours for two or three days.

More commonly, perhaps, the patient receives no warning and the physician is summoned to treat an active hemorrhage. In the presence of this condition the indications are three in number: to secure absolute physical rest, to quiet the fears of the patient, and to lower the blood-pressure, attempting in this manner to favor the formation of a clot, which is nature's method of checking hemorrhage. This means that the patient must be put to bed and all unnecessary movements on his part must be avoided; he is not allowed to get up to attend to the demands of nature, nor is he allowed to talk. A comfortable position should be assumed: usually the semi-recumbent posture (with one or two pillows under the head) is best; and the patient should be assured in a few words that there is little cause for apprehension. Frazer's practice is to break one of the little "packages" of amyl nitrite, holding it for several minutes under the patient's nostrils. The patient should also receive atropin gr. 1/50 hypodermically, and this dose may be repeated two or three times within the next twenty-four hours. In place of atropin, nitroglycerin may be administered hypodermically in doses of gr. 1/100, repeated at short intervals, at first every half hour or hour, for three or four doses, later less frequently. After vasodilation has been obtained, more permanent effects may be secured by the use of sodium nitrite, gr. j, every three or four hours. Morphin, although used considerably in hemoptysis, should not be resorted to as a routine measure. It is indicated if the cough be troublesome, but its field of greatest usefulness is in those cases in which excessive nervous irritability exists. It is customary, at the onset of a hemorrhage, to place a light ice-bag over the precordium, with a view to quieting the heart's action.

There is no specific diet for patients with hemoptysis; but the amount given should be small and fluid in character (milk in small quantities and egg-albumen are suitable); especially is it necessary to restrict the diet during the first twenty-four hours. While depletion through the intestines by means of catharsis has been advised and is theoretically indicated, it is better to wait twenty-four hours before attempting to move the bowels on account of the exertion which this action imposes on the patient. Also examination of the chest should not be undertaken, or should be restricted to auscultation; under no circumstances should percussion be practiced. As to the length of time that a patient who has had an hemoptysis should stay in bed, there exists considerable difference of opinion; it is safer to insist on rest in bed for twenty-four to forty-eight hours after the expectoration of post-hemorrhagic clots has ceased.

New York Medical Journal

November 9, XCVI, No. 19, pp. 933-992

71 Gall-Stones. P. Syms, New York.
72 *Why Is Direct Transfusion of Blood Often a Failure? A. L. Soresi, New York.
73 Temperature After Perineal Section Under Spinal Anesthesia. E. L. Keyes and D. W. MacKenzie, New York.
74 Gwathmey-Woolsey Nitrous Oxid-Oxygen Apparatus. J. T. Gwathmey and W. C. Woolsey, New York.
75 Some Considerations of General Anesthesia. C. R. Hervey, Oswego, N. Y.
76 Operative Treatment for Cancer of Breast. J. S. Brown, Montclair, N. J.
77 Cure of Prolapse of Uterus and Bladder by Plastic Operation. L. G. Baldwin, New York.
78 Lane's Kink of Ileum. C. F. Kivlin, Troy, N. Y.
79 *Nasal Deformity Corrected by Auto-Implantation of Septal Cartilage. O. Glogau, New York.
80 Cause, Prevention and Care of Weak and Flat Feet. W. W. Stevens, Philadelphia.
81 Mortality of Lobar Pneumonia in Alcoholic Subjects. C. K. Stillman, Mystic, Conn.
82 Pustular Syphiloderm in Negress Simulating Variola. J. L. Kirby-Smith, Jacksonville, Fla

72. **Direct Transfusion.**—Soresi insists that transfusion should not be resorted to only when the patient is in extremis; surgeons should train themselves on animals in conservative surgery of the blood-vessels before attempting transfusion in human beings; vein to vein method is to be preferred, and the use of a vein of the neck of the recipient is the only physiologically correct method to be adopted, except when not suitable during surgical operations. In hemorrhages there must be a distinction between hemorrhages which can be completely checked and hemorrhagic diseases; in the former saline solution should be administered immediately as first resort and during or before transfusion; in the latter, transfusion should be resorted to before other liquids are introduced into the system, because the blood is used as a hemostatic and should not be diluted; in the greatest number of hemorrhages saline solution is sufficient to save the patient and transfusion should be resorted to only when the surgeon thinks that the hemopoietic organs of the patient would be unable to supply, in a reasonable time, the morphologic elements indispensable to life. In diseases in which the blood is loaded with poisonous products, transfusion is very useful, provided that the central nervous system is not too seriously injured and blood is let out during or before transfusion is resorted to. Transfusion is a great help to patients who are considered bad surgical risks, and it must be performed during the operation. A vein for both donor and recipient should be used, anastomosing the distal part of the donor's vein with the proximal part of the external jugular of the recipient. In this way the radial artery is saved and it is easier to find a donor. Obviously there may be cases in which it is advisable to use the radial artery of the donor, and transfusion will be very satisfactory; but, when possible, vein to vein should be used, always preferring the external jugular for the recipient.

79. **Correction of Nasal Deformity.**—The septum in Glogau's case was prepared as for submucous resection by applying a 20 per cent. cocain solution and a 1 to 5,000 epinephrin solution, with cotton pledgets to the Schneiderian membrane. The usual incision was then made on the right side, but the knife was carried right through the cartilage toward the mucous lining of the left side without, however, injuring the latter. The cartilage was then elevated from the mucous lining on the left side, and by means of a strong pair of scissors an incision was made at its upper and lower margins. The cartilage flap, covered by the mucous lining of the right side, was thus attached at its posterior part only. The nostrils were now plugged with a piece of cotton, and the back of the nose cleaned aseptically. A 0.5 per cent. cocain solution, containing a few drops of epinephrin, was then injected hypodermically at the middle of the nose toward the tip. A transverse incision of about 15 mm. was then made at the lower end of the nasal bones. Through this incision, by means of a knife, the subcutaneous tissue was separated along the back of the nose down to the tip. A sharp spoon was then introduced into this pocket and the cartilage at the tip of the nose curetted. The external wound was then covered by a piece of gauze. The cartilaginous flap was now severed from its posterior attachment and put into a physiologic salt solution. By means of a Bier's skin grafting knife, the superficial epithelial layers of the mucosa were then removed, and the cartilage, covered by its perichondrium, shaped by means of a pair of scissors to fit into the deformity. The cartilage was then inserted into the deformity, and the transverse incision closed. The wound was covered by a small piece of iodoform gauze and adhesive plaster. The mucous lining over the bony part of the deviated septum was then elevated on both sides, and the bony deviation removed by submucous saws. The septal mucous lining of the left side remained intact, while on the right side there was a loss of substance corresponding to the piece of cartilage removed with its right-sided mucoperichondrium. The nasal cavities were then painted with a 10 per cent. oily solution of iodin and packed in the usual way. The intranasal packing was removed after forty-eight hours, and the dressing of the external wound was changed every day. After the fourth day

the ligature began to suppurate and the wound opened again. Healing by granulation took place. The inserted cartilage became permanently attached, and the deformity is now considered to be corrected.

St. Paul (Minn.) Medical Journal

November, XIV, No. 11, pp. 549-600

83 *Conservative Surgery in Purulent Infections of Kidney. A. Schwyzer, St. Paul.
84 Some Phases of Gastric and Duodenal Ulcer. M. M. Ghent, St. Paul.
85 Estimation of Blood-Pressure and Its Value from Diagnostic Standpoint. P. McKittrick, Eau Claire, Wis.

83. **Conservative Surgery.**—Schwyzer emphasizes the fact that the kidney parenchyma is not to be considered as free from bacteria even under normal conditions; and second, that the kidney substance has a good resistance against bacterial invasion. In operating on the kidney, in draining and otherwise handling it at and after operation, it is well to have these facts in mind.

Surgery, Gynecology and Obstetrics, Chicago

November, XV, No. 5, pp. 523-637

86 *Nephrectomy Without Drainage for Tuberculous Kidney. W. J. Mayo, Rochester, Minn.
87 *Case of Intracranial Division of Auditory Nerve for Persistent Aural Vertigo. C. H. Frazier, Philadelphia.
88 *Arthroplasty. J. M. Neff, Spokane, Wash.
89 *Osteo-Arthritis of Spine. F. D. Dickson, Philadelphia, and A. H. O'Neal, Wayne, Pa.
90 *Experimental Study of Placenta Under Physiologic and Pathologic Conditions (Ferments: "Vital" Staining). R. T. Frank, New York.
91 *Unsuccessful Surgery in Disorders of Gall-Ducts, Together with Consideration of Naunyn's Cholangiolitis. A. G. Gerster, New York.
92 Case of Pseudohermaphroditism. L. A. Greensfelder and L. C. Gatewood, Chicago.
93 Report of Exophthalmic Goiter Based on Experience of Members of the Chicago Surgical Society. W. Fuller, Chicago.
94 *Concerning Function of Corpus Luteum and Some Allied Problems. G. F. Dick and A. H. Curtis, Chicago.
95 Chorio-Epithelioma of Testicle. C. B. Keenan, Montreal.
96 Technical Points in Prostatic Enucleation. J. B. Squier, New York.
97 Roentgen-Ray in Gynecology. R. L. Dickinson, Brooklyn.
98 Spinal Anesthesia, with Report of Surgical Clinics. W. W. Babcock, Philadelphia.
99 Rhinophyma. J. C. Wood, Cleveland.

86. **Nephrectomy Without Drainage for Tuberculous Kidney.**—Mayo emphasizes that every effort should be made to remove the tuberculous kidney without the escape of its contents, and to secure this result an adequate incision is essential. The patient is placed on the sound side with a considerable degree of elevation of the loin. A vertical cut frees the twelfth rib from its posterior attachments and a long transverse incision mobilizes the lower wall of the thorax. In this manner a large kidney can be removed with ease. In some instances tuberculous material will have escaped spontaneously into the perirenal tissues before operation, and in such cases it will not be possible to remove the organ without distributing more or less of the tuberculous infection throughout the cavity of the wound. It is in these cases particularly that drainage has resulted so unfortunately and, Mayo believes, has been an unnecessary procedure. The stump of the ureter is a source of possible infection in the wound, and many surgeons either remove the kidney and ureter completely at the primary operation, or they suture the stump of the ureter to the skin for the protection of the wound. For a number of years it has been Mayo's practice to inject 10 to 20 minims of phenol (liquid 95 per cent.) into the ureter. This is distributed down through the lumen, and a ureter thus treated will rarely give trouble later. He is convinced that in draining these cases they made a mixed infection possible which was responsible for many of the postoperative conditions. Experience has taught that drainage following operations for tuberculous lesions within the abdomen is unnecessary and usually followed by sinus and fistula; also that draining the cavity from which a tuberculous kidney has been removed gives rise to complications which delay or prevent healing, and which may lead to the death of the patient some months later.

87. **Division of Auditory Nerve for Aural Vertigo.**—In this case the incision was made as for a unilateral suboccipital craniectomy. While the operation was followed by only partial relief, Frazier's experience with this operation and with many others in the posterior fossa encourages him to believe that this means of relief should be resorted to more frequently in the persistent and intractable forms of aural tinnitus and vertigo. Before the operation is undertaken, however, one should determine by every means of precision whether the case falls in the category for which this form of treatment is especially applicable.

88. **Arthroplasty.**—Neff reviews the history of arthroplasty, details the embryologic basis on which the operation is performed, the principles involved, the indications and contraindications for its performance, a consideration of the special joints, and then reports three cases, two of ankylosis of the knee and one of the elbow, in which he performed the operation successfully.

89. **Osteo-Arthritis of Spine.**—In diagnosing disease of the abdominal viscera the authors state that no examination is complete without a careful inquiry into the condition of the spinal cord and spinal column, including roentgenography.

90. **Experimental Study of Placenta.**—The evidence obtained by Frank in his investigation favors the view that the placenta is a passive organ for exchange, rather than an active organ of metabolism.

91. **Unsuccessful Surgery of Gall-Ducts.**—Gerster opens and drains every dilated common duct. He says that palpation should follow, not precede, incision of common duct. An inflamed, thickened, adherent or shrunken gall-bladder should be removed. All cicatricial deposits in gall-bladder or in cystic duct justify removal of gall-bladder. The presence of many small stones, even though the cystic duct is patulous, indicates that the gall-bladder should be removed. The presence of a damaged gall-bladder is not an aid, but an impediment to exposure of the common duct. Absence of the gall-bladder does not constitute an important adverse factor in the subsequent exposure of the common duct.

94. **Function of Corpus Luteum.**—The authors' results support the claim of Fraenkel that the corpus luteum is apparently essential for the development of the fetus during the early part of pregnancy. Attempts to produce an anticorpus-luteum serum according to Beebe's method were unsuccessful. Autotransplantation of ovaries yielded success in a rather small percentage of cases. Homotransplantation was considerably less successful. Removal of both ovaries failed to cause either adrenal hypertrophy or microscopic evidence of increased physiologic activity of the adrenals. Attempts to produce experimental rickets by means of transplantation of ovaries were unsuccessful.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

October 26, II, No. 2704, pp. 1089-1172

1 *Passing of Morbid Anatomy. J. F. Goodhart.
2 Pellagra in British Islands. L. W. Sambon and A. J. Chalmers.
3 Mitral Stenosis: Peripheral Emboli Causing Partial Monoplegia with Symptoms Simulating Cerebral Embolism. G. G. Alderson.
4 *Sugar in Cerebrospinal Fluid from Cases of Meningitis. F. H. Jacob.
5 Anemia of Ankylostomiasis. W. Nicoll.
6 Flies and Other Insects as Carriers of Infection. W. Nicoll.
7 Opsonic Index in Plague Vaccination. R. St. J. Brooks.
8 Destruction of Alkaloids by Emulsions of Body Tissues A. J. Clark.
9 *Experimental Purpura. E. M. Cowell.
10 *Operative Treatment of Fractures, with Special Reference to Use of Intramedullary Pegs. E. W. H. Groves.
11 Acute and Subacute Lesions Induced in Spinal Cord by Infection of Its Lymph System. D. Orr and R. G. Rows.
12 Results of Treatment of Inflammatory Disease of Uterine Appendages. W. S. A. Griffith and C. Martin.
13 Chorio-Angioma of Placenta. R. W. Johnstone.
14 Rupture of Uterus in Connection with Case of Concealed Accidental Hemorrhage. D. Shannon.
15 Excretion of Creatin in Pregnancy and Toxemias of Pregnancy. J. P. Hedley.
16 *Rashes Occurring During Puerperium. J. Byers.
17 Some Developmental Errors of Puberty. W. E. Fothergill.
18 Etiology of Eclampsia. J. W. Ballantyne, J. H. Teacher and W. Smyly.
19 Treatment of Chronic Suppurative Ethmoiditis. L. Hajek and H. L. Lack.

1. See also *The Lancet*, October 26.

4. **Sugar in Cerebrospinal Fluid from Cases of Meningitis.**—There is in normal cerebrospinal fluid a chemical substance which reduces Fehling's solution, and this is absent in some cases of meningitis and present in others. There appears in the literature of the subject considerable confusion as to the cases in which it is present or absent, and considerable uncertainty as to its value. Jacob's experience, based on only a small number of cases, has led him to a definite conclusion on this subject, and he considers such examination to be of definite value. The method adopted is to boil together equal portions of cerebrospinal fluid and Fehling's solution in a narrow test tube and allow it to rest in a sloping position. In the course of an hour there will be a marked yellow deposit forming a band on the lower side of the tube, and with a little practice one can form a fairly accurate opinion as to whether such band is normal in amount or diminished; where sugar is absent no deposit will occur.

Jacob's results are as follows: In nine cases of tuberculous meningitis sugar was present in apparently normal amount in one case; was present in diminished amount in seven cases; was present in markedly diminished amount in one case; this was taken only two hours before death. In seven cases of pneumococcus meningitis sugar was absent in every case. In three cases of streptococcus meningitis sugar was absent in every case. In nine cases of cerebrospinal meningitis sugar was absent in two cases and present in diminished amount in seven cases. In seven cases of poliomyelitis sugar was normal in amount in one case and slightly diminished in six cases. In three cases of mixed septic meningitis, secondary to middle-ear disease, sugar was absent in all three cases. His conclusions are: In pyogenic meningitis, pneumococcus, streptococcus and mixed infection, sugar is invariably absent. In cerebrospinal meningitis sugar is absent in the acute stage, but may return in some degree as the infection recedes. In tuberculous meningitis sugar is present, except in very rare cases shortly before death, in which stage difficulty of diagnosis rarely exists. In poliomyelitis sugar is present.

9. **Experimental Purpura.**—As regards the production of experimental purpura, Cowell's results have been negative. He believes that the oft-quoted positive experiments must, at any rate, not be accepted at present. It is doubtful whether benzol has any effect on the blood-platelets. Although the lytic body at work in purpura is undoubtedly allied to a hemolysin, yet its action seems to be different, since in two fatal cases of purpura neonatorum Cowell has been able to microscope the organs without finding traces of free iron.

10. **Operative Treatment of Fractures.**—In certain cases, Groves says, the method of using an intramedullary peg has great advantages over all others. There are two different methods by which the pegs may be introduced into the bone. The first kind of peg is comparatively short, *i. e.*, about 24 cm. in length. It has a fixed crosspiece, transfixing its center, which keeps the peg from slipping too far into one end or other of the hollow bone. One end of the peg is fitted into one fragment of the broken bone. Then the other fragment is made to engage the projecting end of the peg, and by bringing the bone fragments into line with one another the muscular tension pulls the ends of the bone together over the enclosed peg, which serves thus to keep the fragments in exact apposition. This type of peg can only be used in those cases in which the broken bone fragments are easily separated from one another. When it is in position, owing to its shortness, it does not exercise much influence in maintaining the straight axis of the bone.

In the class of fractures in which operation is demanded most imperatively, a peg like the one described cannot be employed, simply because in these neglected or malunited cases it is impossible to separate the broken ends of the bone sufficiently to insert the peg. For these cases Groves has used pegs which are drawn into their place by means of wire traction. Each of these pegs is about 4 to 7 cm. long, and is perforated in its center by a hole transverse to its long axis. Along opposite sides of the peg run grooves in its whole length, and into these grooves the ends of the transverse hole open. The size of the hole and groove is one which easily takes a fine flexible steel wire, which, when threaded through the transverse hole, lies snugly in the grooves, so that the whole peg can be slipped into one fragment of the bone, the other fragment brought into apposition, and then, by traction on the wire, the peg is pulled up into position, so that one-half lies in one fragment and the other in the other. As regards the thickness of these pegs, Groves has a set of thirteen sizes, varying from ⅛ to ½ inch, each size differing from the other by 1/32 inch, and also a set of drills for preparing the bone ends. Each drill makes a hole, into which the corresponding peg will slip easily. The object of drilling the bone should simply be to clear away any rough, outstanding spicules of bone, and not to actually enlarge the natural marrow cavity. It is unnecessary to make the pegs fit very tightly, and the less drilling that is done the better.

As regards the method of traction on the wire, in most cases it is quite sufficient to pull on the wire ends, which are rolled round pairs of forceps. But if one has to work at the bottom of a deep wound, which makes it difficult to carry this out, the traction may be made by an instrument which winds the wire ends on to two revolving shafts, at considerable mechanical advantage.

Groves has used intramedullary pegs made of various materials. In comparing the merits of various materials, e. g., bone, steel and aluminum, he states that the metal pegs are much the best for animal experiments, because those made of bone or ivory are very brittle, and are liable to be broken. Magnesium has a very definite and distinct characteristic when used for the pegging of bones. It is absorbed within a few weeks, and in the process of its absorption it greatly stimulates the callus production and the ossification of the same. Of the other forms of absorbable bone-pegs Groves has not yet found any which give good results with animal experiments. He has used decalcified bone, horn, catgut, gelatin hardened with formol, and fibrin round an axis of catgut. Of these horn is the best, but in all cases the softening takes place too early, that is to say, before any organic fixation has occurred, and then complete displacement takes place.

16. **Rashes in Puerperium.**—Byers is of the opinion that scarlatina is rarely encountered during the puerperium. When it does occur during the puerperal period it is, as a rule, a mild disease, that is, with the use of modern aseptic and antiseptic precautions. What has been called "puerperal scarlatina" is almost always a form of septic infection with a rash resembling the eruption seen in true scarlatina. From a person ill of scarlatina there may be conveyed to a lying-in woman either: (a) A true scarlatina; or (b) septicemia, arising from the secondary septic changes which are apt to take place in the throat, etc., in scarlatina. The former (a) occurrence seems to be rare, while the latter (b) should be avoided by modern aseptic and antiseptic precautions.

Journal of Obstetrics and Gynecology of British Empire, London

September, XXII, No. 3, pp. 119-190

20 Dusée: His Forceps and His Contemporaries. A. Doran.
21 Ventrofixation: Its History, Technic, Uses and Dangers, More Particularly as Regards Subsequent Pregnancies. W. M. Fergusson.
22 *Early Case of Chorionepithelioma Uteri. W. Thompson and M. J. Stewart.

22. **Early Case of Chorio-Epithelioma Uteri.**—This case is chiefly of interest from the clinical point of view, being one in which a chorio-epitheliomatous uterus was successfully removed within five weeks of the passage of a hydatidiform mole. Fourteen months later, the patient is alive and well, with nothing to suggest either recurrence or dissemination. Microscopically the specimen was a typical chorionepithelioma malignum with a preponderance of cells of the intermediate type. There was a striking preponderance in the tumor of intermediate or wandering cells, with a comparatively scanty formation of syncytium and Langhans' cells. It is noted, however, that masses of the latter were found in some of the sinuses of the myometrium, and that this, according to Schmauch, is clear evidence of the malignancy of the growth. Both ovaries were the seat of lutein cyst-formation, a phe-

nomenon which has frequently been observed in cases of chorionepithelioma and hydatidiform mole, and which is regarded by some observers as a possible etiologic factor.

Journal of Tropical Medicine and Hygiene, London

October 15, XV, No. 20, pp. 305-320

23 Pellagra; "Sandfly Protozoon" Versus "Zelst Theory." L. Nicholls.
24 Experiments with Culture Media Suitable for Use in Tropical Countries. C. Wellman and A. Hand.
25 Pigmented Maculae on Body. R. H. Castor.

Lancet, London

October 26, II, No. 4652, pp. 1129-1198

26 Passing of Morbid Anatomy. J. F. Goodhart.
27 Mental Disorders. G. H. Savage.
28 Industrial Mercurial Poisoning as Seen in Felt-Hat Makers. F. E. Tylecote.
29 *Operative Treatment of Fractures. A. J. Walton.
30 Reflections on Gastrojejunostomy. J. O'Conor.
31 *Case of Localized Intracorpuscular Sulphemoglobinemia. H. Davis.
32 Case of Myxedema. R. S. Novis.
33 *Practical Use of Vaccine Treatment in Pulmonary Tuberculosis. B. Hudson.
34 Vaccine Treatment of Acute Pneumococcal Tonsilitis. S. P. Shivdas.
35 Unusual Pneumococcal Infection. L. Bathurst.

29. **Operative Treatment of Fractures.**—Some of the essential features of using plates are emphasized by Walton. He says that in fixing the plate there are many errors to be guarded against, and although the means of avoiding these errors constitute the most elementary rules of carpentry or practical mechanics, they are not uncommonly made when these arts are applied to surgery, and are responsible for a considerable proportion of the poor results. The rules to be observed are: At least three screws must be inserted, preferably two on either side of the fracture. If only one be used on either side the plate acts as a perfect hinge and allows the fragments to swing round. The plate must be strong enough not to bend or crack. The drill must be chosen to fit the screw; it should be as wide as the shank only, and not as wide as the thread. The screws must be short and with the thread cut right up to the head, otherwise the threaded portion will pass through the compact bone and be loose in the medullary cavity, the screw then acting only as a nail, which will be loose and the union thus unstable. The screw should simply be inserted until slight resistance to rotation is felt. If the hole be correctly drilled the screw will then be firm home. If rotated further, the thread of the screw or the bone will only be torn off and the screw thus lie loose in the hole.

When wiring is resorted to, two loops at least must be used, and the ends firmly twisted together with forceps. Here again there are several simple mechanical points which it is important to observe. A slight groove should be cut for the wire to prevent it slipping. It need not completely encircle the bone. The loops of wire should be placed either at right angles to the shaft of the bone or somewhat obliquely, that is, in such a manner that they tend to be more parallel with the line of fracture, for the tendency of these fragments is to override one another owing to the contraction of the muscles. With this obliquity such a movement would be associated with a closer approximation of the ends, while if placed with the obliquity in the opposite direction the fragments would readily separate and override. In twisting the ends of the wire it is essential that the two pairs of forceps with which the ends of the wires are grasped be so held that each piece of wire makes the same angle with the vertical, otherwise one wire will alone be twisted round the other. Not only is the grip imperfect, but the twisted wire will also rotate on its long axis, and thus is almost certain to break.

Instead of a wire the ingenious instrument of Lambotte can be used. This is shaped like a piece of wire split in its long axis, so that on section it forms a semicircle. On the circumference a screw thread is cut. A loop is passed round the bone, and when the two ends are brought together so that their flattened surfaces are in apposition they together form a cylinder with a thread cut on its outer surface. A nut can then be screwed over them and the loop thus tightened to any degree. The ends can then be cut off level with the nut. The general subject of operative treatment of fractures is considered in detail.

31. **Localized Intracorpuscular Sulphemoglobinemia.**—The face of Davis' patient, a female, 27 years of age, instead of being of the normal pink tint, was stained a deep slate blue, almost a blue-black. This hue prevailed all over the face and scalp and over the exposed part of the neck, but it could not be observed anywhere else, except at the bases of the fingernails. The bases of the toe-nails were of the normal color. The mucous membranes were unstained. On the face the color was most marked over the nose, but it was quite obvious in the sclerotics; the cheeks and forehead were also affected, but the ears to a slightly less degree than other parts. The color could not be dispersed by pressure. Inquiry into the history of the patient elicited the fact that she had had measles when a child. She had not had scarlet fever, pneumonia, bronchitis, rheumatism or chorea. There was no history of the application of carbolic acid preparations or of the ingestion of silver compounds at any time. Her face had assumed its present peculiar tint eleven years previously, at the age of 16, without any apparent cause, and had not changed since that time. Otherwise the patient was well and physical examination was negative.

In blood taken from the ear the characteristic absorption band of sulphemoglobinemia in the red end of the spectrum was present. A specimen from the finger was normal. The two facts that the peculiar color of the skin is so definitely localized, and, further, that the spectroscopic characters of the blood vary according to the situation from which it is taken, combine to make this case, Davis believes, quite unique. The depth of color varies considerably from time to time, almost from minute to minute. Again, after having been out in the grounds for an hour or two on a rather chilly day the fingers, in addition to the bed of the nails, have been seen to be obviously affected. Lately, too, the pigmentation has shown a tendency to spread, and it seems probable that the curious localization will disappear and that ultimately the discoloration will become obvious all over the body. Simultaneously with the deepening of the color and its spread it is interesting to notice that the patient has complained of not feeling so well.

33. **Vaccine Treatment of Pulmonary Tuberculosis.**—In certain selected cases of pulmonary tuberculosis, Hudson believes that a course of vaccine treatment is certainly of great benefit. There is, however, always a large amount of uncertainty, owing to the difficulty of isolating the causal organism; but even if the vaccine does no good, it at any rate never seems to do any permanent damage, and therefore is always worth trying. The treatment may be used in conjunction with tuberculin. Hudson emphasizes that any injection or other treatment is only an adjunct, and that the general hygiene, open-air, climatic and tonic treatment, systematic rest and good feeling should be always strictly enforced.

Sei-I-Kwai Medical Journal, Tokyo

October, XXXI, No. 10, pp. 231-240

36 Acute Appendicitis. Y. Takaki.

Bulletin de l'Académie de Médecine, Paris

October 8, LXVIII, No. 33, pp. 155-246

37 *Salvarsan in Local Treatment of Vincent's Angina. C. Achard.
38 *Vaccination Against Typhoid at Avignon. H. Vincent.
39 Resection of Six Feet of Intestine Connected with Mesentery Adherent to Tip of Infected Appendix. (Forme d'appendicite non encore décrite.) J. Boeckel.

37. **Local Treatment of Vincent's Angina with Salvarsan.**—Achard's article was summarized in the Paris Letter, p. 1729.

38. **Vaccination Against Typhoid.**—Vincent states that in an epidemic of typhoid in the barracks at Avignon this summer there were 155 cases with twenty-one deaths among 687 soldiers who were not vaccinated, while among the 1,366 soldiers who had submitted to vaccination, not a single case developed and no gastro-intestinal disturbances of any kind were observed. This does not include the civil population in which the epidemic prevailed widely, 644 cases having been reported in a population of 49,000. The number was probably more than twice this in reality; the mortality was sixty-four. The epidemic is stated to have been beyond question waterborne.

Journal de Médecine de Bordeaux

October 6, XLII, No. 40, pp. 629-644

40 Muscular Disease Attributed to Trauma. (De la conduite des experts en présence des myélopathies systématisées attribuées à un traumatisme.) H. Verger.

Lyon Médical, Lyons

October 13, XLIV, No. 41, pp. 589-636

41 Familial Hemophilia; Failure of Autoserotherapy. F. Leclerc and J. Chalier.

Presse Médicale, Paris

October 19, XX, No. 85, pp. 853-864

42 *Contralateral Nerve Anastomosis from Experimental and Clinical Standpoint. D. Maragliano.
43 Spontaneous Pneumothorax in Tuberculosis. F. Dumarest and C. Murard.
44 The General Biologic Laws of Diuresis. A. Martinet.

42. **Contralateral Nerve Grafting.**—Maragliano describes the technic with which he grafted the left sciatic nerve on the right, in dogs, passing it through a tunnel under the skin. After several months the gait became apparently normal. In 1909 he applied the same technic on a child of 2 with spinal paralysis following epidemic poliomyelitis. He isolated the femoral nerve and its branches, a little above the knee, and severed the right femoral nerve 1 cm. above Poupart's ligament after electric tests had shown the absence of all reaction. He then drew the left femoral nerve through a tunnel and sutured it to the peripheral stump of the right femoral nerve. Improvement gradually followed and by the eighteenth month the child was able to stretch his leg while the left side showed no loss of functioning. The right leg is still too weak to support the weight of the body, but the progress realized to date promises that this will be possible in a few months. The results attained are the more remarkable as the nerve branch utilized was of smaller caliber than the paralyzed nerve trunk to which it was to bring new life. Equally good results were obtained in two other cases of the kind, and he thinks the sciatic nerve is even better adapted to this contralateral grafting than the femoral.

Revue de Médecine, Paris

October, XXXII, No. 10, pp. 761-864

45 Tuberculous Nature of Ascites with Cirrhosis of the Liver. G. Roque and V. Cordier. To be continued.
46 *Classification of Acute Forms of Tuberculosis. H. Gougerot.
47 *Nitrogen Metabolism in the Tuberculous. (Les échanges azotés chez les phthisiques.) H. Labbé and G. Vitry.
48 *Artificial Pleurisy in Treatment of Pulmonary Tuberculosis. I. Cecikas.
49 Recovery from Tuberculous Meningitis. (Méningite tuberculeuse guérie.) E. Cottin.

46. **Acute Forms of Tuberculosis.**—Gougerot refers in particular to the form of acute tuberculosis characterized by the presence of tubercle bacilli in the blood and the absence of definite tubercle formation. The clinical symptoms are those of typhoid, but the daily temperature variation is apt to be greater, the Widal reaction is negative, and there are no rose spots. In case of typhoid without rose spots, this "typhobacillosis," as Landouzy calls it, should be suspected and the blood examined for tubercle bacilli and tested by animal inoculation.

47. **Nitrogen Elimination in Tuberculosis.**—Labbé and Vitry state that the total nitrogen excreted in the urine of tuberculous patients is lower than normal; it averages 8 gm. in twenty-four hours. The urinary coefficient is lower than normal, which shows that more nitrogen than normal is being excreted in some other form than in urea. This is verified by studying the purins and the ammonia which are both excreted in somewhat larger quantity than normal. The increase in purins is accounted for by the fact that the abnormal destruction of the patient's own tissues sets free an increased amount of nucleins. All these urinary findings increase in degree with the progress of the disease.

48. **Artificial Pleurisy in Treatment of Pulmonary Tuberculosis.**—Cecikas reports two tuberculosis cases in which he produced artificial pleurisy by injection of turpentine, with resulting marked improvement in both instances. He believes that the products of the inflammation thus elicited are antagonistic to the tubercle bacillus, and that the good results obtained with artificial pneumothorax are due to this cause and not to the compression of the lung.

Semaine Médicale, Paris

October 23, XXXII, No. 43, pp. 505-516

50 The Esmarch Bandage. (Ce qu'il faut penser des dangers de la bande d'Esmarch.) F. Lejars.

Beiträge zur Geburtshilfe und Gynaekologie, Leipsic

XVII, No. 3, pp. 287-398. Last indexed July 13, p. 150

51 The Obstetrician-Crab. (Ein Namensvetter im Tierreich.) E. A. Kehrer.
52 Deformity from Lack of Amniotic Fluid. (Ueber Oligohydramnie mit konsekutiver Verunstaltung der menschlichen Frucht.) W. Biber.
53 *Pelvic Tuberculosis in Women. (Genital- und Peritonealtuberkulose mit bes. Berücks. von 82 Fällen der Heidelberger Universitäts-Frauenklinik.) S. Wolff.
54 Blood-Pressure and Prognosis with Gynecologic Operations. A. Gross.
55 Osteomalacia Improved by Porro Operation; One Case. F. Suzuki.
56 *Rupture of Uterus After Cesarean Section. A. Wyss.
57 Case of Primary Chorionepithelioma of the Ovary. (Zur Frage des Epithelioma chorioectodermale.) R. Klotz.

53. **Genital and Peritoneal Tuberculosis.**—Wolff gives ten four-page tables showing the details of eighty-two cases of genital or peritoneal tuberculosis in women. In 68.3 per cent. both the genital organs and peritoneum were involved. In only 7.3 per cent. were both oviducts alone the seat of the tuberculous process, and in 2.4 per cent. one tube alone. No instance was found of a tuberculous process in the ovaries alone, but this occurred in the uterus in 3.6 per cent. Five of the eighty-two were girls under 20 but most of the patients were between 20 and 35. Only 37 per cent. of the total eighty-two women had normal menstruation. In thirty-one cases the diagnosis had been erroneous. In the fifty-five operative cases, 75 per cent. of the patients were living two years later and only 52 per cent. of the twenty-one treated by conservative measures alone, while only the mildest forms of the tuberculosis were given conservative treatment. The final outcome with operative treatment is so satisfactory that it imposes the necessity for surgical measures in every well established case of genital or peritoneal tuberculosis in women. The operative measures should be supplemented by the usual general ones, and Wolff agrees with Franqué that there is no sense in abstaining from the curative measures on the tuberculous pelvic organs just because this does not cure tuberculous processes elsewhere in the organism. The operation relieves the patient from her local disturbances in the pelvis and thus accomplishes at one stroke what may require years under conservative measures if ever attainable by this means.

56. **Rupture of Uterus after Cesarean Section.**—Wyss reports two cases of this mishap during a pregnancy following delivery by cesarean section, and compares them with forty-two similar cases from the literature. In eight cases on record the old cicatrix parted; in nine others a fistula developed; in three the abdominal walls ruptured, and in eight the cesarean section wound burst open a few days after it had been sutured. In two other cases in Wyss' experience a woman died from paralysis of the bowel following the bursting open of the laparotomy wound. The various experiences related emphasize the necessity for limiting cesarean section to the cases in which it is strictly needed, and, where it is indispensable, the necessity for applying at the same time some operative measure to prevent further conception. After a woman has had cesarean section done, she should go to a maternity during the last weeks of following pregnancies so as to be under constant medical supervision.

Berliner klinische Wochenschrift

October 21, XLIX, No. 43, pp. 2017-2064

58 Therapeutic Action of Metals in Cancer. (Wirkung der Metalle auf Krebs.) H. R. Gaylord (Buffalo).
59 Non-Inflammatory Necrosis of the Liver from Venous Stasis. (Ueber die bei schwerer venöser Stauung auftretenden nichtentzündlichen Lebernekrosen mit Icterus.) H. Oertel (New York).
60 *Principles of Organotherapy. A. Münzer.
61 *The Predisposition to Tuberculosis. (Der Thorax phthisicus und die tuberkulöse Disposition.) C. Hart.
62 Pathology of the Diaphragm. F. Buttersack.
63 *Intermittent Claudication. (Dysbasia arteriosclerotica und Plattfuss.) Brandenstein. (Fall von Angiosklerose der Darmärterein mit intermittierendem Hinken.) G. A. Friedmann (New York).

64 Lead in Lithographs. (Sind bleihaltige Abziehbilder giftig?) T. Weyl.
65 Little Influence from Roentgen-Ray Exposures on Hemolytic Complement of Guinea-Pig Serum. E. Fränkel.
66 Serodiagnosis of Staphylococcus Diseases. G. Wolfsohn.
67 Technic for Obtaining Blood for Laboratory Examination. W. Lintz.
68 Nomenclature of Salts. R. Sodemann.

60. **Principles for Successful Organotherapy.**—Münzer comments on the well established fact that the ductless glands seem to work in pairs, one of each pair stimulating and the other checking certain functions. By operative removal of the gland that does the checking, the stimulating gland is left in full control and the function of which it has charge receives only the stimulating activation. The logical conclusion is therefore that before utilizing glands for organotherapy their antagonists should be removed. He cites as an example Cushing's recent research on carbohydrate tolerance before and after removal or exclusion of the posterior lobe of the hypophysis cerebri. His experiments all demonstrate that the posterior lobe has an inhibiting action on the oxidation of carbohydrates and is thus an antagonist to the pancreas which, we know, is concerned in this oxidation of carbohydrates. For organotherapy, therefore, a pancreas should be used which has been previously activated by removal of its antagonist, the posterior lobe of the hypophysis. Only in this way will organotherapy accomplish what has been hoped from it, and its use be extended.

61. **Predisposition to Tuberculosis.**—Hart discusses the constitutional and acquired factors liable to induce a predisposition to apical disease, especially the mechanical injury from lack of proportion between the anatomy and the functioning of the upper aperture of the thorax. He lays special stress on the prophylactic influencing of the growing thorax in the young. This would render Freund's chondrotomy unnecessary except in the cases of pure age ossification; here it is of great importance and benefit.

63. **Flat-Foot with Intermittent Claudication.**—Brandenstein reports three cases of this combination in men in the forties. The disturbance from the flat-foot had only been aggravated by insoles, as they impeded the circulation in the foot still more. In these as in a number of other cases not reported here, great benefit followed application of measures to act on the circulation alone, superheated air, potassium iodid and heart tonics. Objectively no modifications could be detected, but the patients were relieved of almost all their disturbances, even in the cases free from a history of syphilis. The trouble in this combination of arteriosclerotic intermittent claudication and flat-foot is generally attributed to the latter alone, and the more serious vascular affection is overlooked or regarded as of no moment, so Brandenstein lays special stress on the necessity for being on the lookout for it in persons with flat-foot who are no longer young.

Correspondenz-Blatt für Schweizer Aerzte, Basel

October 20, XLII, No. 30, pp. 1129-1176

69 *Exophthalmic Goiter. (Morbus Basedow.) A. Oswald.

69. **Nature of Exophthalmic Goiter.**—Oswald presents a summary of what has been done recently in the line of research and theory on the subject of Basedow's disease, and crystallizes out of it the conception that exophthalmic goiter is the result of both a thyroid and a nervous factor. The thyroid secretion acts on both the sympathetic and the cerebrospinal nerve systems. This has been abundantly proved by animal experimentation, to which Oswald has some unpublished experiences to contribute. Increased secretion in the thyroid has no clinically appreciable injurious influence on the two nerve systems when they are sound. But when one or the other of the two great nerve systems is irritable or diseased, then the products of excessive thyroid functioning irritate the irritable nerve system; if this happens to be the sympathetic nerve system, then this in turn stimulates the thyroid and heart to extra functioning. A vicious circle is thus set up, constantly aggravating the morbid conditions, and we have the clinical picture of exophthalmic goiter. If the thyroid gland is then removed, this puts an end to this secondary retro-active morbid influence magnifying the irritation from the original cause. The sympathetic nerve system is thus freed from the multiplier of its irritation, and it gradually grows less irritable under the rest and hygiene which are an essential adjuvant in operative treatment of exophthalmic goiter. This conception of the nature of Basedow's disease explains why thyroid and iodin treatment do harm in this condition. They both have an injurious influence on the nervous system, the first directly, the second indirectly. Exophthalmic goiter developing after infectious diseases is due to the same mechanism; it does not occur except in persons with predisposed nervous systems. Endemic goiter very rarely passes into the Basedow type; the predisposition on the part of the nervous system seems to be exceptional in the regions where simple goiter is endemic. Without the predisposition on the part of the nervous system it is impossible to elicit exophthalmic goiter by feeding thyroid extract. None of the changes found in the goitrous thyroid is characteristic for the Basedow type. The most recent development in the Basedow question is the cooperation of the thymus in the process. Oswald regards the thymus as merely a further aggravating multiplier of the original morbid condition. When there is a persisting thymus, the individual is in double danger from his Basedow; there is a general constitutional anomaly which manifests itself in the persisting large thymus and possibly hypertrophy of the lymphatic apparatus. This indicates low resisting powers; the organism is less resistant to internal and external injurious influences, especially those affecting the heart. Removal of the thymus, by thus abolishing one of the multiplying factors, helps to break up the vicious circle, and this alone has been known to cure the exophthalmic goiter in some cases. He states that a large persisting thymus is always found in those who die of exophthalmic goiter or during operations on the thyroid.

Deutsche medizinische Wochenschrift, Berlin

October 17, XXXVIII, No. 42, pp. 1961-2008

70 *Dietetic Treatment of Polyuria. (Ueber die Diätbehandlung des Diabetes insipidus und ähnlicher Polyurien.) H. Strauss.
71 Nature of Tuberculin Reaction. (Wesen der Tuberkulinreaktion.) F. Meyer and K. E. F. Schmitz.
72 *Heart Disturbances with Endemic Goiter. (Die Herzstörungen bei endemischem Kropf.) J. Bauer.
73 *Improved Apparatus for Recording Venous Pulse. (Neuer Apparat zur Venenpulsaufnahme.) Henkel.
74 *Changes in the Pancreas with Alcoholism. M. Lissauer.
75 *Changes in Urine with Albuminuria Induced by Position. (Lordotische Albuminurie und Titrationsazidität des Urins.) E. Fränkel.
76 *Analysis of the Urine. (Zur Harnanalyse.) P. Bergell.
77 Percussion in Diagnosis of Fracture of the Skull. (Die perkutorische Diagnose von Schädelbrüchen.) W. Goebel.
78 *Treatment of Traumatic Gangrene of Leg or Arm. E. G. Lick.
79 Scleroma in Prussia. (Neue Skleromfälle aus Ostpreussen.) P. H. Gerber.

70. **Dietetic Treatment of Polyuria.**—Strauss has long been calling attention to a special feature of diabetes insipidus, namely, the inability of the kidneys to produce urine of a concentration corresponding to the intake of solids. The kidney is able to eliminate the solid elements only by washing them out in an excessively large output of urine. In doing this the tissues get dried out. This explains the benefit from a salt-poor diet in diabetes insipidus in some cases. When restriction in the amount of salt in the food fails to influence the polyuria, then the amount of fluid taken should be restricted at the same time. Restriction of both salt and fluid is not necessary unless the salt-poor diet alone fails to have the desired effect. He comments on the excessive drinking of fluid in many cases of diabetes insipidus as a bad habit; restriction of the intake of fluid has a good educational influence. The thirst can be relieved sometimes with fruits or rinsing the mouth with cold water or by sipping a little lemonade or carbonated water. The absence of phenomena on the part of the heart and the comparatively normal blood-pressure show, he says, that diabetes insipidus is not so very serious. The injury of the cardiovascular system from transporting such large amounts of fluids is not so severe as some believe. The intake of fluid in the evening should be reduced to avoid the interference with sleep. He thinks that the protein intake can be reduced to 60 or 70 gm. daily. When a functional neurosis or arteriosclerosis is involved, meat had better be avoided.

72. **Heart Disturbances with Goiter.**—Bauer writes from Innsbruck, where goiter is endemic, to say that heart disturbances with simple goiter are common there but they differ from the usual forms of goiter heart. The main findings are an accidental systolic murmur, more pronounced over the pulmonary artery, an accentuated second sound and slight enlargement of the heart dulness toward the left. The apex beat is normal, the pulse not accelerated and there is not much subjective disturbance. He regards these heart findings as due to thyroid intoxication, and calls them the torpid form in contrast to Kraus' overexcitable type of thyroid heart.

73. **Venous Pulse Curve.**—Henkel has devised a little apparatus which consists of a stand with three legs holding on the vein the pad connected with the drum. The three legs of the stand are of hollow rubber and are held firm on the skin by vacuum action, the air being pumped out of them with a rubber bulb. The little tripod thus fits tight to the skin and moves with it, while the recording pad can be adjusted to determine the vein pulse without interfering with the arterial.

74. **Changes in the Pancreas in Alcoholism.**—Lissauer has found in twenty-four cases of gin liver that the pancreas showed more or less similar changes. His findings confirm those of Weichselbaum in twenty-seven similar cases. The importance of this "gin pancreas" is evident in the development of diabetes mellitus in persons addicted to liquor.

75. **Lordotic Albuminuria.**—Fränkel examined twenty-one children with spinal disease and found eight free from any trace of albuminuria, while it was evident in the others. In twenty-two other children with albuminuria he found only eight without some anomaly in the spine. Among other points learned from this research is that the total acidity increased in the children with albuminuria induced by lordosis, unless the children had been given beforehand a dose of 4 gm. sodium bicarbonate. It is possible, he says, that the elimination of albumin in these cases is due to abnormal production of acid. It might be wise to give an alkali occasionally in addition to hygiene and tonics to combat the constitutional weakness. Some of the children were pale and restless and complained of headache—all improving under the alkali. In one child the albuminuria followed a scarlet fever nephritis; this scarlatinal nephritis never showed any influence from the administration of the alkali.

76. **Test for Nitrogen in the Urine.**—Bergell gives the details of a technic which he has found very useful, simpler and more reliable than the Kjeldahl tests, for determination of the nitrogen in the urine. A quartz test-tube is required and in this the nitrogen is determined after calcining with calcium oxid.

78. **Treatment of Impending Gangrene of Extremities.**—Noesske reported in 1909 the excellent results of slitting the end of the finger down to the bone and applying a suction cup when the part was threatened with gangrene. By this means the stagnating venous blood was drawn out of the tissues and the arterial blood streamed in to take its place, thus restoring the circulation and warding off further trouble. Liek has applied the same principle in a number of cases, especially pedunculated flaps when gangrene seemed inevitable, but he never found it necessary to go to such extremes as the above, numerous minute incisions proving all that was necessary and healing without leaving disfigurement. This was particularly evident in a recent case in which a young man had had his right ear sliced nearly off. It was connected with only a bridge of skin 1.5 cm. wide. Liek sutured it in place but the ear was blue and cold until he made fifteen small incisions, both on the front and rear, radiating from the meatus. Each incision was 3 or 5 mm. long; at first they did not bleed but after a time drops of dark blood began to ooze out and the ear began to resume its natural tint. Gangrene was thus warded off and the ear healed in place. He did not apply the vacuum cup, and he thinks that even for the fingers these minute incisions might give equally good results as Noesske's single deep incision while there would be no resulting disfigurement or impairment of function. Liek urges exarticulation of the fingers as giving better results than the deformed stump left after serious injury of a finger. Workingmen are less incapacitated by being left with four fingers than with a stiff and contracted fifth finger after too zealous conservatism.

Deutsche Zeitschrift für Chirurgie, Leipsic

October, CXIX, Nos. 3-4, pp. 201-368

80 *Treatment of Glass-Blowers' Tumor. (Ueber operative Eingriffe bei der Pneumatocele der Parotis und des Ductus Stenonianus.) A. Narath.
81 *Surgery of the Heart. (Zur Chirurgie des Herzens.) A. Wagner.
82 Experimental Goiter. (Zur experimentellen Erzeugung der Struma.) J. Sasaki.
83 Changes in Pulse and Blood-Pressure with Pneumothorax. (Zur Kenntnis der Puls- und Blutdruckveränderungen beim Pneumothorax.) H. E. Walther.
84 Dislocations in the Foot. (Luxationen im Bereich des Mittelfusses.) K. Brockmann.
85 *Anthrax. (Der äussere Milzbrand des Menschen.) O. Heinemann.
86 Primary Cystic Enlargement of Common Bile Duct. (Zur Kasuistik der primären cystischen Erweiterung des Ductus choledochus.) J. Mayesima.
87 Artificial Common Bile Duct. (Experimentelle Versuche über künstliche Choledochusbildung durch einfaches Drainrohr.) L. Arnsperger and N. Kimura.

80. **Glass-Blower's Tumor.**—Narath comments on the errors in diagnosis of the tumor in the parotid gland which is an occupational affection in glass-blowers. In Liniger's case two physicians had ascribed the trouble to rupture of the buccal mucosa, but in this as in a personal case described and in all the others but one on record, there was no rupture; the air had merely forced its way through the outlet into the gland. The chronically stretched duct and gland never return to normal conditions and the workman may thus be partially if not totally incapacitated for glass-blowing unless some appliance can be worn which will compress from without the duct of Steno and thus prevent entrance of air during the blowing, or the condition can be corrected by an operation. Narath exposed the duct and dug it out of its natural opening into the mouth, carrying it farther along to another point where he implanted the mouth of the duct in the mucosa. This made the course of the duct slanting instead of direct, and a sort of valve action prevented entrance of air. The new mouth of the duct finally grew up with cicatricial tissue, preventing the outflow of saliva. A second operation was therefore necessary and Narath excised most of the parotid gland from without and thus put an end to the pneumatocele while sparing the muscles and nerves. He was impressed with the efficiency of his adjuvant injection directly into the gland of a caustic solution. It speedily destroyed the gland tissue and he thinks that direct injections of this kind through the natural outlet might be sufficient to cause the shriveling up of the gland without an operation. There would, however, be danger of importing infection from the mouth with this treatment, and the preferable technic, he suggests, would be to bring the mouth of the duct out through the cheek and then, when the wounds had healed, to proceed to the obliteration of the parotid gland with injections of the caustic zinc chlorid. He is waiting impatiently for an opportunity to try this method in the clinic after experimental research. In conclusion he suggests that possibly mere ligation of the duct might prove effectual.

81. **Surgery of the Heart.**—Wagner states that there are now 260 cases of operations on the heart on record with recovery of about 50 per cent. of the patients. The signs of injury of the heart from a stab or gunshot wound are the external wound, the abnormal murmurs, the spreading area of dulness, Rose's "heart tamponade" (strangulation of the heart from accumulation of blood in the pericardium), anemia and subjective phenomena such as precordial anguish, pain in the heart region, sense of oppression and dyspnea. Roentgenoscopy is seldom practicable in a case of serious injury of the heart. As the prospects are good for operative treatment up to the fourth hour, the importance of an early diagnosis is evident. But the most serious cases do not always present the severest symptoms. In a personal case described all the signs pointed to a stab wound of the heart and it was exposed by an operation but the heart proved to be intact, although blood had accumulated in and around the pericardium. The man would undoubt-

edly have recovered without the operation, and the case would then have gone on record as "recovery from a stab wound of the heart under conservative measures alone," when in reality there had been no wound in the heart.

85. **Anthrax.**—Heinemann has compiled 2,000 cases of malignant pustule and compares them with his own experience, his impression being that operative measures offer invariably the best prospects for a cure. The operation must consist in the most thorough excision of the entire diseased area. The assertions in regard to the harmfulness of this are based on false premises; only an incomplete operation can do harm; the complete can only benefit in the treatment of local anthrax. The mortality in Koch's 1,473 cases was 38.8 per cent., but the statistics brought down to date give a mortality of 5.8 per cent. in 2,255 cases. The entire material is tabulated under various headings, with a full bibliography.

Medizinische Klinik, Berlin

October 20, VIII, No. 42, pp. 1693-1730

88 Examination of Nervous System After Trauma. (Welche Vorsichtsmassregeln sind bei der Untersuchung des Nervensystems Unfallverletzter zur beobachten?) P. Schuster.
89 Examination of the Hearing. (Ueber Hörprüfung und ihre Verwertung in der amts- und zivilärztlichen Praxis.) K. Biehl.
90 Roentgenoscopy of the Spine. (Der röntgenologische Nachweis von Verletzungen der Wirbelsäule.) R. Graessner.
91 *Operative Treatment of Congenital Stenosis of the Pylorus. C. Rammstedt.
92 Palpation of Gastro-Intestinal Tract. (Die topographische Gleit- und Tiefenpalpation und ihre klinische Bedeutung.) Hausmann.
93 Experimental Syphilis in Rabbits. (Kaninchenimpfung mit Syphilitikerblut und Blutserum.) Aumann.

91. **Operative Treatment of Congenital Stenosis of the Pylorus.**—Rammstedt reports the successful application in two cases of Weber's technic for a partial plastic operation on the pylorus without opening the mucosa. Both patients were young male infants and the results were highly satisfactory. The serosa and the thick muscular ring are incised without disturbing the mucosa; the muscular ring gapes at once afterward, sufficient to correct the tendency to stenosis. The muscular ring was found closely contracted, bloodless, and, once divided, it separated, widening the lumen sufficient for the desired purpose. To make sure of this, however, Rammstedt sutured the incision in the first case, drawing the lips transverse, and suturing a wisp of omentum over the whole to protect the line of suture beneath. The child vomited occasionally afterward and was a long time in convalescing. In future Rammstedt intends to refrain from the transverse suture, being convinced that the slitting of the muscular ring answers the purpose fully. This corrects the spasmodic contracture of the pylorus; the hypertrophy will not cause disturbance if the spasm is corrected. This is rendered certain by the finding of a hypertrophied pylorus in children who have recovered from early stenosis of the pylorus and have died of intercurrent disease. If the slit pylorus is left a little incontinent, this can be regarded as an advantage rather than the reverse. He treated the other male infant in this way more recently, merely slitting the muscular ring of the pylorus below the mucosa, not attempting any suture afterward, and the results were perfect. The infant was completely relieved of all disturbances and never vomited after the operation but rapidly recuperated under appropriate dieting. As the duodenum is atrophied in these cases from disuse and is not accustomed to receiving much chyme at a time, it must be gradually trained to this after the operation. For these reasons, and the injury from the inanition, it is best not to defer the operation too long.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

October, XXXVI, No. 4, pp. 393-510

94 Internal Secretion of the Corpus Luteum. Kintsi.
95 Papillomas of the Vagina. F. Kiesselbach.
96 Mutation of Uterine Cancer. (Carcinosarcoma uteri mit Metaplasie des Zylinderepithelkarzinom in Plattenepithelkarzinom.) A. Stein.
97 Ovarian Cancer Inducing Lactation. (Ueber ein primäres und ein metastatisches Ovarialkarzinom mit Milchbildung in den Brustdrüsen.) H. Saenger.
98 Operative Treatment of Uterine Hemorrhage. E. Parker Davis (Philadelphia).
99 *Bacteriologic Control of Asepsis in Vaginal Celiotomies. D. von Ott.

99. **Asepsis in Vaginal Operations.**—Von Ott finds that in two-thirds of the gynecological cases in his clinic operative treatment can be applied by way of the vagina. By a series of experiments he has found that the vagina and cervix and even the uterine cavity can be completely sterilized with either mercuric chlorid or tincture of iodin. He urges a more extensive use of the vaginal in preference to the abdominal route on account of the safety offered by this possibility of thorough sterilization.

Monatsschrift für Kinderheilkunde, Leipsic

XI, No. 5, pp. 175-232

100 *Alkalized Kefir in Infant-Feeding. (Eine vereinfachte Methode der Behandlung akuter Ernährungsstörungen beim Säugling.) J. Peiser.
101 Delay in Vaccine Pustulization in Measles. (Verzögertes Auftreten von Impfpusteln bei Masern.) K. Neumark.
102 Two Cases of Patent Ductus Botalli. (Stauungslunge bei Offenbleiben des Ductus Botalli.) A. Hayashi.
103 Central Register of Women Willing to Nurse Another Infant Along with Their Own. (Eine neue Organisation für die Behandlung darmkranker Säuglinge.) Vogt.

100. **Alkalinized Kefir, a Simple Method of Treating Acute Digestive Disturbances in Infants.**—Peiser recommends the use of alkalinized kefir in treatment of acute intestinal troubles in infants. To half a liter of kefir he adds half a liter water and 5 c.c. of a 20 per cent. solution of sodium carbonate. The sugar content of the mixture is about 1.5 per cent.; albumin 1.0 per cent., and fat 1.7 per cent. It checks fermentation and brings about a normal condition of the stools. Its use should not be continued long after the stools return to normal, as it is not sufficient for the child's proper nourishment. It is easy to prepare, and it is cheap and therefore adapted for use in clinics. About twenty case histories are given, with the weight curves, to show the advantages of this food under certain conditions.

Münchener medizinische Wochenschrift

October 15, LIX, No. 42, pp. 2265-2320

104 *Diffuse Gonorrheal Peritonitis. H. Albrecht.
105 Action of Antistreptococcus Serums. F. Heimann.
106 Technic for Research on the Coagulation of the Blood. (Die Blutentnahme bei Gerinnungsuntersuchungen mittels der Methode von W. Schultz.) I. Holmgren.
107 *Technic for Intravenous Injection. Galli.
108 Thyroid Treatment of Sterility. (Schilddrüsenpräparate gegen Sterilität?) L. Weil.
109 Necropsy Findings in Case of Eventration of the Diaphragm. (Zwerchfellinsuffizienz.) H. v. Eggeling.
110 Origin, Prevention and Treatment of Nerve Relapses in Syphilis. (Erfahrungen mit Salvarsan. II.) G. L. Dreyfus. Commenced in No. 41.
111 Intoxication from Benzol Fumes. P. Beisele.

104. **Diffuse Gonorrheal Peritonitis.**—Albrecht gives the particulars of four cases of diffuse gonorrheal peritonitis; in two operative treatment was applied. In every case the peritonitis developed with a stormy onset, with rapid subsidence of the symptoms after the operation. The mild character of gonorrheal peritonitis is confirmed anew by these experiences.

107. **Intravenous Injections.**—Galli describes the technic which is in routine use at Baccelli's clinic at Rome as the Italians apply this method frequently in treating tetanus, sepsis, malaria, etc. The sphygmograph cuff is very convenient for the purpose; the radial pulse must not be abolished, only the systolic pressure. This permits the arterial blood to flow into the arm while the reflux in the vein is arrested. The syringe is filled to four-fifths with the fluid and the needle is inserted until it runs parallel to the course of the blood in the vein. Withdrawing the piston permits a little blood to enter the syringe if it is really in the vein. The contents of the syringe then are slowly injected and the piston is withdrawn a trifle again just as the pressure in the cuff is released. In his extensive experience with the method he has never witnessed the slightest untoward by-effects or pain from the injections.

St. Petersburger medizinische Zeitschrift

October 14, XXXVII, No. 19, pp. 277-291

112 Surgical Disease of the Pancreas. P. Bode.
113 Paratyphoid. (Zur Frage der Paratyphus-Erkrankungen.) S. Unterberger.

Virchows Archiv, Berlin

October, CCX, No. 1, pp. 1-160

114 Adaptation of Tissues. (Anpassungslehre, Histomechanik und Histochemie.) R. Thoma.
115 Scar Formation. (Aseptische und septische Narbenbildung.) E. Greggio.

116 Internal Pachymeningitis. (Umschriebene bindegewebige Verdickungen an der inneren Fläche der Dura mater bei Pachymeningitis haemorrhagica interna.) G. R. Lafora.
117 Protuberance on Anterior Margin of Optic Chiasm. (Fortsatzbildung am vorderen Rande des Chiasma nervorum opticorum.) S. Ogata.
118 Muscular Anomalies in Domestic Animals. (Dystrophie vereinzelter Muskeln beim Schweine und Pseudohypertrophia lipomatosa des Rindes.) L. E. MacKenzie.
119 *Iron in Muscles. (Auftreten mikrochemisch nachweisbaren Eisens und eisenhaltigen Pigments in quergestreiften Muskelfasern.) M. Ishida.
120 Obliterating Bronchiolitis. M. D. Karwicka.
121 Chronic Nodose Peribronchiolitis in Cattle. R. Hintze.
122 Morphology of Compensatory Hypertrophy and Hyperplasia of the Liver. K. Rochs and C. de Leeuw.

119. **Iron in Muscle.**—Ishida's material was that of sixty-one autopsies in addition to animal experimentation. In the cases where there was muscular atrophy, he was able to demonstrate michrochemically the presence of iron in the striated muscle fibers. This iron did not come from blood pigment but from the muscle itself, probably from the so-called muscle hemoglobin. In animals the same condition could be produced artificially by nerve section. The iron was more abundant in guinea-pigs than in mice. The practical value of this discovery is that we can no longer say that an iron-containing pigment is necessarily derived from the blood.

Wiener klinische Wochenschrift, Vienna

October 17, XXV, No. 42, pp. 1557-1592

123 Lipoids in Blood During Pregnancy and Their Elimination in Milk. (Lipoide der Gravidität und deren Ausscheidung nach vollendeter Schwangerschaft.) E. Hermann and J. Neumann.
124 Biologic Differential Diagnosis of Leprosy and Tuberkulosis. R. O. Stein.
125 Actinomycosis or Cancer of Submaxillary Salivary Gland. (Zur Kasuistik der Erkrankungen der Unterkieferspeicheldrüse.) O. M. Chiari.
126 Case of Oppenheim's Progressive Twisting Spasms. (Fall von Torsionskrampf.) S. Bernstein.
127 Fatal Sepsis from Bird-Shot Wound. (Zur Kasuistik der Schrotschussverletzungen.) J. Kumaris.

Zeitschrift für klinische Medizin, Berlin

LXXVI, Nos. 3-4, pp. 167-373. Last indexed Oct. 12, p. 1417

128 *Diagnostic Importance of Pepsin in Urine. (Harnpepsinbestimmung.) H. Tachau.
129 *Ultimate History of Syphilitic Families. (Schicksal Syphiliskranker und ihrer Familien.) M. Kaufmann-Wolf.
130 *Hemophilia. E. Gressot.
131 *Action of Large Doses of Alkalies in Diabetes. (Ueber einige Wirkungen grosser Dosen Natr. bicarb. bei Diabetes mellitus.) O. Hanssen.
132 Case of Paralysis Agitans with Enlargement of Parathyroid Glands. G. Gjestland.
133 *Intermittent Symptoms of Exophthalmic Goiter. (Ueber intermittierende Basedowsymptome — bei Tabes dorsalis und Bronchialasthma.) H. Curschmann.
134 *The Action of the Parathyroids in Nephritis. (Ueber die entgiftende Tätigkeit der Parathyreoidea bei der Nephritis.) M. Georgopulos.
135 Serodiagnosis of Echinococcus Disease. (Diagnostische Verwertung der Echinokokkenkomplementbindung.) T. Barsony and E. Egan.
136 *The Criteria of Healed Pulmonary Tuberculosis. (Die Kriterien der abgelaufenen Tuberkulose der Lungen und ihrer regionären Lymphdrüsen.) G. Goerdeler.

128. **Pepsin in the Urine.**—Tachau reports research which shows that the digestive ferments in the urine cannot be relied on as an index of stomach disease.

129. **Syphilitic Families.**—Wolf here reports a second series of nine women with syphilis in the Heidelberg clinic for mental disease, mostly with progressive paralysis. They were all married and some of their husbands remarried, so that the series includes twenty persons; only two were free from probable or certain syphilis. The series is a continuation of similar research on a group of forty-five persons (reviewed in THE JOURNAL, July 20, 1912, p. 236). Of the sixty-six pregnancies only thirty-three viable children were born, and fourteen died in childhood; three committed suicide at 12, 20 and 28; two were epileptics, and one died after an abdominal operation; thirteen are still living, but only two are normal. The others are all feeble-minded, epileptic, hysteric or with other nervous affections. This research was not undertaken to show the frequency of syphilitic nervous disease, but it demonstrates the great share which syphilis has in the development of nervous affections. The data presented show further that the assumption of a nervous predisposition is untenable, for the same parents in later years, after recovery from the syphilis, were able to generate healthy children. The first series showed that "occult syphilis" generally runs a comparatively mild course to the end. On the other hand, the second series show that the nervous form may prove an exceptionally serious taint for the family.

130. **Hemophilia.**—Gressot reports extremely minute clinical research for months in a case of hemophilia with necropsy two hours after death. The findings show that a general lack of thrombokinase cannot be the cause of hemophilia, but it is certainly lacking in the blood. It can be supplied from without in local application to the bleeding points in the form of fresh blood, serum or tissue juice. By this means the flowing blood can be rapidly coagulated and, provided that the thrombokinase can get deep enough into the wound, the hemorrhage may be arrested by it. This local application can be applied only to hemorrhage from the skin or mucosa of the mouth. No other means proved effectual in controlling the hemorrhages in the case described, although all the measures in vogue were given most thorough trial. There was no history of hemophilia in preceding generations, but the patient was the last of five brothers who had succumbed to bleeding from the gums or head after comparatively slight injury. The patient has five sisters, three of whom are married and are normal and their daughters are also normal, but each has lost one or two sons from hemophilia.

131. **By-Effects of Sodium Bicarbonate in Large Doses in Diabetes.**—Hanssen presents evidence to show that while the bicarbonate may arrest coma in diabetes mellitus, yet this effect is only temporary. The coma is merely postponed, and it is sure to return sooner or later. The alkali has also a pronounced effect on the weight, probably from the following retention of water. He tabulates fifteen cases in which the weight increased from 0.1 to 12.4 kilos (27.28 pounds) in from one to eleven days. The details of eight coma cases are also tabulated with the necropsy findings. Extreme hyperemia and edema in the meninges of the brain were found in every case, accompanied by hemorrhages in five cases. In three of the six cases in which the sodium bicarbonate had been given intravenously, clonic or tonic spasms followed. Albuminuria was a constant finding in all the severer cases of diabetes, but it regularly subsided under the alkali.

133. **Intermittent Exophthalmic Goiter.**—Curschmann calls attention to some cases in his practice in which the severe and complete picture of exophthalmic goiter developed at intervals, accompanied by other paroxysmal phenomena indicating disturbances in both the cerebrospinal and sympathetic nerve systems. He has found only one reference in the literature (H. Herz, 1902) to Basedow symptoms occurring intermittently in connection with vasomotor ataxia. His first patient had tabes, and during his severe gastric crises all the symptoms of exophthalmic goiter developed in a pronounced form, the exophthalmos, tachycardia, sweating and tremor, and the thyroid swelled. At first all these symptoms subsided with the gastric crisis without leaving a trace, but in time there was permanent persistence of slight exophthalmos and thyroid enlargement all the time, becoming exaggerated during the crises. In his two other cases the intermittent Basedow accompanied attacks of asthma. The exophthalmos, tachycardia, sweating and tremor were associated with various vasomotor symptoms, redness of the face and conjunctiva, cyanosis of the fingers, etc., and psychic disturbances, irritability, agitation, depression, etc., but the thyroid did not become enlarged. One of the men had symmetrical lipomas in his neck, and these swelled notably during the attacks but subsided again afterward, confirming the assumption of a connection between lipomas and thyroid functioning. The same injurious influence which induced the asthma and the thyroid intoxication, manifested in the intermittent Basedow, acted on the vasomotors of the lipomas. The essential primal cause seems to be thus some irritation of the nerves regulating the secretion of the thyroid. Curschmann's three cases of intermittent exophthalmic goiter throw light on the mechanism of the affection, and are further interesting from the therapeutic action displayed by epinephrin in regard to the tabetic crises. He found that three to ten drops of the 1:1,000 solution, by the mouth, arrested the crises much sooner and more effectually than morphin and sodium

nitrate. The epinephrin proved effectual also in arresting the asthma plus Basedow attacks in the other cases.

134. **The Parathyroids in Nephritis.**—In order to induce hyperfunctioning of the parathyroids, Georgopulos removed the thyroid in rabbits and then induced nephritis by injection of uranium nitrate. The results observed suggest that the parathyroids counteract the systemic intoxication in nephritis, and thus that an extract of these glands might prove useful in treatment of nephritis in man.

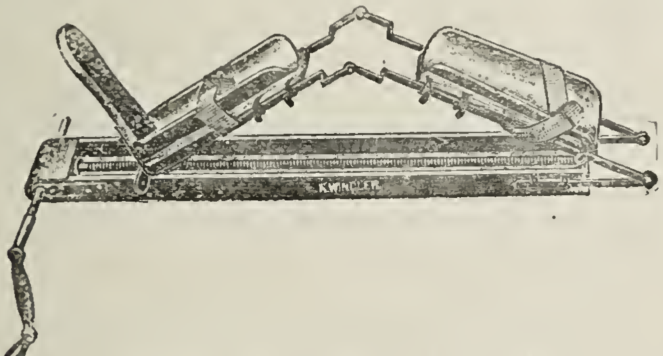
136. **Signs of Healed Tuberculosis.**—Goerdeler analyzes the necropsy findings in the lungs of persons known or suspected to have had tuberculous processes, and he devotes nearly one hundred pages and three colored plates to a discussion of the interpretation of the anatomic findings. In the same lung there may be induration of both tuberculous and non-tuberculous character and it is often extremely difficult to differentiate them. This difficulty renders it impossible to decide with any certainty as to the actual prevalence of pulmonary tuberculosis among adults. Many linear adhesions in the pleura and patches of induration in the apices have nothing to do with tuberculosis, and diffuse calcification and ossification are no criteria of tuberculosis. The statistics showing tuberculosis in 100 per cent. (Nägeli); 91 (Burkhardt); 80 (Harbitz), or 60 per cent. (Beitzke), of the cadavers examined should be corrected to percentages approximating Goerdeler's own, namely, 59.3 per cent. of 284 cadavers were certainly tuberculous, while 39 per cent. were probably or possibly tuberculous. The behavior of the elastic fibers and deposits of carbon are instructive differential points.

Zentralblatt für Chirurgie, Leipsic

October 26, XXXIX, No. 43, pp. 1473-1504

137 *Fracture of Patella. (Zur Nachbehandlung von Patellarfrakturen mit totaler Zerreissung des Streckapparates.) Gelinsky.
138 Tibia Flap for Gap in Skull. (Ersatz von Schädeldefekten aus der Tibia.) Kleinschmidt.

137. **Fracture of the Patella.**—Gelinsky refers in particular to fracture accompanied by total laceration of the extensor apparatus. The torn muscle retracts and shrivels and the longer this lasts the greater the force required to pull it out to unite the stumps again. The operation should follow the injury as soon as possible, the next day at latest. Treatment should aim to suture the bone and muscles, relieve the traction on the sutures, and exercise the knee as soon as possible. These requirements he has met with an adjustable splint holding the knee slightly flexed; the flexion can be increased at will by forcing the heel nearer the hip by turning a crank screw. The screw thread is so fine that the heel can be moved part of a millimeter at a time. This permits gentle stretching of the muscle, stopping at the least sensation of overtraction. The muscle soon accustoms itself to the new position, the tension subsides, and after fifteen minutes the screw can be turned again and the muscle thus stretched a trifle more. At the close of the exercise the screw is wound the other way, bringing the heel back to its former position. This can be repeated several times and thus gradually the muscles can be flexed and stretched, keeping them in physiologic condition. He gives the details of three cases in which he applied this method with complete recovery. In one case carelessness resulted in the tearing through of the suture of the bone at the close of the first week. An apparatus was then applied, consisting of two claws fastened on each end of a rod with a screw thread. The claws were inserted in the outer edges of the patella and screwed together on the rod until they held the parts of the patella in close coaptation. In little more than a month the injured limb was ready to use at polo. The three cases illustrate the slight dependence that can be placed on the suture of the bone. The main thing is to restore normal conditions in the muscular apparatus. When this is done, if the parts of the patella separate later no harm results. The claw apparatus described can take the place most effectually of suture of the bone, and in future Gelinsky would not attempt the latter. Another advantage of the claw apparatus is that it does away with muscular traction on the suture. The claws can be left in place for three or four weeks. The tips are anchored in the tendons and do not enter the joint proper. An illustration is given also of this claw device.


Knee-rest splint permitting exercise.

Zentralblatt für Gynäkologie, Leipsic

October 26, XXXVI, No. 43, pp. 1417-1456

139 *Influence of Death of the Fetus on Eclampsia. (Bedeutungslosigkeit des Satzes von v. Winckel für die Lehre über die Eklampsie.) F. Lichtenstein.
140 Attempts at Abortion in Absence of Pregnancy. (Abtreibungsversuch bei fehlender Schwangerschaft, zugleich ein Beitrag zum Kampf gegen die kriminelle Fruchtabtreibung.) F. Thomä.

139. **Influence of Death of Fetus on Eclampsia.**—Lichtenstein states that in Lamsbach's recent exhaustive search through the literature he found records of only ten cases of eclampsia in which the convulsions ceased after the death of the fetus; in sixty-eight cases the convulsions developed first after the death of the fetus, and in sixty-six there was intercurrent eclampsia. These data disprove the assumption that the death of the fetus arrests the eclampsia. Fully 28 per cent. of the women died of the fifty who were delivered of a macerated fetus. When the patient begins to improve after the death of the fetus this is generally because the treatment has killed the fetus; this and the improvement observed are both the effects of a single cause—the therapeutic measures that have been applied. (Compare with article in The Journal, March 16, 1912, p. 781.)

Gazzetta degli Ospedali e delle Cliniche, Milan

October 15, XXXIII, No. 124, pp. 1297-1304

141 Agraphia. Dejerine.

October 17, No. 125, pp. 1305-1312

142 Radiotherapy as Adjuvant in Treatment of Surgical Tuberculosis. (La fototerapia come cura complementare invernale delle cure marine in alcune forme scrofulo tubercolari della cute e del sistema articolare e osseo.) E. Cortona.

October 20, No. 126, pp. 1313-1328

143 Operative Treatment of Primary Enlargement of the Spleen; Advantages of Ligation of Splenic Artery. T. Silvestri.

Policlinico, Rome

144 *Woody Phlegmon. (Caso di flemmone ligneo.) E. Guasoni.
145 *Reduction of Malaria in Italy. A. Celli.

October, Medical Section No. 10, pp. 431-478

146 Relations Between Anaphylaxis and Fever. C. Moreschi and A. Golgi.
147 Glycogen in Liver and Blood in Cholera. M. Segale.
148 Attempts at Serodiagnosis and Serotherapy in Kala-Azar in Children. (Tentativi immunodiagnostici ed immunoterapeutici nella Leishmaniosi infantile.) A. Longo.
149 Epidemic of Small-Pox. (L'epidemia di vaiolo a Fondi.) D. A. Mazzolani.
150 Cholera in Southern Italy During 1911. (L'epidemia colerica nelle Puglie—Anno 1911.) A. Gasbarrini.

145. **Reduction of Malaria in Italy.**—Celli presents the full data and statistics in regard to the practically gratuitous distribution of quinin by the government, and the efforts at eradication of malaria by other means and the fine results thus accomplished to date, as he reported them at the recent International Congress of Hygiene at Washington.

Brazil Medico, Rio de Janeiro

September 22, XXVI, No. 26, pp. 373-384

151 Diagnosis of Duodenal Ulcer. R. Vaz.
152 Neurasthenia. (O tratamento physio-dietetico da neurasthenia.) G. Aimbrust.

Medicina Contemporanea, Lisbon

October 20, XXX, No. 42, pp. 329-336

152 *Asthma with Pulmonary Syphilis in Child: Recovery Under Specific Treatment. (Cas de pneumosyphilose asthmatiforme.) S. Teixeira.

153. **Pulmonary Syphilis.**—Teixeira states that syphilis of the lung usually simulates acute or chronic bronchopneumonia or pulmonary tuberculosis or sclerosis of the lung, or syphilis and tuberculosis may be associated. In a recent case he found a fifth form in which the symptoms seemed to be those of ordinary asthma. His patient applied for relief from the asthma which had come on two months before. The muscles of inspiration were contracted and tender, the sputum gray and thick. He assumed an idiopathic asthma and instituted the ordinary arsenic and belladonna treatment, but the patient returned five days later showing no benefit. He then displayed some varicose ulcers on the right leg which had been given local treatment for a year by different physicians without benefit. The sight of these two ulcers suggested the diagnosis of syphilis and under mercurial treatment the ulcers healed up in a month and with them the asthma disappeared, and there was nothing left of the former trouble except a slight bronchial catarrh. In another case of pulmonary syphilis a little girl of 7 presented symptoms of pulmonary tuberculosis. The prognosis was regarded as grave until the discovery of a syphilitic eye affection in the mother. Under specific treatment both mother and child were restored apparently to normal health. At present, five years later, the only trace of the child's pulmonary syphilis is a patch of sclerosis in the middle portion of the right lung; she has taken a course of specific and arsenic treatment every spring and fall during the interval since.

Norsk Magazin for Laegevidenskaben, Christiania

October, LXXIII, No. 10, pp. 1406-1556

154 Roentgenoscopy of the Stomach. (Om den normale og pathogiske ventrikel i Röntgenbilleder.) S. A. Heyerdahl.
155 *Fever After Delivery Is Not Always "Puerperal Fever." (Barselfebre og feber i barselsengen.) K. Brandt.
156 *Intoxication Syndromes. (Hypotetiske betragtninger over ætiologien av kostsygdommene, svangerskaps-intoxikationerne og endel andre intoxikationssygdomme.) G. Benestad.
157 *Cholelithiasis with Complications. (Komplicerte galdeveistilfælder.) O. Borchgrevink.

155. **Puerperal Fever and Fever in the Puerperium.**—Brandt states that the science of medicine has been passing in the last ten years through a "mask and glove period" from which it is now emerging. Masks and gloves have not proved effectual in warding off infection, and science is returning to the old conception of the *vis medicatrix naturae*, or, as we call it now, the resisting powers of the organism. He expatiates on the dangers of allowing the public to cherish its present belief that when there is fever in a maternity case the obstetrician or attendants are at fault. Even certain physicians now cherish this belief, and it is not only erroneous but it may lead to disastrous consequences. He presents an array of evidence to prove that fever in the puerperium is not necessarily puerperal fever. It may be the manifestation of a perforating gastric or duodenal ulcer, appendicitis, rupture of an old pus focus in the uterine adnexa, miliary tuberculosis, gonorrhea, infected extragenital thrombi or osteomyelitic focus. The open wounds in the genital organs may become infected from some infectious process in the tonsils, from a mastitis or otitis media, while actual puerperal fever can certainly develop from self-infection. The diagnosis of actual puerperal fever cannot be made with certainty without direct visual inspection of the internal genitals at necropsy or an operation. He gives the details of nine cases in which to the lay mind everything seemed to indicate puerperal infection, and yet this was absolutely not the case in most of them. He urges the necessity for great caution in certifying to a death from puerperal fever when there has been no internal examination by the physician or attendant. In the first case, during the puerperium there was subfebrile temperature and occasional coughing and an effusion developed in the right iliac fossa. The respiration suffered and the patient died the twenty-ninth day, three days after the death of the child. The temperature curve was not that of puerperal infection, and necropsy revealed an old left pulmonary tuberculous process, a right tuberculous salpingitis and miliary tuberculosis, and the child's lungs were full of tubercles. Without the necropsy the death would have been credited to puerperal fever without fail. In the second case the puerperium was normal but two weeks after the patient's return home, headache and high fever developed as the first signs of sepsis, fatal fourteen days later. Necropsy here showed the uterus in normal involution, with nothing pathologic in the adnexa or surrounding tissue. Absolutely no cause for the infection could be discovered except a small ulceration on one toe. If the temperature and pulse curves and the necropsy findings had not shown such a normal course, this would have been regarded as a tardy puerperal fever. In a third case the woman had had placenta prævia two years before and she had "caught cold" before the present childbirth. The temperature and pulse were normal after a slight rise the third day, ascribed to the mild coryza with herpes. Otherwise the puerperium was normal and the woman was out of doors after her return home. As she did not feel quite well, she called a physician who found nothing pathologic and merely advised repose. As she continued to feel badly she called another physician who found then fever and an effusion near the uterus, and the woman died a month after dismissal from the hospital. The physicians ascribed the death on the certificate to "puerperal fever of five weeks' duration." The husband instituted a suit for damages against the maternity, claiming that his wife had been dismissed while she had puerperal fever. The maternity curves showing the normal temperature disproved part of this allegation. There was no necropsy. In this as well as in all the other cases reported no internal examination had been made by physician or attendant. The most probable explanation of the case is that some pathologic process left from the old placenta prævia had flared up during the involution of the uterus after the patient was up and about, and parametritis had followed. This case emphasizes anew the necessity for examining the maternity records and the post-mortem findings before certifying to a death from puerperal fever. In some of the other cases an intercurrent appendicitis or flaring up of an old process was responsible for the clinical picture of the puerperal fever. In others the patients had inflammation of varicose veins in the legs before delivery, and the inflammation spread upward, entailing a three months' sickness. Brandt considered the advisability of ligating the varicose vein but did not do this; in future he would ligate at once in such a case, striving to prevent the upward spread of the process in the femoral vein. There is no question that many cases of embolism in the puerperium are due to old thrombophlebitis. The genital organs undergoing involution offer a point of lesser resistance, so that infection from any point in the body is liable to localize there and get the physician or midwife into trouble unless the profession combats the present prevailing idea that fever in the puerperium is due inevitably to some sin of commission or omission on the part of the obstetrician or attendant.

156. **Pregnancy and Other Intoxications.**—Benestad groups beriberi, scorbutus and eclampsia together as affections due to products absorbed from the intestines or the glands with an internal secretion or from the fetus. He theorizes to explain them all as the result of absorption of unfinished products. Under normal conditions the products are elaborated a little more fully and are not toxic. In pathologic conditions, these products are unfinished and represent intermediary products which have a decidedly toxic action when absorbed. The manifestations are mostly nervous phenomena, cramps, convulsions and kidney or cardiovascular symptoms and hemorrhages. The outcome as a rule is either death or complete restitution. In all this group, from the standpoint of both therapeutics and prophylaxis, the diet is of primal importance.

157. **Complicated Gall-Stone Cases.**—Borchgrevink reports a case of perforation of the gall-bladder with circumscribed peritonitis; another of ileus following perforation of the gall-bladder and a third case in which the common bile duct became occluded after cholecystectomy. He discusses the literature on this subject of operative loss of continuity of the common bile duct and means to remedy it.

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158 Connection Between Internal Ear and Central Nervous System. (Barany's Lære om Forholdet mellem Vestibularapparat og Centralnervesystem.) P. T. Hald. Commenced in No. 41.

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ARTERIOSCLEROSIS *

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Arteriosclerosis is a penalty of our present civilization and is increasing in frequency so rapidly that any study or contribution leading to its better understanding is well worth while.

For a profitable consideration of the subject, certain fundamental facts of the physics of the circulation and the maintenance of cell life must be recalled. The proper nutrition of the different organs of the body is dependent not only on the functional activity of their own cells, but also on the vital activity of the cells making up the cardiovascular mechanism. Not only must both cell elements remain structurally and functionally intact, but there must be a certain intravascular tension in the arteries, arterioles and capillaries.

I believe no physiologist holds that tissue nutrition can be maintained in the absence of tension. This neither negatives nor loses sight of the principle of osmosis, which, in this connection, might stand for chemical tension. A concrete illustration of this may be found in the kidneys. As long as they function normally, even excessive blood-pressure does not cause albumin to be forced through the epithelium lining the tubules in appreciable amount; it is only when the vital activity of the lining cells is interfered with through long-continued strain, toxins or irritants, that albumin and possibly blood appear in the urine. Following and perhaps concomitant with this, connective-tissue changes take place, and the sclerotic condition develops.

A point quite puzzling and one requiring much study is: Why is sclerosis sometimes localized and sometimes general? As a working hypothesis it might be assumed (1) that there is a local defect, either congenital or acquired, in the organ or organs involved; or (2) that the specific toxin has a selective influence which acts on the vasomotor or trophic centers, regulating the blood-supply and nutrition of the part involved, the toxin or irritant acting on the vasomotor mechanism and secondarily on the cells lining the arterial and capillary systems and producing sclerotic changes in the vessels and throughout the areas supplied by them.

Excessive muscular work, either general or local, may impair the integrity of the vascular mechanism. Even in this case it is likely that toxins resulting from tissue destruction may be operating. As to how these act, beyond certain generalizations, it is impossible at this time to determine with any degree of accuracy. It has been conclusively shown that local sclerosis, without marked sclerotic change in other parts, occurs in the vessels of the brain, and that to this condition is due the fact that so many more ruptures occur in this portion of the arteriocapillary tree than elsewhere; but why? Is it because this portion of the organism is more actively employed during the entire cycle of life or because the vessels in this region are more vulnerable through constant use and grow old while the other parts of the body are yet young?

Certain it is that apoplexy is relatively frequent here, while it is relatively infrequent in other organs, irrespective of age. The importance of this phase of the subject is apparent when one reviews the number of sudden deaths, the frequent paralyses that make the further life of the sufferers a burden to themselves and the state — all the result of sclerosis not infrequently limited to the cerebral arteries. If the preapoplectic symptoms could be interpreted with any degree of accuracy, how many of these tragedies of existence might be averted? Neither the trained tactile sense nor the sphygmomanometer is a sufficient danger-signal. I have had the opportunity of being with a number of patients immediately before, during and after the rupture of cerebral vessels, and beyond some increase in vascular tension and irritability of temper or depression of spirits, there was nothing to give warning of the impending catastrophe.

Again, the vessels of the kidneys are especially liable to undergo sclerotic change producing commonly chronic interstitial nephritis. In these cases also it is desirable to know why the local sclerosis of the renal vessels occurs at times without appreciable change elsewhere. The liver vessels undergo sclerotic change and the same problems confront us; from what we know of the functions of this important gland we should expect to find sclerosis more commonly present in it than the kidneys, and yet I believe that this is not the case. Sclerotic change may occur in any portion of the arterial tree, and atheromatous patches are frequent in the larger trunks after middle life, the coronary arteries being especially subject to sclerotic degeneration. Coronary sclerosis alone has frequently been encountered.

It may be maintained that all these organs are more or less constantly active and more liable to degenerative change. It is not so clear, however, why the arteries of the extremities are prone to undergo sclerotic change, for their activity is not so great or so constant as in the organs mentioned. Yet sclerosis occurring in the arteries of the extremities and the head is common, and it is in the former that we make such estimates as we may of the degree of the sclerosis and the amount of pressure existing within the arteries.

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ETIOLOGY

Admitting, then, that it is impossible at this time adequately to explain localized sclerosis, it is nevertheless profitable to inquire into its general causation, its method of manifestation and its course and management. Age is a certain producer of sclerosis, but a fixed span of years cannot be given. After middle life a certain degree of sclerosis is apt to be found in the majority of persons. Though the expression be trite, nothing is truer than the axiom that "a man is as old as his arteries," some men of 40 years being in reality 60, 70 or 80. The life of an engine is dependent on the metal which goes into its construction and the care that is taken of it; the same is true of the more perfect physical mechanism; and Osler has aptly observed that a man often takes less care of his body than he does of his motor. It is undeniably true of the body as of the machine that it is better to wear out than to rust out, but in purposive design neither extreme is desirable.

Aside from age, the unfailing producer of sclerosis, we have other causes operating; chief among these is the high pressure at which the human machine is run in our modern civilization. The average man or woman lives in an atmosphere of work and worry, taking insufficient thought of either physical or mental needs. One could follow up the myriad avenues of life indefinitely, but they all lead through ways more or less unwholesome and end in the one meeting-point, premature decay. Man presents a pitiful spectacle racing at top speed to gain wealth or position, staggering under the delusion that old age will bring rest and enjoyment, and becoming enlightened, alas, too late, to find that his rest is disturbed by discomfort and that enjoyment is a memory only.

In a practice of more than a score of years I have seen many instances of men who have slaved through life and gained their golden fleece, and who, if their bodies were not broken by ill health, found themselves so enslaved by the habit of work that rest was positive punishment. Such men are like the old blind treadmill horse which, having earned its freedom, when turned out to pasture each morning as the sun rose, walked in a circle till the night.

Next to the stress and strain of modern life, and undoubtedly augmented by it, come the acute infections and intoxications as causative agents. These act as irritants to the cardiovascular apparatus, impairing the vitality of the cells forming their structure and inducing sclerotic change, which makes the vessels less elastic and interferes with the normal metabolism of the organism.

Syphilis is a common producer of sclerosis, and I believe that, as our knowledge increases, it will be proved to be a much more frequent cause than is realized by our profession to-day.

Next come poisons, under which may be included lead and other mineral poisons, alcohol, tobacco, tea, coffee, etc. Billings has shown the causative rôle played by lead, and others believe that mercury when taken in large quantity and for a long time produces it. Alcohol may be classed as an indirect causative agent, in that when used to excess it produces digestive disturbances, which in turn result in auto-intoxications, which are admittedly a prolific cause of the disease.

It would be amiss if in this connection I did not cite Cabot's scholarly paper on alcohol as a producer of sclerosis: in a long series of cases he found sclerosis much less frequent among a series of hard and chronic drinkers than among a similar series of professional men. It should be borne in mind, however, that his work does not prove that alcohol does not indirectly produce sclerosis; it does prove that sclerosis is less frequent in alcoholics than in those who live constantly under high tension. In this connection Osler calls attention to the fact that not infrequently persons who are abstemious in the use of alcohol are "exceedingly careless and indulgent in the matter of eating." Other authorities are equally suggestive on this score. It is often the case that men who are innocent of one excess go to another. Again, sclerosis is found in those whose occupations demand great and continued physical strain, and in young men who keep up high and long-continued tension in athletic sports.

SYMPTOMS

The effect of arteriosclerosis, by whatever cause it may have been produced, is the disturbance of function; the parts involved become less active and atrophy more or less gradually, according to the speed of the circulation. Sclerosis may involve only the smaller arteries, in which the symptoms will vary with the part or parts affected. The first symptom may be sudden death from the rupture of a cerebral vessel or thrombosis of a coronary artery.

In the kidneys the sclerotic change affects not only the vessels but the interstitial tissue and parenchyma of these organs as well, and is evidenced clinically by changes in the urine. A common form of nephritis following sclerosis is the contracted kidney, in which the blood-pressure is usually high; the apex-beat of the heart is displaced downward and to the left; there is a "thudding first sound" and an accentuation of the second, and more or less nervous and digestive disturbance, with the appearance of albumin and casts in the urine.

Sclerosis occurs in the splanchnic vessels, manifesting itself during life by irregular and otherwise unaccountable attacks of abdominal pain. Advanced sclerosis of terminal larger vessels may result in necrosis or gangrene; and sclerosis of smaller ones, in hemorrhagic infarcts. Finally, it must be borne in mind that sclerosis of the vessels of all the parts mentioned may occur without "any change in the palpable arteries." Since many of the symptoms of the early stages of the disease are indefinite, obscure and not pathognomonic, it is plain that its early diagnosis is at all times difficult and frequently impossible.

It is this phase which makes the critical study of arteriosclerosis all the more imperative, for it is only in its beginnings, whatever be the etiology, that any hope of cure can be promised. After sclerosis is well established a return to the normal should not be expected. It is of the utmost importance, therefore, that the general practitioner be on the alert to discover the earliest recognizable symptoms. These are left ventricular hypertrophy, digestive disturbances, more or less irritability of temper or other nervous phenomena, and the presence of albumin and usually casts in the urine, although cases may occur with any of these absent.

The blood-pressure is estimated through the medium of the touch in palpable arteries and by the employment of an instrument of more or less precision, the sphygmomanometer. This instrument should be more generally employed in all physical examinations, as its evidence is of no small value; it is, however, subject to considerable error and should not supplant the touch of the skilled examining finger. If time permitted, it would be profitable to go into these defects in detail. Hoover, in an excellent contribution to this subject, makes the following observations:

Whether there were really different endovascular pressures in the several arteries or different degrees of hypertonus in the arterial walls which gave the results, the deduction remains the same, namely, that the blood-pressure apparatus applied to the accessible arteries does not give infallible information as to the aortic blood-pressure; as a consequence it is not safe to rely on routine measurements from the area as a guide to the employment of the vasodilators in treating patients with a high arterial pressure. I do not wish to discourage the blood-pressure apparatus. It is a very valuable instrument, but its chief value consists in teaching us how to palpate the arterial pulse. No instrument can take the place of the finger, nor can any instrument teach us so much about the pulse as can be learned by palpation.

Daland has shown that the mere application of the pneumatic cuff in certain neurotic subjects often increases the blood-pressure as much as 30 or 40 mm.

PREVENTION AND TREATMENT

The widest field for good lies in the prevention rather than in the cure of arteriosclerosis. All causes which we know operate to produce the condition should be curtailed or eliminated as far as possible. There are two parties in this problem, the physician as the educator, and the individual who is willing as far as may be to profit by the advice. The individual should as closely as he can approximate the normal life; and excesses of all kinds, mental as well as physical, should be avoided. The pace that kills and the strenuous life should be shunned. Food should be taken in sufficient quantity, and of a quality calculated to maintain the body in a state of physiologic equilibrium; beyond this it is unwise to go constantly or at frequent intervals. Alcohol, coffee, tea and tobacco should be used moderately, if at all.

The exciting cause must be treated in sufferers from toxic agents in the blood, such as lead-poisoning, diabetes mellitus, syphilis, tuberculosis, gout, rheumatism and the acute infections. It goes without saying that the age and general condition of the patient should be considered. What would be moderate in the young would be immoderate in old age; we should not put new wine into old bottles.

The treatment of arteriosclerosis may conveniently be divided into hygienic, dietetic and medicinal.

Everyone requires a certain amount of exercise; the kind and amount should be adjusted to meet the demands of the individual. When active exercise for one reason or another cannot be taken, much good will come from massage properly applied. It quickens the circulation and increases the elimination of waste products. In dilating the vessels of the skin, it to that extent diminishes the work of the heart.

Baths properly administered are of distinct value, including hot baths, hot packs, vapor-baths, tepid baths and carbon dioxid or the so-called Nauheim baths. Cold baths are rarely indicated. All have for their object the increase of blood through the skin, and also excretion by the skin, thereby diminishing the work of the heart and of the kidneys.

The physical and mental activities of the patient must be carefully directed. In some cases curtailment alone is sufficient; in others total abstinence from all work, physical and mental, is imperative. It is frequently surprising to see the good that immediately follows after the patient has made a complete surrender in this direction. Many an old boiler will last for years when run under diminished pressure.

Time will not admit of going into the matter of diet in detail; suffice it to say that the individual capacity will have to be studied in each case. It is a fact that the majority of persons eat too much, and nearly all too rapidly. In mild cases cutting down the diet may be sufficient, eliminating such articles as are apt to overburden the alimentary tract and the kidneys. In general, meat should be indulged in sparingly. The sugars may be borne well by some, but are apt to lead to gastro-intestinal fermentation. Milk, variously modified, eggs, fresh vegetables and fruit are more or less staple articles, as is bread, and may be taken by most patients. In advanced cases a rigidly restricted diet is at all times imperative. In all cases the amount of alcohol, tobacco, tea and coffee allowed should be moderate, and doubtless the best rule in many cases is "not at all." Since we have seen, however, that a large degree of sclerosis is present in most persons after middle life, it is not wise or expedient to be extreme in these matters, until our knowledge becomes more exact.

Individual instances often shatter one's theories. I have seen men, in apparently robust health and advanced in age, who had throughout their adult lives been hard drinkers, excessive users of tobacco, or immoderate tea and coffee habitués; and yet sclerosis in them was in abeyance. The total abolition of these creature comforts is often unwise and their regulation must be left to the wisdom of the physician.

As to the use of mercury in syphilis, I should be willing to run the risk of producing arteriosclerosis by the use of mercury rather than to run the surer risk of having the sclerosis develop from the effects of syphilitic infection. In all luetic cases the iodids are of value; and in many cases which are not luetic their rôle is distinctly good. Their employment may be more or less empirical, but in a large number of cases I believe they tend to hold down tension and discourage sclerotic change.

Nitroglycerin acts quickly and may be employed for a long time without harm, its chief drawback being its evanescence. It rapidly causes dilatation of the peripheral vessels and if pushed sufficiently far will cause flushing of the face and headache. It not only relieves the overburdened heart, but increases the activity of the kidneys. It may be administered in appropriate cases in doses of from 1/50 to 1/100 grain every two or three hours for long periods without injurious effect. Nitrite of amyl pearls may be broken and inhaled in urgent cases, but are not a substitute for nitroglycerin. The more lasting effects of the nitrites make them preferable; of these sodium nitrite in 1-grain to 3-grain doses repeated three times a day or every four hours, may be given.

ABSTRACT OF DISCUSSION

Dr. Louis Faugeres Bishop, New York: I believe that the causes of arteriosclerosis can be divided into two classes, one in which the affection is due to certain poisons like lead and possibly other metals, to syphilis and other infectious diseases, and a larger class, in which the arteriosclerosis is compensatory. Ninety out of 100 cases of high blood-pressure are due to auto-intoxication or to the circulation in the blood of amino-acids which are produced by the breaking up of proteids in the intestinal canal and a failure on the part of the liver to exclude these toxic substances from the circulation. I think that the high blood-pressure is caused by an attempt on the part of Nature to force out of the system through the kidneys the products of protein decomposition, and that the heart is damaged as well as the kidneys. My observations are founded on the examination of about 50.000 urinary analyses among the well-cared-for classes in New York City. A study of these well-cared-for classes gives a better picture of the causes of arteriosclerosis than what we can get in hospital cases. Examination of patients on a restricted diet are misleading. Observation of the urine, covering a series of years, shows first an excess of indican; later one finds as well a faint trace of albumin and casts. As the case goes on the patient develops neurasthenic symptoms and then arteriosclerosis. I have followed many of these cases in private practice and I have come to certain definite conclusions. Arteriosclerosis is a very common affection among physicians. I have on my records sixty-five physicians with arteriosclerosis and in nearly every instance there was indican in the urine, a high blood-pressure, albumin and casts, and other features pointing to amino-acid poisoning.

The important point regarding these cases of arteriosclerosis is, of course, the treatment. Are the amino-acids coming from meat decomposition always the cause of the trouble? I do not believe that this is the cause in every case. Among the other possible causes may be overindulgence in eggs or fish.

Another very important thing in the treatment of these cases, I believe, is the proper administration of castor oil; these patients on beginning treatment are given 1 ounce of the oil for three days, then the same amount once a week and then the same amount once a month; the results obtained are often surprising. A third important measure in the treatment of these cases is physical labor. I have seen patients with arteriosclerosis who have had slight strokes of paralysis, with a blood-pressure of 230, and who, under the regimen mentioned in regard to the proteid diet and with the employment of physical exercise, have gone on for years.

Dr. G. W. McCaskey, Fort Wayne, Ind.: There are three factors to be considered in every case of so-called arteriosclerosis: First, the sclerotic changes in the blood-vessels proper; second, the cardiac sclerosis; and third, the factor which is clinically most important, because most amenable to treatment, the arterial spasm. So far as the etiology of arteriosclerosis is concerned, I think that two distinct causes should be recognized, the first being toxic, and the second mechanical and due to physical overstrain from various causes. The toxic causes may be derived from the intestines or may be the result of metabolic disturbances of one source or another, perhaps various products of the amino-acids. Severe physical strain or the overexcitement of the cardiovascular apparatus resulting from emotional excitement or mental stress undoubtedly produces arteriosclerosis.

It is important that we should have clear-cut notions of the therapeutic indications in these cases. We ought, in other words, to distinguish clearly between the organic changes of the blood-vessels and heart which cannot be removed, and the arterial spasms which are very largely removable. Rest in bed with thorough elimination, carefully regulated diet, from which the purin bodies should be largely if not completely removed, and the use of vasodilators constitute the proper treatment.

As vasodilators I commonly use the spirits of glonoin, and begin in hospital cases with 1 drop every hour, increasing every day or every alternating day to 2 drops per hour and pushing the dose in this way up to the limit of tolerance, or until satisfactory results have been obtained.

Dr. Henry O. Marcy, Boston: Arteriosclerosis is largely the result of the undue pressure that is brought to bear on the human machine which we should all learn how to care for and protect. To me the wonder is that the modern business man in our large cities does not break down earlier. In the whirl of business care, his every activity is in high tension. He takes little time for meals, pampers his appetite with every delicacy, uses coffee and alcoholic stimulants freely, smokes excessively, exercises little, sleeps badly and wakes to repeat the round. Over such a man at home the physician has little control. Send him to Carlsbad and note the change. Diet simple, largely milk, the waters in sufficient quantity to act on the excretory organs; no alcohol, no tobacco, nothing except as ordered by the physician. The psychotherapeutic effect of his hours of hot mud-baths and repose four or five thousand miles from his business cares renovate him and make him enthusiastic over his cure, but he returns only to plunge again into the same round of business dissipation which leads to physical ruin. Why call the results by such meaningless names as "arteriosclerosis"? The duty of the physician is to sound the danger-signal before it is too late; to teach hygienic living, abstemious habits, the simple life. We of the profession know that under wise guidance the ills of life would be reduced one-half, the production of the race doubled and longevity increased at least one-third.

Dr. James M. Anders, Philadelphia: Dr. Coleman spoke particularly of the localized variety of arteriosclerosis and of the great difficulty in finding its precise cause. I think that the majority of authorities are agreed that it is due most commonly to syphilis, and this also accords with my own personal experience and observation. To my mind the treatment or management of arteriosclerosis often savors of a comedy of errors. If the modern conception of the histologic changes of the condition be correct; if, primarily, the media is the seat of either productive or degenerative lesions, and to compensate these changes, the intima becomes greatly thickened, then surely, two things must follow: First, the lumen of the vessel must be narrowed, and second, the tension in the vessels must be raised to a corresponding degree. One is tempted to ask, Why attempt to interfere with this compensatory mechanism of Nature? I believe that the trend of the profession has been and still is in the direction of interfering too much rather than too little with this wise conservative process. There is, however, a class of cases made up of instances of incipient arteriosclerosis, in which the blood-pressure is considerably elevated, associated with a marked vasoconstriction due largely to nervous causes. Here absolute bodily and mental rest, arterial relaxants and liberal feeding will often effect an apparent cure, provided that the causes, both near and remote, can be successfully combated. It should not be forgotten that the principal aim in all cases must be to ascertain and then to combat causes.

Dr. DeLancey Rochester, Buffalo, N. Y.: If anything was brought out clearly in the previous discussion of this subject in this Section several years ago, it was that the chief etiologic factors of arteriosclerosis are syphilis and hard work. Under the circumstances, to place these people at hard work is decidedly contra-indicated. Any exercise should be undertaken only under careful observation. I agree with what has been said regarding the reduction of the proteids in the diet, especially if there is a decided impairment of renal function. Elimination of waste products is of value in the treatment of this disease. I agree with Dr. Anders that arteriosclerosis, when localized, is largely a condition due to syphilis. Since the use of the Wassermann reaction we have found more evidence of syphilis as an etiologic factor in arteriosclerosis and changes in the circulatory apparatus, especially of heart and aorta, than ever before.

Dr. M. A. Cohn, Brooklyn: I wish to cite a case just now under my care. A man, aged 27, presented himself April 2, 1912, with the following history: While walking in the street with a friend twelve days previously he suddenly collapsed and was picked up unconscious and limp and pronounced dead, being refused admittance into the offices of two successive nearby physicians on that ground. The third physician finally allowed the dying man to be stretched on the floor while a hypodermic was being administered and the ambulance telephoned for. After remaining in the hospital one week, the patient was discharged as cured and was permitted to walk home without any warnings or restriction whatever. The man, a plumber by trade, big and well nourished, looked sallow and anxious, with dark rings under his eyes and he breathed rather laboriously. A careful examination revealed the following condition: pulse high-tensioned; mitral and aortic systole feeble and muffled; the characteristic blue line about his gums; traces of albumin, some hyaline casts and a slight excess of indican in the urine, and some moist râles at the base of the left lung. On applying my sphygmomanometer, I was not a little amazed to find that no less than a pressure of 289 mm. Hg was required to stop the radial pulse. As a luetic history was positively denied and no signs or symptoms pointed in that direction, the conclusion was reached that the case was one of chronic plumbism producing arteriosclerosis and interstitial nephritis, the feeble myocardium giving rise to the pulmonary edema and to the frothy, pink expectoration which occurred the night prior to the patient's sudden collapse and continued for two days thereafter. He was informed of the extreme gravity of his condition, was put to bed on a strictly milk diet, and, after a thorough elimination by bowels, kidneys and skin, was given potassium iodid to remove the lead from the system; doses of nitroglycerin were gradually increased. Seeing, however, no improvement, subjective or objective, even after doses of 1/20 grain of nitroglycerin three times a day, I discontinued its use and on the suggestion of Dr. G. R. Butler, who saw the case with me, began the use of ½-grain doses of erythrol tetronitrate three times a day with the simultaneous administration of 5 drops of the tincture of strophanthus three and four times daily and also short steam baths, with patient in bed, once every one or two days for a week or so. The patient is temporarily improving, is allowed some outdoor exercise and a little more liberal diet, with little fluid, however. The blood-pressure is still above 240 mm.; some albumin and casts are still to be found in the urine, but there were no attacks of angina pectoris recently, no dyspnea or polyuria and the whole of the Stokes-Adams' syndrome is absent.

Dr. Marvin L. Graves, Galveston, Tex.: Until we know more regarding the etiologic factors concerned in the production of arteriosclerosis we can do but little in combating it. A great deal of consideration should be given to the character of the life of the individual in ascertaining its relation to high blood-pressure or arteriosclerosis. Dr. Bishop believes that these arteriosclerotic patients with high blood-pressure should be urged to take exercise, but I think a discriminating judgment is absolutely necessary in treating these patients. For instance, arteriosclerosis occurring in a laboring man who has been at active physical exercises all his life should be treated differently from that in a man who has been leading a sedentary life. Under many conditions I do not think it would be advisable to prescribe large amounts of physical exercise for these patients who are afflicted with arteriosclerosis. To order a man who leads a sedentary life, and who eats too much of all kinds of foods, not only the proteid foods but all kinds, to take physical exercise indiscriminately would tend only to work harm. Such men should be kept as much as possible in the open air with properly graduated exercise; the total amount of food they were in the habit of consuming should be cut down, especially the proteids. In doing this, many of these individuals would be relieved. I think that a sharp distinction should be drawn between toxic conditions which produce high blood-pressures and changes in the arteries which cause arteriosclerosis with its increased blood-pressure.

Too much stress is laid on the reduction of the blood-pressure. I have seen, in patients of 45 and 60 years of age, an unduly high blood-pressure—one of 150, one of 200 or even one of 225 mm. Hg—which has been reduced by the enforcement of a rigid diet and the use of nitroglycerin or sodium nitrite, as well as an active purgation; under such treatment one also sees patients who are made worse and not better. I do not believe that we should always try to reduce the blood-pressure to what we consider to be the normal. It is impossible, in my opinion, to reduce to the normal, with safety to the patient, a high blood-pressure which has been maintained for a number of years, especially with arteriosclerosis.

Dr. Tom A. Williams, Washington, D. C.: Arteriosclerosis is a condition which can be prevented but which, when it has occurred, cannot be cured. Many of the early symptoms are cerebral. The guide in the treatment of individuals afflicted with arteriosclerosis should not be what could be accomplished in lowering the blood-pressure *per se*, but the study of the state and condition of the individual which determined his optimum pressure. Naturally, with a very high optimum pressure, time of life will be short. Of the means of treatment at our disposal, the most important relates to the diet. I believe in a diet which is similar to the Chittenden standard; that is, that 50 gm. protein per day is ample and should not be exceeded in these cases. It is wonderful how well these patients will do when the proteins are cut down, and more especially the proteins that are taken at the evening meal before the lowered oxidation of sleep. Beyond abundance of succulent fruits and vegetables, I do not believe that purgatives should be resorted to as eliminants. They interfere with osmosis and muscle tone of the bowels and hence favor the absorption of substances which make for increased blood-pressure. Both as revulsants and eliminants I favor the use of hot baths and massage, and no expensive apparatus is needed. The efficacy of active exercise in these cases is exaggerated, but not contra-indicated in those cases of arteriosclerosis which might be described as being in the presclerotic stage. It is a very important thing for the patients themselves to appreciate their condition. What is impending unless forestalled should be impressed on them by the physician in order that they may readjust their lives and do what is best for their greatest efficiency in the long run, even though it might result in some immediate loss of comfort or money. These principles of practices have been of great value in my hands, and have made unnecessary recourse to expensive measures like d'Arsonval currents, water cures and the like.

THE MENACE TO THE YOUNG CHILD OF THE COMMON INFECTIOUS COLD *

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Many of my colleagues are doubtless convinced of the truth contained in my title, and would accept the text without the discourse which follows, for it is scarcely possible that my individual experience has been exceptional or that it has not been duplicated by scores of others. Nevertheless, it has seemed to me proper to put my views in concrete form in the hope that there may result a wider realization and discussion of this problem in all its bearings.

The observations of recent years have taught me to respect the common infectious cold as a far from trivial affection and one capable of inflicting serious injuries on its victims. Ever since the initial intensity of the influenza pandemic of 1889-90 waned, we have experienced recurring waves of infectious catarrhal colds which have been spoken of generically as influenza, or grip, or simply as colds. In the absence of laboratory confirmation of the exact bacterial cause, the classification of such endemic or epidemic affections has not been possible, and the resulting uncertainty has found expression in the loose terminology adopted alike by the medical profession and by the laity.

Mention should properly be made in this connection of the careful work in this country by Wollstein, but since her researches demonstrated the presence of the Pfeiffer bacillus as a causative or complicating factor in only a certain proportion of the inflammations of the respiratory tract among the infants studied, they threw but little light on the etiology of the cases under discussion, save by indicating that such cases may be due to several diverse forms of microorganisms. Nevertheless, since it is well-nigh impossible under the ordinary conditions of general practice to differentiate true influenza from its imitators, and since clinical observation has demonstrated the unmistakable infectiousness of such colds, we are forced to consider them as a whole for the very practical purpose of inquiring whether much damage, especially among young infants, is not wrought by them which could be prevented by rational prophylactic measures.

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* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

To these infections of the mucous membranes the infant seems to be especially susceptible. When one of these colds invades a household, several of its members usually contract it. While some adults may escape, the majority of physicians will bear me out that the baby or the child of runabout age is almost invariably affected. To such an extent is this true that nowadays when called to see a young child with catarrhal symptoms, I seldom inquire how the patient "caught cold," in the old sense of exposure to draughts or the elements, but ask at once whether other members of the family or household servants have recently had similar symptoms. I am seldom disappointed in my quest.

These infections spread rapidly and with great certainty through the wards of institutions caring for young children. During recent winters in one institution the morbidity from this source has far exceeded that from all other infectious diseases of childhood. As might be expected with children of the institution class, acute otitis media has been very common; pneumonia, less so though not infrequent; while acute suppurative adenitis, considered one of the complications of influenza, has been rare.

Serious as these recognized forms of sequelae are, there is yet another direction in which still more frequent and often irretrievable damage follows in the path of these infectious colds. I refer to their influence on nutrition. This is of somewhat less importance among children of the runabout age, but in any group of bottle-fed infants such infection not only prevents gain but is, as a rule, accompanied by definite loss in weight. We are too prone to look on these colds as local affections when they are, in reality, systemic infections. If accompanied by fever, the former strength of the feedings must necessarily be cut down to avoid disturbances which would be caused by formulas which but a short time before the infant tolerated and absorbed. Even when there is but little fever the margin between tolerance and intolerance, ever narrow in such infants, is no longer sustained — gains cease and the weights go down. It has been my experience that whether the loss is caused by the necessary curtailment of nourishment or by the direct demands of the malady on the tissues, or by a frank disordering of the powers of digestion and assimilation, the end-result is often the same, namely, the demolition of our carefully constructed edifice of nutrition, and a renewed state of malnutrition from which some of the infants may not again be able to rally.

The experience of the ward, to which I first alluded because it is more striking from the number of infants involved, is also duplicated to some extent in private practice. Fortunately we have here to deal with fewer infants suffering from prolonged malnutrition, and even these have, as a rule, the advantage of a more favorable environment. Nevertheless, in conducting any case of difficult feeding in private practice that which we fear most is an intercurrent infection. Excluding the infections of the gastro-intestinal tract, which, if we hold to the former teaching, are largely limited to the hot and humid months, the infant in the home is, as a rule, fairly carefully guarded against the common eruptive diseases of childhood as well as against diphtheria and mumps, since the dangers of such maladies are well understood by the laity

Not so, however, with the common infectious cold, which, with the sole exception of the regulation of the infant's food, calls more frequently in the winter for the attendance of the children's physician than any other condition or malady. Such colds are an unfortunate handicap in conducting feeding cases in private practice. The outspoken cases with fever are, of course, quickly recognized, but even when they yield promptly to treatment they interrupt the progress of nutrition. When complications ensue, this interruption is often prolonged. Where the cases are subacute, the effects are not generally recognized by the parents. In reviewing the history of an infant showing recent stationary weight, direct inquiries often bring out the fact that the infant has had a cold, the more immediate evidences of which may have largely disappeared. Guided solely by the stationary or downward trend of the weight curve, the food of such infants has often been increased by the mother or nurse, thus precipitating or increasing digestive troubles.

When a group of children in a family becomes infected, we often see established a house infection with, at intervals, recurrent outbreaks, which may extend over a number of months, until the advent of warm weather or the departure of the family to the country. The etiology of these recurrences is not clear. The presence of bacillus-carriers may be readily suspected, but against this theory is the comparative freedom during the summer months, only to be followed by a fresh outbreak of colds as soon as the children return to the city. This experience is so general in New York as to be a matter of common report among parents. Some susceptible children are kept free only by continued residence in the country, but unfortunately suburban colonies and country towns have their own share of infectious epidemics. Nor would I imply that such epidemics are limited to the distinctly cold months. For several years past, sharply infectious colds have appeared at the seashore resorts not later than August, and have been carried thence to the mountains early in September.

The amount of injury done young children each year by such colds can scarcely be estimated. Medical literature contains frequent references to the more recently recognized involvements of the accessory sinuses. Aural complications are so frequent that it is to-day a positive relief when called to see a child with rise of temperature and catarrhal symptoms, particularly if the temperature has been persistent, to find the ears normal and to be able to reassure the mother that the necessity for the otologist, single or double paracentesis, prolonged aural irrigations and a possible mastoid operation is, for the present at least, excluded by the findings. Fortunate indeed is the family containing children, one or more of whom have not suffered from acute otitis media requiring paracentesis.

During the prevalence of such colds, the possibilities of infection are excellent if the young child travels by train, rides in public conveyances or is taken to hotels or crowded shops. Numerous regrettable occurrences have been known to me in which disregard of these dangers has led to serious consequences. One instance, which will suffice, was that of an only child, aged 3, previously well, who was brought to the city for the sole purpose of seeing the Christmas display of toys in one of the large shops. This trip was immediately succeeded by coryza, followed by double otitis, double mastoid operation, and finally, sinus thrombosis. The child finally recovered, but paid a large price for a few minutes of unnecessary indulgence.

Children's parties and dancing-schools for the very young come under the same ban. It is indeed an open question whether the greatly increased opportunity for major and minor infections where young children are gathered together in kindergartens does not more than offset the real advantages which they offer. If we exclude exceptional cases in which the discipline or companionship of the home is deficient, I am of the opinion that safeguarding the health of the young child is the more important consideration, and that any home worthy of the name should be able to furnish all the simple instruction and direction of the play instinct which the young child requires.

Assuming that the young child is not subjected to exposure outside the home, there still remains the problem of safeguarding it from infection within the home. Measures which will produce this result are, I know, not practicable in the crowded tenement, nor in those ranks of society where limited means and unfavorable environment make it imperative that the baby or other young children be closely identified with the family circle and inhabit the same rooms. Nevertheless, there are an increasing number of households in our land where the infant or young child has, or may have, if need be, its own room and its own attendant. In homes where its welfare is considered paramount, and where neither expense nor personal inconvenience would be allowed to stand in the way, protection of the infant can be secured.

The first requisite is a clear understanding by the parent of the direct and indirect dangers from exposure. Isolation and quarantine of the affected adult member of a household is not always feasible unless the attack is sufficiently severe to confine the patient to bed. Even then the period of convalescence usually renders such measures ineffective. On the other hand, isolation and quarantine of the uninfected infant against the family and the majority of the household, although involving some difficulties, is not impracticable. Indeed, the quarantine of the patient is regularly carried out when circumstances are thought to warrant it, as in diphtheria, scarlet fever and measles. It is even willingly enforced for mumps and chicken-pox, because the visible brand of these maladies and the traditional dread of such conventional types of infection instantly suggest such measures. Yet neither of these two latter affections produces a fraction of the harm wrought by the infectious colds.

In addition to a recognition of the sinister possibilities of what often seem harmless infections, the isolation of the infant calls more for unselfishness on the part of the parents than for anything else. This means that at such times the parent or parents should be willing, if necessary for the welfare of the child, to sacrifice their own pleasure in seeing it and playing with it. As a principle, this seems simple, but it is often the crux of the difficulty in putting such isolation into practice. It is also extremely difficult to secure the immediate and complete isolation, as a matter of routine, of any child in a family of children, when it first shows slight symptoms of beginning illness, yet by such means I have repeatedly carried young children through house epidemics without their contracting the infection, and thus without interruption of normal growth and well-being.

No discussion of this subject would be complete without mention of the occasional causes of infection, foremost among which is the introduction of the casual visitor into the nursery. Why a coughing or sneezing person should insist on seeing the baby, or the maternal pride of the mother lead her to introduce her child into such an atmosphere in the drawing-room, passes my understanding, unless it be ascribed to sheer thoughtlessness on the one hand and untutored ignorance on the other.

It is a comparatively simple matter for the physician to acquaint the mother with the risks incurred, and to issue orders that no employee or member of the family having the slightest cold shall enter the nursery, and that the direct question shall be put to any visitors before they are admitted. With such clear instructions, many possibilities are averted, the education of the community is furthered, and the immediate responsibility is lifted from the shoulders of the physician.

It requires at least a decade to secure the acceptance of any new measures by a majority of the medical profession, and another to make them the common knowledge of the laity. I know of no text-book which as yet teaches the danger of the common infectious cold, no medical school in which it is impressed on the student, no hospital in which such cases are not retained in the common ward, no health board which has yet dared to limit the right of the individual to spread the infection of his coryza among the public. These may exist unknown to me, and the convictions to which I can lay no claim of priority will in time make themselves felt in these directions.

I do know of enlightened private schools to which parents are instructed not to send their children if catarrhal symptoms develop, but in some of these this appears to be more from the fear that such symptoms may be the beginning of measles than from any other reason. Few other schools exclude the child unless the cold is well marked and attended by other evidences of illness. It is true that the younger the child the more serious, as a rule, are the results of such colds, but they do not fail to take their toll from children of school age, as the family physician and the aurist will bear witness.

Only recently have we begun to appreciate the ravages of these subtle forms of infection. With such knowledge, however, goes the moral obligation to throw off our indifference, to face the question fairly, and to do all in our power to lessen the unnecessary morbidity and the too frequent pneumonia, otitis and lingering sinus infection.

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ABSTRACT OF DISCUSSION

Dr. David E. English, Summit, N. J.: Certain cases of common cold are due to infection by the *Bacillus influenzae* These are the cases that present great prostration afterward. The toxins secreted or produced by the influenza bacilli seriously affect the heart. I think that prolonged prostration which follows the common cold is proof that that common cold was due to infection by influenza bacilli. In these prolonged prostrations I have found only two drugs that do good. One, strange to say, is iron. The other is sodium and caffein benzoate. I do not mean the mixture in the Pharmacopeia, but the combined salt made by Merck. So far as I know, he is the only manufacturer who makes it. In moderate doses every four hours, I have found this a great help in assisting children over this prostration. The dose is based on a 5-grain dose for an adult. Of course, prophylactic treatment is fresh air and sunshine. Babies who get enough fresh air are not usually affected.

Dr. John Zahorsky, St. Louis: Next to the nutritive disturbances are the acute respiratory diseases. More than ten years ago I read before a local society in St. Louis a paper on the etiology of colds and acute infections diseases. I insisted that all acute diseases of the respiratory tube in the young baby and young child are not due to cold or exposure but to germs caught from somebody else. I have been teaching this for the last ten years. I train my patients so that the mother will keep the baby away from the rest of the household if any of them have a cold. Many of my patients act on that point of their own volition. The school child is a very common source of infection to the young baby. School children are continually bringing new germs. The first baby in a family often escapes colds because it has not this source of infection, but in the same family the following babies may continually have colds because the older brothers and sisters are bringing home infections which are more serious to the younger children. I think the term "grip" should be used. When we speak of grip nowadays, we mean any acute infectious condition of the respiratory tract.

Dr. H. M. McClanahan, Omaha: I wish to call your attention to two points: First—and I am a little surprised Dr. Southworth did not mention it—in a series of eleven cases of nephritis, which I reported last year, in five the only etiologic factor was a common cold. I believe we frequently have nephritis as a sequela of common colds. The second point is the infection of the baby from a nursing mother with a cold. I believe that the child can be prevented from taking the cold from the mother if the mother is careful to wear a mask or handkerchief over her nose and mouth when coughing or sneezing.

Dr. G. D. Scott, New York: It does not seem to me that the cold alone is to be taken so much into account as the condition of the fertile soil, caused by the "cold," in which bacteria can be implanted. In making a clinical study of many cases of "colds," in the Boston City Hospital, the New York hospitals and in private practice, I have found that a large number of the cases have been diphtheritic. These colds cause a fertile soil and the influenza bacillus or the diphtheria bacillus is implanted in the nares and reaches the accessory sinuses, the antrum of Highmore, and causes long-continued suppuration or chronicity.

Dr. LeGrand Kerr, Brooklyn: We should not forget in the study of the bacteriology of these cases that in healthy children there is often present the diphtheria bacillus, the pneumococcus, and various other bacteria, and yet the child may remain in apparently perfect health. If we jump at a conclusion in our laboratory work, we shall often assign as a direct cause for these infections bacilli which have no bearing on them until later. That is, they are not the primary cause, but are simply present, as they are present in a large proportion of perfectly healthy normal children. But they become active factors later in the development of subsequent complications and sequelae, because, as has been mentioned, a soil has been prepared for their development. These cases are not prevalent during the heated term; they are prevalent during the winter months, wherever children gather in large numbers. The common treatment is to house the child up at the first sign of any coryza. I believe that is one of the prolific causes of the complications which follow. Whether it is in the winter or in the summer, the child should be protected from complications by receiving plenty of fresh, pure air. This is something which will more certainly and more quickly limit the occurrence of complications than any other treatment that we can employ. It is the avoidance of complications that we seek. Isolation is not enough. These children do well in summer because of the compulsory fresh air they must have, but in winter they are usually housed up. I have within the last few years insisted on the fresh-air treatment of all colds and coryzas. It has accomplished more in the elimination of complications than any other method of treatment. I do not think the temperature of the fresh air has any particular bearing. We know as a physiologic fact that no matter what the temperature of the inspired air as it is taken in through the nostrils, it is circulated through the sinuses and reaches the lung at an equalized temperature, and with a definite amount of moisture. It is immaterial whether the inspired air is at 70 or 40; when it reaches the lung it reaches it at a uniform temperature in any child.

Dr. J. P. Sedgwick, Minneapolis: I think we are all agreed on the importance of what Dr. Southworth has brought forward and appreciate the character of his work. I know Dr. Southworth is not entirely satisfied with the naming of this condition, and yet I believe that the first step in overcoming it is to correct the false name which has been used for so many years, that is, "cold." Dr. Southworth has partially avoided this by calling the cases infectious colds. He speaks of the children being brought down into the drawing-room, where they are often exposed to infectious conditions. These children are usually "wrapped up so that they will not catch cold" and brought down in fancied security. I think that if we could unite on some term whereby we would leave out the term "cold" and bring out the infectious character of the condition, we would bring about better results.

THE OCCURRENCE AND ETIOLOGY OF CLUB-FOOT *

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I have been interested in running through the cases of congenital talipes entered on the records of the Orthopedic Out-Patient Department of the Children's Hospital during the past five years. The records of this period, under the filing system, are comparatively easy to handle, and previous records offer little detailed information. My figures have to do chiefly with the occurrence of this deformity.

The number of new patients applying for treatment for congenital club-foot during this period was 232, out of a total number of 4,543, or about 5 per cent. of the clinic. The number has increased steadily, being in 1907, thirty-one; in 1908, forty; in 1909, forty-six; in 1910, fifty; in 1911, sixty-five. This includes all types of congenital deformity, and care has been taken to exclude cases of contracture secondary to paralysis or scar-tissue formation, deformity from trauma, and doubtful cases of all sorts. The majority of the cases have been under my observation.

During the year 1911, 16,931 babies were born in Boston. Of these 1,662 died before reaching the age of 6 months, approximately the average age at which infants are brought to the hospital, and may therefore be eliminated. Of the sixty-five new cases of congenital club-foot which appeared at the clinic during this year, seventeen were in babies born in the city of Boston. If we accept the estimate that of all the cases of club-foot occurring in Boston in which the patients live long enough to be treated, nine-tenths appear eventually at the Children's Hospital, we can conclude that club-foot appears in this community, roughly speaking, once in every 816 births.

The incidence of club-foot has been variously estimated at one in 646 (by Chaussieur 100 years ago), one in 1,903 (by Lannelongue fifty years ago), and one in 2,000 (by Little thirty-five years ago). Rudaux and de Lorier[1] give statistics for another purpose which show that club-foot appeared eighteen times in approximately 20,200 births at the Beaujon Hospital in eleven years, and nineteen times in approximately 20,900 births at the Clinique Baudelocque in ten years, or once in 1,110 births. The proportion of club-foot to the total number of anomalies and monstrosities, according to their figures, was one in ten.

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* Read at a meeting of the Orthopedic Club, April 25, 1912.

[1] Rudaux and de Lorier: The Influence of Syphilis on the Production of Anomalies and Fetal Monstrosities, Ann. de gyn. et d'Obst., September, 1911, p. 496.

Of the total of 232 patients, 185 exhibited equinovarus, forty-six some other type of deformity, and one had equinovarus of one foot and another type of deformity of the other. That is to say, equinovarus appeared four times as often as all other types of congenital talipes combined; and cases of combination of equinovarus and another type of deformity were rare.

Next in frequency to equinovarus came calcaneovalgus, which appeared in twenty-nine cases, then valgus in five patients, varus in five, equinus in four, calcaneus, calcaneovarus and equinovalgus in one each. I myself have seen but few cases which could not be well classified as either equinovarus or calcaneovalgus. All cases of double deformity in this series showed the same type of talipes in both feet.

I will say in explanation that I have distinguished two types of calcaneovalgus, the fixed, in which the foot is maintained in the position of deformity, and what I have called the potential type, which is far more common, in which the foot hangs flaccid in normal position, but can be made to assume with little or no force the position of extreme deformity. This type is frequently overlooked, or else it is called congenital flat-foot. I have found it to be a frequent cause of delayed walking in children apparently normal.

Why an equinovarus should tend to maintain its position and a calcaneovalgus should be lax is readily explainable. When the fetal foot is forcibly maintained for a considerable time in the equinovarus position, the dorsiflexor muscles and the peronei are stretched, while the calf muscles, the plantar flexors and the tibials on the other hand are relaxed, so that they contract and in time become permanently shortened, and the position of the deformity is eventually fixed. With the foot in the calcaneovalgus position the plantar flexors, the calf muscles, and the posterior tibials are stretched. The opposing muscles tend naturally to shorten. But these muscles run to the foot under the annular ligament, making an acute angle, so that they cannot contract. If the deformity is marked, they are stretched, become lax, and the foot hangs flaccid as soon as the causal pressure is removed. There is sometimes sufficient shortening of the peronei, which have a separate annular ligament, to hold the foot in the position of deformity for a few weeks after birth, and this class constitutes the "fixed" type.[2]

One hundred and sixty-one patients were male and seventy-one female, or 69 and 31 per cent., respectively. The proportion of males, however, was somewhat higher in the equinovarus cases (71 per cent.) than in the other types of deformity (61 per cent.).

There were 130 cases of double club-foot, as compared with 102 cases of single deformity, or 56 and 44 per cent., respectively. Of the cases of single deformity, 59 per cent. were right-sided and 41 per cent. were on the left. The proportion of double club-foot was somewhat lower (55 per cent.) in the equinovarus cases than it was in the other types of talipes (61 per cent.).

Some evidence as to heredity or family influence was gained from the records of fourteen cases, all cases of equinovarus. In other words fourteen patients with equinovarus were related to persons who had some congenital defect. In eleven of these cases the family deformity was club-foot, and this occurred once in the father of the patient, once in the mother's cousin, twice in an uncle, five times in brother or sister, and twice in two brothers or sisters. Eight of these fourteen patients were male and six female, and the deformity was double in twelve.

I attempted to arrive at an estimate of the nationality of the parents. The records give no help in children born in this country, except the name of the parents. On this basis, and from personal acquaintance, I have concluded that 34 per cent. of the parents are of Anglo-Saxon, Scotch or native American stock, 31 per cent. of Irish birth, 9 per cent. of Russian Jewish birth, 9 per cent. of Italian, 6 per cent. of Scandinavian, 4 per cent. of French Canadian and 7 per cent. of Polish, Greek, Syrian and other extraction. All the races which we ordinarily see at the Children's Hospital were represented except the colored, of which there was no example in this series, although colored children are frequent at the clinic. I was struck also by the small proportion of Germans, of whom there were only about 1 per cent.

There has been some discussion as to the frequency of the occurrence of club-foot in twins. There is a theory several centuries old that the deformity is more common in multiple pregnancies than in single, for the reason that there is less room in the uterus and the fetuses are crowded together. This has recently been denied by Rugh[3] who, basing his conclusions on the literature and on a study of records of maternity hospitals, declares that in twins the deformity is unusual.

In this series eight patients were recorded as being one of twins and one was of triplets, making nine examples of multiple pregnancies in all, or 4 per cent. This is about four times the normal rate of occurrence of multiple pregnancies. The cases of multiple pregnancy were only half as common (3 per cent). in equinovarus patients as in those with other deformities (6 per cent.). Five of the patients were male and four female, and the deformity was double in six cases. No patient showed any other deformity. Of twins two were brothers; in five the other twin was normal, and in one the other twin died at birth. Of the triplets one was normal and the other one had died.

Some interest attaches to the size of the family in which club-foot occurs. Mothers who bring their infants to the hospital are asked how many children they have had. There is only an occasional exception to the rule that club-foot patients are brought before they are 9 months old, so we may take it for granted that the number given by the mother represents children borne before the patient. My figures on this point will err, therefore, in making the number previously borne slightly too large. Sixty-eight, or 30 per cent. of the patients were first-born. In the other 70 per cent. the average number of children previously borne was 3.3. The number ran up as high, however, as eleven and twelve, and there were six instances of previous families of ten or more.

As regards labor, the 200 histories which record it give thirty-three, or 16 per cent., as being difficult, necessitating the employment of ether and forceps. Of the deliveries 78 per cent. were stated as being normal. Two cases were given as breech presentation, and nine infants were premature. The percentage of premature births was less in equinovarus (3 per cent.) than in other types of deformity (15 per cent.). Several full-term babies were so puny and undersized as to resemble premature infants.

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[2] Compare Turner, H.: Ueber die Beziehungen der Klumpfussbildung und anderer kongenitaler Deformierungen der unteren Extremitäten zu fötalen Zwangshaltungen und zur Hodenektopie, angeboren Leistenhernie, Hydrocele usw., Ztschr. f. Orthop. Chir., 1910, xxvii, 227.

[3] Rugh: Double Congenital Equinovarus in Twins, Am. Jour. Orthop. Surg., 1906-7, iv, 179.

The occurrence of other congenital deformities in conjunction with the talipes was by no means uncommon. Other congenital deformities were present in thirty-one cases, or 13.4 per cent. They were only half as frequent in equinovarus patients (11.3 per cent.) as in other types of club-foot (22 per cent.). Double club-hands were present in six cases, contracted knees in six, mental deficiency in four, spina bifida in three, dislocated hip in three, dislocated knee in three, hydrocephalus in two, and two were blue babies; amniotic groove, congenital scoliosis and cleft palate occurred once each. Other developmental deformities or deficiencies of the limbs occurred in eleven patients. Umbilical and inguinal hernia were observed several times, as was also a condition of the foot in which the heads of the metatarsals are arranged in a semicircle, so that the first and fifth nearly approximate, and which I have called "prehensile foot." In eight of the babies there were multiple deformities.

It is interesting to compare these findings with the statistics of Rudaux and de Lorier, which, being compiled for other purposes, must be considered unbiased. Of the thirty-seven cases recorded, twenty-three, or 62 per cent., were uncomplicated and fourteen, or 38 per cent., were complicated by other congenital deformities. Nine (or 24 per cent. of the total) exhibited spina bifida, two spina bifida and hydrocephalus, one cleft palate and hypospadias, one club-hands, and one amniotic groove and digital malformations. In explanation of the discrepancy between their figures and mine it may be stated that in cases which are badly complicated the patients are likely to die without coming to treatment for the deformity; moreover, there were possibly cases of mild grades of club-foot in their series which were overlooked, the observers not being orthopedists.

A consideration of these accompanying deformities, in a way offering confirmatory evidence as to the forces involved, leads to interesting speculation on the etiology of the condition. In four of the above-mentioned cases occurred excellent examples of the so-called perineal position of the feet. The young infant in relaxation would bring the knees up on the abdomen and flatten the feet against the perineum in the position of deformity, just as if he were trying to make himself up into the smallest package possible. There is no question in my mind but that this represents the effect of an intra-uterine condition, and is the mechanical result of close packing of the fetus in the later months of pregnancy. Other definite evidences of a similar nature occurred in the bowing of the shaft of one or more bones of the leg, which was observed four times in this series, marking a point where the crossed legs fit into each other, and of such a sort as to allow a closer approximation of the limbs to the body.

All sorts of more or less tangible theories as to the etiology of club-foot have been offered, and the literature on the subject is considerable. No explanation that I have met seems to cover the entire field satisfactorily. The theory which I have adopted is simple and for the present, I think, adequate.

Congenital club-foot is the result either of some tendency to the production of the deformity inherent in the fertilized ovum, or of causes acting after the implantation of the ovum. If it preexists in the germ, we may call it germinal or inherited. It seems fairly clear that heredity is the determining factor in a certain small percentage of all the cases of talipes, just as it is in such deformities as polydactylism, polymastia, etc. There are well-authenticated cases of club-foot appearing in several members of a family, and cases in which father apparently transmits it to son. Little has traced it on the paternal side through four generations. Adams cites a case of a man of 46 having double congenital equinovarus, with five club-footed children, a club-footed nephew, and a club-footed grandchild. Lannelongue tells of a woman of 25 with double congenital equinovarus, whose father and whose baby have the same deformity. In my series, 5 per cent. gave a history of the occurrence of club-foot in a near relative, and this figure, corresponding exactly with that of Ketch,[4] who found ten in 196 cases showing unmistakable heredity, may be taken to represent the approximate frequency of inherited club-foot. It is significant to note that these were all cases of equinovarus, usually double, and in no case accompanied by any other deformity.

The causes which act on the organism *in utero* may be divided into two distinct classes: early causes, acting on the ovum or young embryo, and late causes, which exert an influence on the developed fetus. The deleterious agencies which may work on the ovum have been expounded by Professor Mall in his work on "The Causes Underlying the Origin of Human Monsters." He demonstrates that what he calls a faulty implantation of the ovum, as in the presence of endometritis and other diseased conditions of the uterus, and in tubal pregnancy, may lead through interference with the nutrition of the embryo to degenerative changes of such nature that the embryo dies, or, if it survives to term, develops into a monstrosity. In certain of the minor grades of monstrosities, as spina bifida, hydrocephalus and cleft palate, the fetuses are viable, and in such cases of slight malformation, accompanying the general retardation of development, there is likely to be marked impairment in the development of the extremities. In all cases of this class there is a tendency to an increase in the quantity of amniotic fluid.

The only definite basis on which we are justified in classifying cases of talipes as being of embryonic origin is the association with other conditions which we are reasonably sure are the results of arrested or impaired development *in utero*. As such we may class spina bifida, hydrocephalus, certain developmental deformities or deficiencies of the limbs, cleft palate, constriction rings and patent foramen ovale, and I am inclined to place in this division cases of premature birth and of mental deficiency, making a total of 10 per cent. I do not believe that, as Mall would allow one to infer, an embryo can be subjected to a general nutritional disturbance early in its history, even if only temporary, develop normally and be delivered as a healthy well-developed child with nothing to show for it but a club-foot.

Finally comes the third class of cases, to which the majority evidently belong, arising from mechanical causes acting later in the development of the fetus. The theory of the mechanical origin of club-foot, and, by the same token, of club-hands, contracted or recurved knees and dislocated hips, which frequently complicate club-foot, has appealed strongly to most men who have concentrated their attention on the study of this deformity. Hippocrates and Ambroise Paré expressed themselves definitely in its favor, and the theory has been advocated in one form or another by a long line of more modern students, including Cruveilhier, von Walter, Bellartin, Ferdinand Martin, Duval, Volkmann, Kocher, Brückner, Holmes Coote, Boyer and Parker.

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[4] Ketch: Etiology of Club-Foot, Tr. Am. Orthop. Assn., 1892, v, 159.

Just how the deformity is produced cannot always be definitely stated. The cases that occur in twins or in the presence of oligamnios or of uterine tumors can be explained by a crowding of the fetus. In some cases we often find evidence of mechanical interference with intrauterine development in the infant itself. Frequently, as already stated, a young infant with club-foot, if stripped and allowed to relax, will voluntarily reconstruct the position which it maintained in the latter part of pregnancy; it will bundle itself into a cast of the interior of the uterus, so that the action of the uterine wall in causing or maintaining the deformity is strikingly evident. There are certain type positions which the feet assume. Many cases of this sort have been pictured by Martin, Parker, Turner and Whitman. Other evidences of uterine pressure in such cases may be seen in the grooving of crossed limbs, in the imprint of a foot on distorted features, and in the occurrence of hydrocele or inguinal hernia as the result of local pressure.

A decrease in the quantity of amniotic fluid need not necessarily be postulated: the foot may be caught in some position from which it cannot extricate itself, as in the axilla or over the shoulder, or the two feet may interlock in such a way as to interfere with normal development, which conditions have been observed; or the fetus may occupy a disadvantageous or constricted position from which it is unable to free itself by its own activities, so that the foot is maintained for a considerable time in one position, and the position of inversion which is normal in early fetal months is not allowed to correct itself, in accordance with the natural course of events. Too little is known, even by obstetricians, of the position which a fetus may assume at different stages of pregnancy, of the factors which interfere with the natural changes in position, and how far such modifications of the normal may exert a deleterious effect on the development of the fetus. There is, however, a great deal of promise in the systematic study of the pregnant uterus by the *x*-ray, which recent developments and refinements now make possible.

In a considerable proportion of cases it is probable that external and accidental influences play an important rôle, and in some instances the records have given a hint as to a mechanical causal factor, real or imagined. For example, the mother has occasionally referred to a trauma or shock which she suffered while carrying the child. One said, for instance that the baby was "crushed in the womb." The occurrence of tumors of the pelvis or of other pelvic disease in the mother was never definitely ascertained. Occasionally I have been told that miscarriage was feared at some time during pregnancy, and a few times I elicited the information that excessive coitus was indulged in during pregnancy.

The one constant factor which I have arrived at is the rather poor social status of the patients. Practically without exception the mothers were of a class that is compelled to do a certain amount of work during pregnancy. I have found that some were employed in factories or elsewhere, and some were in service as domestics; a few were the support of their families. The majority of the mothers were housewives, doing their work without help, and sometimes for families of considerable size. A certain number have stated with some pride that they did their own work up to within a few hours of delivery. Others have worked hard at the sewing-machine.

The statement has been made that club-foot and other congenital deformities appear frequently in the children of those who have reasons for hiding the pregnancy, as the unmarried and those in service. This series offers no further corroborative evidence of this than the fact that in three cases illegitimacy is stated. Personal observation leads me to think that in certain other cases the child was not accorded a very grateful reception.

The easy criticism of these findings may be offered that they depend on statistics taken from an institution in which one would naturally expect to deal with the poorer class of people. But the average financial condition of the families of which the children are being treated in the orthopedic out-patient clinic at the Children's Hospital is much better than might be expected. Many are in good circumstances, coming from other cities and states, and willingly put themselves to a considerable expense to carry out a long course of treatment. And, on the other hand, club-foot is not frequently seen in the private practice of orthopedic specialists of this community, among the wealthy. I have seen a few such cases, but in each instance there have been accompanying conditions which suggest an embryonal rather than a mechanical etiology.

SUMMARY

Congenital talipes occurs approximately once in every thousand births, and in one-tenth of all infants with congenital deformities. In the past five years at the Children's Hospital orthopedic out-patient department 232 new cases have been treated, constituting 5 per cent. of the new patients for that period.

Of the two important types, equinovarus constitutes about 80 per cent. and calcaneovarus 20 per cent. Forms which cannot be classified under one or the other of these divisions are rare. The fixed type of calcaneovalgus is less common than the potential type. Equinovarus on one foot and calcaneovalgus on the other is quite unusual.

About 70 per cent. of the patients are male, and 30 per cent. female; 55 per cent. are double, and 45 per cent. single. Of the single cases, 60 per cent. are right and 40 per cent. left.

Club-foot is known to have appeared in near relatives in 5 per cent.

About 33 per cent. of all the patients are first-born; in about 16 per cent. delivery is difficult; in 4 per cent. birth is premature and in 2 per cent. illegitimate. The condition appears in twins or triplets four times as often as in single pregnancies. It is accompanied by other congenital deformities in 12 per cent. of all cases.

There are three etiologic factors to be considered: heredity, evident in 5 per cent.; early intra-uterine causes, depending on faulty nutrition from a diseased condition of the chorionic villi, evident in 10 per cent., and mechanical causes operating later in intra-uterine life, accounting probably for most of the remainder. In the last class, poor hygiene of pregnancy and work during pregnancy are undoubtedly causal factors of considerable importance.

362 Commonwealth Avenue.

The Danger of Purgatives When a Patient Cannot Pass Wind.—Avoid them (purgatives) all the more if the patient cannot pass wind. There is no question about this; mere difficulty in getting the bowels to be satisfactorily emptied is a matter of totally different significance to being unable to pass flatus. And if your patient is unable to pass any flatus you must not give any kind of aperient whatever. . . . If you have the least suspicion that a person does not pass wind do not give any aperient at all. The only thing you are justified in giving is an enema.—Anthony A. Bowlby in *Clin. Jour.*

THE VALUE OF THE SOCIAL SERVICE DEPARTMENT TO THE CHILDREN'S DISPENSARY *

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PHILADELPHIA

So varied are the ways and means by which the social service department may be of assistance to the dispensary physician that the title of this paper might just as well have read "The Values of the Social Service Department to the Children's Dispensary." Advice and directions, although carefully explained to the person who accompanies the young patient to the dispensary, are frequently received with scant attention and sometimes partially or even totally forgotten by the time the child has reached home. Even detailed directions, minutely written out, may never come into the hands of the child's parents. And finally, even if the note does reach the parents, the physician's advice and directions may nevertheless remain unheeded.

It was primarily with the object of having our directions correctly carried out that the social service department two years ago began to work with the children's dispensary. It was soon found, however, what a wide field of usefulness was opened to the visiting nurse and through her not only to the physicians at work in the dispensary but also to the philanthropic men and women supplying the funds to carry on the work.

WORK OF THE NURSE

When a sick child is observed in the dispensary, explicit directions are given to the trained nurse the same afternoon, sometimes while the child is present, sometimes later. If the nurse is in the room when advice is given, the child will recognize her when she visits the home, as she does within twenty-four hours. The same written orders which have been explained to the child's mother are also given to the nurse. On her arrival at the child's home, she explains the physician's directions fully and with great detail and shows the mother how to carry out each separate order. She sees that the sick child is correctly cared for; instructs the mother in preparing the food properly and in giving water to drink at regular intervals; in the matter of bathing or sponging; in correct bedding, covering and clothing; in nursing, cleanliness, hygiene and sanitation. She shows which windows and doors should remain open; when to leave the child alone for sleep; how to dispose of the excreta; how to keep other persons out of the sick-room — in short, how to make the conditions as nearly ideal as is possible under existing circumstances. If she finds the surroundings absolutely impossible, she reports the conditions to the physician, or in urgent cases makes arrangements for the child's immediate removal to the hospital.

She also learns the financial conditions of the entire family; the sanitary conditions of the whole house; the number of families living in the house; the cleanliness of furniture and bedding; the presence of unnoticed or untreated illness, defects or deformities among other members of the family or, in a tenement house, of the neighbors' families; whether work is done on the premises and, if done, what kind of work; and what sort of work is performed by the various members of the family. She tries to refer these people to the different departments of the hospital for whatever treatment she thinks necessary, as, for example, to the nose and throat dispensary for adenoids, to the nervous dispensary for electricity and massage, or to the laboratory for tuberculin or Wassermann tests; she sees that children return to the children's dispensary from time to time; sends other children for examination or treatment; secures hospital care for those too ill to visit the dispensary; sends some to the seashore, to special sanatoriums or to open-air schools; gets out-door jobs for convalescents and other employment for others; gives careful instructions to those about to become mothers, and refers the needy and undecided to the chief of our social service department, Miss Helen Glenn, for her counsel. It is a pleasure for me to acknowledge here our great indebtedness to Miss Glenn and her assistants.

In cases in which there is possibility of an acute infectious disease, and in any case of gonorrhea, syphilis or tuberculosis, the nurse arranges for the isolation of the patient and instructs adult members of the family as to the means and manner of preventing further contagion in that household. If isolation is impossible, she persuades the family to allow the child to be removed to the special hospital for the treatment of contagious diseases. In case of extreme poverty, or when there is insufficient food or clothing, she tries to find means to ameliorate existing conditions. The patient is usually taken to the hospital, and some charitable organization is asked to investigate and relieve the family. When the nurse suspects that children may have been or are being abused, she directs the attention of the Society to Protect Children from Cruelty to the family. She may also arrange for the free dispensation of medicine to members of such families, on the physician's request.

The nurse may also be instructed to leave printed "diet" and "don't" lists in homes in which there are children; to wash out a stomach or to irrigate the intestines; to give special baths, spongings, oil rubs or massage; and to give minute instructions for the preparation and administration of food and medicine. She may also be able to secure specimens of sputum, urine and feces for examination, if the physician desires. She tries to impress on pregnant women the importance of care before and after delivery, and urges mothers to keep their infants with them; she also tries to correct certain bad family habits, such as the lack of toothbrushes; the common custom of leaving food uncovered, exposed to dust and flies; a family, including one or more sick children, congregating about the kitchen range in cold weather with doors and windows all tightly shut; or the prevalent habit of children rushing off to school without having had any breakfast or after hastily swallowing some fresh cinnamon bun or roll, with a drink of tea or coffee.

Should there be no older person to accompany the child to the dispensary, the social worker tries to find some one to bring the patient to the doctor regularly. If a child should suddenly grow worse, she arranges to rush both mother and baby to the hospital; and if the person who accompanies a child should chance to become ill or to faint while in the hospital, some one is provided to see that they both reach home safely. The remarks of the visiting nurse have been the means of stopping, in many homes, not only the use of patent medicines but also the old custom of "baby pacifiers." Many children with defects of speech, spinal curvature, back-

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* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

wardness, adenoids, otitis or enuresis, which so many parents consider incurable, have been brought for treatment and improved if not cured. Besides, places as domestics have been found for mothers, with or without their children. It would not be difficult to refer to many instances of what appeared to be trifling matters in which the existing problem was solved with the aid of the social service department, eventually making an entire family again independent.

In the feeding of infants and children much has been accomplished. The nurse, who continues her visits even after the child seems well, can encourage breast-feeding until warm weather is over; can keep away all other foods; can teach the habit of feeding at regular intervals; can arrange for a wet-nurse if the physician wishes; or can teach the proper preparation of the baby's food under the doctor's orders. She can oversee weaning when the time arrives, and the general care and feeding of the older children, preventing the common indulgence in sweets, fresh cake and bread, especially between meals; and the overindulgence in tea, coffee and fried foods of all kinds.

Our best results were achieved in the acute gastro-intestinal attacks of infants in the summer. Here the elimination of the cause, which is always the food, saves the baby. No matter how carefully, how urgently or how decidedly the physician tries to impress on the baby's mother the importance of this fact, a friend, a neighbor or frequently the baby's grandmother persists in feeding the baby. But when a nurse comes into the household daily, prepares the boiled water or lactose solution and makes the mother understand, often through an interpreter, that any food may kill her baby, we get results. Three of our case histories follow, one from each of the summer months:

REPORT OF CASES

Case 1.—Baby C., 18 months old, of Italian parentage, the only child (one of twins, the other having died nine months before) was brought to the dispensary, June 28, with a history of vomiting and diarrhea for three days. She had been partaking of all the food that her parents ate. Her temperature was 103.2 F. All food was stopped and only lime-water and cinnamon-water and 5 per cent. lactose solution were allowed, beginning with one-half ounce at a time, iced. The nurse, who was present in the dispensary, visited the family the same afternoon and showed the mother how to prepare the solution. The next day, as vomiting had ceased, the quantity of lactose solution was gradually increased; the day after that whole milk was added and this was readily increased until the mixture was one-half milk. Five days after the nurse's first visit the baby was well, on undiluted milk. The mother has been very grateful, bringing the child back for every trifling ailment.

Case 2.—Baby V., 6 months old, ninth child of Italian parents, was brought to the dispensary, July 14. He had been weaned almost two months earlier and was taking 5 ounces of mixture of milk and water (2½ ounces of each) every three hours. He had been vomiting and his bowels had been loose and stools green for three days; though he had refused his bottle, his mother kept urging food on him. His temperature was 104.4 F. As the mother refused to allow him to remain, even for a day, in the hospital, he was given castor oil and sent home. The nurse visited him that same afternoon, showed the mother how to sponge him and to prepare the lactose solution. Two days later he was put to both breasts every three hours for five minutes, followed by the lactose solution. This was continued, a little milk being added to the lactose solution. In six days he was back on the breast solely and was doing well. In this family some of the other children were brought to the hospital for treatment and diagnosis, and others were sent to the seashore.

Case 3.—Baby D., the fifth child of Russian parents, with a tuberculous mother and sister, was brought to the dispensary first in July with indigestion because of being nursed too often and being allowed to take too much at each nursing. When 3 months of age, in August, he was brought back, ill with diarrhea and vomiting, and a temperature of 101.4 F. On being taken from the breast, given a dose of castor oil and put on lactose solution, he fully recovered in twenty-four hours. In this family no single member has been without some benefit from the work of our social service department.

During the summer of last year, for the first time in ten years, I did not have to sign one death certificate in the dispensary and, so far as I can discover, only two of our patients were admitted to any hospital in a moribund condition. We were unable to observe a single case of cholera infantum and the only really ill infants were found among the foreigners, the Russians and Italians. From this it is evident that, while our former campaigns in the education of mothers in preventive medicine have benefited those who could talk and understand English, we have not yet been able to reach the foreign population. While the nurse did good work in preparing the feedings, she also explained to those women the ordinary rules of hygiene, both before and after delivery, fresh air, bathing, water to drink, clothing, covering, and the myriad trifling details of which so many mothers are woefully ignorant. Her other great work was in urging mothers *not* to part with their children!

It is, then, no idle boast for me to terminate with the statement that, with the assistance of our social service department, the children's dispensary has been able to save many lives (especially among infants of foreign parentage), much contagion, illness, worry and even expense. It is my hope that the possibility of usefulness in this field may deeply impress you. Far as our work has gone the field of usefulness to humanity seems still wider. There can be no doubt that contributions will never fail to be forthcoming to support work of such a philanthropic character.

2202 De Lancey Street.

ABSTRACT OF DISCUSSION

Dr. H. J. Gramling, Milwaukee: There is one thing which I think would help in this work. It should be made harder for the people who feed their babies sausage to get death certificates. They should be made to understand that a meal of sausage for babies is as dangerous as a dose of arsenic. In Milwaukee every birth is reported in the papers. Within the next two or three days the mother receives through the mail literature on soothing-syrups and babies' foods. At that rate the state is really helping the "patent-medicine" people to introduce poison into the household. I do not know whether this is simply a local condition peculiar to our town or not. If it is a general condition, I think this Section should take action to bring it before the postal authorities.

Dr. M. H. Fussell, Philadelphia: At the University of Pennsylvania we owe the installation of the social service department to the late Dr. John Musser. Five years ago he visited Boston and was impressed with the social service work in the Massachusetts General Hospital. He then by personal solicitation and contributions raised a modest sum that started the social service department. The effect of this social service work has been marvelous. Perhaps the most brilliant results have been in the Children's Dispensary, but in other cases, for instance in the care of tuberculosis cases, the work has been most helpful. When we get a case of tuberculosis, we at once follow it up by one of the special social workers, under the superintendent, who makes it her duty to visit the home and see that the instructions of the physician are carried out, to look after the general hygiene of the family, to report other cases, etc. Dr. Ostheimer's paper may have conveyed the idea that the nurse or the social worker who followed the case directed the child to be taken to the dispensary, and have the tonsils and adenoids removed, or to be taken to some other place for medical attention. That is not the fact. One of the things that is impressed by the head of the social service department on her subordinates is that the directions of the physician in charge of the patient be carried out; if anything additional has to be done, that particular physician is consulted. The difference between our treatment now and previous to the last five years is marvelous. We know exactly how our patients are doing, whether well or ill. Every dispensary in the University of Pennsylvania, if it so desires, can refer a case to the social service department, and that case is followed up. If the patients do not deserve free medical service, they are directed to the proper physician. Thus we overcome the abuse of free dispensaries.

Dr. T. B. Cooley, Detroit: Anyone who has done work among children of the poor knows that we are not doing more than a fraction of what we should do when we simply see them at a dispensary and prescribe for them, for we are not at all sure that our directions will be carried out or administered properly. The practice of medicine among the poor, and especially among children, is becoming more and more to be quite as much sociologic as medical, and this must be taken into consideration. We should all realize that the time has come when we are not doing justice to our patients unless we go into sociologic as well as medical problems.

Dr. D. J. M. Miller, Atlantic City, N. J.: Dr. Gramling spoke of the "patent-medicine" people distributing samples of soothing-syrups. In Atlantic City—a city of about 48,000 permanent inhabitants and many more temporary ones—two of the largest proprietary food manufacturers in the country maintain two nurses who will go to any house and instruct the mother and will take full charge of the baby, furnishing all material free. Last fall I saw a child with scurvy fed on malted milk by one of these nurses. Physicians send for these nurses to feed the babies—quite a commentary on the pediatric teaching in some schools. This, I believe, also occurs in other cities, Philadelphia, for instance. Social service, I think, will combat this and many similar evils.

Dr. Charles Douglas, Detroit: Dr. Miller's remarks reflect on the medical teachers as being neglectful. We might as well draw the line sharply and clearly. It is not the fault of the pediatric teachers; they are not doing their work poorly. It is carelessness or laziness of the students who go out into practice and just slide along the road on which they have the least trouble. We have to contend with the inherited idea that the old woman knows better how to feed the baby than the physician does. It is the graduate who passes out and who ceases to be guided by the instructions which he has received from his teachers who errs. We have also to contend with the historical thoughts handed down to students by men who studied medicine twenty-five or thirty years ago. Let every one of us who is connected with a medical college read up the pediatric thoughts and utterances made by other members of the faculty with which he is associated and let him see how many of those men are putting out the right ideas in pediatrics. We are in a state of evolution. It behooves us all to work along that line, remembering that in the gradual process of evolution the teaching faculties will gradually come up to that point in pediatric thought where we are trying to place our students at present. No doubt our young students who are being taught to-day and who will teach pediatrics later will be better examples than many of the teachers of to-day, who were not taught correctly. It is just as impossible for me to give instruction in recent surgery, of which I know little, as it would be for these men to give instruction on pediatric subjects of which they know very little.

Dr. M. Ostheimer, Philadelphia: I hope I did not give the impression that the nurse does all these things on her own responsibility. She always refers the children to me. Adults are referred to the various other dispensaries, and if they do not belong there, the chief refers them to someone else.

THE INJECTION OF RHESUS MONKEYS WITH BLOOD FROM PATIENTS WITH "RHEUMATIC FEVER"[*]

OSCAR M. SCHLOSS, M.D.
NEW YORK

The clinical picture of acute rheumatic fever suggests strongly that the disease is due to some infectious agent. Although several microorganisms have been isolated from cases of this disease yet none has been obtained with sufficient frequency to establish conclusively a direct etiologic relationship. For this reason it seemed of interest to attempt to determine whether the disease might be due to some undiscovered virus which could not be isolated by the usual methods.

Defibrinated blood obtained from patients with rheumatic fever was injected into rhesus monkeys. Only typical cases were selected. The blood was taken before active treatment was begun and during the acute stage when the disease was spreading from joint to joint—the time when it seemed most probable that the causative agent would be present in the circulating blood. The blood was obtained in large test-tubes, defibrinated by means of glass beads and injected within three hours from the time it was obtained. Every effort was made to keep the blood warm.

PROTOCOLS

Monkey 1.—Five c.c. of defibrinated blood were given intraperitoneally. No symptoms developed. One month later an intravenous injection of 15 c.c. of defibrinated blood from another patient was given. The animal remained entirely well.

Monkey 2.—On the first injection this animal was given about 3 c.c. of defibrinated blood intravenously and about 2 c.c. subcutaneously. He was watched for one month; no symptoms occurred. A second injection of the same amounts of blood from another patient was given. The result was negative. After an interval of three weeks a third injection of 10 c.c. of defibrinated blood was given intravenously. The animal remained well.

Monkey 3.—Ten c.c. of defibrinated blood were injected intravenously. The result was negative.

Monkey 4.—Twelve c.c. of defibrinated blood was given by intravenous injection. No symptoms occurred.[1]

These experiments fail to show that the blood of rheumatic fever patients contains an infectious virus capable of affecting rhesus monkeys. Either the causative agent of the disease is not present in the circulating blood in sufficient quantity, or, if it is present, rhesus monkeys are immune to its influence.

The material used in the experiments was obtained from the medical services of the New York and St. Luke's hospitals.

172 West Seventy-Ninth Street.

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[*] From the Pathological Laboratory of St. Luke's Hospital, New York. The expense of this research was defrayed by the Bush Fund for the Study of Arthritis.

[1] Defibrinated blood from three of the patients was injected into the ear veins of rabbits in the following amounts: Rabbit 1 was given 2 c.c.; Rabbit 2, 3 c.c., and Rabbit 3, 4 c.c. Two guinea-pigs and three rats were given intraperitoneal injection of 2 to 4 c.c. of defibrinated blood from the same patients. With the exception of the direct effects of the injection of the foreign blood none of the animals showed any definite symptoms.

THE VALUE OF SERIAL RADIOGRAPHY IN GASTRO-INTESTINAL DIAGNOSIS *

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This is essentially a summary of a series of three articles on the "Radiographic Diagnosis of Gastroduodenal Lesions," the first two published respectively in the December, 1911, and the March, 1912, issues of the *Archives of Roentgen Ray*. The third will appear in an early issue of the same periodical.

Two or three radiographs are sufficient to determine the size, shape and position of the stomach. For the convenience of indexing, the different types may be grouped into four classes: (1) cow-horn, (2) text-book, (3) drain-trap, (4) fish-hook (Figs. 1, 2, 3, 4); but in cases of suspected pathologic conditions one is not justified in making a diagnosis unless serial radiography is employed. This term is applied to a series of from fourteen to twenty-four radiographs of various phases of different cycles, which, when assembled, may be studied individually and collectively, or reduced to a cinematographic size and projected on the screen, giving a graphic and fairly accurate representation of the gastric motor phenomena. The technic of this examination enables the operator to observe on a fluoroscopic screen grossly what is registered in detail on the plate.

This method of examination, illustrated in Figure 5, has demonstrated that the motor phenomena of the stomach are complex instead of simple. They constitute a cycle, similar to the heart action, composed of a systole (Phases 1 to 6), and a diastole (Phases 7 to 10), and the progression toward the pylorus of a series of peristaltic contractions. A cycle occurs about once in three seconds, and at the end of a cycle, a peristaltic contraction should have moved up to the position occupied by the preceding contraction at the end of the previous cycle. If a contraction progresses from its origin to its termination at the pylorus in a single cycle (Fig. 1), that stomach exhibits the one-cycle type of gastric peristalsis. If two cycles are required for it to progress from its origin to its termination, the peristalsis is of the two-cycle type (Fig. 2). If three or four cycles are required, it is of the three-cycle (Fig. 3) or four-cycle type (Fig. 4). The last two are the most common types. The gastric cycle is governed somewhat by respiration, perhaps through the vagus, which supplies impulse both to the diaphragm and to the stomach. This suggests a method by which gastric peristalsis may be stimulated.

That portion of the gastro-intestinal tract previously known as the first portion of the duodenum has the embryologic, physiologic and surgical characteristics of the stomach, rather than of the small intestine. The important part that its radiologic appearance plays in the diagnosis of gastric, duodenal and gall-bladder lesions justifies its being dignified by a name, and the manner in which it sits up on the pylorus so closely resembles a cap that this name immediately presented itself. Radiologically this cap appears to be a continuation of the stomach, and resembles the pars pylorica in size and shape. (Figs. 9 to 14). It should be symmetrical, although its shape varies with the gastric cycle and the posture of the patient. The cap surmounts the pylorus, being separated from it by a space of about three-sixteenths of an inch, which indicates the normal pyloric sphincter. The gastric and duodenal surfaces of the sphincter should be clear-cut and smooth, and its lumen about one-eighth inch in diameter, and centrally located. In cases of adhesions in this quadrant of the abdomen, from gastric or duodenal ulcers, or from gall-bladder infection, with or without calculi, the cap is usually the first to suffer limitation in its normal dilatation.

To determine the lumen of the second and third portions of the duodenum *artificial dilatation of the duodenum* may be accomplished by passing a pyloric dilator (Einhorn) into the jejunum. This, when inflated, acts as a temporary obstruction. The bismuth and buttermilk then passes through the sphincter, dilating the second and third portions of the duodenum (Fig. 26).

The gastric and duodenal lesions that may be recognized by the use of serial radiography are:

1. Carcinoma (Figs. 6, 15, 16).
2. Hour-glass contraction (Fig. 7).
3. Adhesions from gastric or duodenal ulcers (Figs. 17 and 18 respectively), or gall-bladder infection, with calculi (Fig. 14) or without calculi (Fig. 20).
4. Dilatation of the pars pylorica from obstruction (Fig. 23).
5. Atonic dilatation (Fig. 24) with or without prolapse of the pylorus.
6. Atrophic contraction (Fig. 25).

The following radiographic findings are characteristic of carcinoma: The lumen of the stomach is encroached on by a nodular growth in the wall of the viscus, with islands or projections into the normal tissue, giving the appearance of finger-prints (Figs. 6 and 16). The growth may progress in the form of a cone (Figs. 6 and 15), terminating at its apex in a small constricted lumen, which may be filled with bismuth or entirely obliterated, or the line of invasion may have a worm-eaten appearance with overhanging edges. The area of constriction is constant in size, shape and position, and devoid of peristaltic contractions or rugæ, although it may be filled and emptied during each cycle by the peristalsis of the normal portion.

The characteristics of hour-glass constriction of the stomach are illustrated in Figure 7. The constriction is narrow, having the appearance of a ring with clear-cut edges. It resembles a peristaltic contraction, except that it does not relax during diastole. The upper segment is large in proportion to the lower one, which corresponds in size and shape to a normal empty stomach. A deep crease or spasmodic contraction in the greater curvature near the spleen so closely resembles an hour-glass constriction that at least two series of radiograms must be made with the patient in various postures before one is justified in making a diagnosis of hour-glass stomach.

Adhesions involving the pylorus and duodenum indicate, in a large percentage of cases, the presence of an ulcer of the stomach or duodenum, or gall-bladder infection, with or without calculi. The radiographic indications of adhesions are illustrated in Figures 8, 17, 18, 19, 20, 21 and 22.

1. The lumen of the affected area varies in diameter but does not dilate to its normal size.
2. The rugæ in the affected area show with unusual distinctness, having a crinkled appearance, and usually run obliquely or transversely.
3. The peristaltic contractions are clear-cut in the normal portion, but cease or are distorted when they reach the adhesions.

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* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* Because of lack of space, Figures 21 to 26 have been omitted in THE JOURNAL. They appear in the Transactions of the Section and in the author's reprints.

4. The cap is constricted, asymmetrical, displaced or absent.
5. The sphincter is not clear-cut and well-defined, and is much wider than it should be, either on one surface, forming a wedge-shaped area, or on both surfaces, giving an annular appearance.
6. The second and third portions of the duodenum are angular or contracted.
7. The stomach may be bound to an adjacent viscus, and conform in shape to the lines of the liver, gall-bladder or colon. At the point of adhesions on the lesser curvature peristalsis ceases, and the contraction on the greater curvature becomes deeper, compensating for its absence on the lesser curvature.

A small localized constriction in the body of the stomach or pars pylorica, having the appearance of an embryonic hour-glass contraction, associated with a distortion of the rugæ, suggests an ulcer of the stomach, old or new.

If the cap is contracted and worm-eaten, but not drawn to the right, and the duodenal surface of the sphincter is irregular, duodenal ulcer should be considered.

Extensive adhesions, involving the right side of the pars pylorica, drawing that portion of the stomach to the right and straightening out the greater curvature, the cap being of normal dimensions, but angulated, and the sphincter being normal, suggest gall-bladder infection, with or without calculi.

The differential diagnosis of carcinoma from adhesions or hour-glass stomach is very important. In extensive cases this may be made with great accuracy, and many non-operable cases may thus be saved the shock of an unnecessary exploratory operation. Even in early cases the radiologist can differentiate between malignant and non-malignant lesions with about the same degree of certainty as can the surgeon at an exploratory operation, without a microscopic examination of the specimen. It is more conservative, however, for the radiologist to state the character, location and extent of the adhesions, and leave the surgeon to determine the cause. The important question is, Do the radiographic findings indicate surgical procedure? If there is any radiologic evidence of malignancy, surgical interference is indicated, regardless of whether or not the symptoms are severe enough to justify this procedure. But if there is no evidence of malignancy, the cases group themselves radiologically into three classes:

1. Adhesions with or without dilatation of the stomach, accompanied by symptoms sufficiently severe to indicate surgical procedure (Fig. 22).
2. A definite lesion without sufficient symptoms to justify surgical procedure (Fig. 21).
3. Definite radiographic findings, with obscure but prolonged symptoms, referable to the right hypochondrium.

Dilatation of the stomach may be recognized by other methods of examination, but it is of two types, one from pyloric obstruction, and the other from atony. Pyloric obstruction, calling for surgical procedure, causes a dilatation of the pars pylorica, giving the prognathian or "under-shot" appearance of a bull-dog's jaw (Fig. 23). The atonic type of dilated stomach (Fig. 24) is enlarged uniformly, with or without a prolapse of the pylorus. But the lumen of the sphincter is not sufficiently contracted to prevent complete evacuation. In such cases surgical procedure is not indicated.

The atrophic contracted stomach (Fig. 25) is high and the greater curvature nearly straight; the cap is absent or displaced, and the peristaltic contractions are wide, showing a lack of pliability of the gastric wall. This condition is most frequently found in patients having an alcoholic history, or those showing a tendency to sclerotic changes in other organs.

SUMMARY

1. The types of stomachs may be divided into four classes to facilitate indexing.

2. The motor phenomena of the stomach are complex, showing a gastric cycle, consisting of a systole and diastole, and the progression toward the pylorus of peristaltic contractions.

3. The appearance of the cap (first portion of the duodenum) is a vital factor in gastroduodenal diagnosis.

4. The second and third portions of the duodenum may be artificially dilated.

5. The lesions which can be diagnosed by serial radiography include carcinoma, hour-glass constriction, adhesions from gastric ulcer, duodenal ulcer, and gall-bladder infection, with or without calculi, dilatation from obstruction or atony, and atrophic contraction.

6. The radiologist can recognize and differentiate between these conditions with about the same degree of certainty as can the surgeon at an exploratory operation without the microscopic examination of the specimen.

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ABSTRACT OF DISCUSSION

Dr. G. E. Pfahler, Philadelphia: I think that it is a waste of time to attempt to classify these types; they are not definite enough for classification. One shades into the other so gradually that any attempted classification means nothing. We should be very careful in our endeavors to draw certain conclusions. More fluoroscopic work should be done and I do not believe that we should attempt to depend on the cinematograph in drawing so many conclusions. The systole and diastole of the stomach have not been shown on the fluorescent screen and I do not believe that so much confidence should be placed on what these serial photographs reveal.

Dr. Lewis Gregory Cole, New York: The types of stomach were simply used for classification, and have no relation to the function or pathology of that organ. Diastole and systole of the stomach are shown more or less distinctly in nearly every series of stomach radiographs, and as each radiograph is an accurate representation of the lumen of the stomach at the instant it is made, there can be no doubt of its presence. If I have conveyed the impression that there are two sphincters, I wish to correct it. There is but one sphincter, and that separates the cap from the pyloric end of the stomach, and may be studied carefully in the radiographs. If this detail is not visible on the screen, it proves that fluoroscopy is not so accurate as radiography.

Economic Importance of Mental Diseases.—The amount appropriated for the care of the insane during the past year in New York was 23 per cent. of the total expenditure of the state. Compare this with the other fields of state expenditure: education, 24 per cent.; public works and conservation, 13 per cent.; prisons and reformatories, 4 per cent.; the legislature, 4 per cent; the militia, 2 per cent.; health and quarantine, 1 per cent.; and care of all other wards of the state, such as the epileptic, feeble-minded, blind, crippled, disabled soldiers and sailors, 8 per cent. To the layman these startling figures must give some impression of a fact which some scientists and physicians deeply realize, namely, that modern civilization must take hold of the problem of insanity with vigor, energy and scientific skill. The hopeful thing about what appears to be on the surface a situation of despair is that insanity is not, as our forefathers used to believe it to be, an "act of God," but is a disease which can to a very large degree be prevented and to a considerable degree cured by mental and physical hygiene.—*The Outlook.*

Figs. 1 to 4.—Types of Stomach *

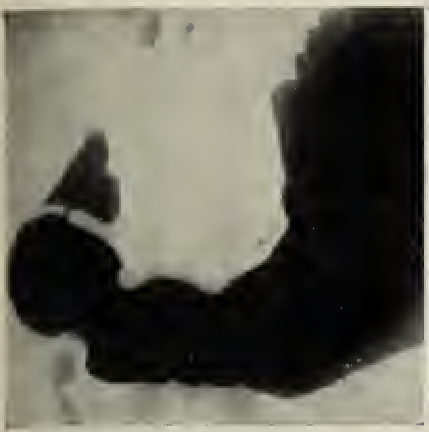

Fig. 1.—Cow-horn.

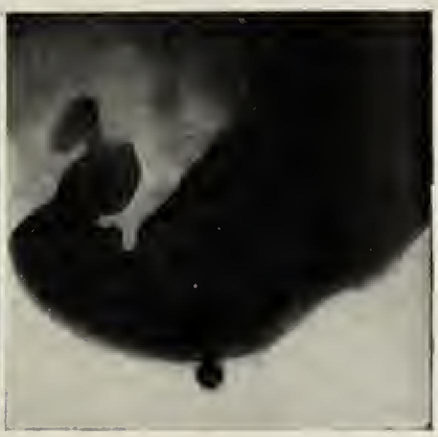

Fig. 2.—Text-book.

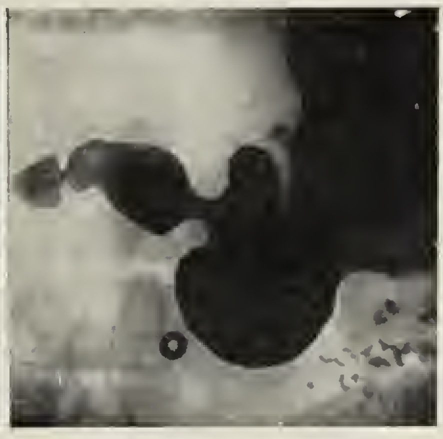

Fig. 3.—Drain-trap.

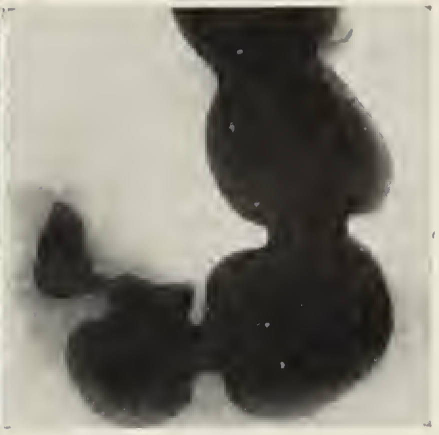

Fig. 4.—Fish-hook.

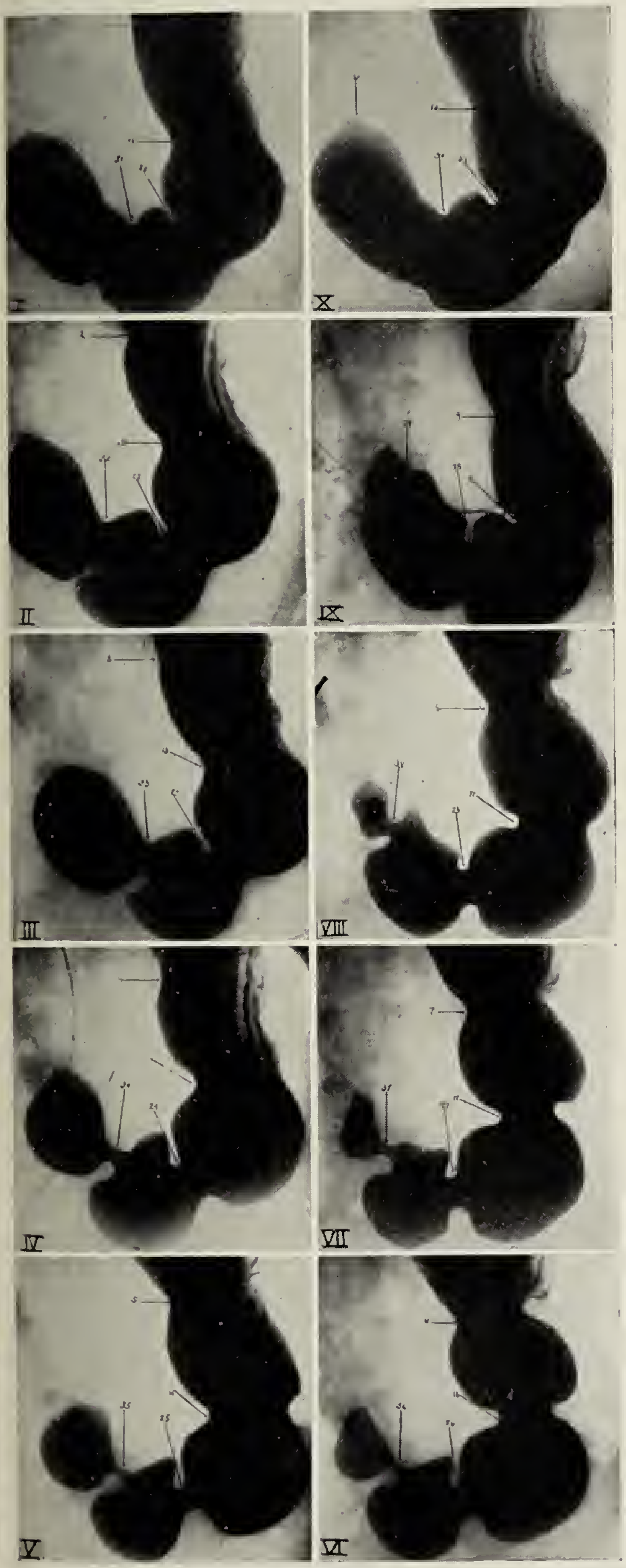

Fig. 5.—Serial radiographs showing diastole (Phases 7-10) and systole (Phases 1-6) and the progression toward the pylorus of a four-cycle type of gastric peristalsis.

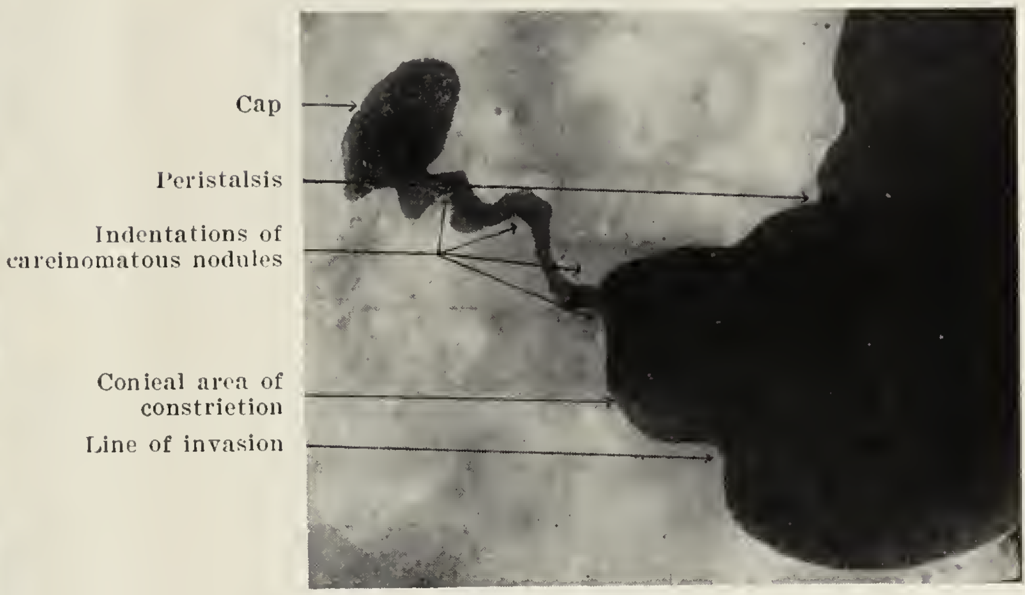
Cap
Peristalsis
Indentations of carcinomatous nodules
Conical area of constriction
Line of invasion

Fig. 6.—Extensive carcinoma.

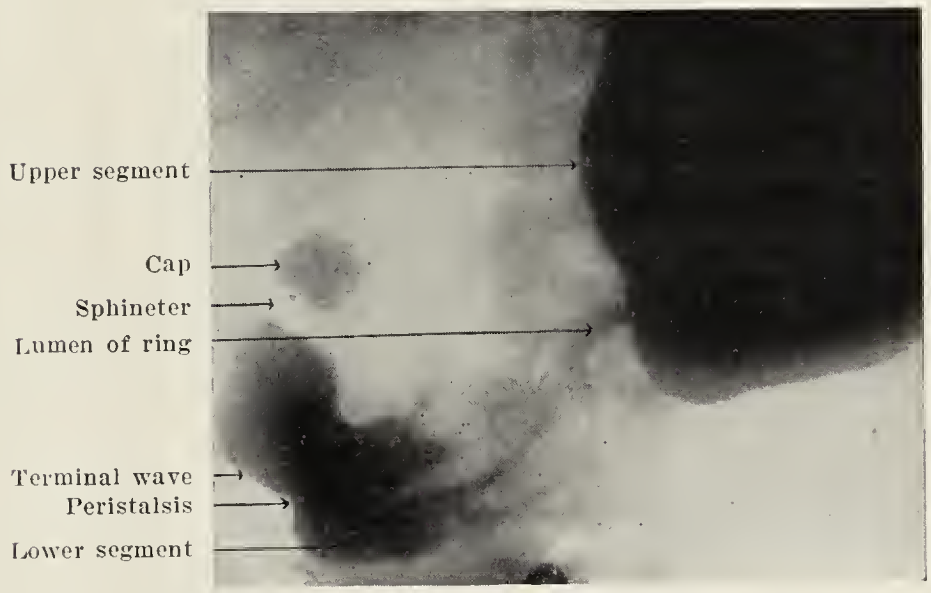

Fig. 7.—Hour-glass stomach.

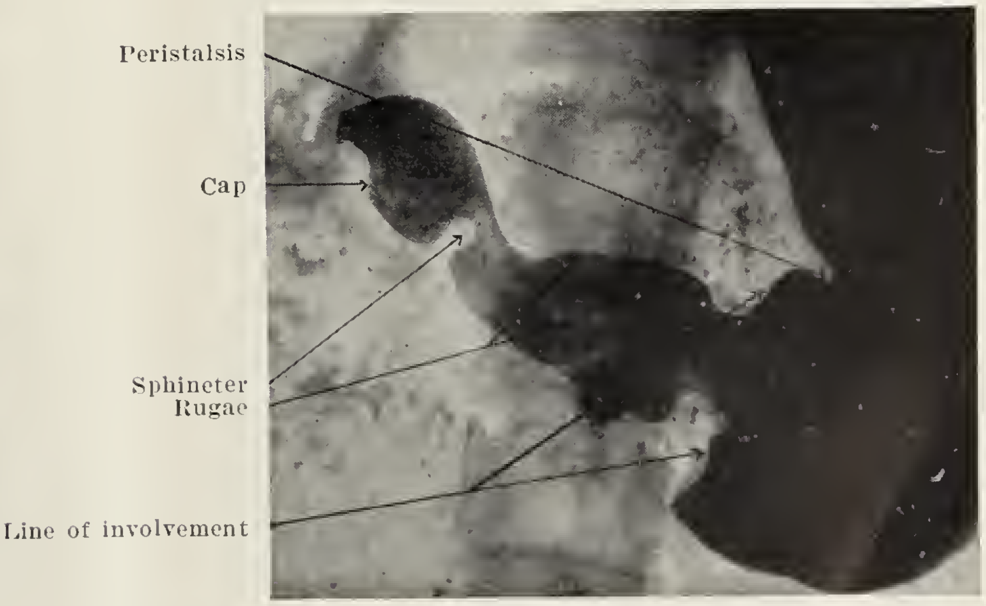

Fig. 8.—Extensive adhesions.

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* Note: The contrast in Figures 1-6, 8, 9, 13, 19 is accentuated by a localized shading in the parts surrounding the stomach.

Figs. 9 to 14.—Various Types of Caps

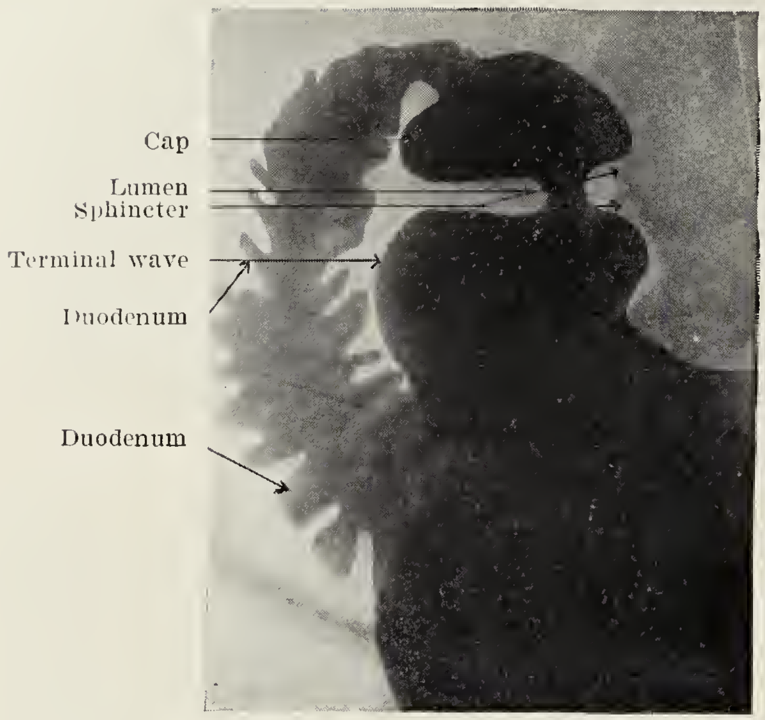

Fig. 9.

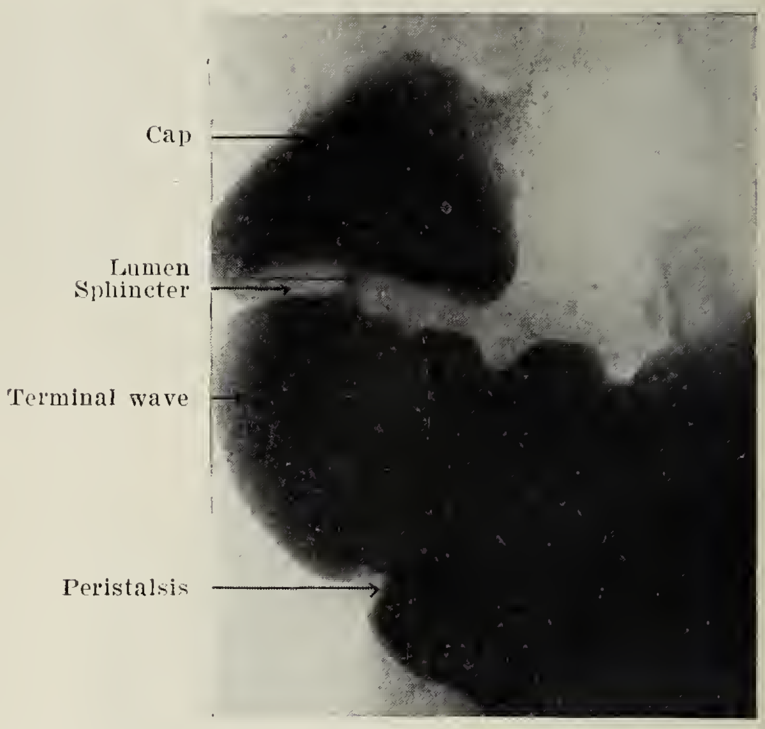

Fig. 10.

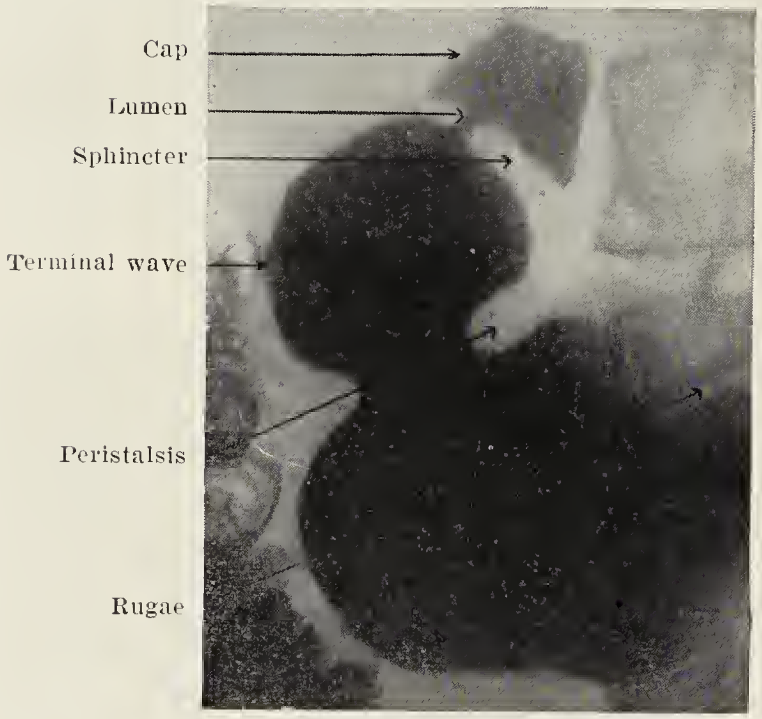

Fig. 11.

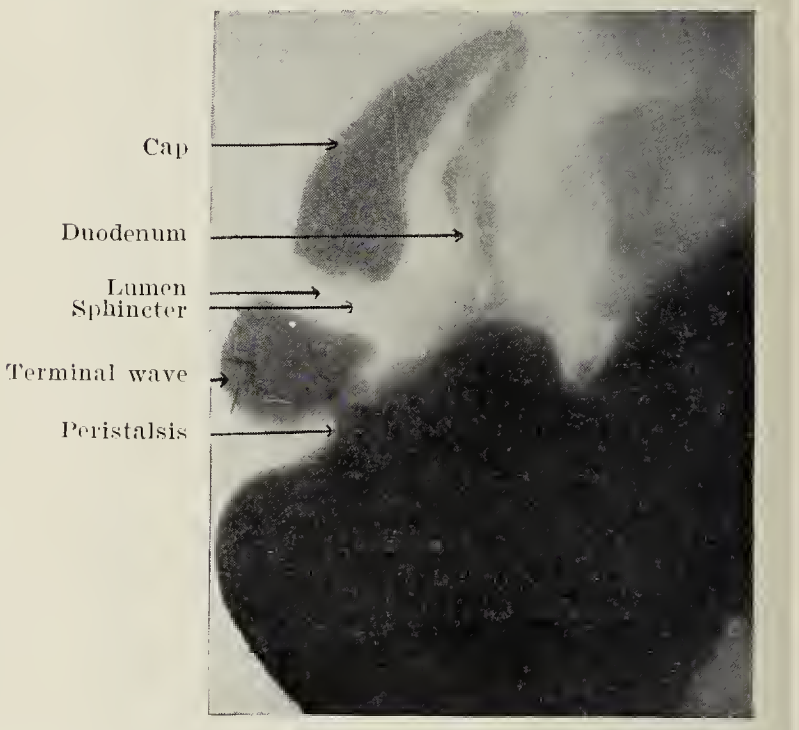

Fig. 12.

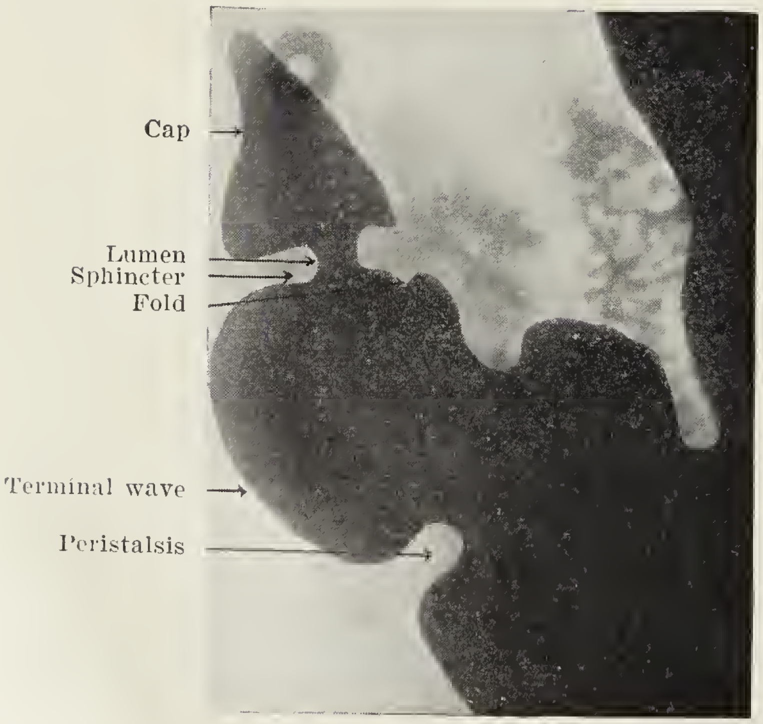

Fig. 13.

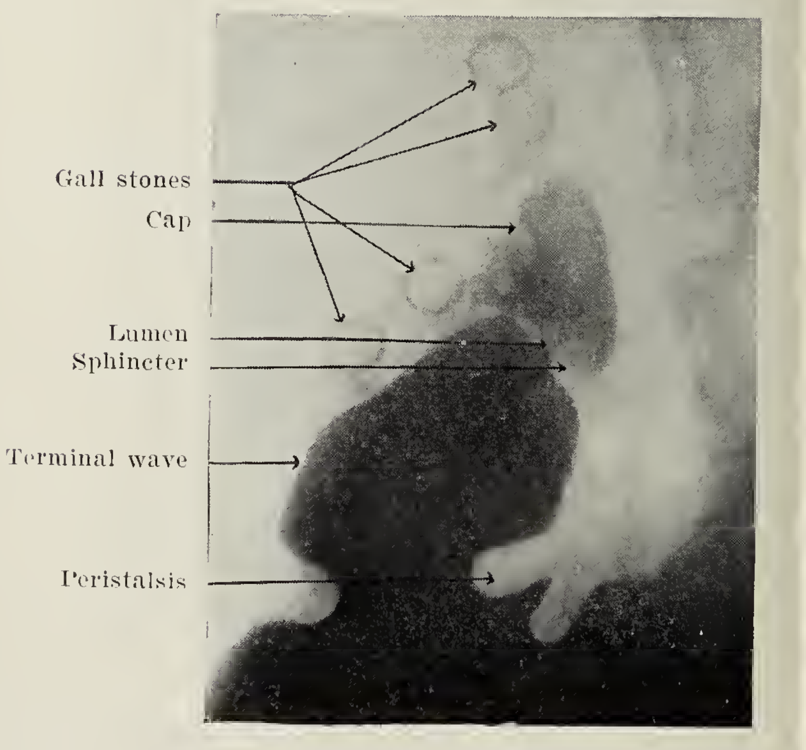

Fig. 14.

Figs. 15 to 20.—Pathologic Lesions of Pylorus and Cap

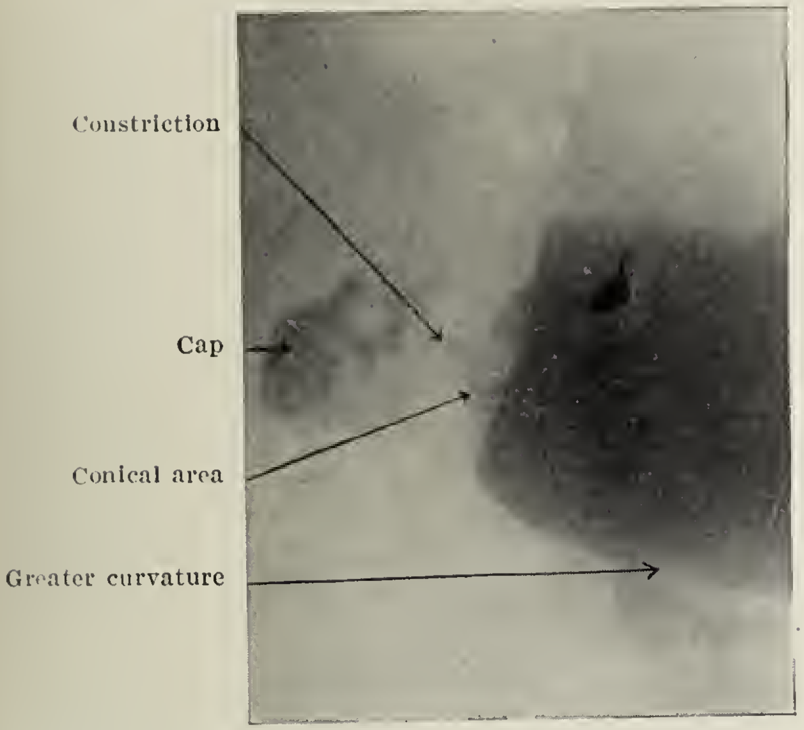

Fig. 15.—Annular growths.

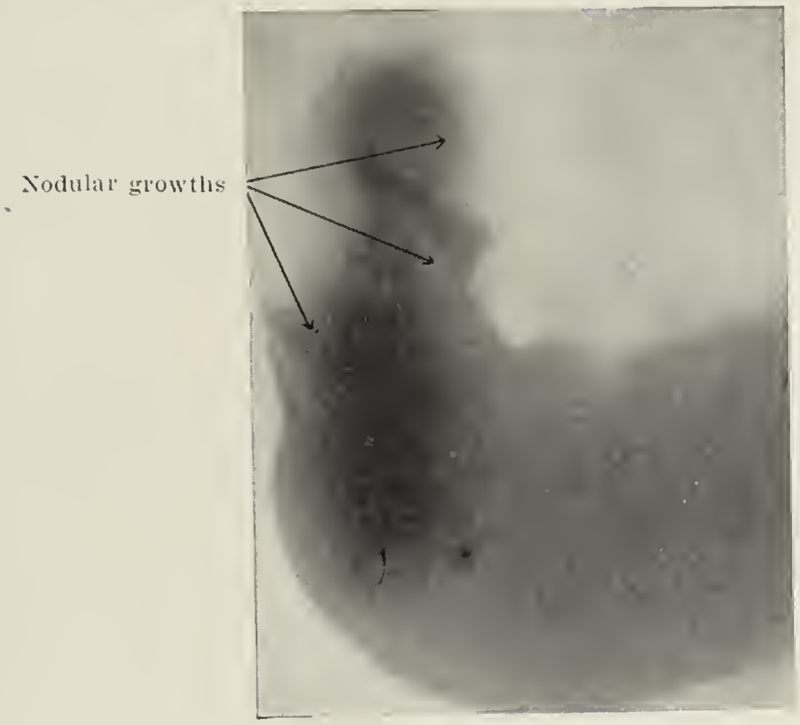

Fig. 16.—Carcinoma.

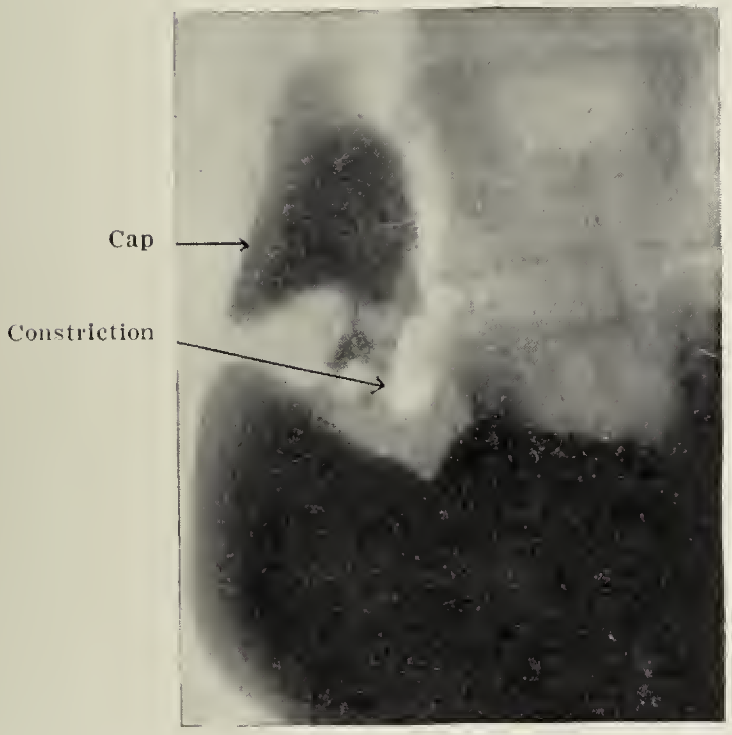

Fig. 17.—Adhesions

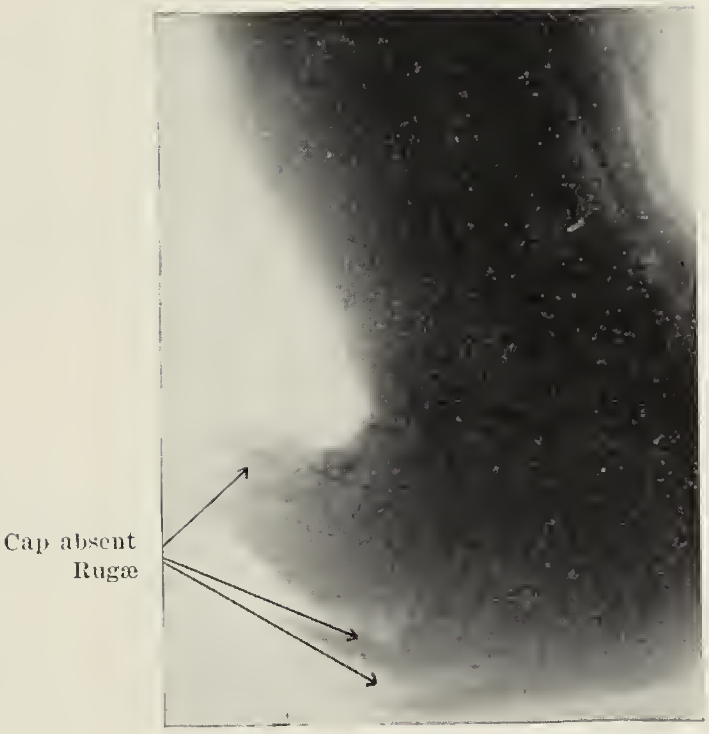

Fig. 18.—Adhesions from gastric ulcer.

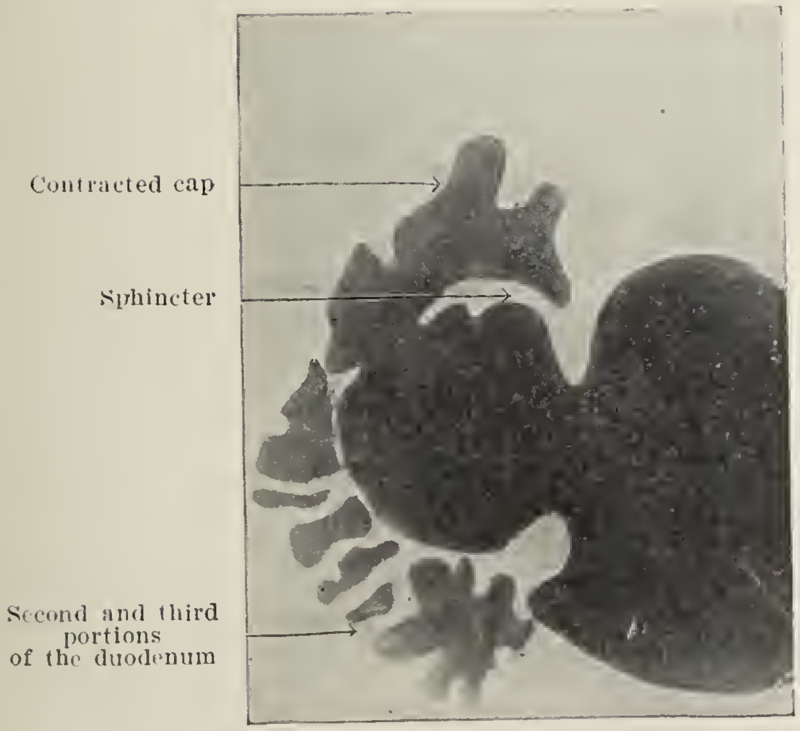

Fig. 19.—Duodenal ulcer.

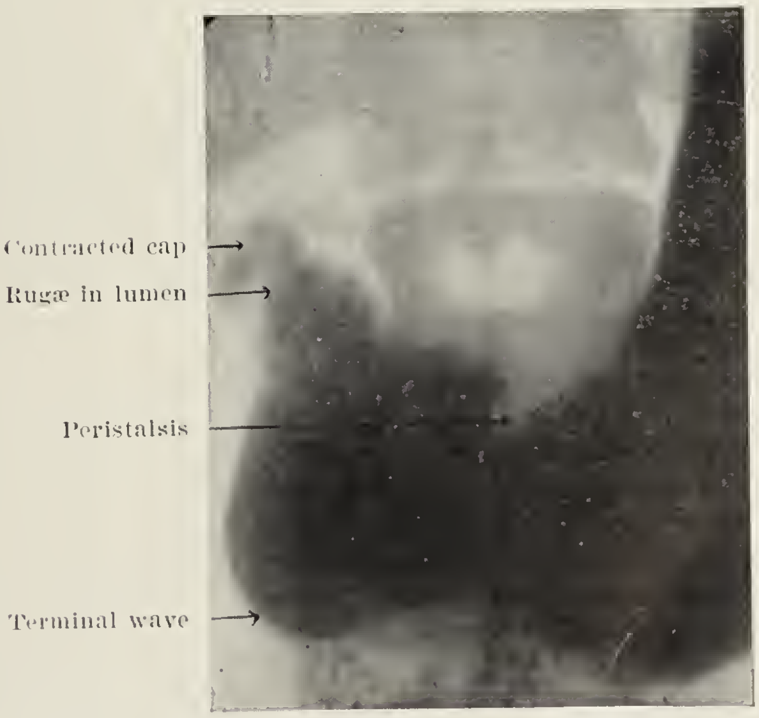

Fig. 20.—Adhesions from gall-bladder infection.

THE ORIGIN OF TUBE-CASTS

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Tube-casts are formed in most, if not all, conditions of kidney deterioration. To a limited extent also, they occur apart from other evidences of deterioration. This fact, bearing on the diagnosis of early renal disease, warrants a close study of their origin and significance.

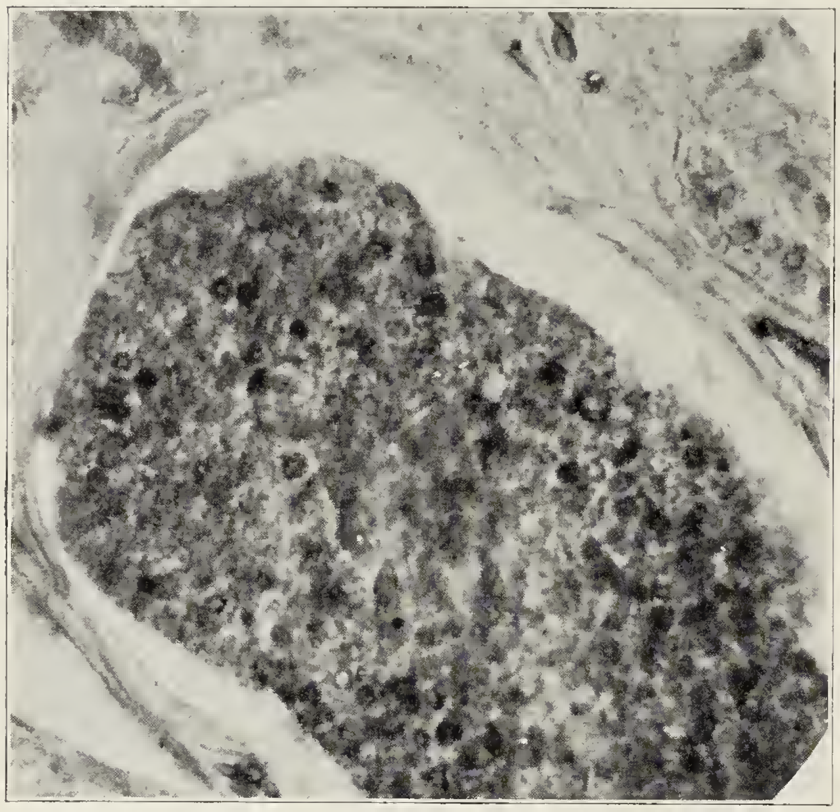

Fig. 1.—First stage, waxy cast: hemorrhage into tubule with distention by blood-clot.

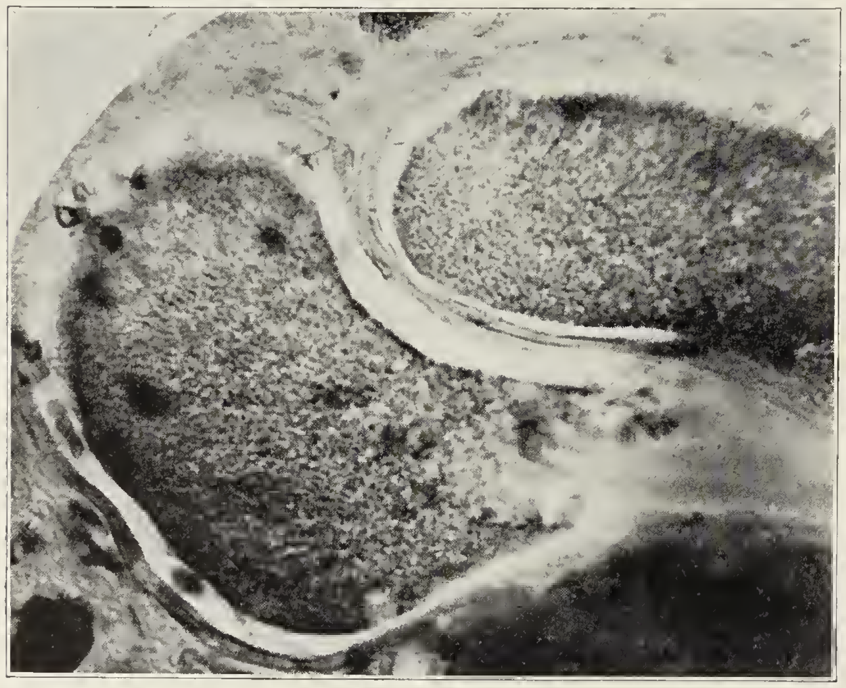

Fig. 2.—Second stage, waxy cast: blood coagulum undergoes granular disintegration. Note compression of tubular epithelium.

The literature on the subject discloses many divergent views, of which even a partial review cannot be given. The objects here intended are to consider certain primary differences in casts and to account for their origin.

Tube-casts may originate from a number of the materials entering into the structure and composition of the kidney and blood, unchanged chemically and morphologically, or broken down and altered by processes of degeneration or by the action of the urinary secretion. It is evident therefore that uniformity of composition cannot be looked for. The protein units forming cellular matter are complex and subject to great variations, and so also are the products of waste and destruction. No attempt will be made to take up the chemical composition of the materials to be described, since whatever the composition, their derivation must be determined largely on morphologic grounds.

Tube-casts may be divided into three main groups: hyaline casts composed of an acid protein similar to mucin and nucleo-albumin; granular casts allied to albumin and cytoplasm, and waxy casts consisting mainly of altered blood coagulum. In addition to these materials there are fixed and wandering cells, erythrocytes, fat globules and crystals of various sorts.

The kidney has for a long time been the favorite organ for the study of granular degeneration. Present views tend to regard cell protoplasm as an emulsion of protein granules, which during degenerative processes become aggregated into more visible particles. At first the granules can be cleared with dilute acetic acid; later, however, a true coagulation takes place and they are no longer soluble. An early and a later stage are therefore distinguished.

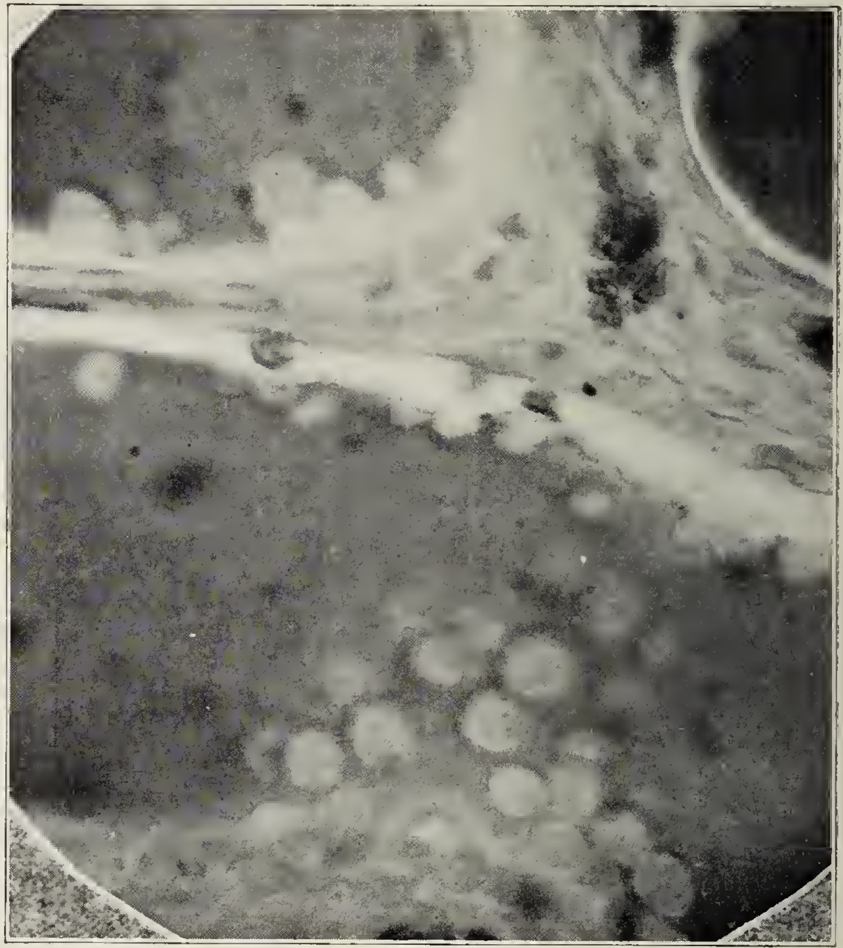

Fig. 3.—Final stage, waxy cast: Cast becomes homogeneous. Vacuoles appear on surface.

The early stage can be regarded as not more than a physiologic response to stimulation,[1] and is compared to the secretion of mucous or albuminous glands. Fine granules appear along the margin of the cell bordering on the lumen, where they are dissolved or extruded, and the cell retains its integrity. The granules thus derived become more gelatinous in their descent, change in reaction and finally emerge as hyaline material. As there are other forms and sources of hyaline material,[2] reference is here made only to that found in hyaline casts. Many substances formerly regarded as having no visible structure are found in fact to be composed of fine granules, and hyaline casts likewise, when examined under high amplification in a suitable light, exhibit many transparent particles.

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[1] Wells: Chemical Pathology.
[2] Hammersten and Mandel: Physiological Chemistry.

The late stage of parenchymatous degeneration terminates in destruction of cell nucleus and protoplasm. The necrotic mass descends, forming granular casts, or also is transformed into hyaline material,[3] the essential factors being clearing of the granules and change to an acid reaction.

Hyaline casts therefore can be produced through both early and advanced cell changes, but to these sources must be added the probable origin of hyaline material from albuminous serum exuded by the glomerulus, and transformed in the tubules by certain acid principles in the urine, the change being only physical, or both physical and chemical. The assumption is made that hyaline casts are not usually associated with destruction of the parenchyma. This is taken from the fact that hyaline material is found in normal urine in other forms than casts, being commonly, though incorrectly, termed mucus.

HYALINE CASTS AND ALLIED BODIES

Mucus, so called, the basis of hyaline casts, is a normal constituent of urine. The amount of mucus is increased in urine of high specific gravity; in urine of high acidity; in venous congestion; in toxemias from infectious diseases, digestive disturbances and irritant poisons; in some forms of nephritis; in cystitis, pyelitis and irritative and inflammatory conditions of the genital organs. Not all the mucus or mucoid substance found in urine comes from the kidney. Mucus derived from the kidney is seen in long strings ranging from threads of extreme fineness to broader bands and ribbons; often there are branched filaments or numbers of agglutinated threads arranged longitudinally, spirally or otherwise. The term "cylindroid" has been applied to the broader cast-like formations, differing from casts only in compactness, and in not entirely having filled the tubules in which they were molded.

The material forming hyaline casts seems to be identical with that in mucous threads,[4] and casts are very commonly seen pinched off at one or both ends into a fine thread. Casts are produced by a retention of the hyaline material in a tubule which often becomes dilated, and therefore the width of the cast does not indicate the part of the kidney from which it comes. The tubules of the kidney are subject to sharp changes in direction and at such places are more prone to obstruction. The tubule behind the obstruction dilates until sufficient pressure is established to force the cast through. Hyaline casts are usually molded in the limbs of the loop of Henle, where the material in a fine stream entering a tubule of wider caliber often coils itself spirally. Many hyaline casts are formed spirally, the structure showing itself as an occasional notch in the side of the cast, and such casts are sometimes termed convoluted, implying formation in the convoluted tubules which is not the case. Mucus maintains its viscous colloid state only in solutions of sufficient concentration and acidity, dissolving in pure water and in alkalies. Hence urine of low specific gravity and alkaline urine contain little formed mucus.

GRANULAR CASTS

Parenchymatous degeneration attacks the cells of the convoluted tubules with great intensity, where the granular and necrotic material accumulates in the lumen until discharged. Granular casts as seen in urine usually have a basis of hyaline material in which the granules appear as scattered points, or again the whole cast is composed of granules. Granular matter takes the protoplasmic stains, with special affinity for fuchsin.

Granular casts may also be of exudative origin, and as such cannot be distinguished from the degenerative kind. They are found in large number in the exudative forms of nephritis. Granular exudation is seen typically in the capsular space.

A third form of cast arises from granular disintegration of blood coagulum, as will be described under waxy casts. These casts are composed of dark, deeply staining granules not likely to be distinguished from dense degenerative or exudative granules.

Fatty globules when found in casts often accompany epithelial cells or their fragments. They are regarded either as an infiltration or a degeneration, in the latter case belonging to the lipoids.[5]

WAXY CASTS

The typical waxy cast is an altered blood coagulum, the result of hemorrhage into a tubule. Hemorrhage may come either from the glomerulus or directly through the injured wall of the tubule. The blood fills the tubule, occludes its distal end and often greatly distends its walls, until the epithelium shows as low flat compressed cells. The clot entirely fills the lumen of the tubule; when seen in kidney sections, however, the cast has contracted owing to the action of dehydrating agents and appears to lie loosely in the tubule.

First are seen the red corpuscles in their usual form; next they undergo granular disintegration and finally fuse into a solid cast. Sometimes the leukocytes are seen drawn together into a clump.

Waxy casts appearing in the urine are generally not of great length, are tortuous or of the corkscrew variety, and are true molds of the convoluted tubules, differing in this respect from spiral hyaline casts. Occasionally waxy casts are long and straight. Possibly there are instances in which waxy casts are formed by the fusion of granular epithelial matter.

The production of waxy material from blood likewise takes place in the capsular space where it is seen lying in half-moon shape, or even involving the glomerulus when there is hemorrhagic destruction of the tuft. Waxy casts do not denote amyloid disease of the kidney.

Red cells leaving the tuft in small numbers become swollen in the capsular space, exhibiting a few scattered granule-like points, and enter the convoluted tubules where they disintegrate. This condition is sometimes seen when the glomerulus shows no other change.

As far as this work has gone, I am led to believe that tube-casts of all kinds, except epithelial and fatty, more frequently come from the protein elements of the blood, through temporary or permanent insufficiency of the glomerulus, than from the tubular epithelium. Leaking of the tuft during periods of hyperemia does not imply serious injury to the thin-walled capillaries. Occasional traces of albumin in the urine are not incompatible with good health.

The chief varieties of casts having been outlined, it needs only to be briefly stated that frequent combinations are entered into with epithelial cells, leukocytes and red cells.

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[3] Smith, R. W.: The Origin of Urinary Casts, Boston Med. and Surg. Jour., May 9, 1908.

[4] Coplin, W. M. L.: Michrochemical Reactions of Tube-Casts, Philadelphia Med. Jour., March 8, 1902.

[5] Oertel: The Anatomic Histologic Processes of Bright's Disease.

The diagnostic value of polynuclear leukocytes is often exaggerated. Scarcely an average urine can be examined without finding definite numbers of free leukocytes, and increased numbers occur from only the mildest irritations of any part of the genito-urinary tract. Little reliance can be placed on leukocytes in the diagnosis of nephritis unless they are incorporated in casts, or else are obtained by catheterization of the ureter.

Mononuclear cells of slightly larger diameter are more likely to come from the kidney; it is not safe to term them "epithelial cells," however, because they are usually wandering cells which occur in large numbers in nephritis.[6] These cells often have dense deeply staining protoplasm, and can be found coming from glomeruli undergoing destruction, which no doubt is only one of a number of sources. By some they are held to be phagocytic.

The process of nephritis probably involves all the structures of the kidney, in no case affecting either the parenchyma or the interstitial tissue alone, however great variations occur in the intensity and duration of the process, and these factors are responsible largely for the different types. The regenerative power of the kidney is great. Restoration follows nephritis of considerable intensity from acute infections; even in more advanced cases there is marked and prolonged power of the kidney to adapt itself to conditions.

In estimating the value of casts, we should bear in mind that the kidney is subject to normal wear and that periods of exaggerated waste of kidney tissue may exist at times without exceeding the limits of repair; also that as age advances slight kidney changes are more apt to occur, these often being focal, or involving only small parts of tissue, such as in the senile and arteriosclerotic kidneys.

Tube-casts give no reliable information as to the functionating power of kidney. It is natural to infer that their presence in the tubules is a hindrance to free excretion, though to what extent this may be the case is yet to be determined. On this point more can be learned by careful continued observation on the excretion of water, chlorids and urea, and on the phenolsulphonephthalein output which has been estimated by me in series of cases attesting to its usefulness as claimed by the originators.[7]

PRESENT STANDING OF THE OPERATION OF LITHOLAPAXY *

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To our knowledge of the very perfect operation of litholapaxy I can contribute nothing important. Indeed, I can add but little to what I said about it in 1899 before the Section on Surgery and Anatomy of the American Medical Association[1] at Newport.

At that time I stated my opinion that litholapaxy was the operation of choice for the removal of most stones in the bladder. After a much enlarged experience I wish to express the belief that litholopaxy is the operation of choice in all uncomplicated cases of stone, and having seen this opinion constantly supported and confirmed by such masters of genito-urinary surgery as M. Guyon, Freyer, Keyes, Keegan, Chismore and others, it has been a source of surprise to me to find the operation imperfectly understood and little practiced among the younger generation of surgeons.

So great has seemed to me the indifference toward this operation even among some of the men who are devoting themselves to the special work of genito-urinary surgery that I am glad of this opportunity to endeavor to bring about a better and more intelligent opinion of this safe and satisfactory operative procedure.

Why do surgeons pass by this operation (litholapaxy) having a mortality of from 1.6 to 6 per cent., according to the age of the patient, and resort to one (suprapubic lithotomy) having a mortality of from 10 to 20 per cent.? It is not because the more dangerous operation has a shorter and easier convalescence, for after suprapubic lithotomy convalescence is more painful and from four to ten times as long as after litholapaxy. Again, litholapaxy interferes less with the functions of the bladder; and in my experience of 219 cases of stone removal there has been more tendency to recurrence after suprapubic cystotomy than after litholapaxy.

The advocate of suprapubic lithotomy will say that when the bladder is opened, unsuspected conditions are sometimes found which require the suprapubic opening for their proper treatment. In the early — what I may call the blind — days of bladder surgery, this had a certain amount of truth and justification in it; but at this time when the cystoscope gives the operator ample opportunity to become acquainted with the interior of the bladder before deciding on the operative procedure, it is no longer justifiable to subject all patients with uncomplicated stone to a more serious and dangerous operation in order to avoid occasionally overlooking some complication.

There is, then, no good reason to be advanced in favor of the suprapubic operation in uncomplicated cases, and yet many men continue to practice it and subject their patients to needless risks and discomforts. This is so, in my opinion, because many surgeons are not provided with the necessary instruments, and they have never taken the trouble to inform themselves and to be instructed in the technic of the crushing operation.

A litholapaxy outfit, while not very expensive, is a considerable addition to a surgeon's armamentarium, and may seem a serious burden to a general surgeon who sees comparatively few cases of stone. When patients with stone go to surgeons not equipped for litholapaxy, the question may be asked how these surgeons meet the situation.

They know that even after suprapubic incision the mortality is not very high and they wish to operate themselves rather than turn the case over to a rival, expert in lithotrity. They do not make a close enough analysis of the situation fully to realize that by this course they are subjecting their stone patients to a mortality risk fully 10 per cent. higher than is justifiable. From their point of view their position is strengthened and justified by the belief that there is unusual danger attaching to litholapaxy to be overcome only by unusual skill.

This idea of unusual difficulties surrounding litholapaxy is wholly exaggerated and only to be accounted for by lack of familiarity with the operation and its results. As a matter of fact, the skill required in the use of the lithotrite is no greater than that needed in an ordinary cystoscopy, and no surgeon is competent to undertake bladder surgery who is not competent to use a cystoscope. Inexperience adds no more to the danger of litholapaxy than it does to the danger of suprapubic cystotomy. Furthermore, my opportunities for seeing young surgeons undertaking their early litholapaxies have convinced me that a litholapaxy in inexperienced hands is less dangerous to life than a suprapubic cystotomy in the hands of an experienced general surgeon, because the intrinsic dangers of the operation are much less.

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[6] Cabot: Clinical Examination of the Urine, The Journal A. M. A., March 18, 1905, p. 837.

[7] Rowntree and Geraghty: Am. Jour. of Pharm. and Expr. Therap., July 10, 1911.

* Dr. Cabot died Nov. 4, 1912.

* Read in the Symposium on Treatment of Vesical Calculus in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] Cabot, Arthur T.: The Choice of Operation for Stone in the Bladder, The Journal A. M. A., Nov. 9, 1889, p. 657.

The fear felt by inexperienced surgeons for the lithotrite is therefore unfounded. A brief study of any of the more detailed descriptions of the operation will fit a man with any training in urethral manipulations to perform the crushing operation safely. The instruments are simple and any one who uses urethral instruments with gentleness and care can readily manage them.

This is no time or place to discuss at length the fine technical points of the crushing operation. The one thing of importance is that the bladder be moderately distended before the lithotrite is introduced. If this is done it is practically impossible for the bladder wall to be caught between the jaws. The fear of this accident seems wide-spread and yet I never knew of any damage being caused in this way.

Formerly, before the modern treatment of prostatic hypertrophy was developed, it was a common thing in my practice to crush stones behind greatly enlarged prostates. The operation was often carried out in a distorted bladder and the instruments were manipulated through a stiff and tortuous urethra. I have notes of 185 cases in which a formal litholapaxy was done under general anesthesia and I have not included a large number of cases in which small stones or calcareous gravel were pumped out with or without local anesthesia. Notwithstanding the unfavorable conditions under which many of the earlier operations were performed only eight patients died, a mortality of 4.32 per cent.

To understand fully the degree of responsibility of the operation for this mortality it is well to glance a moment at the fatal cases.

CASE 1.—A woman of 62 with extensive tuberculosis of the glands died one month after a combined litholapaxy and curettage of the cervical glands. The bladder had fully recovered. Death resulted from general cachexia.

CASE 2.—A man of 84 died one month after litholapaxy of sudden pulmonary embolism.

CASE 3.—A man of 69, feeble and with a chronic bronchitis, underwent an easy operation. The urine was clear and bladder irritation disappeared, the first week. On the tenth day the patient died of pneumonia.

CASE 4.—A man of 70, with complete obstruction in prostate and suppression of urine, was operated on in the country as a desperate effort. The kidneys never resumed work, and death ensued in twenty-four hours.

CASE 5.—A broken-down man of 60 with chronic bronchitis and a weak heart had bladder tenesmus. On account of the patient's wretched general condition he was kept under treatment for almost two months. Pain prevented improvement. A quick litholapaxy was finally done as a desperate measure to give him relief. Difficulty of respiration was greatly increased, and death followed three days later.

CASE 6.—The patient was a man of 70 who had suffered with symptoms of stone for fifteen years. After litholapaxy there was good recovery from bladder symptoms. Then hematuria set in and in my absence another surgeon opened the bladder but found nothing. After death the kidneys were found full of stones

CASE 7.—A man of about 70 was operated on at a hospital in a neighboring city. A catheter was fastened in after the operation, as it was a prostatic case. I had no notice that things were not going well until I accidentally heard of the patient's death.

CASE 8.—A man of 70 underwent an easy operation, but he died and autopsy showed hydronephrosis and pyelonephritis.

Of these eight deaths then, two occurred a month after operation as a result of conditions not connected with the litholapaxy. Two other deaths were caused by pneumonia consequent on the anesthetic in patients with chronic bronchitis, and one patient was in a desperate condition from acute suppression of urine. In view of these facts I think it will be conceded that even the low mortality of 4.3 per cent. was not wholly to be laid at the door of the operation. Among uncomplicated cases of stone there were no deaths.

Modern surgery rightly demands that in cases of prostatic obstruction with secondary stone, treatment shall be given for the obstruction and that the removal of the stone shall be merely an incident in the operation for removal of the prostate. Whether the surgeon elects the perineal route or the suprapubic for the removal of the prostate, the stone is easily removed by either without added danger.

This change in the method of treating secondary stones behind enlarged prostates has taken from the accepted domain of litholapaxy most of the cases of real difficulty in manipulation, the cases among which the slender mortality occurred, and for the crushing operation are left the uncomplicated cases which have practically no mortality and those occasional prostatic patients who shrink from the added risk of a prostatectomy and find themselves comfortable when the stone is removed.

Since Dr. Bigelow published to the world the operation which he named litholapaxy there have been few changes in the technic. Dr. Chismore's evacuating lithotrite is perhaps the most considerable and important innovation which has been brought forward. In the hands of its distinguished inventor the evacuating lithotrite did extraordinarily good work. Dr. Chismore operated usually without general anesthesia and was content to do an operation in several sittings when that was necessary. With a conscious patient the evacuating lithotrite had the distinct advantage that the suction of the pump drew the fragments between the jaws. The lithotrite therefore did not have to be moved about in search of fragments and the operation was consequently less painful.

In my experience with Dr. Chismore's instrument the small size of the evacuating tube has been a decided disadvantage and I have come to use the instrument only occasionally, when the search after a last elusive fragment has been troublesome. The combination of a cystoscope with an evacuating lithotrite is a last refinement devised by Dr. George Walker to facilitate the search for a last fragment.

It must be difficult at the end of a crushing operation to obtain a clear medium in which satisfactory cystoscopic manipulations can be carried out. In all of my series of cases I never had more than a momentary difficulty in seizing the last fragment; this difficulty was met only in sacculated bladders behind enlarged prostates — in cases which are not now selected for litholapaxy.

In this article I have endeavored to indicate the change in the status of the operation of litholapaxy that has come about since my former paper in 1889. We have seen that modern prostatectomy has taught a better way of disposing of the troublesome class of cases that furnished most of the difficulties met by the early lithotritists. Having emphasized this additional exception in which a cutting operation should be preferred to litholapaxy, I shall close by repeating the assertion made in that earlier paper:

> In my opinion, we have in litholapaxy the operation of choice for the removal of most stones. While this is the rule, there are exceptions to it, and the varying conditions surrounding stone in the bladder will now and then lead us to choose some other operation for their safest removal.
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> The surgeon who best appreciates these varying conditions, and selects in each case the operation which most surely avoids the dangers surrounding "that particular patient," will arrive at better results than any advocate of a special operation, however expert.

1 Marlboro Street.

SUPRAPUBIC CYSTOTOMY FOR VESICAL CALCULUS

INDICATIONS AND OPERATIVE PROCEDURE *

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There are but two operative methods now considered practical for the treatment of stone in the urinary bladder. One is the crushing of the stone and the removal of the fragments through the urethra; the other is the opening of the bladder suprapubically and the removal of the stone through the incision.

He would be obdurate indeed who did not acknowledge the wonderful invention of the lithotrite and the achievements accomplished by its inventor. At a time when any cutting operation carried with it such a high mortality and the convalescence was so prolonged in those who survived, the lithotrite, with the skilful touch of Bigelow, was truly a blessing; but the conditions that prevailed then with regard to the cutting operation no longer exist to-day. Little advancement, if any, has been made for the crushing operation, while each year brings a better record for the suprapubic operation.

To say that either operation should be used to the exclusion of the other for all cases of stone in the bladder would be ill-advised; but the cases generally recommended for the use of the lithotrite by the advocates of litholapaxy are, as a rule, selected cases and naturally would have a lower mortality-rate, no matter what kind of operation. Surgery is rapidly turning from the dark to the light, and blind operations or those depending entirely on the sensation of indirect touch must be replaced, wherever possible, by operations conducted by inspection of the field or by the direct aid of the fingers. We all know that it is possible by large experience to become fairly accurate by indirect palpation, but it can never be so nearly exact a method as that which depends on seeing or direct feeling.

The opportunities for any one person in this country to acquire a large experience with the lithotrite within any reasonable time are very limited; material in clinics is not sufficient to give the student the practical experience necessary to do a successful litholapaxy, and certainly no one would recommend its use by the untrained; while the opportunities for teaching suprapubic opening of the bladder are quite common, there being many other conditions besides stone for teaching this technic. In India where so large a proportion of natives have vesical calculi, an extensive experience may be acquired in a comparatively short time; as most statistics for the lithotrite come from India, the comparison is hardly fair.

Most advocates of litholapaxy admit that the stone should be freely movable, that there should be sufficient bladder capacity, and that the urethra should be of sufficient size; also that a very large prostate, an encysted stone or a stone with a foreign body as a nucleus are all contra-indications to the successful use of the lithotrite. For these more or less difficult cases suprapubic cystotomy is recommended. If, then, the mortality-rate should be somewhat higher for the cutting operation would the comparison be fair?

Among the causes mentioned as being responsible for deaths in suprapubic operations is peritonitis. This should no longer occur, for with better aseptic methods and better technic the dangers of peritonitis are reduced to a minimum. Better local and general anesthetics have reduced the danger of shock from the operation; and better methods of dealing with the wound have shortened the period of convalescence and reduced the complications to a minimum.

The complications and mishaps of the lithotrite, when they do occur, are nearly always serious. I am treating now a most persistent stricture resulting from the use of the lithotrite by a colleague. In this case there had been an extensive laceration of the urethra.

INDICATIONS FOR SUPRAPUBIC CYSTOTOMY

Overenthusiastic exponents of litholapaxy may make the statement that they have never seen a stone too large or too hard to be grasped by the lithotrite, but their experience is scarcely borne out by the experience of other surgeons or by the many reported cases in medical literature. Even in the special stone number of the *Indian Medical Gazette* expert operators confess that this condition does exist. The case reported by Richards[12] is a good illustration. The stone weighed 2 pounds; lithotrity failed; perineal incision failed because the stone had to be chiseled; and the stone was finally removed suprapubically, the wound healing readily. In my own practice there have been eight cases with large hard stones which I feel could not have been removed without great difficulty by any other than the suprapubic route. The patients made quick recoveries without complications.

The operative treatment of encysted or adherent calculi is always the high incision, as the many published cases prove. Inspection is absolutely necessary here. I have had three such cases; in one a stone about 2 cm. in diameter was enucleated from a pocket in the region of the trigonum, only the very tip showing. In another the stone was firmly adherent behind the prostate. In the third case cystoscopy showed a calculus embedded in the mucous membrane over the right half of the trigonum. This case is of further interest in that the patient returned in six months complaining of the old trouble; cystoscopy showed the diverticulum at the site of the former stone. Again suprapubic incision was made, several soft stony deposits removed and the diverticulum dilated, since which time the patient has been in good health.

Where multiple stones are present the superiority of the suprapubic method is hardly to be doubted, for exposure of the operative field is necessary for a thorough search. In my practice I have had ten cases of multiple calculi, in one of which I removed ninety-three stones, six the size of filberts and eighty-seven ranging down to the size of a grain of wheat; there was extensive trabeculation. This patient was 84 and made an uninterrupted recovery.

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* Read in the Symposium on Treatment of Vesical Calculus in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* This article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

[12] Richards: Lancet, London, 1908, ii, 230

The suprapubic operation is generally accepted as the operation of choice in the young. The operations of Milton[7] and Assendelft[9] are good proof of the wisdom of this. Even Thompson did not advise litholapaxy in children. My youngest patient was a 19-month-old baby. There was a quick convalescence.

The presence of calculi in old men is another indication for the suprapubic incision. Thomas,[13] in an article on calculus in old men, gives the histories of four cases in which the calculi were so situated behind the prostate that the lithotrite could not grasp them. The stones were removed suprapubically and the patients made good recoveries. My seven patients, all over 70, left nothing to be desired so far as operative recovery was concerned.

Except in the hands of the most experienced, prostatic hypertrophy offers obstruction to the lithotrite, there being few surgeons who will not prefer the suprapubic method. Six of my patients had marked prostatic hypertrophy, on three of whom I performed a prostatectomy at the same time.

The location of the calculus projecting from the vesical end of the ureter is another indication for the suprapubic method. I have had several very interesting cases of this kind; also two cases in which the stone was wedged in the neck of the bladder and considerable force was necessary to dislodge it. It could hardly have been removed in any other way.

The presence of a foreign body as a nucleus is another hindrance to crushing. Many such cases are on record. My cases of this kind are three in number, the nucleus being a hair-pin in one case, the wick of a taper about 3 inches long in another, and a piece of wax in the third. Calculi associated with tumor also hinder crushing and a strictured urethra almost necessitates the cutting operation.

A recent case in my practice was of more than general interest. The patient, a man aged 67, suffering from severe ascites and marked myocarditis, was in almost continuous pain, due to a bladder contracted firmly about a very rough stone. There was practically no bladder capacity. Five liters of cloudy serum were drawn from the abdominal cavity the day before the operation. Under nitrous oxid and local anesthesia, a large calculus was successfully removed suprapubically.

The reports of Lakeside Hospital, Cleveland, for the ten years from 1900 to 1910 show forty-six operations for vesical calculi; thirty-eight were done suprapubically, seven were litholapaxies and one was removal of the stone by dilatation of the urethra. Four deaths occurred in the suprapubic cases, all four being complicated cases. One man of 68 had acute double hydronephrosis; another of 74, with a very weak heart, had a prostatectomy at the same time; the third had marked prostatic hypertrophy and the bladder was divided into two compartments by a small band; the fourth patient, a man of 55, showed a gelatinous condition of the bladder mucosa, the bleeding being a constant oozing. The mortality of the suprapubic operations was 10.5 per cent. One death occurred in the litholapaxies, that of a boy of 12 who died from severe laceration of the bladder. The mortality of the litholapaxies was 14.28 per cent.

One of the objections to suprapubic cystotomy is the prolonged convalescence. This was a valid objection when the bladder was drained, but it is no longer necessary to drain the bladder after removal of stone or tumors. If the bladder is properly closed, a week or ten days is all the time necessary for a complete cure. I have been closing the bladder in practically all suprapubic operations, with the exception of suprapubic prostatectomy, and have more than 90 per cent. of primary unions.

For the success of this operation certain points in the technic, which I have described in a previous paper, are necessary. In brief they are as follows: The cut edges of the bladder should not be grasped with crushing forceps. The edges must be carefully approximated while the wound is on the stretch so that the stitches will not be separated when the bladder is distended with urine. The ligature must be absorbable. My personal experience consists of fifty-three suprapubic operations for stone in forty-nine cases, with no deaths. There were four cases of recurrence. Good recoveries resulted in all cases. Two of the forty-nine patients were women. Three patients were below 15 years of age; sixteen between 15 and 50; twenty-nine between 50 and 84. The youngest patient was 19 months; the oldest, 84 years. The average age was 53.4 years. In thirty-three cases the bladder was immediately closed, leakage occurring in only three cases and in two of these only a small amount, and for a short time.

Until a practical observing lithotrite is invented, which will give the operator the opportunity of seeing the field of operation, suprapubic cystotomy for stone must remain the method of choice by the majority of operators.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. CABOT AND LOWER

Dr. John Myers Swan, Canton, China: In the Canton Hospital of South China, during the last twenty years I have had 1,058 lithotomy operations for urinary calculi, 950 of which were by the old lateral perineal section and about fifty by the suprapubic. In addition to that and during my earlier experience in the treatment of this disease, I had to deal with about 258 by litholapaxy. There are two or three factors that have caused us to adopt the operation we have generally done: first, the age of the patient. Out of 1,058, 330 were under 10 years of age, and we all know that it is not nearly so easy to use a lithotrite in patients under 10 years of age as it is in the adult. The factor that first influenced me with regard to the operation best to do was the mortality-rate. My predecessor, Dr. John G. Curry, was one of the most famous lithotritists in his time, and we have in the hospital one of the best outfits for lithotrity. In the first few years of my experience the mortality-rate ranged higher in the operations for litholapaxy than in the ordinary lithotomy. The second and perhaps the most important factor was that there was recurrence after litholapaxy. Dr. John G. Curry was a skilled lithotritist, and yet I have found that anywhere from six months to a year and a half after litholapaxy our patients returned with recurrent stone. Recurrence very rarely occurs after lithotomy. Third, when we have from ten to twenty operations in one day, the question of time must be considered. From two to five minutes from the time the patient is anesthetized until he is ready to be removed from the table will generally allow of a lithotomy. Lithotrity cannot be done in that time. The advantage to the patient, the liability to return after litholapaxy, and the quickness, ease, convenience and safety of the operation, have influenced us to adopt

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13. Thomas: Lancet London, 1900, i, 1652.

lithotomy, either suprapubic for the larger stones, or the ordinary lateral perineal for the smaller ones. Exclusive of serious organic disease, aside from kidney or bladder, our mortality-rate after lithotomy, either suprapubic or perineal, has been reduced to 3 per cent., and in one single year I did sixty-two perineal and suprapubic sections with no mortality.

Dr. A. L. Chute, Boston: I do not know whether you are all aware that Dr. Cabot was the pupil and great friend of Dr. Bigelow, our surgical primate of Boston, who, we think, did so much in establishing this operation. In spite of the statistics from Canton, I do not see how anybody can hold to the cutting operations. It seems to me that the operation of litholapaxy is so much easier. In uncomplicated cases it does not seem to me that we ought to consider the suprapubic operation from the point of view of the patient. I disagree with Dr. Swan as regards the time. That is not an argument. It is the surgeon's time as compared with the patient's convalescence.

Dr. Hugh H. Young, Baltimore: I hesitate to say anything when there is a man present who has done 1,058 stone operations, an appalling experience to the rest of us. I agree with Dr. Cabot and Dr. Chute in the thought that it does seem a shame in this day of the cystoscope to do a cutting operation for stone in the bladder in uncomplicated cases, when it is so easy to crush this foreign body. Of course there are reports of a few cases of rectal fistula and a certain number of cases of incontinence in which the lateral perineal operation has been employed, so that the English surgeons in India have practically given up either the median or the lateral lithotomy. We have all seen severe suprapubic infections, and occasionally extravasation. One of my patients died from interrectus infection following the removal of a calculus. The fact that these complications are not possible after the litholapaxy operation ought to lead us to try wherever possible a crushing operation. Litholapaxy has fallen into disfavor on account of the length of time consumed, and on account of the difficulty in finding the last fragment which often remains and leads to the recurrence of stone.

Chismore was right in trying to perfect the operation by changing the instrument so that the stones could be sucked into the blades, caught there and crushed without hunting all over the bladder for them. Those of you, however, who have tried Chismore's instrument know of the difficulties. It was mechanically not a well-constructed instrument. One could not handle it so quickly and easily as the Bigelow. The evacuating tube was so small that it was impossible to get anything except the small fragments through it, although I think that the evacuating principle was a good one. Therefore, I constructed a lithotrite, fashioned after Bigelow's principle, with the handle hollow, a stop-cock and an evacuator attached to the instrument, thus making it possible to have an assistant work the evacuator while the surgeon is crushing. Then, if desired, it is easy to introduce a straight cystoscope through the instrument, hunt for any fragment, pick it up and crush it. There are certain difficulties in the perfection of this instrument which have made me hesitate to put it on the market. The difficulty is in the balancing of the metals; to have the blade large enough and strong enough, whether the old Bigelow blade or a fenestrated posterior blade is used. Freyer and Keegan have shown that pushing of fragments through the fenestra does no harm. A fenestrated posterior blade makes a more effective crushing instrument than Bigelow's blade. So my instrument, which is made after the principle by Leiter, has the fenestrated blade. It seems to me that the great trouble with the lithotrite is the introduction of one instrument after another and the hemorrhage that results from the passing of the instruments through the posterior urethra. With an instrument introduced only once there is practically no bleeding, so that cystoscopy is really quite practicable.

Dr. Louis E. Schmidt, Chicago: I should like to draw attention to the phrase, "enlarged prostate complicated with stone," which seems to be a general term. I am quite sure, however, that if we use the cystoscope, we can often readily see that we are dealing with a primary stone, and that the prostate has absolutely nothing to do with the condition. In the past three years I have crushed stones in three patients over 65 years of age. All had been advised to have a prostatectomy and naturally removal of the stone. In all three instances litholapaxy has given perfect results. I think that it is well worth taking into consideration that it is the stone that is causing the trouble and not the prostate, and that we must not always think that the prostate has to be removed with the stone.

Dr. Eugene Fuller, New York: I have always felt that there was a very large and useful field for litholapaxy. There is no doubt that it is an operation which requires great dependence on the sense of touch, and if a surgeon has that accomplishment, he will find in many cases that it will be the simplest thing in the world to crush a stone and to remove it; by so doing he will subject his patient to less danger and pain than by cutting. There are cases in which stone is only secondary to some other condition, and of course, one does not want to try to crush. I think that is the case in a great many conditions of the prostate; not all of them, as Dr. Schmidt has just pointed out. For instance, if a phosphatic stone is secondary to foul urine in the postprostatic culdesac, there is little use in trying to crush that stone and leave the foul urine. It is better to remove both the prostate and the stone. If there is a hard stone and a clean bladder in a condition of prostatic retention, then it may be worth while to crush the stone. One curious point that is brought up sometimes is the tolerance to stone. One sees a certain class of cases in old men who have an extreme amount of tolerance; in such cases, for instance, there exists a mulberry calculus of the roughest kind with perfectly clear urine and no pain. The only way I can explain that condition is that these men have so much prostatic obstruction that the stone during urination lies in the culdesac and consequently is not brought into the grip of the neck of the bladder at the end of the act. I have never seen a young man who harbored a stone like that without a great deal of pain in the bladder.

Dr. George S. Whiteside, Portland, Ore.: I have just seen the large collection of stones from the Canton Hospital here on exhibit. They are a most wonderful collection and some of them could not have been crushed. Some are as big as paving stones. Conditions are a little bit different in this country from those in Canton, and it seems to me that we see the smaller stones. Educated people, when they have anything the matter with them, go to see a physician instead of waiting until the stones are large. Here, litholapaxy is better than any cutting operation. It keeps the patient in the hospital but twenty-four hours, and the number of cases of recurrence that one sees after litholapaxy, with a proper cystoscopy afterwards, is almost *nil*. In neglected cases with large stones a cutting operation is often preferable.

Dr. William T. Belfield, Chicago: In nearly a hundred of my operations for stone, calculi were removed neither by crushing nor suprapubically, but by a simple median urethrotomy. I have no doubt that had I been brought up in the classic shades of Harvard I should have removed some of these by a crushing operation. But median urethrotomy gives advantages which litholapaxy cannot furnish; that is, drainage of the bladder, with less danger than a suprapubic operation. So I think we should not allow to go unchallenged Dr. Lower's statement that there are but two practical operations for stone in the bladder.

Dr. A. T. Cabot, Boston: Our experience in litholapaxy in children in this country, of course, is nothing as compared with the experience that they have in China and India, but against the remarks just made by Dr. Swan we must remember the remarks of Keegan and Freyer. They operated among a similar clientele, had an enormous number of stones and found the crushing operation in children quite feasible. I have had very few. Someone said that it was a very difficult operation in children. That is all wrong. It is very easy. The bladder in children is small and globular and the stone cannot get away. One must be gentle, but the manipulation is easy. In the operations I have performed I have been delighted with the ease with which they were done. Recurrence has always been an opprobrium of the crushing operation. There is danger in any operation of fragments being left. I have removed stones in a number of instances after suprapubic operations done for the removal of the prostate. When one leaves a suprapubic wound it leaves a granulating surface on the inside, on which calcareous matter collects and acts as a nucleus for stone. After litholapaxy I always wash my patient out about ten days later, with the idea that somewhere some little fragment may have caught among the folds and not have been removed. I remember one case in which I did a number of operations. The stone did recur. The patient had three or four hundred stones at the first operation, all the way from the size of a good-sized bean down to a grain of wheat. It was one of my early cases, and I did not wash the patient out afterward, and within less than a year he was back again for a second operation. I removed the stones again; they were multiple. A fortnight later I washed out 150 minute separate stones from his bladder. A week later I washed out fifty. I washed him out once a week until I washed him once or twice without getting any. I think that subsequent washing out is an important part of the operation.

Dr. Young spoke of Dr. Bigelow's lithotrite. I think that he is unaware of the fact that Dr. Bigelow devised a fenestrated lithotrite which he occasionally used. The fenestrated lithotrite cuts the large stones very easily. In operating on children I always use a fenestrated lithotrite. After he had broken the stones up Bigelow preferred the solid blade because he could put it down in the bottom of the bladder and crush the stone easily without any danger of thrusting fragments through against the floor of the bladder. In my early cases I constantly operated in cases in which the prostates were not removed. I have often seen the irritation disappear and the residual urine fall from several ounces to a few drams after removal of the stone. One field for stone removal is when they first come into the bladder. With my litholapaxy pump I have in my office removed quite a number of renal stones that had been passed from the kidney into the bladder and then had not passed out. Of course, behind an enlarged prostate that has any residual urine whatever, a small stone has a very small chance of being passed out, and in these cases the use of the pump will save the patient the subsequent formation of a vesical stone.

Dr. W. E. Lower, Cleveland: Dr. Swan has given statistics for cystotomy far better than anything I have to offer. The lithotritists are asking us to do the hard operations and they will do the easy ones. The only thing we ask is that we be permitted to do the easy ones as well. If the suprapubic cystotomy is properly done and the bladder closed, the patient has no greater discomfort than after the use of the lithotrite. It is doubtful if he has as much because of less trauma to the urethra, for there is always a certain amount of trauma to the urethra after the use of the lithotrite and urination is more or less painful.

SEMINAL VESICULOTOMY

ITS PURPOSE AND ACCOMPLISHMENTS *

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Since the operation of seminal vesiculotomy has been before the profession for a considerable period of time, no attempt will here be made to describe the procedure itself. All those desirous of such information are referred to my previous articles.[1] My first article was written during the experimental stage of the work; the second, after the procedure had established itself on a firm, practical basis. In the second article it will be seen that some of the original experimental technic was abandoned and that improved features were substituted. At present, having more than doubled my surgical experience with the operation since the 1909 article was written, my cases then having numbered only 126, I naturally feel that my technic and surgery are more competent than they were three years ago. Still, in the way of a general description of the operative procedure itself, there is little to add.

To any one wishing to perfect himself in this particular, the following suggestions are offered: The anatomy should be studied and dissections should be made on the cadaver. In accomplishing such dissections the cadaver should be placed in the knee-breast posture, thus simulating conditions pertaining during actual operation. Dissection should be made without cutting into the muscular structure of the perineal body, the rectal sphincter muscle or the blood-vessels encircling the anus. If this is so done, the bursal space between the rectum and the prostate is entered without injury to a blood-vessel of any size. In fact, in the performance of the actual operation the tying of a single blood-vessel is only exceptionally necessary. After the bursal space is once entered, the finger-tip suffices, except occasionally when dense pathologic adhesions exist, in accomplishing a separation of the rectal wall from the prostate and seminal vesicles.

Aside from an acquaintance with the anatomy of the region traversed by the operation, familiarity with the regional anatomy of the part to be attacked is most essential. In common professional parlance, the term "prostate" is seemingly made to include not only the prostatic body proper, but also the seminal vesicles; and should an inflammatory or neoplastic tumefaction occupy a part or the whole of the postprostatic space, such lesion is generally classed also as prostatic, the idea that anything else could exist calling for a differentiation of the diagnosis not being apparently even thought of. As the result of a regional dissection, just what constitutes the prostate, the seminal vesicles and the outlying region of the postprostatic space will become apparent.

When one considers that the seminal vesicles are cavities for holding fluid, the walls of which, as with the bladder, are made up of muscular structure lined interiorly with mucous membrane, it is not difficult to picture the pathologic conditions so frequently encountered. Such conditions in the great majority of instances have to deal with intraseminal vesicular infections of various descriptions, most of which have entered the cavities by the ejaculatory ducts, though in a minority of instances the invasion has been effected by penetrations through the sac walls. The distention of the sac cavities due to muscular atony may represent a lesion in connection with which there is no intraseminal vesicular infection. Severe grades of infection are not simply intravesicular, but involve the muscular walls of the sacs or (and this is frequent) invade also the outside fibrous lymph-spaces, a periseminal vesiculitis of greater or less degree resulting.

As the seminal vesicle discharges its contents by the long narrow ejaculatory duct and only at infrequent intervals, it is readily seen that the organ is not well equipped by Nature to throw off spontaneously an infection, even when confined to the intravesical cavity, and much less so when the process has extended so as also to involve the sac walls and the perivesicular tissues. In very extensive infections in which pus collects in the postprostate space outside the seminal vesicles, Nature, if left to herself, may discharge the pus into the bladder through the trigonum, into the rectum by perforating

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* Read in the Symposium on Genital Pathology and Surgery in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] Fuller: The Journal A. M. A., May 4, 1901, p. 1228; Med. Rec., New York, Oct. 30, 1909.

the bowel wall, or she may find a way out along the same tract which I employ in reaching the seminal vesicles by operation. In such unusual instances the abscess points into the perineum or to one side of the rectum. When Nature is left to herself in such cases, the work is not apt to be well done, but requires for its completion much more difficult surgery than would have been necessary had operative interference anticipated natural efforts. In most infections the process does not go to periseminal vesicular abscess formation, the bacterial invasion of the tissues causing varying lesser grades of lesions, largely in the nature of round-cell infiltration, serous extravasations and scleroses, all of which serve as lodging-places or nidi for infecting organisms.

With this understanding of the pathology of the part, it is easy to comprehend the reason for and the purpose of surgery in this connection. The general surgical principle on which the operation of seminal vesiculotomy is based is simply that of drainage. Most natural cavities of the body are being constantly opened and drained to free them of inflammatory processes, or of the resultant effects of such processes. Consequently, there is no valid reason why surgical drainage should not be applied to these hitherto neglected organs.

My reason for laying such emphasis on what probably seems a most elementary and self-evident principle is that there apparently exists a somewhat wide-spread misconception of the operation under consideration. Although its name implies that there is no removal of the seminal vesicles, still many seem to think that such is the purpose of the procedure. Another very prevalent erroneous conclusion is that incision into the seminal vesicle destroys the organ, and that an individual so operated on is on a par with one who has had the testicles removed. The operation is not one of destruction, but of repair. Every one knows that incisions for drainage into other cavities, such as the bladder, the renal pelvis and the mastoid, do not destroy functional conditions. Their purpose is preservation. The same applies to drainage of the seminal vesicles. Where disease of the part has threatened or destroyed the sexual function, the operation acts as preserver or restorer. Any drainage operation which does not accomplish its purpose is, of course, a failure. If this were not the case one surgeon would be as good as another, and operative skill would be no longer an asset of value.

In classifying my cases of seminal vesiculotomy, I have found it more satisfactory to group them according to the prominence of the clinical symptoms presented, rather than in accordance with the grades of the pathologic lesions. Acting on this idea the four following groupings have been designated: (1) urinary; (2) genital; (3) nervous and mental; (4) rheumatic. In some cases the symptoms complained of are varied enough to come under all four groups. In making the assignment these cases are placed in the group which accords with the most pronounced symptoms. In most instances, however, there is little question as to which group should receive the assignment.

In the first (urinary) group come most of the acute virulent cases, in which the gonorrheal process in its invasion of the seminal vesicles quickly extends beyond the sac walls and into the surrounding tissues, much postprostatic general tumefaction resulting. In these cases the inflammation, after filling the loose periseminal vesicular tissues, works its way forward into the capsule of the prostate, so that when a digital examination per rectum is made a great bulging, rounded mass is felt, which may be extensive enough nearly to fill the space assigned to the rectum. Such a tumefaction always markedly disturbs urination and often causes complete retention. The tumefaction begins as a round-cell serous exudate, but often goes on to abscess. These are the cases commonly mistaken for prostatic abscess. The old way of treating them by perineal cystotomy was most unscientific as well as unsatisfactory. Routier's method of draining them by way of an incision through the rectal wall has little to recommend it. By seminal vesiculotomy, however, relief is prompt and radical. Voluntary and free urination is usually reestablished thereby inside of twenty-four hours.

Another class of cases in this group represents those in which there is a persistent catarrhal discharge from the seminal vesicles through the ejaculatory ducts; a third represents those in which the symptoms assigned to cystitis are most prominent, periseminal vesicular inflammation having extended into and involved the bladder floor.

In the second group the symptoms of sexual impairment predominate, impotency or marked weakness being the usual feature.

The third group, in which nervous and mental symptoms are most prominent, is numerically much smaller than it should be, for the simple reason that a smaller percentage of patients with such symptoms have consented to submit to operation. Such individuals, because of the nature of their symptoms, are apt to be timid and apprehensive, and consequently are disinclined even to entertain the idea of relief through operation, much less accept such an issue. Then, besides, very few neurologists are awake to the fact that surgery has anything to offer these patients in the way of relief; the result is that the great majority of such authorities when appealed to by these patients after the operative issue has been raised throw their influence strongly against the proposition. As most neurologists are ready to admit that their methods of treatment, when applied to men suffering from mental or nervous disorders based on a sexual foundation, are very unsatisfactory and in the majority of instances thoroughly inefficient, and as these same authorities do not now hesitate to send their female patients who have similar symptoms to gynecologists for operation, in case their sexual organism is found to require such treatment, it seems most probable that it is only a question of a short time before neurologists will change their present attitude and give their male patients advice in harmony with that accorded the other sex; in other words, they will put the genito-urinary surgeon on a par with the gynecologist.

Not everyone, of course, who harbors a lesion of the seminal vesicles has nervous or mental symptoms. These symptoms are chiefly observed when the sexual disorder has implanted itself on a person whose nervous organism is susceptible or vulnerable. In some instances the symptoms are reflex in character; in others, a systemic toxemia, like that which exists in the rheumatic cases, is the accounting cause. The mental symptoms complained of are often a confusion of ideas, inability to think clearly or to concentrate the mind, and are especially manifest after sexual disturbances or effort. Mental depression, even to the extent of melancholia, is common. Marked loss of initiative, trepidation and a high degree of timidity are not infrequently manifest. In one instance illustrative of this condition, a man would not walk alone unless he was close to a railing or a fence for fear that he might fall. Another physically very strong individual would not cross a ferry, unless his wife held his hand, for fear that he would be blown off. These, of course, are extreme instances. In fact, hysteria in all its varying phases is to be encountered in a clinical study of these cases. The nerve symptoms may be multiple and varying, just as in neurasthenia, or they may be fixed and definite. In the latter condition, complaint may be of pain in the perineum, the rectum, the back of one or both thighs, the sacrum, the inguinal region, the scrotum, the loin, or elsewhere. Such pain, it is often stated, is aggravated by sexual effort or disturbance.

The fourth or rheumatic group is most interesting and very important. Whereas most of the individuals assigned to the first group and practically all classed under the second and third groups are physically capable, all those of the fourth group are crippled to some extent, while very many of them are bedridden and unable in any degree to care for themselves.

My investigations have shown that the ramifications and extent of gonorrheal rheumatism are much greater than is commonly supposed. The acute rheumatic complications associated directly with gonorrhea have long been clinically recognized. The chronic phase of the complication, however, beginning perhaps a considerable number of years after an infection, has not been recognized, and has been incorrectly diagnosed. Tuberculous joint, arthritis deformans, gout, chronic inflammatory rheumatism, progressive muscular atrophy and myelitis of some form are among the diagnoses previously made in cases which I have cured through the performance of seminal vesiculotomy.

This drainage operation, by tapping the septic focus, terminates the resulting condition of systemic toxemia, and with such termination there begins a resolution of the crippling lesions, the causative effects. While in the acute cases resolution of the rheumatism and its effects following operation is very rapid, in the chronic cases it is naturally by comparison slow. It is easy to realize that this must naturally be the case when one considers the atrophic muscular and other changes which are associated with joints and tendons that have for long periods been fixed and immovable. In such instances, after the toxemia has disappeared, massage, passive movements and other agencies usually employed in convalescence from fractures or joint injuries of long standing are to be recommended. In this connection, however, I would state that I do not begin the employment of these agencies so promptly after operation now as formerly. I think it best for the first two or three months following operation to employ no manipulations aside from what the patient may voluntarily undertake. If this is done the system is wholly free from all vestige of toxemia before the commencement of postoperative treatment. Premature manipulations are associated with painful and inflammatory after-effects.

In my earlier experience it was not uncommon to notice, a month or six weeks after operation, some temporary recrudescence of the rheumatic symptoms in cases in which all such symptoms had disappeared promptly following operation. This I found to be due to the fact that the outer tract of the wound had been allowed to close before the region of the seminal vesicles had been sufficiently drained. To obviate this the drainage-tubes are not now removed for ten days, or until such time as the deeper portion of the wound has thoroughly healed.

Just what part the gonococcus itself plays in the causation of gonorrheal rheumatism has not been determined, and the more I study chronic conditions the less I feel inclined to put great responsibility on that organism. In many of the chronic cases no gonococci can be demonstrated definitely to exist in the urinary tract or in the material expressed from the seminal vesicles. Organisms, apparently streptococci, can, however, be found. There is often positive clinical evidence that these individuals are not and have not been contagious in their coitus for a long period. It may be that a toxin, a product of the gonococcus, of the streptococcus or of a combination of the two, which is responsible for the rheumatism, is generated in the seminal vesicles. This is a laboratory problem yet to be solved. In the meantime, I have on many occasions called attention to the fact that the term gonorrheal rheumatism is objectionable and faulty, especially in its application to chronic cases in which very likely the previous existence of a gonorrhea is an event of the forgotten past. The term "absorptive or toxic rheumatism," besides being more accurate, is also free from criticism.

My clinical experience with seminal vesiculotomy now consists of 254 cases. Out of this large number there has been no mortality. The operative risk must therefore be slight, and with this showing adverse criticism based on the gravity of the procedure should receive no attention. The postoperative disturbance, aside from that usually associated with the anesthetic, is slight. Retention follows about once in five cases. When it does occur the urine rarely has to be drawn more than a time or two. Aside from the order to be prepared to use the catheter, if required, the chief direction is to give castor oil twenty-four hours after operation, and from that time on to see that the bowels are properly moved every day.

My second article ended with the report of my one hundred and twenty-sixth case. In thirty-five of these 126 cases the operation was undertaken for the relief of gonorrheal rheumatism. In the 128 patients operated on since that report, rheumatism figured as the cause for operation in eighty-nine cases. The reason for this marked increase in the rheumatic ratio in the second series can be accounted for as follows:

The first time the operation was employed to relieve rheumatism was in connection with my thirty-eighth case, as before that I was not awake to the fact that the operation could be so employed. Since then, the operation with a wider experience has been found applicable not only to the acute rheumatic cases, the only ones first tried, but also to the chronic cases. As such affections cripple and physically incapacitate a greater percentage than do the other groups of symptoms, it is natural that the rheumatics should outnumber the others in seeking operation.

Of the remaining thirty-nine cases, eighteen belonged to the first or urinary, fourteen to the second or genital, and seven to the third or nervous and mental group.

Of the eighty-nine rheumatic patients there was not one who was not relieved in a most radical manner and who was not satisfied with the operative result. Eighty per cent. of the patients were well and free from all symptoms when they passed from observation a month or six weeks after operation. All were instructed to report should any future disturbances arise; nothing official has been heard from them. The remaining 20 per cent., mostly representative of chronic conditions, I have not been able to keep under observation until a complete resolution of the rheumatism had taken place. All of them had been so much improved that retention in hospital was no longer required. Most of them had insisted on being discharged, as they were able to look after themselves, while two or three had been discharged for violation of disciplinary rules. I hear from these last patients occasionally, and all such reports are either cures or progressive improvements.

One man, operated on three years ago, after having been bedridden or about on crutches for seven years, has for the last two years been an orderly at the City Hospital, in perfect physical condition. A very few patients, mostly those with flat feet, were turned over to the orthopedic department after thoroughly convalescent. Several of the clinical patients, owing to their pain, had become addicted to the use of opium. In every such instance all opium was stopped at the time of operation. In these cases convalescence was, as a rule, somewhat slower, owing to the breaking of the drug habit.

Two of the eighteen urinary patients proved to have an underlying tuberculous condition, which prevented an operative cure. My rule is not to subject tuberculous seminal vesicles to this operation, and care is taken to avoid operation in such cases. One urinary patient, whose case was representative of periseminal vesicular abscess, had to leave the hospital to resume work before he had recovered; the result was a relapse. This patient, when last seen, was much better. Three other patients sought their discharge from hospital before they had time to become cured. The remaining twelve patients passed from observation cured.

In nine of the fourteen genital cases the patients were satisfied when they passed from my observation. I have no reason to suppose that the results in the remaining five cases were not satisfactory; I have heard nothing to the contrary. It takes from three to six months to get the end-result in these genital cases, and before that time some of the patients disappear.

Operative results in the seven mental and nervous cases were all satisfactory, though two of the patients passed from observation somewhat prematurely.

These results, taken as a whole, are most satisfactory. Still, it is not expected that seminal vesiculotomy will ever become an operation to be performed by everyone professing efficiency in general surgery, and it is to be hoped that those who have not previously made an attempt to fit themselves for its technic will not try it. This may also be said with regard to many operations. Few, if any, attempt iridectomy, for instance, without preliminary training.

My reason for making these precautionary remarks is that the operation of seminal vesiculotomy is done under the guidance of the sense of touch rather than that of sight. Some surgeons are not trained to put any dependence on their touch, but must see everything before using a knife. Genito-urinary experts have to be trained in the touch. Certain of their operations, as litholapaxy, depend entirely on that sense. Anyone who has skill in surgical technic and also a finger trained in the rectal touch should have no trouble in becoming expert in seminal vesiculotomy; he will then be able to relieve a large class of patients who have hitherto been, as it were, surgical derelicts.

252 Lexington Avenue.

The Open-Air Bedroom.—The ordinary bedroom for most persons is well enough. Its only trouble is that it does not admit enough air. Let us not drive out the occupant on this account, but reform the bedroom. It can be done with astonishing cheapness and ease, simply by putting in many windows.—E. Cummings in *Jour. Outdoor Life.*

DEATH AND BLINDNESS FROM METHYL OR WOOD-ALCOHOL POISONING

WITH MEANS OF PREVENTION

CASEY A. WOOD, M.D.
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Surely the man who wishes well of his country should be interested in preventable diseases. Inevitable evils one bears with greater or less equanimity, but those forms of ill health that are plainly avoidable should be ruthlessly traced to their sources and eradicated.

Hygienic crusades are all the more likely to be successful in America since we have recently experienced a great moral uprising against those deadly agents, adulterated foods and quack medicines. It is no longer respectable or safe for wholesale or retail purveyors of food and drink to substitute for them any poison their fancy dictates. The demand for articles that are at least what they claim or seem to be has at last become so loud and persistent that no government can afford to ignore it. Now that the sale of spoiled, noxious or adulterated food is beginning to be regarded as a low form of thievery not uncommonly tinged with manslaughter, the common people are likely to come into their own.

It is for the purpose of bringing to the attention of our citizens the dangers that lurk in the use of certain forms of methyl or wood alcohol that this paper has been prepared.

Thirty years ago poisoning from wood alcohol, methyl alcohol, wood spirit, methylated spirits, etc., was almost unknown. The disgusting odor and vile taste of this product of the destructive distillation of vegetable fiber were so repugnant to the palate and nasal organs that one would about as quickly drink crude petroleum. About 1890, however, a comparatively cheap method of "deodorizing" this ill-smelling and vile-tasting liquid was discovered, and under various names, such as "Columbian Spirits" (Fig. 1), "Purified Wood Alcohol," "Colonial Spirits," "Standard Wood Spirits" (on the Canadian market, Fig. 2), "Cologne Spirits," "Union Spirits," "Eagle Spirits," "Green Wood Spirits," etc., this violent poison was put on sale. It was widely and shrewdly advertised and all sorts of virtues were claimed for it, the chief being that it was a cheap and comparatively harmless substitute for ordinary ethyl or grain alcohol. Not only could it be used instead of grain alcohol in making varnishes, liniments, tinctures, hair-dyes, etc., and as a fuel in lamps and stoves, but also at first its poisonous character was denied *in toto.* This last claim led to its use not only for these purposes but also in the manufacture of Jamaica ginger, essence of lemon, liniments, alcoholic extracts, cheap whisky and proprietary "remedies;" generally speaking, in those instances in which the manufacturer regarded his business as a means of getting money "honestly" when there was no danger of being found out.

Soon, however, stories of sudden death as well as of total and incurable blindness following the use of this horrible poison began to appear, not only in medical journals but in the public press. It was not until a wholesale drug firm in Baltimore had been mulcted in heavy damages for attempting to "turn an honest penny" by the use of "deodorized" wood spirit as a substitute for the four-times-as-expensive grain alcohol in the manufacture of Jamaica ginger, that the trade began "to sit up and take notice."

Later, examples of wholesale poisoning began to be reported. Parties of all classes of people — workmen, picnickers, bar-room habitués, Indians, etc.— indulging in cheap whisky and its substitutes died or became blind. Still later, it was found that unfortunate painters, especially shellackers of beer-vats, working in confined and unventilated places, were stricken with blindness, and on investigation it was conclusively proved that the befouled, rebreathed and methylated atmosphere was responsible for the result. Cheap varnish made with “Columbian Spirits” costing about 50 cents a gallon (grain alcohol is about $2.40 a gallon), had done its deadly work.

In the years 1903-1904 the late Dr. Frank Buller of Montreal and myself set about collecting the histories of cases of poisoning to that date. Doubtless many instances of wood-alcohol poisoning escaped this inquiry, but we found and reported[1] 275 instances of death or blindness (sometimes both) directly traceable to drinking, or inhaling the fumes of “Columbian Spirits” or some other form of “deodorized” wood alcohol. At that time we drew the following conclusions:

1. Methyl, or wood alcohol, in any of its forms, and all methylated preparations as well, are dangerous poisons, menacing both life and eyesight.

2. It is used as an adulterant of, and substitute for, grain alcohol in cheap whisky and other alcoholic beverages, not to mention Jamaica ginger, lemon extract and many other essences and flavoring fluids.

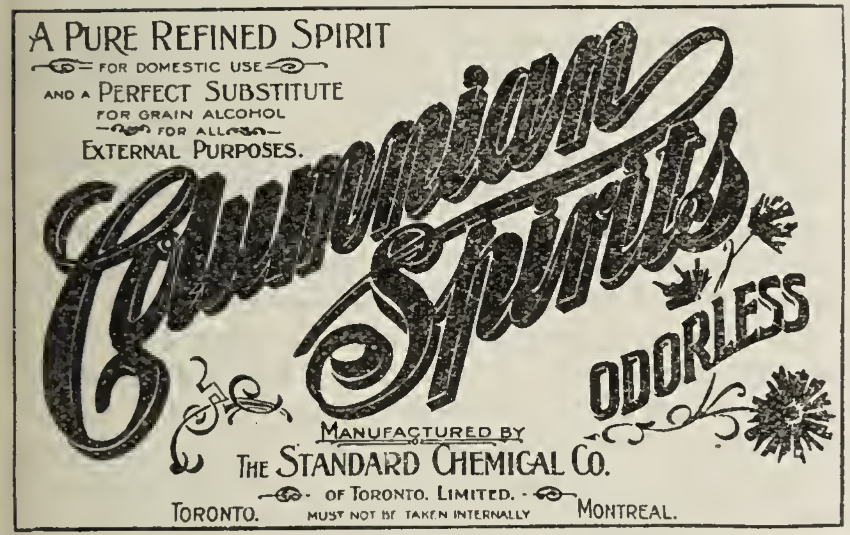

Fig. 1.—A label used on “Columnian [Columbian] Spirits.” Note how obscure is the warning not to take this poison internally.

3. Methyl alcohol is largely used in the preparation of many proprietary and patent medicines, witch hazel, domestic liniments, as well as bay rum, cologne water, Florida water and other perfumes.

4. The injury to the eyesight consists chiefly of a destructive inflammation of the optic nerve fibers or retinal elements (or both), followed by their atrophy.

5. The symptoms of acute poisoning are gastro-intestinal disturbances, more or less severe, accompanied by abdominal pain, general weakness, nausea, vomiting, vertigo, headache, dilated pupils and blindness. If recovery does not occur, there is marked depression of the heart's action, sighing respiration, cold sweats, delirium, unconsciousness, coma and death.

6. The blindness is bilateral and may set in a few hours after the contact with the poison, or it may be delayed for several days. It is generally complete, with a subsequent improvement, and, finally, a relapse into permanent blindness.

7. The diagnosis can hardly be mistaken. Methyl alcohol poisoning presents a picture unlike that of any other intoxication. Acute abdominal distress, followed by blindness, should always awake suspicion of methyl alcohol poisoning.

8. The prevention of poisoning by this insidious drug can only be brought about by prohibiting [or rendering unprofitable] the sale of “deodorized” wood alcohol in all its forms. The number of deaths may, meantime, be limited by putting all methylated preparations on the list of poisons and prosecuting all persons adulterating foods and drinks with it. Labeling it with the notice, “This fluid, taken internally, is likely to produce blindness,” will certainly have a deterrent effect.

9. Methyl-alcohol intoxication is an example of idiosyncrasy. As in the case of several other poisons, some persons are largely immune so far as permanent damage to the organism is concerned. If ten persons drink, say, 4 ounces of Columbian spirits within three hours, all will have marked abdominal distress and probably four will die, two of them becoming blind before death. Six will eventually recover, of whom two will be permanently blind. With still larger doses, the proportion of death and blindness will be greater.

10. Poisoning by inhalation of the fumes of methyl alcohol generally occurs when the exhalations are mixed with rebreathed air, as in varnishing the interior of beer-vats, closets or small rooms, etc. It is also highly probable that in susceptible subjects repeated or even single methylated “alcohol rubs” may produce poisonous symptoms, through absorption of the spirit by the skin.

11. Chronic (or partial) poisoning from methyl alcohol (in the shape of “nips” of methylated Jamaica ginger, bay rum, punch made with Columbian spirits, etc.) is the most insidious and probably not an uncommon form of intoxication. Its symptoms are not so pronounced or so easy of recognition as in the acute form, but the eyes, digestive apparatus and nervous system undoubtedly suffer.

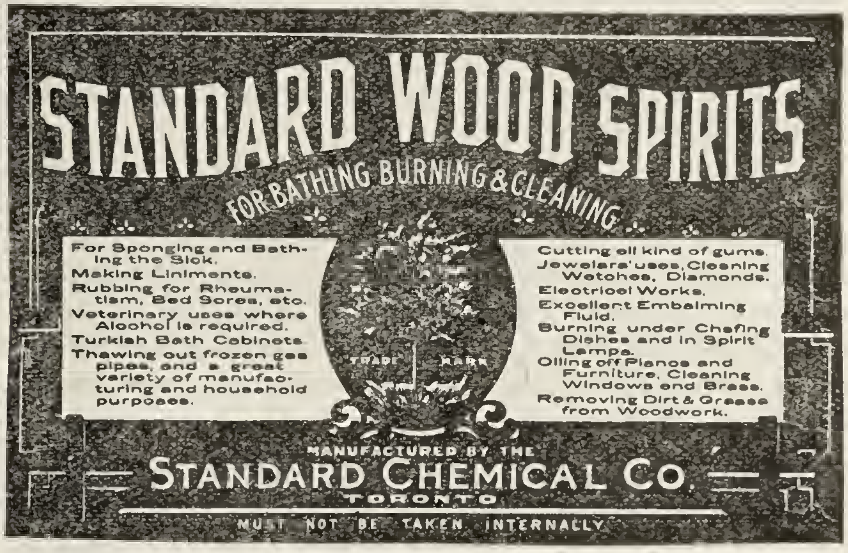
Standard Wood Spirits
For Bathing Burning & Cleaning
For Sponging and Bathing the Sick.
Making Liniments.
Rubbing for Rheumatism, Bed Sores, etc.
Veterinary uses where Alcohol is required.
Turkish Bath Cabinets.
Thawing out frozen gas pipes, and a great variety of manufacturing and household purposes.
Trade Mark
Cutting all kind of gums.
Jewelers' uses, Cleaning Watches, Diamonds.
Electrical Works.
Excellent Embalming Fluid.
Burning under Chafing Dishes and in Spirit Lamps.
Oiling off Pianos and Furniture, Cleaning Windows and Brass.
Removing Dirt & Grease from Woodwork.
Manufactured by the
Standard Chemical Co.
Toronto
Must not be taken internally

Fig. 2.—Another “deodorized” wood-alcohol poison. It is recommended for bathing, rubbing and sponging the sick, for making liniments; also for use in chafing dishes and in spirit lamps. See how little is said about its poisonous qualities.

12. The use of ethyl or grain alcohol in the arts, as in the manufacture of varnishes, as a burning fluid, for “stiffening” hats, lacquering brass, etc., is without danger to life or eyesight. If a small percentage of naphthalin, for example, were added to it, the fluid would be undrinkable. A combination of ethylic alcohol with 10 per cent. of wood spirit would answer the same purpose. Such a mixture is the “methylated spirits” of Great Britain, where not a single case of acute poisoning or blindness from methyl alcohol is recorded, in spite of the extensive use of methylated preparations in the British Isles.

13. The treatment of methyl alcohol intoxication consists chiefly in getting rid of the poison from the stomach and intestines by means of the stomach-pump and rectal injections; stimulants, especially ethyl alcohol, strychnin and coffee; heat to the body and extremities.

14. The treatment of the blindness is unsatisfactory.

HOW WOOD ALCOHOL ACTS AS A POISON

The symptoms of poisoning from wood spirit, drunk, inhaled or rubbed in, either as “pure” Columbian Spirits or as common wood alcohol are as definite as those of measles or whooping-cough, yet the exact manner and the ultimate form in which it destroys or cripples the internal organs are not well understood. We do know, however, that once absorbed, from either the stomach or the lungs, into the blood, it is not so easily eliminated or burned up as is ethyl alcohol, as which it masquerades in commerce.

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[1] Buller, F., and Wood, C. A.: Poisoning by Wood Alcohol, The Journal A. M. A., Oct. 1-29, 1904, pp. 972, 1058, 1117, 1213 and 1289.

This peculiarity of methyl alcohol is of considerable importance and interest because, becoming cumulative in the system, small and frequent doses of the poison in the form of quack medicines, hair-tonics, cheap whisky, or essences, rubbing the body after Turkish and other baths, burning in "alcohol" lamps, varnishing pianos, beer-vats, small rooms, etc., insidious and often unsuspected but serious damage to the digestion, sight and nervous system may be induced.

After Columbian Spirits and similar "deodorized" poisons had been in the export market for a few years, we began to hear from other countries where, as in America, until this development of the wood-alcohol industry, poisoning from methylated spirits had been entirely unknown. About the time (the end of 1904) that twenty persons were poisoned in Kentucky, an equal number of wood-alcohol victims were, within twenty-four hours, killed and blinded in Dorpat, Russia. The Russian physicians were very much interested in and excited by this destruction, but our cases did not disturb us greatly; *we* had lived too long with the wood-alcohol "trust" for that. It only seemed to us that another infant industry had grown up and had reached a foreign shore. Later on, it will be seen how Columbian Spirits, or a replica of it, has recently invaded another country hitherto free from it.

As a result of these "accidents" a wide-spread agitation against the unrestrained sale of this poison was begun and kept up in both the medical and the lay press of the United States. As a further contribution[2] to this campaign I reported several examples of wood-alcohol intoxication which had not been published up to that time, and closed with the following observations on its prevention:

> My colleague, Dr. Frank Buller, has suggested that every package, wholesale and retail, of "deodorized" wood alcohol, bear the warning, "This fluid, taken internally, is likely to produce blindness." Such a legend might be even more effective than the word "Poison" and the familiar picture of the skull and cross-bones, chiefly because to most people the fear of blindness is more impressive than that of possible death. No doubt this precaution would limit the dangers of serious poisoning from methylated preparations, but it is very doubtful whether it will ever be entirely effective. Whenever a government permits the manufacture of "deodorized" wood alcohol (as in the case of Columbian Spirits in the United States and of Standard Wood Spirits in Canada) the only effective, natural safeguards (the offensive odor and taste) against ingestion of the poison are removed and the annual sacrifice to death and blindness will certainly continue. Either the manufacture and sale of "deodorized" or "purified" wood alcohol should be absolutely prohibited or, as in Germany and Great Britain, an untaxed (grain) ethyl alcohol, or one rendered undrinkable by the addition of mineral oil, wood spirit, naphthalin, or some other nauseous compound should be allowed for use in the arts in the place of Columbian Spirits and similar dangerous preparations.
>
> The fact that the consumption of millions of gallons of cheap alcohol in other countries has been going on for years without fatal consequences, while in America we have had hundreds of deaths and cases of blindness from the employment of an agent that possesses no advantages over the British Methylated Spirits, or the German *Brennspiritus*, is surely an unanswerable argument in favor of this proposal.

After a time and partly in consequence of these investigations, but more directly as the result of discussions in the newspapers and of resolutions passed by the Section on Ophthalmology and House of Delegates of the American Medical Association, several bills were finally introduced into Congress providing for a cheap, commercial, grain alcohol which would render unnecessary and drive out of the market dangerous forms of "deodorized" wood spirit. The success of the movement was largely due to a committee of manufacturers formed to assist in securing cheaper alcohol for industrial purposes, headed by Mr. Henry Dalley of New York. After considerable discussion of the project by Congressional committees and the hearing of much evidence, especially that furnished by a number of workmen blinded by using Columbian Spirits in their ordinary occupations, the bill introduced by the Hon. W. Payne was passed by Congress, June 7, 1906. We now have as a result of this legislation what is known as "denatured alcohol," a harmless grain or ethyl alcohol, rendered unfit for drinking purposes by an admixture of various ingredients that do not destroy its value for domestic consumption and for the purposes of commerce.

Denatured alcohol is as cheap as or cheaper than Columbian Spirits or any other kind of "deodorized" wood alcohol and can be bought at drug-stores wherever the "deodorized" poisons are or have been on sale. Not only is there no longer the least excuse for the sale of "deodorized" wood spirits but, in my judgment, its manufacture should be prohibited by law. Why? Because it serves no purpose that "denatured" alcohol will not serve and because its existence is everywhere and at all times a menace to the public health. It looks, smells and tastes so much like grain alcohol that its very existence must ever be a challenge to life and sight.

Moreover, in spite of all the agitation in the press and the education of the public by other means an immense amount of ignorance exists and, in the nature of things, will continue to exist regarding the poisonous character and legal status of this deadly agent. For example, in commenting on a suit for damages brought by the widow of a poor varnisher, who had died from inhaling the poisonous methylated air of a beer-vat in which he had been working, a certain brewer alleged that the denatured alcohol used as a solvent for shellac "spoiled the beer" and was not as good as the "deodorized" product—which improved it, I have no doubt. Instead of being merely mulcted in heavy damages, as was the defendant in the case referred to, it is to be hoped that future criminals of this class may find their way to the penitentiary.

As another example of the ignorance still prevailing among those that ought to be better informed, let me refer to the first (or almost the first) cases of wood alcohol poisoning known in Germany. In that country, as in England, there has, for the past thirty or forty years, existed a cheap, tax-free commercial alcohol and, in consequence, there never has been room for any form of "deodorized" poison. For the same reason, also, there is not a single authentic report of poisoning in Great Britain. Whether a few barrels of American "deodorized" alcohol found sale in Prussia or whether the product was a local one seems difficult to decide, but shortly after celebrating the Christmas (1911) holiday "with the aid of wine," 161 inmates of a municipal shelter in Berlin became violently ill and seventy-one of them died. The German physicians knew little or nothing about our wide and varied experiences with methyl alcohol poisoning, and attributed the illness to decomposed meat and other causes until an official in the police department found that the *Schnapps* which had formed a portion of the Christmas celebration was largely charged with methyl alcohol. Later, the suspected meat and sausage were found to be harmless, while a postmortem examination disclosed the presence of methyl alcohol in the stomachs of the victims.

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[2] Wood, C. A.: Poisoning by Wood, or Methyl, Alcohol and Its Preparations as a Cause of Death and Blindness, New York Med. Jour., Jan. 7, 1905.

Another example — and many more might be given — of the ignorance of those who ought to know better is seen in the death (March, 1911) of one workman (J. M.) and the total blindness of his fellow workman L., due to inhalation of wood alcohol fumes while varnishing the interior of a beer-vat in a Buffalo brewery. For a short time these "accidents" were attributed by certain officials to the fumes of a charcoal stove!

That cases of death and blindness from "deodorized" wood alcohol are still occurring in America, and that Columbian Spirits and similar poisons are responsible for them and are still extensively sold can easily be demonstrated, but I will report only a few more or less recent examples typical of serious intoxication.

Commenting on the death of four men and the blindness of one man in Whitestown, Indiana, about Aug. 16, 1911, Dr. P. B. Little of that town writes me:

> It seems that these men purchased and made a mixture of 1 gallon of wood alcohol and 3 gallons of grain alcohol and all drank freely of it. The symptoms that followed soon after were chiefly headache, nausea, vomiting, extreme weakness, clammy sweats, weak pulse, blindness, dilated pupils, cyanosis, sighing respiration, convulsions and death. The blindness came on six to eight hours before death. The survivor of this debauch was the first to fall sick and the first to become blind.

Gustav K., 21 years old, went to work for a contracting varnisher in New York the week before Thanksgiving, 1911. He worked Thursday, Friday and Saturday, November 23, 24 and 25. He was then laid off until Monday, December 4.

An older brother of Gustav was also hired, beginning Monday. Two other men and these two brothers were the only men working on the job. They had to crawl through a small opening into the vats, which were 12 or 15 feet high, closed, dark and airless, except for slight ventilation through the small openings. The former employer of the two brothers had used a small machine run by a dynamo for blowing out bad and sending good air into the vats. Such an engine costs about $65 and, in the opinion of Gustav K., he became blind because the employer would not spend anything on ventilators. The victim stated that his employer obtained the contract by underbidding the man for whom the brothers had formerly worked.

Gustav K. worked Monday and Tuesday, December 4 and 5. On Monday, after coming out of the vat he felt dizzy. On Tuesday, after arriving home, his mother remarked that he walked as if he were intoxicated. Wednesday morning he had a terrible sweat, vomited, and had a rash on the face and body. He tried to go to work but had to come back before getting on the car. He could not see very well then. A physician was consulted twice but because he could not afford to pay the fee, the patient went to the Ophthalmic and Aural Institute on Tuesday, the 12th. When he entered the hospital he could not see at all. On Friday, the 15th, he could see just enough to get about the room in the hospital.

The older son, who had been working at the same time as his brother, worked through Wednesday, the 6th (one day longer), and then showed some of the symptoms of poisoning, reeling, headache, etc., but no more serious effects. The mother said, when seen on Thursday, that this son was then intending to return and continue the work, because he could not find work anywhere else.

The two men who had worked with the brothers continued through Wednesday. Both were poisoned; one died on Thursday and the other on Saturday. From a child of one victim the following note was received:

> Your letter to hand and wish to state that two or three days before my father's death he came home as though he was intoxicated. He vomited all day Thursday, which was one day before his death. He had chills and fever very often. He must have been losing his eyesight before his death because my sister told me that although she had all the gas jets lit yet he begged her to light them; he also complained of his eyes burning like fire. I am not living at home and did not see my father when he came home on Thursday night feeling worse than ever, but I was there when he died, unconscious, Friday morning at half past five.

I am indebted to Miss Louise Schofield, assistant secretary of the Committee on Prevention of Blindness of the New York Association for the Blind, for the pathetic report of the New York cases. I may add that this committee, with Miss Louise Lee Schuyler as chairman and Miss Carolyn C. Van Blarcom as secretary, is heartily and constantly working in conjunction with Dr. F. Park Lewis of Buffalo, N. Y., chairman of the committee on Prevention of Blindness of the American Medical Association, to further the aims of their respective organizations.

At the last meeting of the American Medical Association (Atlantic City, June 3, 1912) Dr. Lewis reported that the extent of blindness due to wood alcohol is everywhere in evidence and the suggestion was made that every retail liquor-dealer in the country be sent a pamphlet acquainting him with the fact that in many cases even a teaspoonful of the drug will cause a man or woman to become sightless. Efforts will also be made to make it illegal to sell wood alcohol except under the name of "wood poison."

Columbian Spirits and other dangerous forms of "deodorized" or "purified" makes of the wood alcohol poison are still sold in the drug-stores of the United States and Canada. To those who think that poisonous imitations of common or grain alcohol are no longer a menace to the health, I would say that inquiry at the nearest large drug-shops and at most general country stores will throw some light on the subject.

During the month of August, 1912, I purchased a small quantity of Columbian Spirits at ten of the principal drug-stores in Chicago, at the same time inquiring the price of "denatured" alcohol. The results of this inquiry are set forth in the accompanying report. Among other items of information it will be noticed that four drug-stores placed no "Caution" or "Poison" label on the bottle. The others complied with the law on poisons to the extent of a precautionary notice or label but there was no registration of the name of the purchaser, as I believe there should be in the case of such a violent poison as "deodorized" wood alcohol. Note, also, that the price of "denatured" alcohol is generally quoted lower than Columbian Spirits. What excuse, then, except ignorance, is there to justify the use of the latter?

No. 1. Columbian Spirits, half pint, 20 cents. Poison label on bottle. This drug-store does not carry denatured alcohol.

No. 2. Columbian Spirits, 25 cents a pint. Poison label on bottle. Denatured alcohol 25 cents a quart.

No. 3. Columbian Spirits, 25 cents a pint. No poison or caution label of any kind on bottle. Denatured alcohol 25 cents a quart.

No. 4. Columbian Spirits, 20 cents a pint. Poison label on bottle. Denatured alcohol 25 cents a quart.

No. 5. Columbian Spirits, 30 cents a pint. Poison label on bottle. Denatured alcohol 30 cents a quart.

No. 6. This drug-store carried no Columbian Spirits. Wood alcohol 20 cents a pint. They inquired for what purpose the wood alcohol was to be used. Poison label on bottle. Denatured alcohol 20 cents a pint.

No. 7. Columbian Spirits, 25 cents a pint. No poison or caution label on bottle. Denatured alcohol 25 cents a quart.

No. 8. Columbian Spirits, 25 cents a pint. Poison label on bottle. Denatured alcohol 25 cents a quart.

No. 9. Columbian Spirits, 25 cents a pint. "For external use" printed on label. Denatured alcohol 75 cents a gallon.

No. 10. Columbian Spirits, 20 cents a pint. No poison or caution label on bottle. Denatured alcohol 25 cents a quart.

Although ordinary "unpurified" wood alcohol or wood spirit is also a poison, its vile taste and smell are sufficient guarantees that nobody will either drink or inhale it to any deleterious extent. For burning lamps, for cleaning brass and woodwork, etc., common wood alcohol is all right if one does not object to the odor and is unwilling to pay a few cents more for denatured alcohol. It is quite otherwise with Columbian Spirits, Cologne Spirits, Standard Wood Spirits and all the other forms of "deodorized" methyl alcohol. It is to the "pure, refined spirit for domestic use," the "perfect substitute for grain alcohol" (as the labels read) that one objects. That subtle and often unsuspected poison has not only been directly responsible for the fate of hundreds of blind people but bids fair, under present conditions of sale and manufacture, to kill and blind additional hundreds.

Although for half a century Great Britain, Germany and other European countries have yearly consumed millions of gallons of industrial grain alcohol, "denatured" by processes similar to ours, yet not a single instance of death or blindness has been reported from its occasional ingestion. This satisfactory result is due not only to dilution of the poison, whose toxic properties are much modified by the large admixture of grain alcohol, but to the fact that it is almost impossible for even the most insensitive lungs and the most hardened stomach to receive and retain enough methyl alcohol in the various denatured products to induce serious consequences. We are consequently justified in asserting that "denatured" alcohol is practically a harmless mixture and may be used for all the purposes, even as a beverage, for those who like it, without producing methyl alcohol blindness or death.

HOW WE MAY MOST EFFECTIVELY PREVENT WOOD-ALCOHOL POISONING

Whatever occupation, professional or lay, you pursue, your aid in drawing attention to the hidden evils of "deodorized" methyl alcohol and all its preparations will be most valuable if you not only avoid the use of the poison yourself but discourage its employment by your friends, acquaintances and associates. Tell them that we have an equally cheap, commercial substitute — a harmless "denatured" grain alcohol — that answers every purpose, domestic and other, of wood alcohol. Also ask your druggist why he sells the poisonous article when there is a government-authorized grain alcohol that does not expose his customers to the dangers of Columbian Spirits and other forms of wood or methyl alcohol. By thus discouraging the sale and use of "deodorized" and other forms of wood spirit you aid in that campaign of education which is the most effective agent in protecting the public body from one of the most insidious of our drug and food poisons.

7 West Madison Street.

A PLEA FOR LONGER INTERVALS IN MILK-FEEDING *

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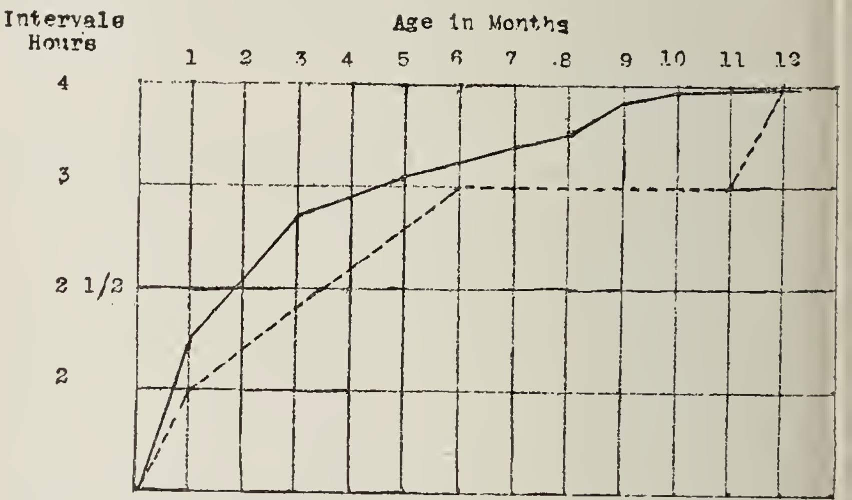
A careful and thorough review of standard medica text-books and current literature dealing with th principles of infant-feeding reveals the astonishing fac that comparatively little attention is devoted to one o the most important and vital aspects of this subject, th intervals of milk-feeding during the first year. Th many thousands of general practitioners who necessaril must be guided primarily by these written expression of experienced teachers have fallen victims to the sam evil results that empiricism has produced in many othe branches of medicine. The conventional two-hour intervals during the first month, gradually increased to two and one-half hours until the third or fourth month and thereafter to three hours, have been copied from text-book to text-book and dismissed with little or no further consideration or comment.

TABULATED REPLIES FROM 117 PEDIATRICIANS IN THE UNITED STATES AND CANADA

Age in Months	Intervals			
	2-Hour	2½-Hour	3-Hour	4-Hour
1	66	17	33	1
2	27	49	39	2
3	12	40	63	2
4	3	9	99	6
5	..	3	105	9
6	..	3	78	36
7	..	..	72	45
8	..	..	57	60
9	..	..	42	75
10	..	..	30	87
11	..	..	30	87
12	..	..	30	87

Are longer intervals satisfactory? Yes, 102; no, 15.



Composite chart showing natural trend for longer intervals. The line of dashes indicates the intervals computed from average text-book teachings; the solid line indicates the average intervals of 117 pediatricians in the United States and Canada.

In order to determine whether or not the actual practices of the pioneers in infant-feeding coincided with the preponderance of didactic and written teachings of to-day, 135 circular letters were addressed to leading pediatricians throughout the United States and Canada, preference being given to teachers in medical schools and to authors of recognized text-books dealing with this topic. A tabulation of the 117 replies received and the construction of a composite chart from these brought to light some interesting and valuable statistics, and demon-

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* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

strated beyond doubt that the trend toward longer feeding intervals is becoming almost universal. During the first month of infancy only sixty-six, or 56 per cent., employed the two-hour intervals; seventeen, or 15 per cent., the two-and-one-half-hour intervals; thirty-three, or 28 per cent., the three-hour intervals; and one, Dr. J. P. Sedgwick, or less than 1 per cent., the four-hour intervals. From the second to the fifth months, the three-hour intervals were employed with increasing rapidity, and thereafter the four-hour intervals were favored, especially on and after the sixth month. These facts alone should at once prove the comparative uselessness and empiricism of modern text-book and possibly medical school teachings, and also emphasize the urgent necessity for some hasty revisions and additions along these lines.

That each child is a law unto itself and that the intervals of feeding must be largely an individual and not a mechanical routine matter, no one will even question. It is likewise well known that infants vary greatly in gastric capacity, in rapidity of digestion, in satisfaction as to the amount of feeding, and in susceptibility as to quality of food, etc., so that there can be no set rule regarding their feeding relative to time, quantity or quality of feedings, and each child must necessarily be fed as a unit rather than according to any inelastic fixed scheme or system. It is also agreed that delicate and premature children, and babies that have been improperly fed or who suffer from malnutrition as a result of intestinal disorders, cannot be included in any general plan of feeding. But it does seem quite apparent that overfeeding is one of the most common causes of nutritional disturbances in early infancy, and there is little doubt that this has been engendered oftentimes by the indiscriminate introduction of too many feedings in the twenty-four hours.

TIME REQUIRED FOR EMPTYING STOMACH

At this juncture it is of the utmost importance to learn the period of time that is usually required for the stomach completely to empty its contents into the pylorus. Leo made careful observations, with the aid of the stomach-tube, in thirty "normal" infants whose ages ranged from 2 hours to 12 months, and also in 104 babies who were suffering from various forms of gastro-intestinal diseases. In the breast-fed he found the stomach empty in about one and one-half to two hours, and during the first week of life, in one hour. In the artificially fed infants, and especially in the older children of the series, a portion of the food was found to remain in the stomach for a somewhat longer period.

Pipping made similar examinations in twenty-nine normal infants under 3 months of age, and learned that the stomach emptied itself in about two hours.

Czerny states that cow's milk takes up more hydrocholoric acid than does human milk, and in order to retain the bactericidal property of the gastric juice, which is due to the free hydrochloric acid, he urges the advisability of longer intervals between feedings, especially so when cow's milk is employed. He found that whereas the stomach of a young infant is empty after an interval of two hours, when several feedings are given in rapid succession, considerable remains of the last meal may be found even after three or four hours. This fact, in his opinion, also speaks in favor of lengthening the feeding intervals.

Pfannenstill first employed the phenyl salicylate (salol) test for the determination of the time required for food to pass into the intestinal tract. By this method phenyl salicylate was administered, and the urine, which was collected by means of a catheter kept in the bladder during the entire period of examination, was subjected to chemical analysis every five minutes. In sixty health children the ferric chlorid reaction appeared in the urine forty to sixty minutes after the ingestion of food mixed with phenyl salicylate.

Employing the same method, von Hecker found that the time of appearance of the ferric chlorid reaction varied considerably in direct proportion to the age of the child. In my opinion this test is not a most reliable one as the elimination of phenyl salicylate, as computed by the urinary reaction, does not necessarily prove the complete emptying of the stomach contents.

Meyer, who discarded milk entirely and employed barley-water, sterilized water or normal salt solution, on the ground that with these mediums organic acids do not appear and that the presence of hydrochloric acid in its free and combined state is thus more readily determined, found that in seventeen artificially fed children the stomach was empty in one to one and one-third hours. These figures would naturally be comparatively useless in estimating the time required for milk to pass into the pylorus.

Heiman made careful studies in a series of thirty-three cases, including twenty new-born nursing infants from 3 to 7 days old, and thirteen artificially fed children ranging from 3 weeks to 7 months. In the former, practically the same quantity of gastric contents was obtained at the end of one hour as at the termination of one-half hour, and after two to two and one-half hours, 0.5 to 3 c.c. could still be recovered with the stomach-tube. In the bottle-fed babies the stomach was found empty in two hours in four out of thirteen cases; in five cases, at the end of three hours; and in the remainder, in about four hours.

According to the investigations conducted by Tobler, and Bogen and Heubner, milk passes into the pylorus in the case of breast-fed infants in about two hours, and in those taking cow's milk, in about three hours. Tobler, by employing variously colored milks, has further conclusively shown that each subsequent feeding forms a sort of layer about the earlier one, and that the food first ingested may thus be kept in the stomach more or less indefinitely if the feedings are given at too frequent intervals. This constantly recurring contamination and overburdening of the stomach may result in fermentation, and in time in gastric dilatation with a loss of tone of the muscular coats of the stomach, and even in atrophy. In their investigations with the Roentgen rays, by which as small a quantity as 5 c.c. could be determined without the aid of bismuth, Tobler and Bogen further verified the above results and found that the presence of fat considerably delays the emptying of the stomach (probably due to the inhibitory action of the fat on the secretory glands of the stomach and the long-continued closure of the pylorus) and that carbohydrates often act conversely.

Mosenthal also found that it required about two hours for milk to pass through the pylorus in the case of breast-fed children and three hours in those taking cow's milk, and the same results were confirmed by the observations of T. Wood Clarke, E. Cautley, Miller and others.

Chapin made careful observations in twenty-one babies suffering from various forms of malnutrition to determine the gastric motility. Their ages ranged from 2 weeks to 1 year (one 2 weeks, one 3 weeks, one six weeks, one 2 months, six 3 months, four 4 months, two 5 months, one 6 months, one 7 months, three 1 year). Of nineteen patients examined, at the end of three hours only six had approximately empty stomachs, and these six, with one exception, were holding their own. In the remaining thirteen cases there was a considerable residual amount of food still remaining in the stomach after three hours. In the latter cases a positive Fehling's reaction was present in addition to curds and whey, either singly or together. In five of seven patients examined at the end of three and one-half or four hours the stomachs were entirely empty, but in the remaining two cases of this series many curds were present at the end of four and one-half hours in one case, and a few small curds in the other. In only two of seventeen patients examined at the end of two or two and one-half hours were the stomachs found empty, and in thirteen, large tough curds, or many smaller ones and whey were invariably present. On these results Chapin concludes that in a large majority of cases the feeble infant with digestive disturbances has been fed at too frequent intervals. At best, the musculature of the stomach and intestines is not highly developed during the first month of life, and less so in feeble infants. Too often a second feeding is administered before the previous meal has entirely passed into the pylorus, with the expected result that each successive feeding has become contaminated. The process of butyric acid fermentation has thereby been set up and kept in operation until, at last, a condition analogous to that of myasthenia gastrica is produced.

TOO FREQUENT INFANT-FEEDING

With such an abundance of evidence obtained from the most careful and painstaking observations of eminent pediatricians, even the most skeptical will not deny that the intervals of feeding as usually taught are not compatible with physiologic findings. It has been conclusively shown that the stomach in the healthy nursing babe is rarely empty in less than two hours, and that in the artificially fed, the time required is usually an hour longer. According to Chapin and others these periods are further prolonged in the case of children suffering from various forms of malnutrition. And it is reasonable to suppose that as the age increases the time required for emptying the stomach will naturally be lengthened owing to the fact that (1) the quantity and quality of food are increased and (2) as the stomach takes on greater powers of digesting its contents, its secretions act on the milk, forming compounds which remain longer in the viscus. Time should therefore be permitted for the stomach to empty itself almost, if not completely, before another feeding is given.

It is interesting to note that it is the almost unanimous finding of observers that in the artificially fed babe a decidedly longer time is required for complete emptying of the stomach. Of the ninety-three replies to the query "Do you recommend as a rule longer intervals in the artificially fed (as compared with breast-fed) infants?" forty-eight answered in the affirmative and forty-five in the negative. According to Engel, breast-milk is digested for the most part in the intestines, and to a lesser extent in the stomach, the reverse being true in the digestion of cow's milk. As a result of this physiologic fact the gastric juice of infants who are artificially fed is said to be less potent than that of breast-fed infants. For this reason mother's milk, in spite of its early high fat content, leaves the stomach more readily than does cow's milk.

OBJECTIONS TO LONGER INTERVALS

The most serious objection entered against longer intervals of feeding in early infancy consists of the apparent necessity for administering too high quantities, as well as too rapidly increasing the strength of the milk mixtures in the artificially fed in order to maintain the required number of calories requisite for proper growth. From the statistics previously recorded and in my own experience, these objections are based more on theoretical principles than on practical observations and results. As Mosenthal has pointed out, the figures for gastric capacity, as they now are set forth in text-books, represent the anatomic capacity of the stomach; but the normal physiologic capacity, the amount of milk a child is capable of taking at one nursing, is considerably higher than these figures represent. Holt has personally determined by post-mortem measurements the average capacity of the stomach in ninety-one infants from birth to the age of 14 months, but most careful clinicians have found that the amount of milk that can normally be ingested and digested has exceeded these average figures by from 1 to 3 ounces at the specified ages, especially so where the longer intervals have been employed. Thus the average gastric capacities of infants at 1, 2 and 3 months of age are quoted respectively as 2, 3.37 and 4.5 ounces, whereas Caemerer recommends individual feedings of 3⅓ ounces (100 c.c.), 4⅓ ounces (130 c.c.) and 5⅔ ounces (170 c.c.) during these periods of infancy, employing the three-hour intervals and seven feedings a day during the first two months, and four-hour intervals thereafter. These figures coincide essentially with my experiences. As Caemerer further states, this is in marked contrast to the usual American two-hour interval, where the three-hour interval is usually not reached until the fourth month. It is my firm belief that the results of the post-mortem findings relative to the capacity of the infant's stomach, in conjunction with the usual written and didactic teachings in reference to the size of milk-feedings, have had a strong tendency to make of the average practitioner a specific routinist in this connection.

Several factors, both anatomic and physiologic, must be considered in computing the quantity of milk the babe may be fed at each nursing. The stomach, which must be regarded as a dilated and specialized portion of the general intestinal tract, is provided with a submucosa of considerable thickness, composed of an abundance of fibro-elastic tissue which is loosely interwoven. Unlike the intestinal tract elsewhere, its muscular tunic, in addition to the usual inner circular and outer longitudinal layers, is reinforced near the cardiac end by irregular bundles of oblique fibers. Nature has evidently provided means whereby a certain degree of normal physiologic elasticity shall be allowed, thus easily permitting the accommodation of more contents than the post-mortem findings would seem to corroborate. In early infancy, especially, it is an established fact that the contents of the stomach begin to leave it shortly after nursing has begun, thus in reality adding a portion of the pylorus to the actual capacity of the stomach. That some infants have larger gastric capacities than others in direct proportion to their weight, other things being equal, seems at least reasonable. If it be true, furthermore, that when shorter intervals are employed the stomach is not completely emptied when the next nursing is begun, a smaller relative "capacity" would naturally be expected at that time of nursing. The utilization of any fixed rule governing the quantities for the individual feedings at various ages seems therefore impracticable. My clinical observations, however, in common with others, have firmly established one undeniable fact, that the average normal child fed at longer intervals is able to ingest a larger quantity of milk than is usually prescribed, and invariably does so. This is conclusively demonstrated by actually weighing the breast-fed babe immediately before and after nursing, as well as by the administration of larger feedings in the artificially fed and a resulting progressive increase of weight in both. As a matter of fact, in my personal experience the usual normal maximum weight ordinarily attributed to the end of the first year is reached in many instances by the tenth month, and rarely later than the eleventh month, when the longer intervals of feeding have been judiciously employed. Such evidence should certainly have a tendency to diminish any grave fears that the child fed at longer intervals is unable to receive a sufficient quantity of milk to meet its demands for growth and development.

The same skepticism that exists in reference to the quantity prevails relative to the quality of the milk that must be employed. It is widely stated that in order to satisfy the economy, when greater intervals of nursing are employed, the increased strength of the milk necessary to compensate for the diminution in the number of feedings would render it much more difficult to digest. The fixed formulas variously recommended for the different periods of infancy have also been handed down, in many instances, in an empiric manner, and have frequently been responsible for an underfed baby at the hands of the automatic routinist. In this connection also, each child must be a law unto itself, and only the most careful observations of the watchful practitioner should guide him in each individual case relative to the milk formula to be employed. And here again, personal experience has shown that in the vast majority of cases infants fed at longer intervals obtain from the breast, and are able to digest when artificially fed, a milk of greater caloric value than the average baby fed at the shorter intervals can digest. With few exceptions my artificially fed babies have received a 4-7-2 mixture by the fourth month and a 4-5-3 milk not later than the tenth month. Such progress would be expected in consequence of the opportunity for complete evacuation of the stomach contents in addition to a much-needed period of absolute rest between each interval of apparently completed gastric digestion and the subsequent feeding. It has been the rare exception, rather than the rule, that infants fed on the longer interval schedule have not been able easily to digest and thrive on whole cow's milk on or before the tenth month. By the employment of the longer intervals, therefore, the above stated theoretical objections have been largely overcome, and the chief requirements in infant-feeding, namely, a quality of milk which is within the infant's power easily to digest, and a sufficient total quantity to assure a normal weight development, have been obtained.

THE VALUE OF REST

Just as time and the resulting rest are absolutely essential for the fulfilment of good digestion, just so much, if not more so, is rest required for the progressive growth and development of the baby. One well-known author, in common with many others, writes that "sleep is important for purposes of growth," and that "during the first month the infant sleeps about twenty-two hours out of every twenty-four." He then recommends ten nursings in the twenty-four hours, which will ordinarily consume a total of two to three hours. Even though the function of nursing be a reflex one, in a great measure, the frequent disturbances necessarily produced by ten feedings, in addition to the wakefulness oftentimes produced during the daily attention to toilet, bath, etc., subtract largely from the rest the babe so much requires. In the vast majority of babies fed at longer intervals, I have noted, in addition to the more rapid but uniformly progressive physical as well as mental development, that the baby acquires a more decided resistance against the more common digestive disturbances, and even is less susceptible to the infectious diseases which so many mothers look on as being inevitable. This acquired resistance, I feel, results largely from the more absolute rest which the child actually receives, in association with the resulting complete digestion and assimilation.

SUCCESSFUL RESULTS OF LONGER INTERVALS

My own experiences with the longer intervals in milk-feeding during the first year have been uniformly and highly successful. Although never guided by any fixed schematic feeding schedule, it has been my usual custom to recommend three-hour intervals in all healthy babes of the average normal weight, permitting seven feedings in the twenty-four hours, including the one night feeding. Breast-fed babies are permitted to nurse until they are apparently satisfied, although usually a maximum of twenty minutes is ordered. In the artificially fed, after the first four to seven days, a 2-6-1 milk is often prescribed, and an average feeding of 3 ounces is permitted, considerable emphasis being laid on the necessity for very slow nursing, and the extreme vigilance of the nurse in reference to discomfort, regurgitation, etc. During the second, and rarely later than the third, month, being guided particularly by the digestive capabilities and the weight curve, four-hour intervals are ordered, permitting six nursings for the first one or two months, and five nursings thereafter. As a general rule, a 4-7-2 mixture is reached not later than the fourth month, and a 4-5-3 milk by the ninth or tenth month, after which whole milk is generally employed. In the healthy infant, weighing 9 pounds or more at birth, virtually the same general plan has been followed, except that the four-hour interval has been employed from the beginning, permitting six nursings in the twenty-four hours, until a natural rearrangement occurs, whereby one night nursing is volitionally dropped. This often happens after the second or third month. In these latter infants it has been my almost uniform experience that proportionately larger quantities as well as stronger formulas can be digested without any difficulty. And the ease with which a four-hour interval can be established and maintained is surprisingly gratifying.

The advantages of longer intervals in well-selected cases are numerous. There is undoubtedly an almost total absence of even the mildest digestive disturbances, which would naturally be expected as a result of more complete digestion and assimilation. Regurgitation is reduced to a minimum, if it is present at all, and vomiting is a rare occurrence. The dreaded colic and constipation are far less frequent, and the weeping eczemas often resulting from gastro-intestinal auto-intoxication are rarely to be observed. The infant develops a far better appetite, and obtains more as well as longer intervals of sleep, a pleasure and necessity which is appreciated and shared by the household. There is in many instances even a better, and always uniformly progressive, gain in weight as compared with the average babe fed at shorter intervals. Another, and by no means trivial advantage, associated with the longer intervals of feeding is the comparative ease with which many mothers can be influenced to nurse their infants. I refer especially to those women who are capable of supplying their babes with that food which Nature had intended for them, but who, for domestic and especially social reasons, do not feel justified in foregoing certain duties and pleasures which frequent nursing would demand. Once convinced that a three-hour, or a four-hour interval, will not be a compromise for her own convenience but rather a benefit to her infant, the number of nursing mothers will with certainty increase, as will the number of living and healthy babes.

Before concluding, I wish to reiterate that no attempt has been made to advance a system of feeding that might be employed as a routine measure. If sufficient interest in the employment of longer intervals of feeding in early infancy has been aroused to stimulate its more common usage in well-selected cases, I shall feel that I have not labored in vain.

This paper would be incomplete without an expression of my most sincere appreciation of the kindness of the many physicians who supplied invaluable information through the circular letters sent to them, as well as an acknowledgment of my thanks to the committee who conferred on me the distinctive honor and privilege of appearing before you.

ABSTRACT OF DISCUSSION

Dr. H. Lowenburg, Philadelphia: In reply to a letter from Dr. Comroe, I said that I did not endorse long-interval feeding, largely because my individual experience did not warrant it. Dr. Comroe would have us become as dogmatic with regard to the long-interval feeding, as he accuses most physicians of being with regard to the shorter interval, as universally employed and as modified according to age. Pediatrics has not escaped the chaos in which modern medicine finds itself. It seems to be the predominant idea that we must present something new; that we must give up the old simply because it is old, its tried worth to the contrary notwithstanding. Years ago it was taught that the great trouble with infant-feeding was the protein element. We all believed it and practiced it and had our successes and our failures. Then it was taught that sugar was the disturber. Some believed it and some did not. Those who did, obtained good results; so also did those who did not believe. Now fat is the cause and there are those who can prove it so and others who cannot. It is not wise to disturb the mental equilibrium of the practitioner or to give up the practice which has been successful in private and hospital work simply because of conclusions that are reached by experimentation, the purpose of which is to prove a preconceived idea. We can prove almost anything we start out to prove. I will not give up short-interval feeding until there are better proofs as to the benefits to be derived from the long-interval feeding. My experience does not agree with Dr. Comroe's. He says that children fed at long intervals weigh more in a year than those fed at short intervals. I can show case after case in which short-interval feeding with proper food provides a steady increase in weight. My own child at 8 months weighs 22 pounds. Dr. Comroe, however, strikes the key-note of the whole feeding situation when he says that each infant is a law unto itself. If we have a case of vomiting, it stands to reason that we are going to feed that baby at longer intervals in order to rest the stomach. If the digestive process is normal, there is no reason to interfere.

Dr. D. J. M. Miller, Atlantic City: Some years ago I had the opportunity to pass the stomach tube into a number of infants, and, as I found, as a rule, that the stomach was not empty until about two and a half hours after feeding, I have fed all infants of 3 months and over every three hours. I agree with Dr. Lowenburg that the methods which have brought success in the past are the ones to follow in the present. I think that in cases of gastric indigestion with vomiting long-interval feeding is decidedly beneficial. With the ordinary healthy baby, however, I think that the method which has been the result of so many years of experience, intervals of two and a half hours, is the safe one to pursue under 3 months.

Dr. John L. Morse, Boston: I want to protest against the accusation that the American pediatricians are routinists, meaning by American pediatricians those who follow the typical American methods rather than the European. I do not believe that those who feed babies in the Eastern states are any more routinists in their methods than the Europeans and the people in the Middle West, who, as a rule, follow the European methods. We are just as willing as anybody else to feed the individual baby—in fact, more so, as it seems to me from the literature. The whole stress of Dr. Comroe's paper has been toward routine rather than away from it. I know that there is nobody in Boston who teaches, and I do not believe that any of us here teach that a baby of a certain age should be fed any special mixture. I also feel absolutely sure we in the East do not overfeed our babies and that we do not have the trouble that we are said to have. Our babies do thrive. I do not believe that in Europe or in the Middle West they can show babies more healthy or of better quality or with less digestive disturbances than we can with what is called a routine treatment, but what is really an individual treatment. The average well baby if given reasonable food in proper amount in the twenty-four hours will take care of it, whether fed once in two, three or four hours; some babies do better on four than two; others better on two than four. But when the baby is sick, then the question of gastric or intestinal indigestion comes in and one has to regulate the intervals as well as the percentages of food. It seems to me that we are both right, and perhaps we are both wrong.

Dr. L. T. Royster, Norfolk, Va.: It has been said a number of times that the key-note is struck in individualization, which I think is quite true. The baby used as a laboratory is perhaps an uncertain guide as to practical feeding. The anatomic content of the stomach is one thing and the physiologic content another. Given two babies of the same age and the same weight, we find a different stomach capacity. Perhaps the almost universal conception of the baby's stool is the one thing that may be a fair guide as to our conduct in feeding. But we cannot feed the baby so many grams of food and expect so many grams of stool; in other words, the baby is not a test-tube. Again, when we come to the question of measuring the contents of the baby's stomach from the standpoint of a stomach-tube, it is difficult. Perhaps the best plan is to weigh it on a carefully balanced scale. If the contents of the baby's duodenum can be secured through a catheter, it is also possible in measuring the contents of the baby's stomach after two or three hours of digestion to measure too much by getting into the duodenum.

The Eastern pediatrician does not work by rule of thumb, and those whose work I have seen have shown just as much individualization in treatment, as anyone else. When I answered Dr. Comroe's letter, I answered decidedly that I had no rule.

Dr. David E. English, Summit, N. J.: I disagree with Dr. Comroe on only one point: I do not feed babies with any regularity, that is, by the clock. I think how soon a baby should be fed depends entirely on how it has disposed of its last meal. A baby cannot always digest and assimilate the same amount of the same kind of food in the same number of minutes. I think that a baby should be fed when absolutely nothing else will satisfy it; in other words, when it has thoroughly digested the last meal, when the stomach has had time to rest and contract, and when the baby has cried long enough, then is the time to feed it, and it should be fed full.

Dr. J. H. Hess, Chicago: Nobody has said that we should feed premature infants anything but breast-milk. And everyone here has agreed that we must feed the baby individually. Now when you have fed the baby individually and fed it breast-milk, you have pretty nearly done the whole thing. My paper, referred to by Dr. Comroe, written some months ago was not advocating a method but was simply a retrospection of a series of patients to ascertain what they had been fed. These babies had been fed individually what was seemingly needed to make each one gain in weight. The records were preserved and some time after I went over them to see what we had accomplished. We found that the babies weighing under 1,500 gm. (and in my series eight of them weighed under 1,500 and only one weighed 2,000 gm.) had been fed 120 to 140 calories on an average; those weighing over 1,500 gm. about 110 to 130 calories. These apparently were ideal cases. I believe that premature babies to gain must be fed more than a normal baby. In our cases, none of those weighing less than 1,500 gm. gained on less than 90 calories. Three- and four-pound babies commenced to gain on 70 calories. Since that time, however, I have been feeding less frequently. I now use the three-hour intervals up to the time that the infants reach what would be a normal weight, except in the very small ones, whom I still feed every two hours with diluted mixtures, and then lengthen the interval and make up calories by concentration.

DR. THOMAS S. SOUTHWORTH, New York: Although we realize that a number have made use of it on their own initiative in this country, a large part of the movement toward four-hour feeding has come to us from Continental centers. I think one reason is that it is better suited to the type of artificial feeding which the Continental men use. It is very much better for the use of whole cow's milk. It is also better for more concentrated mixtures than those which we ordinarily use here in short-interval feeding. In cases in which the breast-milk is scanty, however, the long-interval feeding would be disadvantageous because the breast needs more frequent stimulation to produce sufficient milk.

DR. JOHN ZAHORSKY, St. Louis: The time in which a baby's stomach becomes empty depends on the amount given. Of course, in an infant that gets only half an ounce, the stomach will be empty more quickly than in one who gets 5 or 6. If the baby gets only 1 or 2 ounces from the mother, its stomach will be empty in an hour and a half, and it will tell you so very emphatically. When a baby is fed on a four-hour interval it necessitates one night feeding until the baby is several months old. When a three-hour interval feeding is used one can soon do without a night feeding, which gives the mother a rest. This I consider one of the advantages of a three-hour-interval feeding.

DR. ISAAC A. ABT, Chicago: I am from the Middle West and should like to make a suggestion. I think that it is a mistake to feel that there is a Western and an Eastern pediatrist; we should feel that there is an American pediatry. We should forever abolish any idea that there is any sectionalism or any feeling that one section is better or worse than the other.

DR. J. H. COMROE, York, Pa.: I have endeavored to make it clear that I am opposed to routinism, and in favor of individualism in the feeding of babies. In Dr. Lowenburg's reply to my communication, he stated that he had never employed the longer intervals; it must therefore be both presumptive and difficult for one having had no experience along this line to discuss intelligently a paper of this kind. Eminent pediatricians throughout the United States and Canada, from both the East and West, show that they are getting away from the rigid intervals of two, two and a half and three hours. It is reasonable to conclude that if in their experience such excellent results are being obtained with the employment of the longer intervals, the present dogmatic teachings, both in schools and in text-books, should be revised.

Sterilization of the Unfit in Switzerland.—Schlub reviews twenty-two cases in Switzerland in which operative sterilization of defectives was advocated by the legal or medical authorities or both, but for various reasons it was actually performed only in fifteen. Five different cantons contributed to the list. There has been no legislation on the subject and this is the reason why the authorities in some of the cantons have refused to apply the measure. The case histories are summarized, including the ultimate outcome, and the views of various authorities are cited, showing the growing general acceptance of the principle of sterilizing the morally unfit. Schlub's study of the subject appeared in the last *Schweizerische Rundschau für Med.*, 1912, xiii, 37.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

NOVATOPHAN.—Novatophan is ethyl 6-methyl-2-phenylquinolin-4-carboxylate, $CH_3.C_9H_4N.C_6H_5COOC_2H_5$, 6:2:4=$C_{19}H_{17}O_2N$, the ethyl ester of Paratophan, (6-methyl-2-phenyl-quinolin-4-carboxylic acid).

Novatophan is a slightly yellow, odorless and tasteless, crystalline powder, melting at 76°. It is insoluble in water but readily soluble in alkalies, hot alcohol and strong acids.

If 0.1-0.2 Gm. novatophan be boiled for a short time with 0.5 Cc. sodium hydroxide solution, U. S. P., then 5 Cc. iodine test solution added and again heated, the odor of iodoform should be apparent.

If novatophan be dissolved in concentrated sulphuric acid, a light yellow solution results which on the addition of bromine water yields a reddish yellow precipitate.

If ferric chloride be added to an alcoholic solution of novatophan a yellow, not a brown color, is produced (difference from Atophan and Paratophan).

Actions and Uses.—The same as Atophan (New and Nonofficial Remedies, JOUR. A. M. A., March 2, 1912, p. 633) but it is practically tasteless.

Dosage.—Same as for Atophan.

Manufactured by Chemische Fabrik auf Aktien (vorm. E. Schering), Berlin, Germany (Schering & Glatz, New York). No U. S. patent or trademark.

Novatophan Tablets.—Each tablet contains 0.5 Gm. (7½ grains) novatophan.

HEXAL.—Hexal is hexamethylenamine salicylsulphonic acid $(CH_2)_6N_4.C_6H_3(OH)COOH.HSO_3$.

Hexal is prepared by the interaction of an alcoholic solution of salicylsulphonic acid and an aqueous solution of hexamethylenamine.

Hexal is a white odorless crystalline powder, readily soluble in water, slightly soluble in alcohol and difficultly soluble in ether, having an acid taste.

If an aqueous solution of hexal be heated to 45 or 50 C., formaldehyde will be liberated. If the residue be now made alkaline with sodium hydroxide and again heated, ammonia will be liberated.

If to a dilute aqueous solution of hexal ferric chloride test solution be added, a violet color will be produced.

If to an aqueous solution of hexal an aqueous albumin solution be added, a white precipitate will form. If to an aqueous solution of hexal bromine water be added, an orange-colored precipitate will be formed.

With the exception of the tannic acid test, hexal responds to the identity tests of the U. S. Pharmacopeia for hexamethylenamine.

If 0.2 to 0.3 Gm. hexal be fused with 2 Gm. fusion mixture (sodium carbonate and potassium nitrate), the resulting mass dissolved in hydrochloric acid, the addition of barium chloride test solution will produce a white precipitate.

If 0.1 to 0.2 Gm. hexal be moderately heated with 5 Cc. concentrated sulphuric acid, a carmin red color will be produced.

If calcium hypochlorite solution be added to an aqueous solution of hexal, a brown color gradually appears.

A 5 per cent. aqueous solution of hexal should not be changed by saturation with hydrogen sulphide or the addition of barium chloride solution. After acidulation with nitric acid, the addition of silver nitrate solution should produce not more than a slight opalescence.

Actions and Uses.—It is claimed that hexal has the action of hexamethylenamine combined with an anesthetic and astringent action on the inflamed mucous membranes of the biliary passages and urinary bladder without having a deleterious effect on the bladder walls.

Hexal is claimed to be useful in chronic inflammations of the bladder and in posterior urethritis from gonorrhea to pre vent bladder infection. It is also claimed to be useful in pyelitis and pyelonephritis and in any diseased condition of the genito-urinary tract due to bacterial invasion. It is said to be useful in the treatment of uric acid diathesis and uric acid concretions in the kidneys and urinary bladder.

Dosage.—1 Gm. (15 grains) three to six times daily dissolved in a glass of water.

Manufactured by J. D. Riedel, Aktiengesellschaft, Berlin, Germany (Riedel & Co., New York). No U. S. patent or trademark.

Hexal Tablets, 0.5 Gm.—Each tablet contains hexal 0.5 Gm. (7½ grains).

Therapeutics

DISTURBANCES OF THE HEART

(*Continued from page 1889*)

MALIGNANT ENDOCARDITIS: ULCERATIVE ENDOCARDITIS

Since we have learned that bacteria are probably at the bottom of almost any endocarditis, the terms suggested under the classification of endocarditis as "mild" and "malignant" really represent a better understanding of this disease. They are not separate entities, and a mild endocarditis may become an ulcerative endocarditis with malignant symptoms. On the other hand, malignant endocarditis may apparently develop *de novo.* Still, if the cause is carefully sought there will generally be found a source of infection, a septic process somewhere, possibly a gonorrhea, a septic tonsil or even a pyorrhea alveolaris. Septic uterine disturbances have long been known to be a source of this disease. Meningitis, pneumonia, diphtheria, typhoid fever and rarely rheumatism may all cause this severe form of endocarditis.

Ulcerative endocarditis was first described by Kirkes in 1851, was later shown to be a distinctive type of endocarditis by Charcot and Virchow, and finally was thoroughly described by Osler in 1885.

Ulcerative endocarditis was for a long time believed to be inevitably fatal; it is now known that a small proportion of patients with this disease recover. Children occasionally suffer from it, but it is generally a disease of middle adult life. Chorea may bear an apparent causal relation to it in rare instances.

Ulcerative endocarditis may develop on a mild endocarditis, with disintegration of tissue and deep points of erosion, and there may be little pockets of pus or little abscesses in the muscle tissue. If such a process advances far, of course the prognosis is absolutely dire. If the ulcerations, though formed, soon begin to heal, especially in rheumatism, the prognosis may be good, as far as the immediate future is concerned. If the process becomes septic, or if there is a serious septic reason for the endocarditis, the outlook is hopeless. This form of endocarditis is generally accompanied by a bacteriemia, and the causative germs may be recovered from the blood.

If a more malignant form of endocarditis develops on a mild endocarditis the diagnosis is generally not difficult. If without a definite known septic process malignant endocarditis develops, localized symptoms of heart disturbance and cardiac signs may be very indefinite.

If there is no previous disease with fever, the temperature from this endocarditis is generally intermittent, accompanied by chills, with high rises of temperature, even with a return to normal temperature at times. There may be prostration and profuse sweats. Even without emboli there may be meningeal symptoms: headache, restlessness, delirium, dislike of light and noise, and stupor; even convulsions may occur. The urine generally soon shows albumin; there may be joint pains; the spleen is enlarged and the liver congested. Some definite cardiac symptoms are soon in evidence, with more or less progressive cardiac weakness.

Characteristic of this inflammation is the development of ecchymotic spots on the surface of the body, especially on the feet and lower extremities. Sooner or later in most instances of the severe form of this disease emboli from the ulcerations in the heart reach the different organs of the body, and of course the symptoms will depend on where the emboli locate. If in the abdomen, there are colicky pains with disturbances, depending on the organ affected; if in the brain, there may be paralysis, more or less complete. If an infarct occurs in one of the organs of the body there must of necessity occur a necrosis of the part and an added focus of infection. If a peripheral artery is plugged, gangrene of the part will generally occur, if the patient lives long enough.

TREATMENT

If pneumonia or gonorrhea is supposed to be the cause of the endocarditis, injections of stock vaccines should perhaps be used. If the form of sepsis was not determinable, streptococcic or staphylococcic vaccines might be administered. It is still a question whether such "gunshot" medication with bacteria is advisable. Patients recover at times from almost anything, and the interpretation of the success of such injection treatment is difficult. Exactly how much harm such injections of unnecessary vaccines can produce in a patient is a question that has not been definitely decided. Theoretically an autogenous vaccine is the only vaccine that should be supposed to be successful with our present knowledge. The vaccine treatment of ulcerative endocarditis was not shown to be very successful by Dr. Frank Billings in his investigation a short time ago.[1]

Other treatment of malignant endocarditis includes treatment of the condition that caused it plus treatment of "mild" endocarditis, as previously described, with the meeting of all other indications as they occur. As in all septic processes, the nutrition must be pushed to the full extent to which it can be tolerated by the patient, namely, small amounts of a nutritious, varied diet given at three-hour intervals.

Whether milk or any other substance containing lime makes fibrin deposits on the ulcerative surfaces more likely or more profuse, and therefore emboli more likely to occur, is perhaps an undeterminable question. In instances in which hemorrhages so frequently occur, as they do in this form of endocarditis, calcium is theoretically of benefit. Quinin has not been shown to be of value, nor has salicylic acid, unless the cause is rheumatism. Alcohol has been used in large doses, as it has been so frequently used in all septic processes. If the patient is unable to take nourishment in any amount, small doses of alcohol may be of benefit. It is probably of no other value. It is doubtful whether ammonium carbonate tends to prevent fibrin deposits or clots in the heart, as so long supposed. In fact, whenever the nutrition is low and the patient is likely to have cerebral irritation from acidemia, whenever the kidneys are affected, or whenever a disease may tend to cause irritation of the brain and convulsions, it is doubtful if ammonium carbonate or aromatic spirit of ammonia is ever indicated. Ammonium compounds have been shown to be a cause of cerebral irritation.

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[1] Billings, Frank: Arch. Int. Med., November, 1909, p. 409.

Perhaps the most advisable internal antiseptic treatment is that of hexamethylenamin. This drug should be given in doses of 0.3 gm. (5 grains), dissolved in plenty of water, once in six hours. The administration of mercury in any amount or of the sulphocarbolates or any phenol preparation is probably of not so great value as hexamethylenamin. Intestinal antisepsis may be attained more or less successfully by the administration of yeast or of lactic acid ferments together with suitable diet. The nuclein of yeast may be of some value in promoting a leukocytosis. It has not been shown, however, that the polymorphonuclear leukocyte increase caused by nuclein has made phagocytosis more active.

Malignant endocarditis may prove fatal in a few days, or may continue in a slow subacute process for weeks or even months.

CHRONIC ENDOCARDITIS

It is not easy to decide just when an acute endocarditis has entirely subsided and a chronic, slow-going inflammation is present. It would perhaps be better to consider a slow-going inflammatory process subsequent to acute endocarditis as a subacute endocarditis; and an infective process may persist in the endocardium, especially in the region of the valves, for many weeks or perhaps months, with some fever, occasional chills, gradually increasing valvular lesions and more or less general debility and systemic symptoms. Such a subacute endocarditis may develop insidiously on a previously presumably healed endocardial lesion and cause symptoms which would not be associated with the heart, if an examination was not made. Sometimes such a slow-going inflammatory process will be associated with irregular and intangible chest pains, with some cough or with many symptoms referred to the stomach, so that the stomach may be considered the organ that is at fault. There may be dizziness, headache, feelings of faintness, sleeplessness, progressive debility and a persistent cough, with some bronchial irritation and with occasional expectoration of streaks of blood, which may cause the diagnosis of incipient tuberculosis to be made. In other words, the need of a careful general examination must be emphasized again before a decision is made as to what ails the patient, or before cough mixtures are given unnecessarily, quinin is prescribed for supposed malarial chills, or various diets and digestants are recommended for a supposed gastric disturbance.

The term "chronic endocarditis" should be reserved for a slowly developing sclerosis of the valves. This may occur in a previous rheumatic heart and in a heart that has suffered endocarditis and has valvular lesions, or it may occur from valvular strain or heart strain from various causes; it is typically a part of the arteriosclerotic process of age and is mostly manifested at the aortic valve.

Rheumatism is the cause of most instances of cardiac disease which date back to childhood or youth, while arteriosclerosis is the cause of most cardiac diseases in the adult. In the former case it is the mitral valve which is the most frequently affected, while in the latter it is the aortic valve. Any cause which tends to induce arteriosclerosis may be a cause of chronic endocarditis, such as gout, syphilis, chronic nephritis, alcoholism, excessive use of tobacco, excessive muscular labor and hard athletic work. Lead is also another, now rather infrequent, cause. Severe infections may tend to make not only an arteriosclerosis occur early in life, but also a chronic endocarditis. Heart strain may also be a cause of chronic endocarditis, especially at the aortic valve. Forced marches of soldiers, competitive athletic stunts, and occupations that call for repeated hard physical strain may all cause aortic valve disease. Tobacco, besides increasing the blood-tension and thus perhaps injuring the aortic valve, may weaken the heart muscle and cause disturbance and irritation and perhaps inflammation of the mitral valve.

There is no age which is exempt from valvular disease, but the age determines the valve most likely to be affected. If endocarditis occurs in the fetus, it is the right side of the heart that is affected; in children and during adolescence it is most frequently the mitral valve that is involved; while in the adult or in old age it is the aortic valve that is most likely to become diseased. Statistics have shown that the valves of the left side of the heart are diseased nearly twenty times as frequently as those of the right side of the heart. They also show that the mitral valve is diseased more than one and one-half times as frequently as the aortic valve. Early in life probably both sexes are equally affected with valvular disease, with perhaps a slight preponderance among females, because of their greater tendency to chorea. Females also show a greater frequency to mitral stenosis than do males. Aortic disease, on the other hand, from the very fact of their strenuous life and occupations, is nearly three times more frequent in men than in women.

If a chronic endocarditis has followed an acute condition, some slight permanent papillomas or warty growths may be left from the healed granulating or ulcerated surfaces. Sometimes these little elevations on the valves become inflamed and then adhere together, or adhere to the wall of the heart, and thus incapacitate a valve. Sometimes these excrescences undergo partial fatty degeneration, or may take on calcareous changes and thus stiffen a valve.

If the chronic inflammation is not superimposed on an acute endocarditis there may be no cell infiltration and therefore no softening, but there is a tendency to develop a fibrillated structure, and a fibroid thickening of the endocardium occurs, especially around the valves. This induration causes contraction and narrowing of the orifices with shortening and thickening of the chordae tendineae, and the valves imperfectly open, or no longer close. Fatty degeneration may occur in the papillary growths with necrotic changes, and this may lead to the formation of atheromatous ulcers which may later become covered with lime deposits, and then a hard calcareous ring may form. Fibrin readily deposits on this calcareous substance and may form a permanent capping, or may slowly disintegrate and allow fragments to fly off into the blood-stream and cause more or less serious embolic obstruction. If this chronic endocarditis develops with a general arteriosclerosis, the same inflammation soon occurs in the aorta, and, following the endarteritis in the aorta, atheromatous deposits may also occur there. Chronic endocarditis of the walls of the heart, not in immediate continuity with endocarditis of the valves, is perhaps not likely to occur, except with myocarditis.

A subacute or a chronic infective endocarditis should be treated on the same plan as an acute endocarditis, which means rest in bed and whatever medication seems advisable, depending on the supposed cause of the condition.

A chronic endocarditis which is part of a general arteriosclerosis requires no special treatment except that directed toward preventing the advance of the general disease.

(To be continued)

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THE NERVOUS SYSTEM AND METABOLISM

The muscles, the secretory glands and the central nervous system preeminently represent the physiologically active tissues of the organism. Their function exhibits itself in the familiar manifestations of movement, secretion and cerebration, respectively; but in the case of the muscles and glands, at least, there are well-known attendant phenomena characteristic of most physiologic activities in which a transformation of energy is concerned. Heat is evolved and results in a transitory rise of temperature of the individual tissue or even the organism as a whole; carbon dioxid is eliminated in greater amounts, and this waste product serves as an index of the augmented chemical transformations going on, while most striking of all, perhaps, is the increased consumption of oxygen—a typical indicator of heightened metabolism.

Despite the obvious fact that the functioning of the higher nervous system must represent physiologic activity of a high order, it has been far from easy in the past to connect this with any of the evidences of metabolism so prominent and characteristic in the work of the other tissues mentioned. As a result there has arisen the tendency to deny that nervous activities are accomplished with any demonstrable—or at all events, any noteworthy—transformations of energy. The higher activities of the nervous system, such as are commonly termed "mental work," have rather been assumed to be characterized by a unique *quality* of participating change rather than by any measurable transformation of potential energy or quantitative metabolism of matter. The make-up of the excreta has not been found notably altered after intense nervous response and the evidence for heightened gaseous exchange or respiratory metabolism is commonly considered to be negative.

In accepting such conclusions respecting the apparent non-participation of the nervous system in the familiar augmentation of energy changes manifested by other tissues during their physiologic activity, it must be recalled that the nervous system comprises decidedly less than 5 per cent. of the entire body. It is accordingly quite conceivable that small increases in metabolism due to the greater work of this quantitatively minor organ might be hidden in the incidental variations due to the relatively great bulk of the other tissues. Various investigators have insisted that the central nervous system makes an exceptionally large demand for oxygen on the circulation. Lately Alexander and Révész[1] of Budapest have studied the gaseous metabolism of the brain, using optical stimuli as a mode of exciting the activity of this organ. They reach the conclusion, apparently substantiated by their experimental findings, that the thus augmented function of the brain is attended with an increased consumption of matter and energy, evinced in the increased utilization of oxygen under such conditions of activity. This result, of course, is more in keeping with what a rational conception of the work of vigorously responding living cells would lead one to expect. If this revision of current views will stand the test of future criticism and further experiment under even more crucial conditions, a supposed exception in the domain of physiologic functions will be eliminated.

METHYL ALCOHOL AS A POISON

The history of toxicology furnishes repeated instances of the beneficial influence which accidental misfortune in the nature of obscure intoxication has indirectly exerted on the scientific study of poisons. The widely discussed fatalities which occurred last winter in the neighborhood of Berlin as a consequence of the drinking of liquors which were contaminated with wood alcohol[2] served to direct attention again to the peculiar toxic character of methyl alcohol in contrast with the chemically closely related grain spirits, or ethyl alcohol. As a consequence a number of valuable investigations have since been undertaken to elucidate some of the debated points in relation to the toxic action of alcohols.

The German investigations of Völtz and Dietrich[3] were indicative of a minor participation of methyl alcohol in metabolism, in contrast with the ready combustion of the ordinary ethyl alcohol. A further highly significant feature is the slow elimination of the wood spirits and its conversion products from the organism, leading to a subtle danger in the form of accumulated toxic products. France has now furnished further scientific data collected by Professor Nicloux and Dr Placet.[4] Among the details of interest is the fact that for a single large dose (that is, acute poisoning) methyl alcohol may show a lower toxicity than does ethyl alcohol. With either poison it is uniformly found that the brain retains more of the alcohol than do any of the other familiar organs, showing a sort of specific affinity in accord with what might be expected from its lipoid make-up. The alcohols, like ether, chloroform and other volatile narcotics, are notably soluble in lipoids such as those characterizing the nervous system.

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[1] Alexander, F., and Révész, G.: Ueber den Einfluss optischer Reize auf den Gaswechsel des Gehirns, Biochem. Ztschr., 1912, xliv, 95. Alexander, F.: Untersuchungen über den Gaswechsel des Gehirns, ibid., p. 127.

[2] See Berlin Letter, The Journal A. M. A., Jan. 27, 1912, p. 290; Feb. 3, 1912, p. 358. Vienna Letter, Feb. 10, 1912, p. 422. The Menace of Wood Alcohol, editorial, July 20, 1912, p. 200.

[3] Völtz, W., and Dietrich, W.: Die Beteiligung des Methylalkohols und des Aethylalkohols am gesamten Stoffumsatz des tierischen Organismus, Biochem. Ztschr., 1912, xi, 15.

[4] Nicloux, Maurice, and Placet, André: Nouvelles recherches sur la toxicité, l'élimination, la transformation dans l'organisme de l'alcool méthylique; Comparaison avec l'alcool éthylique, Jour. de physiol. et de path. gén., 1912, xiv, 916. See also Langgaard, A., Berl. klin. Wchnschr., Sept. 2, 1912, and Rühle, ibid., Nov. 4, 1912, p. 2128.

When intoxication under chronic conditions, that is, with repeated small doses, is made the subject of consideration, however, the superior toxicity of methylated spirit at once comes into evidence. This point was long ago emphasized by Hunt,[5] who noted that the great difference between the toxicity of methyl and ethyl alcohols might easily be overlooked entirely in experiments in which only the effects of single large doses were studied. The French investigators, like their predecessors, have indicated anew that the probable explanation of the unduly pronounced poisonous character of the methyl alcohol is associated with the failure of combustion and the delay in elimination. It has been suggested that the slowness in the removal of toxic products from the body may explain the onset of blindness which so frequently follows methyl alcohol poisoning in man; for, as Hunt remarks, highly differentiated nerve structures, such as those of the retina, are especially likely to suffer when exposed to the action of a poison for some time.

With respect to the nature of the products, other than the unaltered methyl alcohol itself, which constitute the factors detrimental to health, it is impossible to give a final answer. Pohl[6] has shown that the poisonous formic acid undoubtedly results and the production of formaldehyd as an intermediate product has also been suggested. Methyl alcohol undergoes the same change in the human body as in that of the experimental animals; its administration to man led to the appearance of formic acid which was slowly excreted in the urine.

Nicloux and Placet have raised again the question of the relative participation of by-products or impurities in the noxious effects of wood alcohol. They believe that neither the slow elimination nor the possible accumulation of methyl alcohol and its derivatives are by themselves sufficient to explain the numerous cases of poisoning which have now been collected in the literature. It is therefore logical to suggest that either man must be particularly susceptible to the toxicity of methyl alcohol, or impurities, which frequently accompany it, have a contributory share in producing the untoward results. The "impurity" hypothesis has long assumed an unfathomed importance in numerous instances in which lack of knowledge, or rather paucity of accurate information of all the factors, has driven an observer to seek a new explanation for his facts. The impurities in anesthetics, the fusel oil in whisky, the furfural in tobacco-smoke — all have at various times been charged with a prominent share in some harmful experience. It is true that some of these accessory factors are *per se* exceedingly toxic and detrimental; but the question and real possibilities of relative dosage are rarely worked out in a convincing fashion in the impurity arguments. Without denying the possible importance of contributory accidental components, let us not overlook what is after all the fundamental point, namely, that chloroform, nicotin and ethyl and methyl alcohols are all poisons. This fact must not be overshadowed by the more problematic possibilities of incidental impurities. The paper by Dr. Casey A. Wood in this issue is a forceful reminder of the menace with which we are continually confronted in this country so long as the education of the public with regard to the dangers of wood alcohol is neglected and suitable legal safeguards are not provided and enforced.

THE PHYSIOLOGIC EFFECTS OF COPIOUS WATER-DRINKING WITH MEALS

Within the last five years much experimental work has been done by P. B. Hawk and his co-workers[1] in the effects on digestion and the metabolic processes produced by copious ingestion of water with meals. Strangely enough, little work had been done on this subject previously, as the conclusion had been accepted on theory without experimental evidence that water taken with meals would dilute the digestive juices and hence would retard digestion. Experiments on dogs proved that the ingestion of quantities of water with food caused a marked increase both in the quantity of the gastric juice and in its hydrochloric acid content. Further, a dog could fast longer with less loss of weight and strength if allowed an abundance of water. This indicates that water promotes economical metabolism.

Hawk then carried out a series of experiments in which healthy young men were put on a uniform diet and their food and excreta analyzed quantitatively. The experiments were divided into three periods: a preliminary period, during which the subjects were brought into a condition of approximate nitrogen equilibrium by several days of uniform diet and light exercise; the experimental period, during which definite quantities of water were added to each meal; and a period during which the effects of the experiment were watched for a number of days with uniform diet without the added amount of water. In some cases 500 c.c. and in other cases 1,000 c.c. of water were taken with each meal in addition to the daily amount of water normally taken. The subjects were weighed daily and analyses made of the excreta collected as twenty-four-hour specimens.

An expected result was the immediate increase in the quantity and decrease in the specific gravity of the urine.

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[5] Hunt, Reid: The Toxicity of Methyl Alcohol, Bull. Johns Hopkins Hosp., 1902, xiii, 213.

[6] Pohl, J.: Ueber die Oxydation des Methyl- und Aethylalkohols im Tierkörper, Arch. f. exper. Path. u. Pharmakol., 1893, xxxi, 281.

[1] For references to papers see THE JOURNAL A. M. A., Jan. 13, 1912, p. 118. The experiments are reported further in Jour. Exper. Med., 1908, x, 820; Jour. Am. Chem. Soc., 1910, xxxii, 1686; Jour. Biol. Chem., 1912, xi, 129.

Accompanying this was a decided increase in the ammonia-nitrogen and chlorin excretion. Hawk explains this as a result of the increased secretion of hydrochloric acid by the stomach due to the stimulating effect of the water. This acid, being neutralized by the ammonia formed as a result of protein consumption in the tissues, gave the increased output of ammonia and chlorin, probably as ammonium chlorid. There was also a decrease in the uric acid content and an increased allantoin output which is tentatively attributed to the more complete oxidation of the waste products. Analyses of the stools showed a decrease in the fecal output both wet and dried. This was accompanied by a decrease in the fats and carbohydrates excreted, in the fecal nitrogen, and in the actual bacterial content. The intestinal putrefaction was decreased as measured by the indican output. This is ascribed to the inhibition of the indol-forming bacteria due to the accelerated absorption of the products of protein digestion. More complete absorption of all foods leaves less culture medium for bacteria, which may explain the decrease in fecal bacterial content. Though the nitrogen of the urine was increased, the fecal nitrogen was decreased and quantitative analysis of the total nitrogen ingested and excreted showed that the body was storing nitrogen. In other words, the system was laying up protein material. All this would indicate that the digestion, absorption and economical utilization of proteins, fats and carbohydrates had been promoted by ingestion of water with meals.

The amylolytic activity of the feces, denoting, according to Wohlgemuth, the content of pancreatic ferment present, was increased over that of the period of average water ingestion. Hawk interprets this reservedly as indicating a stimulation of the pancreatic function.

The subjects showed increase in body weight and a general improvement in physical and mental condition. There were many desirable and no undesirable results. The effects were more pronounced when larger quantities of water were taken. The results were not temporary but persisted after the close of the experiment. As suggested previously in these columns,[2] the copious drinking of water with meals should not be practiced indiscriminately. Certain pathologic conditions would be a distinct contra-indication to copious water-drinking. Also experiments have established that digestion is retarded until the stomach contents have been brought to the body temperature. Hence large quantities of very cold water would be distinctly non-beneficial. It would be of interest to know whether equally favorable results would follow if the increased amount of water were taken between meals instead of with meals. As the matter stands, the experimental evidence seems to refute the theories previously held regarding the effect of water taken with meals.

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[2] Water-Drinking with Meals, editorial, The Journal A. M. A., Jan. 13, 1912, p. 117.

ARTERIAL HYPERTENSION AND DIET

Heightened arterial tension is a phenomenon of increasing frequency among the population of civilized countries. It is making its appearance at an earlier age with the progress of the decades. Wherever hypertension is recognized, it is looked on as the sign of an impending arteriosclerosis, the more pronounced features of which may still be in a latent stage. This symptom, which is yearly more adequately recognized in its incipient form, owing to the introduction of improved clinical methods of measuring blood-pressure, demands earnest consideration because of the suggestion of forthcoming pathologic dangers which it furnishes.

Various causes of arterial hypertension, whether assumed or demonstrated, are too familiar to need rehearsing in detail here. It should always be remembered that the rise in blood-pressure is in no sense the immediate disease factor, but presumably rather of the nature of a compensatory function related to some less apparent ulterior cause. The customary treatment consists in eliminating, as far as possible, such alleged etiologic factors of arteriosclerosis as can be associated with the individual under consideration. The undue use of the various types of stimulants — alcohol, coffee, tobacco and the like — is prohibited. Dietary indiscretions are avoided in so far as they are recognized; and various manifestations of neurasthenic temperament or nervous strain are subjected to such discipline as individual circumstances seem to dictate. Much of this story has been repeated time after time, along with the prescription of mild forms of physical therapy of the most diverse types, such as baths, gentle exercise and massage.

The immediate reason for referring to this subject again is to review a report of the management of a large series of cases of incipient arterial hypertension in which the careful regulation of the diet formed the most essential factor and seemed to be productive of beneficial results, if one may judge by the index of blood-pressure measurement.[1] The special feature of the treatment as it is conducted in one of the European sanatoriums consists in the restriction of meats, fluid intake, alcohol, salt and spices, and the encouragement of the use of fresh vegetables. The physical methods take a secondary place in the regimen of the patients. The comparative blandness of a diet devoid of the ordinary stimulating elements is in itself a help in controlling the excessive appetite that attends so many of the typical subjects. It is, in fact, one of the salient features of a vegetarian regimen which is often prescribed for individuals who exhibit manifestations of hypertension. Overeating is thus averted by means that seem less drastic to the patient than does the more direct proscription of favorite foods. Attendant corpulence may be successfully reduced by the same procedure.

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[1] Compare Hecht, V.: Ueber die diätetische Beeinflussung pathologischer Blutdrucksteigerungen, Ztschr. f. klin. Med., 1912, lxxvi, 87.

The reduction in the intake of fluids, especially the limitation of large amounts of water so often taken with meals by persons accustomed to rapid eating and insufficient mastication of highly seasoned dishes, has repeatedly been demonstrated to result in a fall of blood-pressure from an unduly high level. Pronounced diminution in the amount of salt consumed leads to a similar result by decreasing the customary thirst associated with the excessive use of dietary adjuvants of this sort. Doubtless the ingestion of salt is enormously overdone in certain quarters and the habits of man in this respect are subject to striking variations. Combined with all these precautions is the advice to distribute the meals in a way that will avoid undue hunger or thirst at any time and thus prevent the consequent tendency to momentary errors or extravagances in eating.

The foregoing precautionary suggestions are in the main bits of wisdom self-evident to any one who appreciates at all the physiologic possibilities of rational dietotherapy. As yet, however, dietetics is far from receiving the consideration which is merited by its potent influence in certain types of disorders. Perhaps the assurances now available in a long series of published records will encourage a greater interest in the appropriate ordering of the diet along with other better appreciated curative and prophylactic measures when the earliest symptoms of arterial hypertension begin to manifest themselves.

INFANTILE BERIBERI

Among those who have little occasion to come into personal contact with the manifestations of beriberi this disease is customarily considered a malady of adults or adolescents. In the Far East, where, because of its wide prevalence and serious inroads into the health of large communities, beriberi is now more effectively studied and controlled, the existence of what may properly be termed "infantile beriberi" has been recognized for some time. Two factors have of late directed particular attention to this manifestation in earlier life: the wide-spread interest and extensive investigation which beriberi has engaged everywhere, and the high death-rate among infants, particularly in the Philippines, where the subject of infant mortality has aroused considerable professional concern. Prior to the present correlation of beriberi with deficiencies in the diet, the interpretation of the symptoms in early life was under the dominance of the views then current respecting its etiology. Infantile beriberi, presumably identical with the sickness termed *taon*, *taol* or *suba* by the native laity, is common in children nursed by mothers suffering from beriberi. Accordingly one theory which was advanced to explain the rapid onset and severe character of the infantile manifestations attributed these to a toxin transmitted in the mother's milk.

Professor Andrews of the department of pathology in the University of the Philippines is engaged in a study of the facts bearing on infantile beriberi, and has pointed out some of the difficulties in its management which are attributable to conditions obtaining in the tropics.[1] His observations bring out clearly that the disease is not due to an infection or toxemia of either the mother or the child. All the evidence available is in complete harmony with the generally accepted view that beriberi is a nutritional disturbance. In fact, the special features which pertain to the infantile variety of the disorder, and particularly the conditions under which they arise, strengthen the current malnutrition hypothesis.

Actual analyses of the milk of mothers who are nursing sick children disclose no quantitative deficiencies in the mammary secretion so far as the familiar constituents are concerned. Infants improve rapidly after a change of diet — too rapidly to make it likely that the disease is due to bacteria in the milk. Highly significant is the fact that it was possible to produce in puppies incoordination and weakness of the extremities, degeneration of peripheral nerves, edema and anemia of the subcutaneous tissues — all symptomatic of infantile beriberi — by feeding the growing animals with the milk of mothers who had nursed affected children.

The unfailing correlation of the infantile disease with the corresponding illness of the mother lends effective significance to the conclusion that the mother's milk is probably deleterious because of what it lacks rather than because of any harmful constituent. Although occasionally the symptoms in the mother are not apparent at the time the disease manifestations appear in the suckling infant, they are likely to appear if the child continues nursing. The Manila investigator states that occasionally a mother is found showing symptoms of the disease while the child is apparently free; but on continued watching symptoms will be observed to appear in the infant. The history of the mother shows that invariably her diet consists of polished rice and fish or meat, rarely of a vegetable or any fruit. The mortality statistics indicate that infantile beriberi is more prevalent in the wet season in the Philippines. The probable explanation rests in the fact that fresh vegetables and fruits are scarcer at this time; prices go up with a consequent shutting off of the supply to those poorer classes who particularly require these products.

Inasmuch as the incidence of infantile beriberi is associated with the quality of the mother's milk, and as artificial feeding is not a possibility under the circumstances which prevail at present, attention must be centered on the corrective nutrition of the mother. Professor Andrews has pointed out clearly that the improvement of the physical condition of the Filipino mother and of the quality of her milk is a most important economic question. Half of the deaths among Filipinos in Manila are of infants during their first year of life. Fifty per cent. of these are due to infantile beriberi. Time after time, it is stated, a mother has had five or six children, all of whom have died of this disease. The incidence of death here is the more striking because in more advanced populations it is precisely among breast-fed infants that the mortality is relatively small; whereas in Manila 75 per cent. of the deaths of infants have occurred among the breast-fed.

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[1] Andrews, Vernon L.: Infantile Beriberi, Philippine Jour. Sc., Sec. B, The Philippine Jour. Trop. Med., 1912, vii, 67.

How to bring about reform and relieve such a situation needs to be seriously debated. Andrews suggests that as a prophylactic measure the dealers handling rice should be required to keep on hand the undermilled variety, and that a campaign of education should be carried on for the purpose of enlightening the poorer classes, especially the pregnant women among them.

TRACHOMA IN THE UNITED STATES

Trachoma is supposedly a disease of oriental origin. Passages have been found in ancient Greek and Egyptian writings which presumably refer to it. From Asia it is supposed to have extended into Northern Africa and later into Europe. The disease is to be found at present in all parts of Europe, but particularly in certain parts of Russia and Poland, in Galicia, Austria-Hungary, in Italy and in Greece. In the two countries last named, it has been of common occurrence for some time. Prior to 1897 various observers had invited attention to the increasing prevalence of trachoma in the United States; cases were frequently met in our cities, and outbreaks of the disease, especially among schoolchildren, had been occasionally reported. The incidence of the disease seemed to be limited largely to the alien population and recently arrived immigrants. As a large proportion of the immigrants coming to this country are from the localities in southern Europe where the disease is common, in 1897, for purposes of immigrant inspection, trachoma was classed among the dangerous, contagious diseases, with the result that the finding of this affection in an arriving alien makes mandatory his deportation under the immigration laws.

For some time it has been known that trachoma was present to a considerable extent among our Indians. Clark of the United States Public Health Service during the past summer found many cases on the reservations in Minnesota. These findings were deemed by the Minnesota State Board of Health to be of sufficient importance from a sanitary point of view to warrant the board in giving the matter the most careful consideration with a view to formulating plans for preventing the spread of the infection. Such action was clearly indicated for the protection of the commonwealth, trachoma being a communicable disease, mutilating in its effect, reducing markedly the efficiency of those affected, and, unless properly treated, ending frequently in blindness.

Recently McMullen,[1] also of the Public Health Service, in an investigation of the prevalence of trachoma in eastern Kentucky, undertaken at the request of the Kentucky State Board of Health, found a most unlooked-for and surprising condition. McMullen carried on his survey in the mountain districts in Knott, Perry, Leslie, Breathitt, Lee and Owsley counties, and in the blue-grass country in Clark County. He examined in all 3,974 people, of whom 500, or approximately 12.5 per cent., were found to have trachoma. Of those examined, 2,796 were schoolchildren from the mountain counties, and of these 338, or approximately 12 per cent., had the disease. In Clark County, on the other hand, which is in the blue-grass country, and in which living conditions are quite different from those in the mountains, only fifteen cases of trachoma were found among 436 schoolchildren examined.

The conditions found in Knott County may be taken as typical of those existing in the mountain counties. In this county twelve schools were visited and 659 schoolchildren examined. Of these, 119, or more than 18 per cent., had trachoma. Outside of the schools 400 people were examined and 102 cases of trachoma found. McMullen explains, however, that among these 400 examined were many who had come for examination because of sore eyes, and for this reason the 102 cases among 400 examined constitute undoubtedly a higher morbidity-rate than exists generally. In this county a total of 1,059 people were examined and 221, or approximately 20 per cent., were found to be affected with the disease, and McMullen estimates that between 8 and 10 per cent. of the entire population are suffering from trachoma. Similar conditions were found in the other mountain counties. The population of this region consists largely of people of small means, descended from Anglo-Saxon stock, who have lived in the locality for several generations. Most of them live in simple, small cabins, and the country is sparsely settled. According to McMullen, these cabins often consist of but one room in which the entire family, numbering frequently from ten to fifteen, and averaging about eight, sleep. Usually all members of the family use one towel, which is made to serve for a number of days before being relaundered. The cabins usually have insufficient window space, many of them having but one small window, and some of them none at all. McMullen states that the source of the original infection among these people is obscure, but that the disease has been among them beyond the recollection of the oldest inhabitants.

The finding of a communicable disease of the nature of trachoma so prevalent in a community places it among the commonwealth's important public health problems. A locality cannot continue heavily infected with such a disease without constituting a serious menace to neighboring uninfected localities and to localities even more remote. It is probable, however, that the conditions found in Kentucky do not exist in that state alone, but that investigation would show similar conditions present in the contiguous mountain regions of West Virginia, Virginia, Tennessee and North Carolina. McMullen suggests that measures to remedy the condition should be directed toward the prevention of the spread of the disease and the treatment of existing cases. At best, however, the problem is one that will take some time to bring to a satisfactory solution. It will require the utmost efforts of the authorities, assisted by the cooperation of the people.

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[1] McMullen, John: Trachoma in Kentucky, Pub. Health Rep., Nov. 8, 1912, p. 1815.

Current Comment

MONGOLIAN BIRTH-MARKS—THE "BLUE SPOT"

Recently Wigglesworth[1] has noted that the Navajo Indian babe invariably has a "blue spot" over the sacrum. A blue spot in this location was first mentioned by Bealz,[2] who found it in Chinese, Japanese, Malays and Koreans. Fink[3] saw such patches in the Burmese, and Castor[4] in a discussion of Fink's work, corroborates his statements and concludes that the spots are atavistic. The pigmented patches over the sacrum vary in size from a quarter-dollar to a hand's breadth, and superficially they resemble closely the bruises received from a fall. They may disappear within the first few years of life, but may be present in later years. Fink found them in 94.7 per cent. of Malay children. They are not nevoid in type but purely pigmentary. These spots bear no relation to abortive types of spina bifida, although they have been associated in isolated cases with this disorder. In some cases when the mother was of Mongolian type the spots were present with certain other Mongolian characteristics, such as the third eyelid. Consiglio has found such blue patches on about 2 per cent. of children in northern Italy and believes them to be attributes inherited from ancient Mongolian ancestors. Wigglesworth states that the Navajo Indians are supposed to have migrated from Asia, and by language tests ethnologists have been able to trace them as far as Alaska. The value of the spots as a mark of identification is not determined. Bruch,[5] who studied the occurrence of the mark in Tunis, Africa, found it quite common among the children there but only in brunette types. He states also that the blue spot has been noted in Europeans, but very rarely. Other observers also assert that the spot is not peculiar to Mongolian races. Apes and monkeys are said to have it constantly and throughout life. Possibly the blue spot might be found in negro babies if examined soon enough after birth before the skin becomes too dark, as suggested by Bruch. Evidently further and more extended observations are necessary in order to determine definitely whether the spot is to be given any special significance.

TRANSPLANTATION OF DURA MATER

Observations which have lately been made in the Physiologic Institute of the University at Vienna suggest the possibility of employing the dura mater successfully in surgical technic, for the purposes of homoioplastic and heteroplastic transplantation. The strength, elasticity and texture of the dura from various regions of the nervous system of man and higher animals have been measured with satisfactory assurance of the qualities which are a desideratum for the specific practical uses noted.[1] There are differences in the thickness of the membranes of different species; and the variations appear to be correlated with unlike degrees of development in the parts of the cerebrospinal nervous system. Boiling with water is detrimental to the make-up of the dura; but it can be preserved satisfactorily by fixation in formaldehyd solution and alcohol without serious detriment to those textural qualities which make it suitable for sterile implantation. It has been suggested that the product is especially adapted for replacement in defects of the dura. The resistance of the material to absorption gives it an added virtue for such purposes.

EXPERIMENTAL RHEUMATIC MYOCARDITIS

Among the lesions more or less characteristic of articular rheumatism are the nodules in the myocardium first observed by Romberg and by Bret, and studied more fully by Aschoff, Coombs, Fraenkel and others. Briefly, it concerns minute, discrete foci of embryonal cells and leukocytes that arise especially about the smaller vessels of the heart muscle. They appear to occur most commonly in the subendocardial parts of the septum, and in time they may change into scars. Fraenkel[2] found them in seventeen or twenty cases with a history of rheumatism; failing to find them in other infectious diseases he concluded that they occurred only in genuine rheumatism, although not necessarily in every case. It is interesting to note that Fraenkel doubted the streptococcal nature of rheumatism because streptococci, though reproducing the picture of rheumatism in rabbits, had not been shown up to the time of his writing to cause myocardial nodules in this animal. In view of the fact that his own observations indicated that the myocardial nodules may not occur in all cases of rheumatism it might be questioned whether their absence in rabbits injected with streptococci should be entitled to such significance. Recently, however, it has been demonstrated by Wächter, by Bracht and Wächter, and by Leila Jackson[3] that the injection of rabbits with streptococci from various sources does produce focal myocardial lesions similar to those found in the human heart in articular rheumatism. The streptococci used by Jackson in her experiments were obtained from the various forms of streptococcus infection of the milk epidemic in Chicago last winter and in Boston the year before. In these epidemics joint involvements were not infrequent, more or less typical

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[1] The Blue Spot in the Sacral Region, Queries and Minor Notes Department, The Journal A. M. A., Nov. 9, 1912, p. 1734.

[2] Bealz: Races of East Africa, 1911.

[3] Fink, Lawrence G.: Mongolian Birth-Marks, Jour. Trop Med., 1912, xv, 227.

[4] Castor, R. H.: Pigmented Maculae on the Body, Jour. Trop. Med., 1912, xv, 307.

[5] Bruch: Arch. de méd. d. enf., 1912, xv, No. 6

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[1] Compare Butzengeiger, O.: Vergleichende Untersuchungen über die Dura mater des Menschen und der Säugetiere, Zentralbl. f. Physiol., 1912, xxvi, 435.

[2] Rheumatic Carditis, editorial, The Journal A. M. A., May 4, 1912, p. 1376.

[3] Jackson, Leila: Experimental "Rheumatic Carditis," Jour. Infect. Dis., 1912, xi, 243.

cases of acute rheumatism occurred, and in many of the rabbits injected with the streptococci, arthritis also developed. While it would be desirable to repeat the experiments with strains of streptococci from typical cases of articular rheumatism,[3] the results already obtained, especially those by Jackson in which distinctively rheumatic myocardial foci were produced, support the view that streptococci cause acute rheumatic fever, or at least play a definite part in the process.

THE POTENCY OF THYROID GLAND PREPARATIONS

The therapeutic efficiency of preparations of the thyroid gland has of late been correlated with the iodin complex present in the gland. No other iodin-bearing compound, either organic or inorganic, seems to exhibit quite the same degree of potency in those cases in which the peculiar and characteristic influence of thyroid medication is to be evoked. Iodids and organic iodin compounds are widely used for certain therapeutic effects not directly related to the glands here in question. It is not to these applications that we refer, but rather to the effects associated with organotherapy. The products available in the form of desiccated thyroid are derived from several of the slaughter-house animals, notably sheep; and the preparations sold are now frequently "standardized" in terms of their content of iodin. A recent examination of glands from animals in the Chicago stock-yards[1] showed with reference to size relations that the small glands of all the animals studied — sheep, beef, hogs — usually contain the most iodin. With respect to the species, the glands of hogs are uniformly richest in iodin, so that their selection for therapeutic purposes appears decidedly rational. It would be advisable, however, to learn the influence of the previous diet of stock-yard animals on the iodin content of the thyroids, and to have data derived under a wider range of feeding, before the comparative merits of the three species mentioned are brought into too bold contrast. At least there is no occasion at present to reject the hog products.

Medical News

ARIZONA

New Society.—The Greenlee County Medical Society was organized October 19 with a charter membership of fourteen: Dr. A. M. Tuthill, Morenci, president; Dr. E. R. McPheeters, Clifton, vice-president; Dr. Edward N. Reed, Clifton, secretary, and Dr. L. A. W. Burtch, Clifton, Treasurer.

New Hospitals.—Ground was broken November 5 at Safford for the Arizona Sanatorium, which is to cost about $125,000. ——The new administration building of the Arizona State Insane Hospital, Phoenix, a two-story and basement building of concrete and brick construction, fire-proof and offering accommodation for the executive officers and living quarters for the superintendent, has been turned over to the state.

Personal.—Dr. and Mrs. Francis H. Redewill, Phoenix, have returned after a ten-thousand-mile automobile trip.——Dr. H. K. Beauchamp, Phoenix, formerly superintendent of the Arizona Asylum for the Insane, has returned after a sojourn for six months in the East.——Dr. Warren E. Day has resigned as house physician to the Pioneers' Home, Prescott.——Dr. F. W. Randall, health officer of Douglas, has been appointed registrar of vital statistics.

ARKANSAS

New Officers.—Arkansas Medical Association (colored) annual meeting, in Little Rock: president, Dr. J. G. Thornton; secretary, Dr. G. W. Ish, both of Little Rock. Hot Springs was selected as the next place of meeting.

Personal.—The residence of Dr. J. C. Land, Walnut Ridge, was burned October 31 with a loss of about $5,000.——Dr. Charles S. Holt, Fort Smith, has been appointed division surgeon of the Missouri Pacific-Iron Mountain Railway, his district extending from Van Buren, Ark., to Coffeyville, Kan., and including the Greenwood branch. Dr. Phillips has been appointed local surgeon of the road at Van Buren vice Dr. Edward C. Wittwer, resigned.——Dr. W. H. Blankenship, Pine Bluff, was painfully injured in a collision between his buggy and an automobile, October 1.——Dr. C. B. Paddock, Fayetteville, sustained severe bruises of the head and neck by the overturning of his automobile, recently.——Dr. James L. Dibrell has been appointed a member of the State Board of Charities, vice Dr. Edward R. Dibrell, deceased.——Dr. Gaston A. Hebert, Hot Springs, has been elected by the council, president of the Arkansas Medical Society, vice Dr. E. R. Dibrell, Little Rock, deceased.

CALIFORNIA

Psychopathic Ward for County Hospital.—Architects have been asked to submit plans for a new psychopathic ward at the Los Angeles County Hospital.

Medical Building for San Diego.—Plans have been made for an eight-story, concrete, reinforced office building designed especially for the use of physicians and dentists.

Leper Returned to Hawaii.—A Hawaiian mess attendant on the battleship *Connecticut*, found to be suffering from leprosy, was transported across the continent and is being held in a tent near the Mare Island Navy Yard Hospital awaiting transportation to the leper colony at Molokai.

Health City for Los Angeles County.—Los Angeles County is planning to establish a county health city in the mountains, consisting of fresh air cottages where tuberculosis patients now being cared for at the county hospital, may have better chances for recovery and health. The county plans to spend about $75,000 on this project.

Personal.—Prof. Arthur Schattenfroh of the chair of hygiene in the University of Vienna, who is making an inspection of municipal sanitation in the United States, visited Los Angeles recently, and was the guest of the health commissioner, Dr. L. M. Powers.——Dr. P. G. Cotter, Los Angeles, had several ribs broken and was otherwise seriously injured in a collision between his automobile and a trolley car, November 4.——Dr. K. C. Gummess, Los Angeles, was attacked by four hold-up men, November 4, and robbed of his valuables and most of his clothing.——Dr. Elizabeth F. Kearney, Los Angeles, has returned from abroad.——Dr. Charles Lincoln Edwards has been appointed professor of embryology and histology in the Medical Department of the University of Southern California, Los Angeles, and has been made director of the department of nature study in the Los Angeles public schools.

COLORADO

New Sanatorium for Denver.—A sanatorium of national scope is planned to be erected near Denver under the auspices of the Roman Catholic Church for the benefit of the people of that faith suffering from tuberculosis.

Personal.—Dr. Allison Brown, Denver, has been appointed acting assistant surgeon in the U. S. P. H. Service with station at Fort Stanton, N. Mex.——Dr. R. C. Montgomery, Meeker, was painfully injured by the overturning of his automobile.——Dr. H. E. Abrahams, Trinidad, was seriously injured by a fall from a twenty-five foot ledge while deer hunting in the Chaquaque country.——Dr. Mary Arnett, formerly of Boulder, has started from Honolulu on a trip around the world.——Dr. Carroll E. Edson, Denver, has been appointed a member of the Public Library Board.——Dr. Wilbur Lowe, Denver, was operated on for appendicitis in Mercy Hospital, November 2.——Dr. J. Ed. Ray, Sugar City, who has been seriously ill in St. Mary's Hospital, Pueblo, is reported to be slowly improving.

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[3] This has just been done by Coombs, Miller and Kettle (Lancet, 1912, clxxxiii, 1209) and with the same results apparently as Jackson.

[1] Aldrich, T. B.: The Iodin Content of the Small, Medium and Large Thyroid Glands of Sheep, Beef and Hogs, Am. Jour. Physiol., 1912, xxxi, 125.

ILLINOIS

Site for Sanatorium Donated.—The president of the Board of Commissioners of Cook County has donated to the county twenty-five acres of land joining the Oak Forest Infirmary, to be used as the site for a county tuberculosis sanatorium.

Personal.—Dr. J. R. Rigg, Mount Pulaski, fell into a cellar recently and fractured a rib.——Dr. William E. Rice, Tuscola, has been elected coroner of Douglas County.——Dr. W. B. Hughie has succeeded Dr. George M. Peairs as surgeon of the Illinois Steel Company at Joliet.——Dr. Edward H. Lane, French Village, was seriously burned by the explosion of a gasoline lamp, November 13 and is a patient in St. Vincent's Hospital, Belleville.

Chicago

Personal.—Dr. Charles Porter Small, who has been physician of the University of Chicago since its founding, has resigned.——Dr. Arthur D. Bevan was painfully injured in a collision between his automobile and a cab, November 20.

Consulting Staff for Coroner.—Coroner Peter M. Hoffman of Cook County has named the following as members of his consulting staff: Drs. John H. Long, Walter S. Haines, Ludvig Hektoen and John A. Wesener, and Chief Justice Harry Olsen of the Municipal Court. By the aid of this consulting staff and the establishment of a chemical laboratory the coroner hopes to reduce the number of fatalities from poison which annually swell the list of deaths registered as "suspicious" requiring investigation by the coroner.

INDIANA

New Officers.—Union District Medical Society at Rushville, October 24: president, Dr. James E. Morris, Liberty; secretary, Dr. David W. Stevenson, Richmond.

Small-Pox.—Small-pox is said to have existed in Jasonville for more than six weeks and to have been carried to Worthington from that place. Dr. J. N. Hurty, health commissioner, visited these cities November 15 to investigate and direct measures for the suppression of the epidemic.

Personal.—Dr. W. A. Gekler has been appointed superintendent of the State Tuberculosis Sanatorium, Rockville.——Dr. A. W. Brown has been elected superintendent of the Bluffton Branch of the Indiana Association for the Study and Prevention of Tuberculosis.——Dr. A. L. Spinning, Covington, has been appointed city health officer, vice Dr. J. R. Hicks.——Dr. John M. Cunningham has succeeded Dr. E. B. Mumford as inspector of contagious diseases for the Indianapolis Board of Health.——Dr. John A. Axline, Noblesville, has retired after thirty-nine years of practice.——Drs. George W. McCaskey, Miles F. Porter, B. P. Weaver and Miles F. Porter, Jr., have secured offices and laboratories in the Physicians' Defense Building, Fort Wayne.——Dr. W. W. Barnett, For Wayne, announces that he is going to Cuba for a visit of four to six weeks.——Dr. Samuel Hollis, Hartford City, has been elected president and Dr. James A. Taylor, Montpelier, a vice-president of the Blackford County Association for the Study and Prevention of Tuberculosis.——Dr. H. H. Martin, Laporte, has returned from Europe.——Dr. M. C. Wilson has succeeded Dr. Frank S. Crockett, resigned, as meat and milk inspector of La Fayette.

KENTUCKY

New Officers.—Hardin County Medical Society, at Elizabethtown, November 14: president, Dr. H. R. Nusz, Cecelian; secretary-treasurer, Dr. E. J. Strickler, Elizabethtown.

Small-Pox Decreasing.—The epidemic of small-pox which has been prevalent in Sebrie for the past six weeks is subsiding, and about half of the patients who had been placed in quarantine have been released.

Prison Farm for Tuberculosis.—The Board of Prison Commissioners hopes in the near future to establish a state farm where prisoners suffering from tuberculosis may live in the open air and have a chance for their lives. At Eddyville, a new hospital has just been completed and arrangements have been made for a tent colony on the roof where prisoners suffering from the disease may live either in tents or in the open air, and thus far the experiment has been satisfactory.

Hookworm Disease in Kentucky.—It has been reported to the State Board of Health that since December, 1911, the state inspectors have treated 5,025 persons suffering from hookworm disease, and that 4,658 have been treated during the quarter ended Sept. 30, 1912. Under the joint auspices of the Rockefeller Commission for the Eradication of Hookworm, the Kentucky State Board of Health, the Jefferson County Board of Health and the Fiscal Court of Jefferson County, a series of illustrated lectures will be given at different towns in Jefferson County by Dr. W. W. Richmond, Clinton, who is associated with the Rockefeller Commission. Dr. B. W. Smock, Louisville, county health officer of Jefferson County, will accompany Dr. Richmond. During the Child Welfare Exhibit in Louisville this week, Dr. Richmond delivered a lecture at the Armory, November 25.

LOUISIANA

New Officers.—St. Tammany Parish Medical Society, organized at Covington, October 30: president, Dr. H. E. Gautreaux, Covington; secretary, Dr. H. D. Bullock, Folsom.

Needs of Dispensary.—Pleas have been made to the New Orleans city council for an appropriation of $5,000 for the New Orleans Dispensary, of $15,000 for the Touro-Shakespeare Alms House and of $15,000 for the Society for the Prevention of Cruelty to Children.

Hospital and Infirmary Notes.—The Touro Infirmary, New Orleans, has asked the city council for an increase of $4,000 in its appropriation, as in its charitable work the institution has contracted debts amounting to $21,000.——The new Crowley Sanitarium is now ready to receive patients. The institution contains nineteen ward-rooms and two private suites, operating-rooms, reception-rooms, etc.——Tulane University is equipping a modern emergency hospital on the campus to provide for any case of illness or emergency which may arise among the students. The building will accommodate eight patients.

For the Betterment of the Medical Corps.—The adjutant general of Louisiana has completely reorganized the medical and hospital corps of the National Guard of the state along the lines suggested by the War Department. It is now divided into a medical corps, medical reserve corps and hospital corps all commanded by a chief surgeon who is subordinate only to the commander-in-chief of the National Guard. The medical corps consists of medical officers commissioned after examination by a board consisting of not less than three medical officers of the National Guard. The Medical Reserve Corps is to consist of duly qualified practitioners recommended by the chief surgeon.

MARYLAND

Baltimore

Personal.—Dr. J. A. F. Pfeiffer has returned from Europe.——Dr. A. D. McConachie has resigned from the faculty of the Maryland Medical College.

School for Defectives Established.—With the approval of the school board and the cooperation of Dr. Adolf Meyer, head of the Phipps psychiatric clinic, a class for children of defective mentality will be established at one of the public schools.

Home for Invalid Children Opened.—The Harriett Lane Johnson Home for Invalid Children was opened November 22. The principal address was made by Dr. L. Emmett Holt, New York City, and Drs. Abraham Jacobi and William H. Welch, Baltimore, also spoke.

Bazaar for Widows and Orphans.—The bazaar for the benefit of the Home for Widows and Orphans of Physicians was held in the Howard Street Armory, November 21-25. Mrs. Eugene F. Cordell was in charge and a number of the wives and daughters of Maryland physicians assisted. The management hopes that enough money will be realized to pay off the balance of the indebtedness on the building, and also to secure a substantial sum for the maintenance of this home, the only one of its kind in existence.

MICHIGAN

New Officers.—Grand Traverse-Leelanau County Medical Society, at Traverse City, November 4: president, Dr. F. Holdsworth; secretary-treasurer, Dr. James A. J. Hall, both of Traverse City.——Tuscola County Medical Society at Caro, October 14: president, Dr. J. H. MacKenzie, Reese; secretary-treasurer, Dr. W. C. Garvin, Millington (reelected).——Pontiac Medical Society at Pontiac, October 15: president, Dr. C. W. Mack; secretary, Dr. L. A. Farnham.——Michigan State Association for the Prevention and Relief of Tuberculosis, at Ann Arbor, November 1: president, Dr. Herman Ostrander, Kalamazoo; treasurer, Dr. H. J. Hartz, Detroit.——Lenawee County Antituberculosis Society, at Adrian: president, Dr. A. W. Chase; secretary-treasurer, Dr. Esli Morden, both of Adrian.——Twin City Physicians' Club (Hancock and Houghton), at Hancock, November 11: president, Dr. J. G. Turner, Houghton; secretary Dr. M. D. Roberts, Hancock.——Tri-County Medical Society at Cadillac, November 7: president, Dr. S. C. Moore; secretary-treasurer, Dr. Rudolph J. E. Odan, both of Cadillac.

Personal.—Dr. O. M. Vaughan, Covert, has been unanimously elected president of the board of superintendents of the poor for Van Buren County, for a sixth three-year term.——Dr. H. S. Kiskadden, Detroit, fractured his arm in a machinery accident, October 23, and was operated on in Grace Hospital, Detroit, five days later.——Dr. I. Lindgren, Ishpeming, has started for his old home in Helsingfors, Finland.——Dr. W. H. Price, Detroit, was elected second vice-president of the National Milk Inspectors' Association at its annual meeting in Milwaukee last month.——Dr. S. Szudrawski, Manistee, has been appointed state medical inspector for the northern half of the ninth congressional district.——Dr. Charles W. Thompson, assistant superintendent of the Newberry State Hospital, has resigned.——Dr. Glenn W. Stockwell has succeeded Dr. Benjamin P. Brodie as surgeon of the Detroit Fire Department.——Dr. G. B. Hoops, Detroit, underwent an operation for appendicitis in Grace Hospital, recently.——Dr. Joseph E. Bennett, Wayne, while hunting in the Upper Peninsula, November 10, was accidentally shot, fracturing his right femur just above the knee.——Dr. James B. Bradley, Eaton Rapids, has resigned as a member of the Prison Pardon Board to take effect January 1.——Dr. H. T. Setheny, Menominee, was operated on in St. Joseph's Hospital in that city, for the removal of gallstones, November 11.

MISSISSIPPI

New Officers.—Tate County Medical Society at Arkabutla, October 2: president, Dr. H. L. Murphy, Arkabutla; secretary, Dr. J. S. Eason, Coldwater.

Personal.—Dr. J. Sidney Sharp, Grenada, has been appointed a member of the State Board of Health, vice Dr. J. C. Armstrong, Water Valley, resigned.——Dr. R. M. Saddler, Okolona, who had a cerebral hemorrhage several weeks ago, is reported to be improved, and has resumed practice.——Dr. H. N. Stephen, Biloxi, has accepted a position as surgeon on steamers sailing from New Orleans to the tropics.——Dr. David A. Spear has returned from abroad and has settled in Greenville.——The Newton Sanatorium, which was bought two years ago by Dr. J. T. B. Berry, has been sold to Drs. I. W. Cooper and W. G. Gill.——Dr. J. E. Wallace, Biloxi, who has been ill with influenza, has recovered and resumed practice.——Dr. J. A. Rowan, Wesson, suffered a cerebral hemorrhage, November 2.

MISSOURI

Personal.—Dr. W. C. Guss, Hannibal, who has been ill with pneumonia, has started for Florida.——Dr. H. G. Dallas, Fulton, fractured his left leg in an automobile accident near Fulton, November 13, and Dr. Dennis E. Singleton sustained a strain of the back in the same accident.——Dr. John E. Bruere, formerly of St. Charles, is reported to be seriously ill in New York City.——Dr. Max Goldman, Kansas City, was attacked in his office by a patient, November 9, but succeeded in overpowering his assailant.

Operations on Physicians.—Dr. James R. Mudd, formerly of St. Charles, who was operated on October 26, in the Deaconess Hospital, St. Louis, is reported to be convalescent.——Dr. John Bryant, Independence, was operated on in Johns Hopkins Hospital, Baltimore, recently.——Dr. George P. Pipkin, formerly superintendent of the Kansas City General Hospital, underwent operation for appendicitis, October 9.——Dr. Solomon Steward, Trenton, was recently operated on and is reported to be making a good recovery.——Dr. A. I. Nichols, Ashland, was operated on in Columbus, recently, for a tumor of the right arm.

St. Louis

Personal.—Dr. Samuel T. Nicholson has been appointed superintendent of the Sydenham Municipal Hospital for Infectious Diseases, Baltimore, vice Dr. Joseph A. Wright, resigned.——Dr. John B. Shapleigh has resigned as a member of the Hospital Board.——Dr. Le Grande Atwood celebrated his eightieth birthday anniversary, October 16.——Dr. R. B. H. Gradwohl has returned from Europe.

Hospital News.—The new building of the St. Louis Maternity Hospital was dedicated with formal ceremonies, October 29.——The country branch of the St. Louis Children's Free Hospital will be established this month at Ridge Farm. The institution will occupy temporarily the three buildings now used by the Grand-Leader Country Club, and it is expected that next year a fireproof hospital building will be erected.

Visiting Staff Selected.—The hospital board has appointed the following visiting staff for the City Hospital and other institutions under its jurisdiction. Of these, forty-five are reappointments of old members of the staff: medical division, O. H. Campbell, L. S. Luton, George C. Crandall, L. J. Wilfort, C. J. Luyties, P. George Richter, C. H. Neilson, H. J. Cummings, O. H. Brown, William Engelbach, Llewellyn Sale, John C. Salter, W. P. Elmer and Edward H. Eyermann; surgical division, A. C. Leggat, Willis Young, Ernst Jonas, Max W. Myer, Francis Reder, Frederick Bailey, M. G. Seelig, E. A. Babler, William E. Leighton, Louis Rassieur, O. H. Elbrecht, Robert Schlueter and W. C. G. Kirchner, former superintendent [illegible] the City Hospital; gynecologic and obstetric division, A. N. Curtis, George Gellhorn, Hugo Ehrenfest, P. H. Swahlen and F. J. Taussig; observation and neurologic division, C. G. Chaddock, M. W. Hoge, H. Unterberg, W. W. Graves, S. I. Schwab and Percy J. Farmer; genito-urinary division, C. E. Burford, W. M. Robertson, H. J. Seherck, H. G. Lund and J. W. Marchildon; eye division, J. E. Jennings, Ernst Saxl, Meyer Wiener, Max Jaeobs and A. Collasowitz; ear, nose and throat division, W. D. Black, C. F. Pfingsten, R. Ph. Scholz, H. W. Loeb and W. M. C. Bryan; pediatric division, G. Lippmann, Julius Rotteck, J. R. Clemens and T. L. Rives; orthopedic division, Alexander E. Horwitz and Scott Parsons; dermatologic division, W. H. Mook, Joseph Grindon and J. J. Houwink; dental division, J. P. Harper, Virgil Loeb and William Oliver Appel.

NEW YORK

Memorial Hospital Opened.—The new Higgins Memorial Hospital, Olean, erected in memory of the late Gov. Frank Wayland Higgins, by his sister at a cost of $50,000, was formally dedicated November 1.

Academy Delegation Calls on Old Member.—Dr. Alfred Mercer, dean of the medical profession of Syracuse, received the congratulations and good wishes of a delegation representing the Syracuse Academy of Medicine, November 14, on the occasion of his ninety-second birthday anniversary.

New Officers.—Columbia County Medical Society, one hundred and fourth annual meeting at Hudson, October 29: president, Dr. E. C. Niser, Hillsdale; secretary-treasurer, Dr. H. W. Johnson, Hudson.——Niagara County Medical Society in Lockport, November 12: president, Dr. Carl G. Leo-Wolf, Niagara Falls; secretary, Dr. L. R. Hulbert, Lockport.

No Tuberculosis Hospital for Yorktown.—The State Commissioner of Health has denied the application of the Westchester county board of supervisors for a tuberculosis hospital at Yorktown. The refusal to grant the application was based on the objection of the New York City authorities on the ground that the establishment of such an institution would be a source of possible contamination to the water supply of the city.

Personal.—Dr. Robert B. Hammond, White Plains, has been appointed a commissioner in lunacy.——Dr. L. M. Andrews, Warsaw, has been appointed physician to the Wyoming County jail.——Dr. J. Glenn Ernest, Lockport, has been elected coroner of Niagara County.——Dr. Lucien Howe has been elected secretary and Drs. Roswell Park and John B. Coakley have been reelected trustees of the Buffalo Eye and Ear Infirmary.——Dr. H. B. Pritchard, Syracuse, was caught between two automobiles and painfully injured, November 6.

State Supervision of Dairies.—A bill has been prepared for presentation at the approaching session of the legislature which will make the supervision of the milk supply at the dairy obligatory on the state, instead of on the city as at present. The New York Milk Committee which has prepared the bill believes that the licensing and inspection of dairies, creameries and milk shipping stations should be done by the State Board of Health and that the State Department of Agriculture should control the health of dairy cattle and the sanitary conditions of the barns, etc., and the methods of milk production, while the city health department should test and inspect the milk when received.

New York City

New Officers.—New York Academy of Medicine, November 7: president, Dr. William M. Polk; secretary, Dr. C. F. Adams.

Personal.—Dr. Bernard Samuels has returned from Europe.——Dr. Lewis S. Pilcher, Brooklyn, has been elected commander of U. S. Grant Post, G. A. R.

Receipts for Hospitals.—The treasurer of the Hospital Saturday and Sunday Association reported on November 12 that the total collections for the year amounted to $116,940.

Small-Pox on Steamer.—The steamer *Barbarossa*, which arrived from Bremen, November 14, was detained at quarantine on account of a case of small-pox among the passengers.

Physicians in Realty Deal.—A New York corporation said to be composed of one hundred physicians has purchased a farm of seventy acres known as Summit View near Armonk for about $30,000.

Jewish Consumptive's Relief Society.—The eighth annual meeting of this association was held November 15 to 19. Dr. Abraham Jacobi delivered the principal address at the evening session of November 15. The society has a membership of 25,000 and more than 200 delegates were present at the convention.

Millions Needed for Health Work.—Dr. Joseph J. O'Connell, health officer for the Port of New York, announces that he will apply for an appropriation of $2,000,000 from the legislature to improve the port quarantine facilities, for the enlargement of Swinburne Island and the erection of additional buildings which will be rendered necessary by the opening of the Panama Canal.

Hospital Notes.—Foundation plans have been filed for the construction of a six-story hospital for the Volunteers of America to be erected on the corner of Beekman and Water Streets. It will be known as the Volunteer Hospital and will cost $60,000.——Designs have been approved for a six-story structure to be erected at 41-43 East One Hundred and Twenty-Third Street as an annex to the Hospital for Deformities and Joint Diseases.

Membership of the County Society.—A letter recently sent out by the Medical Society of the county of New York states that the society has a membership of 2,476 and that there are 2,683 physicians in the county who are not members. Of these at least 2,000 are eligible for membership. The letter sets forth the benefits to be derived from membership in the county society and urges each member to do his utmost to recruit at least one new member.

Lecture Course for Nurses.—The Department of Health, in cooperation with the Nurses' Settlement, Teacher's College and the Charity Organization Society, has arranged for a series of lectures to be given by its officers and representatives of the above organizations on the activities and methods of the city in dealing with public health matters, home nursing, social service work and charitable aid. Various divisions of the department will be presented each week.

Anniversary Meeting.—The New York Academy of Medicine held its anniversary meeting and reception November 21, on which occasion Dr. Charles Dana and Dr. Algernon T. Bristow, Brooklyn, read papers on "The Doctor's Future." Dr. Abraham Jacobi, in a short address, made a plea for the general practitioner, and expressed the hope that the general practitioner would be retained "modified in a sense, but still a general practitioner, and the friend and confidant of his patients."

New Hospital for Harlem.—Plans for a new building for the Hospital for the Treatment of Deformities of the Bones and Joints have been filed and the construction will soon be begun. The equipment that has been planned will be much more elaborate than that of any other institution for the treatment of similar conditions in the country. A rather unique feature will be a factory in the basement for the manufacture of shoes and surgical instruments.

Fight Against Poisonous Matches.—The Municipal Explosives Commission, which after a long fight secured the adoption of a city ordinance forbidding the use of phosphorus and "after-glow" matches after Jan. 1, 1913, find that they must begin their fight over in order to prevent the so-called "match trust" from putting into effect some plan by which they will be enabled to continue the sale of these matches for two years or until the federal law forbidding the manufacture and sale of phosphorus matches goes into effect on Jan. 1, 1915.

New Hospital Association.—The delegates of twenty-nine hospital dispensaries met recently at the New York Academy of Medicine and organized an association to be known as the Associated Out-Patient Clinics of the City of New York. The aims of the association are to coordinate the work of existing dispensaries and out-patient clinics, to eliminate unworthy applicants for treatment, to promote proper standards of treatment, economy and efficiency in dispensary management. Efforts will be made to limit the work of each dispensary to the district in which it is located.

Campaign Against Cocain Sellers Progressing.—The results of the efforts to prevent the illegal sale of cocain made in Brooklyn during the past three months have just been placed before the grand jury of Kings County. The report shows that there have been fifty-four indictments of alleged sellers of cocain by the October grand jury, making a new high record in the prosecution of this particular felony. The revelations as to the extent of the use of this drug were amazing. It was shown that pedlers on street corners, who were ostensibly selling pencils and other small wares, were using these as a blind while they were in reality selling cocain. The sections where this drug was most freely sold were upper Fulton Street and lower Tompkins Avenue.

New York Prepared for Cholera.—It is stated by Dr. Joseph O'Connell, health officer of the port, that quarantine regulations and examinations of vessels which come from the Mediterranean, Hellenic or Levantine ports are to be much more rigorous in consequence of the reported outbreak of cholera in the Turkish army. Improvements have been in progress for the past eight months with just such a contingency in view, and equipment and accommodations have been so increased that passengers that may have to be removed from incoming vessels may be cared for without difficulty and without the danger which attended the last visitation of cholera to this port. Dr. O'Connell expresses the belief that it is typhus fever rather than cholera that we should fear, as typhus is more likely to be brought in by carriers and because less is known about this disease than about cholera.

NORTH DAKOTA

New Hospitals.—A new hospital is to be erected at Jamestown, to be known as the Parkview Hospital and Sanitarium. Dr. W. A. Gerrish is one of the incorporators.——The Dunseith Sanatorium for tuberculosis, recently completed, is in charge of Dr. James P. Widemeyer, Rolla.

Personal.—The offices of Drs. W. P. Baldwin and H. J. Rowe, Casselton, were destroyed by fire, October 24.——Dr. R. H. Beach, Dickinson, has been appointed superintendent and chief surgeon of the new Northern Pacific Hospital, Glendive, Mont., and will assume his new duties about January 1.——Dr. John G. Arenberg, Grand Forks, has returned from Europe.——By a fire in Mohall, November 16, Dr. J. Halliday lost his office, fixtures and furniture.

PENNSYLVANIA

New Officers.—Bucks County Medical Society at Doylestown, November 13: president, Dr. Walter H. Brown, Richlandtown; secretary-treasurer, Dr. Anthony F. Myers, Blooming Glen (reelected).

Portrait Presented.—At the meeting of the Berks County Medical Society at Reading, November 12, an oil painting of the late Dr. Peter G. Pertolett was presented to the society by Dr. Samuel L. Kurtz.

Hospital Items.—The Wilkes-Barre City Hospital Association has purchased a lot on which it will erect a three-story building, adjacent to the present building.——October 29 and 30 were harvest-home days at the Mid-Valley Hospital, Scranton, at which gifts of vegetables, fruit, etc., were made to the hospital.——Chester County Hospital has purchased a tract of land north of the present location of the buildings at a cost of $1,500.

Personal.—Dr. Donald G. Rafferty, Pittsburgh, is a patient in Mercer Hospital, suffering from malaria said to have been contracted while on an exploration tour in Abyssinia.——Dr. H. E. Williams, West Coatesville, sustained painful injuries in a fall, November 17.——Dr. H. F. Smith, Scranton, has been appointed first lieutenant, M. C., N. G. Pa., and assigned to the Thirteenth Infantry, vice Dr. F. F. Arndt, resigned.——Dr. Davis A. Hogue, Altoona, who has been seriously ill with septicemia, is reported to be improving.——Dr. George W. Wagoner, Johnstown, has been elected secretary of the Board of Managers of the Conemaugh Valley Memorial Hospital.——Dr. E. W. Smitheman, Oil City, is reported to be critically ill at the home of his father in Haddonfield, N. J.——Dr. K. H. Van Norman, house surgeon at the Pittsburgh Tuberculosis Hospital, has been elected assistant superintendent of the Johns Hopkins Hospital, Baltimore.——Dr. John W. Luther has been elected first burgess of the new borough of Palmerton.

Philadelphia

New Officers.—Aid Association of the Philadelphia County Medical Society, November 11: president, Dr. Roland G. Curtin; secretary, Dr. Lewis H. Adler, Jr.

Personal.—Dr. John J. Gilbride has been appointed lecturer in surgery in the Medico-Chirurgical College of Philadelphia.——Dr. Eva Rowley Frankford has been appointed pathologist on the staff of the Kalamazoo (Mich.) State Hospital.

Hospital News.—The managers of the Children's Hospital have decided to erect a group of buildings on a new site having double the capacity of the present institution, and to be provided with the most modern equipment for the care of children and the prevention of disease. The hospital site will be on Eighteenth Street between Fitzwater and Bainbridge, the ground covering more than one and one-half acres. One of the managers of the hospital has given $100,000 for the purchase of the site.

Money for Hospital in China.—Dr. Josiah C. McCracken, head of the medical school in Canton, China, established by the University of Pennsylvania Christian Association, has come to Philadelphia to raise $85,000 for the erection of a hospital in connection with the school. One wing, 77 feet in length, was recently completed at a cost of $17,000 and is now being used to its fullest capacity. It is proposed to add 112 feet to this wing and in addition, to build a central section which will contain executive offices, laboratories, private wards and operating-room.

Appropriation for Home for Indigents.—On November 7, Councils Finance Committee recommended an appropriation of $10,000 for a temporary home for the female indigent on the Alexander Brown property, in Torresdale, the tract once selected for a permanent home for the poor. Councils passed a bill providing for the reorganization of the divisions of house drainage and nuisances under one inspector to be known as the chief sanitary inspector. Mayor Blankenburg recommended to Councils a creation of the position for superintendent of Byberry Farms for the insane at a salary of $4,000 a year. Director Neff stated that a physician is now needed there to take charge of the insane patients.

The Rush Society.—This society, established through the initiative of the Medical Department of the University of Pennsylvania, was organized November 2. Its objects are similar to those of the Harvey Society of New York, namely, the diffusion, by lectures, of knowledge concerning recent advances in medical and the biologic sciences and public hygiene. Dr. Richard M. Pearce was elected president; Dr. Alfred Stengel, vice-president, and Dr. William Pepper, secretary-treasurer. It proposes to present during each academic year from six to eight lectures, the first to be given in January. Arrangements have already been made for lectures by Dr. Theodore C. Janeway, Columnia University, New York City, and Dr. M. J. Rosenau of Harvard.

TEXAS

New Quarantine Station Planned.—An additional building has been authorized for the United States Quarantine Station Group, Bolivar Roads, Galveston.

New Officers.—Fourth District Medical Society at Brownwood, October 21-22: president, Dr. T. K. Proctor, San Angelo; secretary, Dr. J. M. Horn, Brownwood. Lampasas was selected as the next place of meeting.——Nacogdoches County Medical Association organized at Nacogdoches, October 9: president, Dr. J. H. Barham; secretary, Dr. T. J. Blackwell, both of Nacogdoches.

Raising of Quarantines Delayed.—After conference with State Quarantine Officer Dr. I. L. McGlasson, Galveston, and Dr. Ralph Steiner, president of the State Board of Health in Austin, October 30, it was decided that, on account of the prevalence of yellow fever in Mexico and South American countries, the maritime quarantine, which has ordinarily been raised November 1, should be continued for at least thirty days after that time.

Personal.—The office of Dr. Adam M. Autrey, Houston, was seriously damaged by fire, October 27.——A board of health has been organized in Corpus Christi consisting of Drs. T. J. Turpin, E. O. Arnold, Herbert Caldwell, W. E. Carruth and Sherman T. Dodge, with Dr. P. D. Spohn, acting city physician and Dr. Roy Miller, sanitary commissioner, as ex officio members.——Dr. Herbert E. Stevenson, El Paso, has been elected president of the local branch of the American National Red Cross.——Dr. M. J. Bliem has been elected president and Dr. M. L. Burnham, vice-president of the San Antonio Society of Social Hygiene.——The residence of Dr. P. H. Chilton, Comanche, was burned to the ground, October 5.——Dr. R. M. Prather, Beeville, who has been ill with septicemia, has recovered.——Dr. R. W. Knox, Houston, has returned from Europe. ——Dr. George T. Baskett, San Angelo, has been appointed superintendent of the St. Peter (Minn.) State Hospital.

GENERAL

Annual Conference on Labor Laws.—The sixth annual meeting of the American Association for Labor Legislation will be held in Boston December 27-28. Among the topics to receive attention in the discussions are "protection against lead-poisoning" and "occupational diseases."

New Hospital in Colombia.—The United Fruit Company is building a hospital at Santa Marta, Colombia, South America, at a cost of $100,000. The building will be one of the finest in Spanish-America and will have a research department affiliated with the medical department of Tulane University, New Orleans.

Anatomists to Meet.—The twenty-ninth annual session of the American Society of Anatomists will be held in the medical department of Western Reserve University, Cleveland, December 31-January 2, in affiliation with the American Society for the Advancement of Science, the Society of American Naturalists, the American Society of Zoologists, the American Physiological Society and many other organizations.

Life Insurance Directors to Meet.—The mid-winter meeting of the Medical Section of the American Life Convention will be held in Hot Springs, Ark., February 26-28, 1913, under the presidency of Dr. H. A. Baker, Pittsburgh. Dr. Frank W. Foxworthy, medical director of the Commercial Life Insurance Company and Majestic Life Assurance Company, Indianapolis, is chairman of the program and entertainment committee.

Atlantic Coast Line Surgeons Meet.—At the eighth annual meeting of the surgeons of the Atlantic Coast Line Railroad held in Richmond, October 15-16, the following officers were elected: president, Dr. John S. McEwan, Orlando, Fla.; vice-presidents, Drs. S. T. Nicholson, Washington, N. C.; C. E. Moore, Wilson, N. C., and H. B. Mahood, North Emporia, Va., and secretary-treasurer, Dr. C. P. Aimar, Charleston, S. C., (reelected).

Railway Hospital Turned Over to Employees.—The Missouri-Pacific-Iron Mountain System has completed the formal transfer of the hospital property to its employees and officials, and has turned over cash amounting to nearly $200,000 and real estate and furnishings aggregating about $50,000 to the new management. Dr. P. F. Vasterling, St. Louis, Mo., chief surgeon of the road, is ex officio chairman of the board, and its only medical member.

Ohio Valley Association.—At the fourteenth annual session of the Ohio Valley Medical Association held in Evansville, Ind., Nov. 13-14, the following officers were elected: president, Dr. Henry R. Alburger, Indianapolis; vice-presidents, Drs. A. D. Willmoth, Louisville, E. O. Smith, Cincinnati, and G. M. Young, Evansville, and secretary-treasurer, Dr. Benjamin L. W. Floyd, Evansville (reelected). The next meeting will be held in Evansville, in November, 1913.

Railway Surgeons Elect.—The New York and New England Association of Railway Surgeons held its twenty-second annual session November 13, and elected the following officers: president, Dr. John W. Le Seur, Batavia, N. Y.; vice-presidents, Drs. C. A. Pease, Burlington, Vt., and Dr. William H. Marcy, Buffalo, N. Y.; corresponding secretary, Dr. George Chaffee, Brooklyn; recording secretary, Dr. J. H. Reid, Troy, N. Y.; treasurer, Dr. J. K. Stockwell, Oswego, N. Y.

Annual Meeting of Tri-State Society.—The nineteenth annual meeting of the Tri-State Medical Society of Arkansas, Texas and Louisiana, was held in Shreveport, November 12-13. Texarkana was selected as the next place of meeting, and the following officers were elected: president, Dr. T. B. Younger, Fisher, La.; vice-presidents, for Louisiana, Dr. John L. Scales, Shreveport; for Texas, Dr. William G. Hartt, Marshall, and for Arkansas, Dr. George P. Sanders, McNeil; secretary-treasurer, Dr. Jacob M. Bodenheimer, Shreveport, La. (reelected).

Medical Milk Commission Report.—The Medical Milk Commission of Essex County, N. J., has issued for distribution among physicians a pamphlet containing the twenty-third report of the commission, including the forms of certificates made by the chemist, the bacteriologist, the visiting physician, the veterinary surgeon, the visiting committee and other committees of the milk commission, an abstract from the by-laws, the medical milk commission laws of New Jersey, a copy of the agreement between the milk commission and the producer of certified milk, and an abstract from the annual report of the State Board of Health of New Jersey, setting forth the effective manner in which an epidemic of scarlet fever was prevented by the prompt handling of some suspected cases that occurred among the employees of a certified milk dairy. The report affords information of value to other medical milk commissions, as it is the actual working record of an efficiently conducted certified milk commission.

Bequests and Donations.—The following bequests and donations have been announced:

Children's Hospital, Free Home for Consumptives, Perkins Institution for the Blind, Boston Floating Hospital and Kindergarten for the Blind, each one-ninth of the estate of Charles John Prince, Boston, on the death of his wife.

Presbyterian Hospital, Chicago, Visiting Nurses' Association, each $5,000; Chicago Home for Incurables and Home for Destitute Crippled Children, each $10,000, by the will of Miss May Buckingham.

St. Joseph's Hospital, Philadelphia, $12,500, by the will of Isabella McLinden.

St. Mary's Free Hospital for Children, New York City; Presbyterian Hospital, Charity Organization Society, New York Association for Improving the Condition of the Poor and Children's Aid Society, each $10,000, by the will of William Hall Penfold.

S. R. Smith Infirmary, Thompkinsville, Staten Island, the fund of $108,333 as the result of a campaign to raise $100,000 which was inaugurated October 18.

Johns Hopkins Hospital, Baltimore, $200,000, the gift of James Buckingham Brady, New York City, for the erection of a six-story building to be known as the James Buckingham Brady Institute, containing laboratories and public wards for the study of urology; in addition $15,000 annually for maintenance and a "substantial sum by will." Dr. Hugh H. Young is to have charge.

The Journal of Pharmacology and Experimental Therapeutics.—Within the brief period since its establishment about three years ago, the *Journal of Pharmacology and Experimental Therapeutics*, under the editorship of Prof. John J. Abel of the Johns Hopkins Medical School, has won a prominent place for itself among the publications which aim to present original contributions to the medical sciences. Pharmacology pursued as a distinctive branch of study and encouraged as a field for research has a comparatively recent history in the United States. The formation of a thriving society of active pharmacologic experimentalists and the launching of a new journal devoted exclusively to this field, all within recent years, give an indication of the interest which has been aroused in the rational study of the action of drugs and their therapeutic applications. Few changes have come so rapidly in the evolution of medical studies in this country as has the transformation of the old materia medica of preceding generations into the scientific pharmacology of to-day. With the beginning of Volume 4, September, 1912, Prof. Arthur R. Cushny, the well-known pharmacologist of University College, London, formerly at the University of Michigan, has become joint editor with his American colleague. Professor Abel. At the same time Sir T. Lauder Brunton, Dr. H. H. Dale and Dr. F. Ransom of London, Sir Thomas Fraser of Edinburgh, Prof. J. T. Cash of Aberdeen, Prof. R. Stockman of Glasgow, Prof. J. N. Langley and W. E. Dixon of Cambridge, Prof. C. R. Marshall of the University of St. Andrews and Dr. J. A. Gunn of Oxford joined the board of associate editors, which already includes the names of many of our foremost American workers in this field. This new arrangement in the direction of editorial expansion on both sides of the Atlantic is likely to attract the best pharmacologic contributions of English-speaking countries. It cannot fail to enhance the prestige of the *Journal*, which already has a creditable record; and the science which it represents will reap the benefit that accrues from a forceful and critical medium of publication. This felicitous cooperation of the ablest of British and American colleagues in the management of a scientific project betrays the spirit of the times. It exemplifies the truly international character of work in science and medicine, in which the boundaries of states have become obliterated. The new venture calls for a word of congratulation and deserves hearty support.

THE SCHRANK CASE

The case of the would-be assassin of Mr. Roosevelt, John Schrank, was disposed of November 23 by the Municipal Court of Milwaukee County.

We present below the summary and conclusions of the five alienists appointed by Municipal Judge A. C. Backus, as commissioners to examine Schrank and determine his mental state. The questions on which the commissioners were instructed to report were: 1. Is the defendant at the *present time* insane? 2. Is the defendant in such condition of mind that he is able to advise with counsel and conduct his defense?

It will be remembered that Schrank, when arrested, expressed the belief that Colonel Roosevelt had guilty knowledge of President McKinley's death and that "*a man who wanted a third term had no right to live.*" His examination developed the fact that a whole body of systematized delusions had grown up in his mind about "sacred traditions" that must be defended with life if need be, and that Colonel Roosevelt, like Caesar, was ambitious and deserving of Caesar's fate.

The summary and conclusions of the commissioners are as follows:

Summary:—"We have limited the scope of our investigation and inquiry to the questions we have been asked to determine and summarize briefly: John Schrank, aged 36 years, single, bar-keeper and saloon-keeper, and of limited educational opportunities, with insane heredity, was born in Bavaria, March 5, 1876, and came to this country twelve years later. Apparently he developed normally, but early in life showed a particular fondness for the study of the histories of this and other countries, and also for the composition of poetry. In the course of his studies of history, and especially of the Constitution of the United States and of Washington's Farewell Address, he developed the belief that this republic is based on the foundation of four unwritten laws, to which he also refers as the 'Four Sacred Traditions. . . .

"In 1901 he had a very vivid dream, which at that time he recognized as only a dream [of seeing McKinley in his coffin point to a person as his slayer who wore the aspect of Roosevelt], the memory of which has frequently recurred to him ever since. In the course of the pre-convention campaign [in 1912] the belief that the four unwritten laws or the 'Four Sacred Traditions' are in danger comes to him, and later, on the nomination of a presidential candidate by the Progressive Party, he begins to attach particular significance to the dream he had in 1901. He meditates deeply on this and, in the course of a few weeks, there appears to him a 'vision' accompanied by a voice which, in effect, commands the killing of the man through whose acts and machinations he believes the sacred traditions to be endangered, and who he also believes is, through a conspiracy, concerned in the assassination of a former president. He continues to ponder on the subjects set forth, awaiting the appearance of a person who would carry out the act suggested by the vision, but shortly arrives at the conclusion that he, and not someone else, is the chosen instrument. He at once sets forth to accomplish his mission, following his victim until he finally comes up with him.

"During his examination as to his sanity, he conducts himself in perfect accord with his beliefs, and expresses a regret at not having died at the hands of the mob if such a result would have proved of benefit to his chosen country.

Conclusions: "1. John Schrank is suffering from insane delusions, grandiose in character, and of the systematized variety.

"2. In our opinion he is insane at the present time.

"3. On account of the connection existing between his delusions and the act with which he stands charged, we are of the opinion that he is unable to confer intelligently with counsel or to conduct his defense.

"Richard Dewey, M.D., Chairman.
"W. F. Becker, M.D., "D. W. Harrington, M. D.,
"Frank Studley, M.D., "William F. Wegge, M.D.,
"Commissioners."

In accordance with the finding of the commission, Judge Backus has ordered the commitment of Schrank to the Northern State Hospital for the Insane, near Oshkosh, Wis., and he was taken to the institution November 25.

The noteworthy feature of these proceedings is the appointment of experts solely for the purpose of advising the court without reference either to prosecution or defense, thus avoiding the "battle of experts" which rightly or wrongly often brings discredit on psychiatry.

LONDON LETTER

(From Our Regular Correspondent)

London, Nov. 16, 1912.

The National Insurance Act: Probable Rejection of the Government's Terms

The resolutions passed by the various divisions of the British Medical Association are so far, in the great majority of cases, in favor of rejecting the government's amended terms, which, as stated in my previous letter, are a considerable advance, as regards remuneration, on those previously offered, but do not grant many of the "six points" formulated by the association. Perhaps the point on which the profession is most hostile is the failure to insert in the act the income limit of $10 a week for insured persons eligible for medical benefit. The feeling is that contract practice is semi-charitable and should be confined to persons in poor circumstances. In the past it has been possible to take contract work at low rates because those a little higher in the social scale could be attended at moderate fees, which, though moderate, enable the physician to pay his way. In the act, the income limit is $15 a week for all persons except those who are manual workers, for whom there is no limit whatever. A mechanic earning as much as $40 a week (it must be remembered that this sum would represent nearly twice the same wages in this country as in the United States in consequence of the cheaper cost of living) is compelled to insure and can demand "free medical attendance, drugs and appliances." Moreover, any person who has been insured for five years may continue as a voluntary insurer after he rises in the world and passes the income limit. Thus, if he becomes an employer and a rich man, instead of paying the fees of his station in life, he can continue to obtain medical attendance at the same rate as a workman. Another condition which the profession resents is that disciplinary power is vested in the local insurance committees which contain a large number of representatives of the friendly societies. It is held that like other learned professions, such as the church and the law, the medical profession should be disciplined by itself.

Criticism of the Regulations

The National Medical Union, an association of northern physicians formed at Manchester to strengthen the resistance of the British Medical Association to the act, has issued a pamphlet strongly criticizing the act. It is declared that private practice among the poorer classes will be undermined. At every turn there will be bureaucratic interference. The varying forms to be filled up, the official accounts to be rendered and the amount of gratuitous work to be performed will be among the minor fruits of the system. Members of the profession should never agree to having their lives harassed by the institution described as the "complaints committee." The root fault of the whole scheme is the statutory obligation to attend which is placed on the physician. Medicine is a delicate and personal art and the relation between patient and physician is best left to the parties concerned. The disciplinary regulations would destroy the old relation based on freedom, confidence and respect and substitute for it a legal obligation.

The State Medical Service Association

The first general meeting of the State Medical Service Association, which was formed in Liverpool in July, has just been held in London, with Professor Benjamin Moore in the chair. One hundred and thirty-five physicians and a few laymen have, in response to circulars explaining the objects of the association, become members. An executive committee was appointed with Dr. G. A. Heron as chairman, and arrangements have been made for the formation of district branches. Negotiations for the issue of a weekly journal, the *Medical World*, have been completed. The association has nothing to do with the controversy arising out of the national insurance act. The conception of the association and the scheme as advocated preceded the introduction of Mr. Lloyd George's scheme into the House of Commons. The association contends that the interests of the public health in this country demand a state-supported medical service, which should unite preventive and curative medicine and be available for every man, woman and child, rich or poor. Another object is the nationalization of hospitals. It is proposed that these institutions should be used for consultative, operative and therapeutic work at the request of and in association with the patients' own physicians. The scheme provides that the whole service shall be administered by a board of health, under a minister of public health, with cabinet rank, assisted by expert medical advisers. The association holds that in existing circumstances many of the most able and willing researchers are compelled by economic conditions to desert the centers of investigation in order to earn a living in practice, and vast stores of the most useful material are neglected, because in the struggle to obtain a livelihood the busy general practitioners have no time to utilize it. The evils at present due to long hours and irregularities of work, the unavoidable waste of time in the building up of practices, and the financial dependence of the practitioner on the patient, can, in the association's view, be remedied only by the organization of the profession as a branch of the nation's civil service. The time has come, it is held, when every medical practitioner, man or woman, should be guaranteed an adequate and certain salary during the active years of service, coupled with a system of gradual promotion, and followed by a generous pension. However fascinating, this scheme is not likely to receive much support in the profession outside a small minority holding socialistic or "advanced" political views.

Alcohol and Cancer

Delivering the annual lecture under the Lees Roper Trust at Norwich recently, Sir Alfred Pearce Gould, K.C.V.O., said the experience of the United Kingdom Temperance and General Provident Institution was that death from cancer was more than twice as frequent among the non-abstaining section of their policy-holders as it was among the abstaining section. It had also been shown that the cancer incidence in men of different occupations varied directly with the habits as regarded alcohol of those engaged in such occupations. For example, cancer was twice as frequent among brewers and London publicans as among clergymen. His experience of this disease enabled him to say that it was more rapid and more distressing among those who took alcohol, and that free consumption of alcohol added greatly to the rapidity and severity of the disease. The taking of alcohol was not the cause of cancer, but it certainly lessened a man's power of resisting the attack of the disease

PARIS LETTER

(From Our Regular Correspondent)

Paris, Nov. 8, 1912.

Hematogenic Origin of Certain Forms of Acute Appendicitis

Notwithstanding clinical, anatomic, pathologic and experimental investigations tending to show the hematogenic origin of certain forms of appendicitis, this has not been unmistakably demonstrated until now, for in no case has it been possible to prove through blood-culture the preliminary circulation in the blood of the germs which produced the lesion in the appendix. The report which Professor Widal made at the meeting of the Académie de médecine, October 22, has the value of experimental evidence. In a woman who for two weeks had presented the classical picture of a typhoid infection without any symptoms of appendicitis, blood-culture permitted the isolation twice of the *Bacillus paratyphosus B.* At the end of two weeks, symptoms of peritonitis developed, and were followed by death in twenty-four hours. Autopsy revealed the presence of a perforating appendicitis accompanied by ecchymotic lesions of the cecum. The paratyphosus B bacilli existed in almost a pure state in all these lesions. Histologic examinations confirmed the finding of invasion of the appendicular and cecal walls through the blood and showed the presence in the capillaries of numerous colonies of eberthiform bacilli. This typhlo-appendicitis presented the only intestinal sign of septicemia. The small intestine was entirely normal; there was not the slightest lesion of Peyer's glands or of the lymphoid organs. This observation makes clear how appendicitis can develop after any one of several general infections or even after a subcutaneous suppuration.

First International Congress of Pediatrics

This congress, organized by the Association internationale de pédiatrie, was held in Paris, October 6-10. Unfortunately it did not have a full measure of success owing to the absence of American and British physicians; then, too, the manner of recruiting members of the association lays itself open to criticism. In his opening address Professor Hutinel of Paris, president of the congress, said that this body should be composed only of physicians and surgeons devoted especially or exclusively to the study of pediatrics, such as those who direct infant hospitals, infant asylums or infant dispensaries and especially teachers of pediatrics. "The number of the members of our association," said Hutinel, "has been largely reduced in this way; nevertheless I believe that it ought to be reduced still further. It is our desire that our meetings should have a scientific interest and a true scientific importance and that the association should be composed only of the leaders in our specialty." It is to be inferred that admission to the association is closed to practitioners who do not have a hospital service, and this is to be regretted; for among these practitioners there are some who have won a just reputation by their work in pediatrics. Of subjects discussed, poliomyelitis would evidently have gained if Americans had come and reported the results of their experiences to the congress. As this subject was discussed at the recent International Congress on Hygiene and Demography held at Washington (The Journal, Oct. 5, p. 1313), I shall not refer to it. Among the reports on infantile anemias that of Professor Czerny of Strasburg deserves special mention.

ANEMIA OF ALIMENTARY ORIGIN IN INFANTS

It is often customary to call all pale children anemic; but according to Czerny anemia should be distinguished carefully from mere paleness; the latter, of nervous origin, is present in vasomotor troubles and is found in cases in which the blood is normal. For diagnosis of anemia, it is necessary that the mucous membrane as well as the skin should be pale and that the blood examination should show a diminution in hemoglobin and in the number of the red cells. Although paleness is often found among infants of all ages it is almost exclusively in the first year that anemia is observed. After the second year it is relatively rare. Insufficient feeding alone does not determine anemia, for anemia may accompany a diet that is apparently sufficient in quantity or which is even more than enough for the needs of the child. It develops exclusively among certain children who have been fed on milk exclusively for a long time. Anemia of alimentary origin comes on by degrees. In some cases the paleness of the skin and of the mucous membranes and the change in the condition of the blood are the only symptoms of the disease, and in other cases there is also a hypertrophy of the spleen. In these cases enlargement of the spleen comes first and anemia follows. Czerny believes that cases of anemia with hypertrophy of the spleen are due to a combination of a predisposition toward anemia and the exudative diathesis or hereditary lymphatic temperament. It is to be noted that anemia always develops at a time when the child is quite fat. Czerny attaches particular importance to the symptoms of obesity, for experience shows that obesity can be developed only by a food rich in fat, such as milk generally is. Children who for one reason or another do not tolerate milk well or who even refuse it and therefore are given a regimen in which carbohydrates predominate never become so fat as the others and never acquire alimentary anemia. In addition to the obesity these children often show a softening and insufficient development of the muscles. Anemia of alimentary origin is related only to an exclusive milk diet and therefore in treatment the regimen should be corrected. At the beginning of the anemia and in light cases it will be sufficient to withdraw a third or a half of the milk ration and to fill out the regimen with cereals, oatmeal, rice, tapioca, etc., vegetables and fruit. In severe cases it is necessary to exclude milk altogether or to reduce the quantity to from 100 to 200 gm. a day at the most. Czerny gives meat twice a day in addition to cereals, such as oatmeal, rice and tapioca, and vegetables and fruit. In changing the regimen in the manner described it is necessary to pay attention at the beginning to the digestion of the child, especially if diarrhea is present. This must be cured before putting the child on a mixed diet. Children who are constipated and whose stools are rich in lime soaps following an exclusive milk diet may safely change from one diet to the other. This change will succeed better if only four meals a day are given. By these means Czerny has been able to cure a severe case of anemia in three or four months.

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, Nov. 9, 1912.

A New Public Health Institution at Saarbrücken

A third institute for hygiene and infectious diseases has been erected at Saarbrücken, similar to the institutions at Gelsenkirchen and Beuthen for the industrial districts of Rhenish-Westphalia and Upper Silesia. The building has twenty-eight light, airy rooms for the different departments. The task of the institution is the scientific treatment of all hygienic and bacteriologic questions, for instance, questions of hygiene in mines, smelters and factories, the supply of water and regulation of sewage, elimination of smoke, soot and dust, as well as the bacteriologic diagnosis and elimination of infectious diseases. To the new institution are transferred the duties of the local institute for bacteriologic investigation for the elimination of typhoid, as well as the station for medical examinations and the Trier training school for the disinfection service—an amount of important work thus devolves on the director of the institute, Prof. Dr. Lentze, and on the department manager and four assistants.

Legislation with Reference to Nursing-Bottles

A bill for the regulation of nursing-bottles will soon be presented to the Reichstag. The bill reads: 1. Children's nursing-bottles with glass or rubber tube, and also parts of such bottles, must not be manufactured, kept in supply for sale, sold or otherwise brought into commerce, or imported from foreign countries. 2. Whoever violates paragraph 1 shall be punished with a fine up to 150 marks (about $36), or with imprisonment. In addition, the articles may be confiscated without regard to whether or not they belong to the convicted persons. If the prosecution or conviction of certain persons is not practicable, the confiscation may be independent. In the official preliminary statement stress is laid on the great mortality of children during the first year of life, which is still extraordinarily high in spite of the decrease that has been noticed in the last few years. It is the general opinion of physicians that nursing-bottles with glass or rubber tube are very likely the source of many infant deaths. The tube bottles are popular with many people because the children may be left to themselves with these. They are placed in bed and the children can suck at liberty while the mother goes about her work, whereas the bottle without a tube must be, as a rule, held in the hand by the nurse during the time of feeding. Bottles with tubes are difficult to clean and to keep free from germs. If they are left, as is generally the rule, to the children, there is danger on the one hand, of a lack of the regularity in feeding, so important in the nutrition of children, and on the other, danger of overfeeding. According to information received from all parts of the kingdom there is no question but that sickness and death may be caused by these bottles. Attention is especially directed, in addition to the frequent diseases of the digestive organs, to those of the mouth and laryngeal cavity, such as thrush, aphthous and ulcerative processes of the oral mucous membrane, inspiration pneumonia, scrofula, overfeeding, emaciation.

VIENNA LETTER

(From Our Regular Correspondent)

Vienna, Nov. 9, 1912.

Wounds Caused by Rifle Bullets in the Balkan War

In a report to the medical society, Professor Tedlicka, who is acting as Austrian Red Cross surgeon in Belgrade, stated the results of his experience with 670 wounded soldiers in the Turkish war raging in the Balkan peninsula. He calls the modern small-caliber bullet a very humane instrument, the injuries from which are usually severe but heal rapidly. The majority of shots affect the skull or some internal organs as the bullets usually penetrate the body. Injuries of the lungs, liver, brain, abdomen and even penetrating heart wounds heal promptly. Professor Tedlicka has had only two amputations among his cases and only twenty limbs required plaster-of-Paris bandages. The modern bullet is aseptic, owing to the heat developed by the high-power powder. As it is carried along with enormous velocity it finds no difficulty in traversing four to six men, one behind the other. If long bones are struck they are shattered to pieces only if the bullet has lost much of its original momentum. Shots through the femur, the humerus and the skull have been observed with healing of the wounds within a fortnight. A large percentage of the injuries are caused by the bayonet, proving the frequency of hand-to-hand combat in this war. An interesting feature of the injuries among the Turkish captive soldiers is the fracture of the base of the nose. This injury is caused either by the recoil of the Mauser rifle or by the blowing into the face of the occluding lever of the rifle's magazine. The soldiers have had no experience in the use of these weapons and therefore are slow to take any precaution against such an accident. Professor Tedlicka was full of praise for the first-aid pack carried by the Servian soldier, to which he ascribed a large share of the prompt healing of the wounds.

Marriages

Max John Alexander, M.D., Savannah, Ga., to Miss Margaret Palmer of Wingina, Va., at Richmond, Va., November 6.

William Colby Rucker, M.D., U. S. P. H. Service, to Mrs. Elizabeth Harwood Miller of Washington, D. C., November 11.

Alexander Alexion, M.D., New York City, to Miss Madeleine Coulon of Paris, France, in New York City, October 31.

Llewellyn Powell Williamson, M.D., M. C., U. S. Army, to Miss Mary Winslow Bartlett of Orono, Me., November 6.

Alfred Lawrence Rhoads, M.D., Scranton, Pa., to Miss Lou Eagles Wyckoff of Stroudsburg, Pa., November 12.

Henry Pickering Parker, M.D., to Miss Eleanor Cullom Ridgely, both of Washington, D. C., November 22.

Allen G. T. Childers, M.D., Mulhall, Okla., to Miss Grace May Taylor of Guthrie, Okla., November 9.

Frederick Smith Park, M.D., to Miss Catharine Vollmer Young, both of Philadelphia, November 14.

Eugene Julius Grow, M.D., M. C., U. S. Navy, to Miss Anna C. Kimball of Lebanon, N. H., October 30.

William DeForest Olmstead, M.D., to Mrs. Bessie T. Ijams, both of Baltimore, November 14.

Walter S. Bray, M.D., Camden, N. J., to Mrs. Ida J. Johnston of Philadelphia, November 6.

Harry J. McLaughlin, M.D., to Miss Leona Welsh, both of Glen Haven, Wis., November 12.

James Robert Davis, M.D., to Miss Belle Lankford, both of Marshall, Mo., November 14.

Theodore Friedman, M.D., Argenta, Ark., to Miss Isabel Teal of St. Louis, November 7.

Clarence Loeb, M.D., St. Louis, to Miss Hedwig Loeb of Chicago, November 28.

Guy T. Boyd, M.D., to Miss Ethel Bell, both of Fond du Lac, Wis., November 14

Deaths

Wellington Record, M.D. Bellevue Hospital Medical College, 1886; a member of the Massachusetts Medical Society; for six years a member of the school committee for the Wollaston district of Quincy; aged 60; died in the Quincy Hospital, November 11, from the results of injuries received by falling under the wheels of a train which he was attempting to board.

Clifton E. Gardner, M.D. University of Pennsylvania, Philadelphia, 1911; of South Swansea, Mass.; a member of the staff of the Post-Graduate Hospital, New York City; who disappeared July 24; died about September 16, near Lakeville, Mass., from the effects of a gunshot wound of the head, believed to have been self-inflicted with suicidal intent, aged 27.

Samuel M. Dunn, M.D. Rush Medical College, 1862; at one time a member of the faculty of Northwestern Medical College, St. Joseph, Mo.; for four years clerk of the circuit court of Decatur, Iowa, and for many years a practitioner of Nodaway County, Mo.; died at the home of his daughter, in Tarkio, Mo., November 10, from senile debility, aged 82.

Carleton Hunt Cammack, M.D. Tulane University, New Orleans, 1901; a member of the Louisiana State Medical Society; a specialist in disease of the eye, ear, nose and throat of New Orleans and a member of the staff of the Eye, Ear, Nose and Throat Hospital; died at his home, November 11, from malignant disease, aged 35.

Alexander Tinsley, M.D. New York University, New York City, 1858; surgeon in the Confederate service during the Civil War; formerly a member of the Medical and Chirurgical Faculty of Maryland; coroner of the City of Baltimore from 1880 to 1904; died at his home in Baltimore, November 16, from senile debility, aged 79.

Charles E. Wells, M.D. Bellevue Hospital Medical College, 1889; a member of the American Medical Association, for twenty-two years a practitioner of Sag Harbor, L. I., N. Y., and for several years postmaster and justice of the peace; died at his home, November 14, from cerebral hemorrhage, aged 60.

Joseph T. Miller, M.D. Rush Medical College, 1857; of Urbana, Ill.; surgeon of the Sixtieth Illinois Volunteer Infantry throughout the Civil War; for two years mayor of Urbana and postmaster for one term; died at the home of his son in Canton, Ohio, November 12, from senile debility, aged 82.

Jacob Hetrick, M.D. Fort Wayne (Ind.) College of Medicine, 1881; a member of the Indiana State Medical Association and secretary of the Fort Wayne Board of Pension Examining Surgeons; died at his home, November 19, from nephritis, aged 66.

John Thomas Barnes (license, Examining Board, Saratoga (N. Y.) Medical Society, 1872); acting assistant surgeon, U. S. Army during the Civil War; a practitioner since 1883; died at his home in Glens Falls, N. Y., about November 10, aged 75.

William Whiting Kitchen, M.D. University of Toronto, Ont., 1899; United States Consul at Santa Cruz de Teneriffe, Canary Islands; formerly of Buffalo; died in Teneriffe, October 16, from the effects of an accidental gunshot wound, aged 37.

Arthur B. Kinne, M.D. New York Homeopathic Medical College, 1877; president of the staff of the Syracuse Homeopathic Hospital; was found dead at his home, November 13, from the effects of an overdose of an opiate, aged 62.

Antoine Longpre, M.D. Victoria University, Coburg, Ont., 1877; for fifty years a practitioner of Papineauville, Que., and for many years mayor of the village; died at his home, September 15, from senile debility, aged 80.

Franklin Reiser Gerhard, M.D. University of Pennsylvania, Philadelphia, 1869; a practitioner of Douglassville, Pa., for forty-five years; died at the home of his son in Reading, Pa., November 14, from heart disease, aged 69.

Frederick G. Cretors, M.D. Chicago Homeopathic Medical College, 1901; of Paris, Ill.; a member of the Illinois State Medical Society; died in the Michael Reese Hospital, Chicago, October 18, from diabetes, aged 45.

James William Abercrombie, M.D. Western Reserve University, Cleveland, Ohio, 1887; a member of the American Medical Association; first mayor of Warwood, W. Va.; died at his home, November 7, aged 53.

Edward Hector Rouleau, M.D. Laval University, Quebec, 1872; for fifteen years Belgian consul at Calgary, Alberta; died at his home, September 30, aged 69.

William O. Beam, M.D. College of Physicians and Surgeons, Chicago, 1893; of Moline; was burned to death while endeavoring to save horses in a burning barn near Hillsdale, Ill., November 15, aged 43.

James Johnson Anderson, M.D. Queens University, Kingston, Ont., 1887; for several years superintendent of the Brandon (Man.) Hospital for the Insane; died at his home in Brandon, September 21, aged 49.

Robert Ferguson Chapman, M.D. University of Maryland, Baltimore, 1865; for forty years a practitioner of Harlem, New York City; died at his home, November 12, from pneumonia, aged 71.

James Bigham Gaston, M.D. Rush Medical College, 1888; a member of the Colorado State Medical Society; died in his office in Cripple Creek, November 16, from cerebral hemorrhage, aged 61.

George William Schaefer, M.D. Eclectic Medical College of the City of New York, 1905; professor of pharmacy in his alma mater; died at his home in New York City, November 11, aged 42.

William Abbyngton Walton, M.D. University of Mississippi, Oxford and Vicksburg, 1910; a member of the Mississippi State Medical Association; died at his home in Binnsville, in October, aged 25.

Erwin Gilman Inlay, M.D. Dartmouth Medical School, Hanover, N. H., 1879; formerly of Saratoga, N. Y., and Salix, Iowa; died at his home in Moville, Iowa, October 29, from uremia, aged 65.

Alden Henry Martin, M.D. Cleveland University of Medicine and Surgery, 1896; of Norwalk, Ohio; died suddenly in his automobile, near Sandusky, November 11, from heart disease, aged 44.

George Case Milner, M.D. Medical College of Georgia, Augusta, 1883, and since that time a practitioner of DeWitt County, Texas; died at his home in Westhoff, September 1, aged 55.

Willis Alexander Dorman, M.D. Missouri Medical College, 1880; for many years a practitioner of Lebanon, Ind.; died at his home in Indianapolis, November 10, from nephritis, aged 61.

John B. Rigney (license, years of practice, Illinois, 1878); for more than forty years a practitioner of Arthur; died September 24, from muscular spasm of the diaphragm, aged 72.

Edward Payson Small, M.D. Homeopathic Medical College of Pennsylvania, Philadelphia, 1866; died at his home in Philadelphia, November 16, from senile debility, aged 83.

Jacob J. Thomas, M.D. University of Louisville, Ky., 1893; of Atlanta, Ga.; formerly of Zanesville, Ohio; died in Dallas, Texas, November 7, from cirrhosis of the liver, aged 40.

Noe E. Coulombe, M.D. Ecole de Médecine et de Chirurgie, Quebec, 1880; aged 55, was asphyxiated in a fire which destroyed his house, in Namur, Que., November 17.

Ella Devlin, M.D. University of Texas, Galveston, 1900; of Galveston; died at the home of her sister in Comfort, Texas, from accidental poisoning, November 10, aged 42.

Hezekiah W. Fair, M.D. Hahnemann Medical College, Philadelphia, 1880; formerly of Seitzland, Pa.; died at his home in Baltimore, November 15, from nephritis, aged 63.

Henry J. Smith, M.D. Jefferson Medical College, 1865; was found dead in his room in Pueblo, Colo., November 10, from the effects of an overdose of morphin, aged 70.

John G. Collver, M.D. University of Buffalo, N. Y., 1854; for more than forty years a practitioner of Waterford, Ont.; died at his home, September 2, aged 85.

Samuel Houston Van Cleve, M.D. College of Physicians and Surgeons, New York City, 1880; died about November 19, at his home in Minneapolis, aged 58.

William Ross Bustard, M.D. Cleveland College of Physicians and Surgeons, 1901; died at his home in College Point, L. I., N. Y., November 17, aged 44.

Hiram Hopkins Baldwin, M.D. Northwestern University Medical School, Chicago, 1880; died at his home in Clare, Iowa, November 7, aged 63.

Chester H. Cass, M.D. University of Louisville, Ky., 1850; died at his home near Holton, Ind., October 4, from senile debility, aged 95.

Edgar David Ford, M.D. Eclectic Medical Institute, Cincinnati, 1896; died at his home in Trout Lake, Mich., November 14, aged 46.

Francis M. Corya (license, Ind., 1897); died at his home in Zenas, October 1.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

HEXAMETHYLENAMIN

The Experimental Evidence of Its Usefulness

The Journal has at various times presented the current conceptions of the antiseptic effects of hexamethylenamin, and of the conditions required to develop its efficiency. Since these conceptions are rather confused in certain respects, and since they appear to conflict with each other, and with the clinical opinions, at least on superficial examination, it seems advisable to give a somewhat more thorough presentation of the subject.

The following letter illustrates the uncertainty existing in the minds of many concerning hexamethylenamin:

> *To the Editor:*—Your reply to query regarding hexamethylenamin in the issue of Oct. 5, 1912, p. 1310, is very interesting to those of us who have been using this drug more and more frequently. You state in regard to the urine that the action of the drug depends on the liberation of formaldehyd in an acid medium. Will you discuss its further action? Is hexamethylenamin inert in parts of the system in which it has not an acid medium? We have been interested in learning that this drug has been demonstrated in the cerebrospinal fluid, in the middle ear, in the gall-bladder, etc., and the inference has been that it is of value in affections of these regions. Is this only another therapeutic fallacy of which we must disabuse our minds, or has the drug a value in these regions independent of the formation of formaldehyd?
>
> James A. Rolls, Santa Fé, N. Mex.

DEPENDENCE OF HEXAMETHYLENAMIN FOR ITS ANTISEPTIC EFFECT ON THE FORMATION OF FORMALDEHYD

There is good evidence that hexamethylenamin itself is practically devoid of antiseptic action. In the experiments of Jordan,[1] for instance, a 1 per cent. solution was quite ineffective; a 5 per cent. solution inhibited the growth of the staphylococcus, but this could be attributed to the liberation of formaldehyd.

The highest concentration of hexamethylenamin which can be reached in the tissues is even much less than 1 per cent. It is therefore evident that there must be some special condition favorable to formaldehyd liberation, if an antiseptic effect is to be obtained.

CONDITIONS IN THE LIBERATION OF FORMALDEHYD

Hexamethylenamin is formed by the combination of formaldehyd and ammonia. The reaction is to some extent reversible: that is, under suitable conditions, it breaks up again, more or less readily, into its components; thus:

$$\underset{\text{Ammonia}}{4NH_3} + \underset{\text{Formaldehyd}}{6HCHO} \rightleftarrows \underset{\text{Hexamethylenamin}}{N_4(CH_2)_6} + 6H_2O$$

The "reversed reaction" (the liberation of formaldehyd) occurs to a slight extent in watery and possibly even in alkaline solutions;[2] it is markedly accelerated by heat, and especially by acids. The presence of free ammonia would hinder the "reversed reaction" by combining with the freed formaldehyd. The favorable effect of acids is largely due to their binding the ammonia freed in the reaction. The quantity of liberated formaldehyd would of course increase with the concentration of the hexamethylenamin solution.

These facts, which cover the extent of our positive knowledge, have been made the basis of rather far-reaching conclusions. It has been argued, especially, that hexamethylenamin could become antiseptic only in acid mediums, and that therefore its therapeutic field would be restricted to normal urines. This argument goes beyond the evidence: it is certain that the liberation of formaldehyd will be proportional to the concentration of hexamethylenamin and that, other things being equal, it will increase with the acidity. As has been said, however, traces of formaldehyd are liberated in neutral and probably even in alkaline watery solutions; and it is quite conceivable that the reversed reaction is much greater under the special conditions of the tissues and secretions, perhaps by enzyme action. One is justified in demanding actual proof rather than insecure deductions. This proof may be chemical, bacteriologic or clinical.

The clinical proof in this case is of relatively small value, because the clinical evidence of slight antiseptic action is obviously exposed to fallacies. In fact, the clinical data could be quoted either for or against the efficiency of hexamethylenamin in certain situations.

CHEMICAL EVIDENCE FOR THE LIBERATION OF FORMALDEHYD UNDER THERAPEUTIC CONDITIONS

The quantitative estimation of the liberated formaldehyd in the secretions, etc., would naturally be the most convincing proof of the presence of effective amounts. Unfortunately, there is no exact quantitative method for determining free formaldehyd in the presence of hexamethylenamin. Even the qualitative tests used by many investigators (for instance, the test of Crowe) do not distinguish between the two substances, and therefore only prove the presence of hexamethylenamin.

The qualitative distinction can be made by the phloroglucin-sodium hydroxid test (Joerissen) and by the less satisfactory phenylhydrazin-nitroprussid-sodium hydroxid test (Arnold-Mentzel, as modified by Burnam[3]). These tests have been applied to urine often enough to prove that the administration of hexamethylenamin generally leads to the appearance of free formaldehyd in acid urines. Burnam believes that its concentration may reach 1:5,000, or even more.

As to an alkaline urine and the other secretions, the chemical data are too scanty and too contradictory to deserve much attention. This subject is greatly in need of further investigation.

DISTRIBUTION OF HEXAMETHYLENAMIN IN THE BODY

Hexamethylenamin is rapidly absorbed, distributed throughout the tissues and secretions, and excreted, for the most part unchanged, in the urine. It reaches its maximum in all of these within from one to three hours, and has practically disappeared within from four to eight hours. This incidentally shows that, to maintain the effect, the administration must be repeated at least every four hours.

During its sojourn, it is present in all the tissues and secretions—at least it has been found in all which have been tested for its presence. This need not mean, however, that it is present in effective concentration. Since it is excreted mainly by the urine, its concentration in this fluid can be calculated approximately from the ratio of the dose of the drug and the volume of the urine.[4] The concentration in other secretions, etc., cannot be deduced, but must be determined directly. Here the positive data are again very sparse. Burnam[3] concludes that it is less than 1: 150,000 in the bile, sputum, saliva and cerebrospinal fluid. His statements, however, need confirmation.

The method used by Burnam is not very accurate, and his data are scanty when one considers that the formaldehyd liberation probably varies in different individuals. Of cerebrospinal fluids, for instance, he records but a single case, and this without any statement as to the time elapsing between the last dose and the spinal puncture. It seems scarcely justifiable to make this the basis for conclusions which may have very far-reaching practical consequences.

On the other hand, the apparently much more reliable figures of Hald[5] show that the concentration in the cerebrospinal fluid is generally between 1: 20,000 and 1: 40,000, even after a single dose of 1 gm. This would at least bring it near the lower limit of antiseptic effect, provided that a considerable part is present as formaldehyd; for according to Mosso and

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[1] Jordan, A.: Biochem. Jour., 1911, v, 274.

[2] Sollmann, T.: The Journal A. M. A., Sept. 5, 1908, p. 818.

[3] Burnam, C. F.: Arch. Int. Med., October, 1912, p. 324.

[4] The dependence of the concentration on the quantity of the urine is too often overlooked. It is probably as important as the dosage; 2 gm. per day, with the excretion of 2 liters of urine, has probably no more effect than 1 gm. when the urine excretion is 1 liter. Other secretions are not so much affected by the income of fluid, and for them the matter is of less importance.

[5] Hald, P. F.: Arch. f. exper. Path. u. Pharmakol., 191[illegible] lxiv, 329.

Paleotti,[6] formaldehyd is distinctly antiseptic in the concentration of 1 : 50,000.

We may therefore conclude that the chemical data are still too scanty to throw much light on the antiseptic action of hexamethylenamin in the tissues and secretions, but that they therefore do not preclude the possibility of this effect. Unsatisfactory as this conclusion is—and it is to be hoped that deficiencies will soon be removed—at least it leaves the way open for the bacteriologic evidence.

BACTERIOLOGIC PROOF OF THE EFFICIENCY OF HEXAMETHYLENAMIN

Bacteriologic evidence of the existence or concentration of a chemical substance cannot compare with satisfactory chemical proof; but in the absence of the latter, it deserves considerable confidence. Indeed, the bacteriologic information is perhaps more directly applicable to clinical problems. In the case of hexamethylenamin, the bacteriologic data are much more concordant and definite than are the chemical.

In the urine, Jordan[1] found complete agreement with the chemical data: giving 30 grains of the drug per day, he found putrefaction to be retarded slightly if the reaction was neutral or alkaline; very markedly retarded or completely prevented if the reaction was acid.

In the bile, Crowe[7] found a marked bactericidal effect with a daily dosage of 5 gm. (75 grains).

In the cerebrospinal fluid Crowe[8] found that the same dosage had a marked inhibitory effect on cultures.

The results of Crowe have been generally accepted, and deserve to be accepted until they are contradicted by equally convincing bacteriologic or chemical evidence. Burnam alone seems to doubt their validity; but he fails to record any bacteriologic experiments. His refutation appears to be based entirely on his chemical data, which we have already discussed. That hexamethylenamin may split off effective quantities of formaldehyd even in an alkaline medium is shown in the experiments of Sollmann,[2] in which it prevented the putrefaction of a pancreatic maceration in 1 per cent. sodium carbonate. It is possible that this is due to the binding of the alkali by the proteins.[9]

EXPERIMENTAL THERAPY

This is also in favor of hexamethylenamin. Flexner and Clark[10] showed that it has a positive, if limited, prophylactic value in experimental poliomyelitis; and a similar result is reported by Crowe for subdural injections of streptococcus cultures.

CONCLUSIONS

From the preceding considerations, the following conclusions represent the actual state of our knowledge:

1. The antiseptic action of hexamethylenamin seems to be due solely to the liberation of formaldehyd.

2. This is proportional to the concentration of the drug, and therefore to the dose; and in the urine at least, inversely proportional to the quantity of urine.

3. The liberation is most active in acid urines; but it may occur to a limited extent even if the reaction is alkaline; not, however, in the presence of free ammonia.

4. Hexamethylenamin, after its administration, is present in all the tissues and secretions. The chemical data as to its concentration, and as to the liberation of formaldehyd, are too scanty to be of much service; on the other hand, they do not justify the rejection of bacteriologic or clinical data.

5. The bacteriologic results show that the administration of hexamethylenamin prevents the putrefaction of acid urines; that it has a much smaller effect on alkaline urines, and that it confers a marked bactericidal effect on bile, and a distinct, but limited antiseptic effect on cerebrospinal fluid.

PEEKE'S EPILEPSY CURE

W. H. Peeke, 4 Cedar Street, New York, advertises and sells a "cure for fits." Peeke styles himself "Professor" and has the letters "F.D."—whatever they may mean—after his name. Those who answer Peeke's advertisements are sent a free bottle of his "infallible remedy" and a thirty-two-page pamphlet purporting to discuss epilepsy and its treatment. Like all quacks, Peeke is particularly bitter against his competitors and especially against those who, he asserts, have copied his booklet. Says Peeke: "None of these rascally quacks possess intelligence sufficient to correctly compose ten words of a medical treatise." According to Peeke, the cause of epilepsy is "disharmony of the action of the double nervous system." A full-size bottle of the cure is sold for three dollars. Peeke claims that his remedy is "absolutely harmless" and that "the tender babe, the delicate woman, the sturdy vigorous man can alike take it."

A cursory examination of the nostrum was made in the Association's laboratory. The chemists report:

> "The specimen was a brown solution having a salt-like, bitter taste and an alkaline reaction. Alcohol, alkaloids and iodids were absent. Quantitative tests indicated the presence of bromin and ammonia equivalent to about 13.7 gm. of sodium bromid and about 4.1 gm. of ammonium bromid in each 100 c.c. of the preparation. The residue on drying amounted to about 18.4 gm. in each 100 c.c. Small amounts of an alkali, probably sodium carbonate and of a bitter substance, probably gentian, were present."

The analysis shows that Peeke's Remedy, like practically every other fraudulent "cure for fits," depends for its action on bromids. Peeke's fraud does not even have the saving grace of novelty. Even the lies he tells are old. The labels he sends out on his stuff contain the following statements:

> "A perfectly safe remedy."
> "Contains nothing whatever that will be injurious to either body or mind."
> "It can be used with perfect safety by the youngest or oldest sufferer."

A preparation of the bromids is not a "perfectly safe remedy" in the hands of uninstructed laymen, neither in such hands can the preparation "be used with perfect safety;" nor is it true that it "contains nothing whatever that will be injurious to either body or mind." It would seem that the federal authorities have three counts on which to declare this fraud misbranded under the Food and Drugs Act.

Correspondence

Diagnostic Misinformation at a Health Resort

To the Editor:—Many and curious are the tales that are brought back to us by patients from their visits to *Kurorte.* Even if the tendency of the laity to distort medical information be discounted, there must be a grain of truth in their version of the diagnostic misinformation occasionally meted out to them, armed with which they seek out the family physician and challenge him for his failure to make similar composite diagnoses.

There are capable *Kurärzte*, of course, although it will be evident at a glance that the particular one in mind is not of this class.

Concerning the experience that gives occasion to these remarks, let me explain: A woman living in the central part of this state visited one of the well-known and most widely advertised *Kurorte* in this country. She did not consider herself ill, but wished to indulge in baths and general treatment in lieu of spending a vacation period at a fashionable summer resort. She consulted the physician in charge and submitted to him, for examination, a single specimen of urine taken from an unmeasured twenty-four-hour excretion. The result of the analysis is shown.

Can anything be more ludicrous or—must it be confessed—more absolutely stupid? Please note the composite character

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[6] Quoted from Jordan (see Note 1).

[7] Crowe, S. J.: Arch. internat. pharmacodyn. et thérap., 1908, xviii, 315.

[8] Crowe, S. J.: Bull. Johns Hopkins Hosp., 1909, xx, 102.

[9] This suggests that the administration of alkali (sodium acetate or citrate) would not interfere with the systemic action of hexamethylenamin, while it would tend to prevent the urinary irritation. Alkalies would of course be inadmissible if urinary antisepsis is desired.

[10] Flexner and Clark: The Journal A. M. A., Feb. 25, 1911, p. 585.

COPY OF URINALYSIS REPORT, WITHOUT SIGNATURES

CHEMICAL	MICROSCOPIC
Color...... *Straw*	Crystals.. *Negative* ....
Odor.... *Ammoniacal*	Amorphous deposits, *Urea* .....
Sp. Gravity.. *1020*	Urates, *Sod. & Pot. urates*.....
Reaction. *Highly acid*	Leukocytes.. *Many* ....
Appearance. *Cloudy*	Blood....... *No* ....
Quantity of A. M. Urine, ℥*viii*..	Epithelial Cells, *Many*.........
Total Solids.. *4*	Casts..... *Negative* ....
Urea........ *1.8* .....Per cent	Remarks, *Acute nephritis*
Albumin . *Positive* .Heat Test	*Scant elimination*
Albumin . " Nitric Acid Test	*Phosphaturia*
Sugar..... *Negative* ...Per cent	....
Phosphates, *Large amount*	....
Bile...... *Negative*	....
Indican... *Negative*	....
Other Constituents	....
Brick-dust sediment	....
Analyst ....M. D.	Examiner ....M. D.

Please Take this Report to the Doctor's Office for Explanation.

of this urine: it was ammoniacal, highly acid, contained a large amount of phosphates, brick-dust sediment, no crystals and sodium and potassium urates!

The foregoing examination was made by the "analyst," who passed it along to the examiner for "remarks." These "remarks" are based on the urinalysis and are the comments of the physician-in-chief of the institution. "Acute nephritis, phosphaturia, scant elimination." As a matter of fact, this analysis does not contain a grain of evidence that any one of those three conditions existed. Just what it does mean I leave to some cleverer translator of urinary findings than I.

This patient was referred to me by her own physician, and my examination corroborated his in the positive exclusion of any existing abnormality, save the merest and occasional trace of albumin without further signs or symptoms of ill health.

What comment need be made on the facts presented here? The ignorance shown by both the "analyst" and the physician in charge is deplorable in the extreme. And when one considers the effect on the patient of such gross misinformation as to facts (in this particular instance charging a healthy person with suffering from an acute nephritis), the danger of permitting men of this caliber to assume positions of such responsibility is indeed apparent.

ARTHUR J. PATEK, M.D., Milwaukee, Wis.

Glucose in Mince-Meat

To the Editor:—In a recent number of *Good Housekeeping* Dr. Wiley discusses the subject of mince-meat. One of the ingredients which Dr. Wiley would allow in mince-meat is "sugar," by which he means cane-sugar. An ingredient he would prohibit is glucose, or grape-sugar. Concerning the latter he makes the following statement: "It is not a condiment; not a sweetener. It needs to be sweetened itself. No one can justly claim for it a higher nutritive property than an equal amount of sugar; many think it to be quite inferior."

What are the known and established facts? They are these: 1. Glucose is a sweet-tasting sugar, but is not so sweet as cane-sugar. 2. Glucose is produced as the end-product of starch digestion in the gastro-intestinal canal (dextrins being intermediary products) and as such is absorbed in large quantity into the blood and oxidized in the body. 3. In the stomach and the intestine cane-sugar is broken up into an equal mixture of glucose and levulose, both of which are absorbed by the blood; levulose, however, is largely converted by the liver into glucose so that the total effect of giving cane-sugar is nearly the same as though glucose itself had been administered. 4. Glucose is the normal sugar of the blood, being produced from protein when it is destroyed in the organism, so that even in fasting the blood contains the normal content of 0.1 per cent. of glucose. 5. Starch is converted into glucose through water addition; in consequence, the heat-producing power of 1 gm. of glucose is somewhat less than 1 gm. of starch. Cane-sugar is, in like manner, converted into levulose and dextrose through water addition, and therefore the heat-producing power of 1 gm. of cane-sugar is about 5 per cent. greater than of 1 gm. of its products. This is apparent from the following equation:

Cane-sugar + water = glucose + levulose
1 molecule + 1 molecule = 1 molecule + 1 molecule
1.9 gm. + 0.1 gm. = 1 gm. + 1 gm.
7,518 calories + 0.0 calories = 3,739 calories + 3,729 calories

It is evident that 1.9 gm. of cane-sugar containing 7,518 calories unite with 0.1 gm. of water, forming 2 gm. of equal parts of glucose and levulose containing 7,468 calories. The loss of 50 calories involved in the reaction amounts to 0.7 per cent. of the calories contained in the original cane-sugar. 6. Experiments have shown that the value of glucose and cane-sugar in nutrition is essentially the same. These perfectly well-known facts can be readily verified by any one.

Dr. Wiley further inveighs against the use of commercial glucose because it is cheap. This, being a question of political economy, is outside my sphere of knowledge.

GRAHAM LUSK, New York.

COMMENT.—Dr. Wiley's *Good Housekeeping* article deals with the attempt on the part of the officials that have to enforce the federal and state "Pure Food Laws" to establish a standard for mince-meat. Dr. Wiley stated that, after reviewing the matter with some care, these officials reached the decision that commercial glucose was not a normal ingredient of mince-meat. This being so, the presence of glucose in mince-meat would have to be declared on the label. The question was not one of the wholesomeness, or otherwise, of glucose; it was the broader one of whether or not the public should be inveigled into buying a cheap filler (glucose) at mince-meat prices. Commercial glucose is not a condiment and can hardly, in the ordinary sense of the word, be called a sweetener. In fact, it is so insipid that cane or some other real syrup has to be added to it to make it palatable. It certainly has no higher nutritive value than the same amount of sugar. It thus appears that each of Dr. Wiley's statements is justified from a scientific standpoint and, beyond all question, his attitude toward the use of commercial glucose in foodstuffs is one that is in the public interest.—ED.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TEMPERATURE VARIATIONS IN TUBERCULOSIS; PREPARATION OF SALVARSAN; RHEUMATISM PHYLACOGEN

To the Editor:—1. What is your explanation of the presence of a subnormal temperature in one subject and a temperature above normal in another, under the same conditions of rest, in cases of phthisis pulmonalis that appear equally advanced?

2. What is the usual duration of such temperature in these cases, under favorable conditions, when the body-weight continues to increase?

3. Please give latest technic in preparing salvarsan for subcutaneous or intramuscular injection. Is it possible to obtain a clear solution?

4. What is the virtue of "Rheumatism Phylacogen"?

L. D. V.

ANSWER.—1. The temperature in tuberculosis is markedly increased by a number of conditions. It is the index of an auto-inoculation in a sensitive patient. If there is little or no resisting power, the introduction of the tuberculous toxins into the circulation may produce no rise of temperature, but rather a fall, due to the depressing toxic influence. If, on the other hand, the patient is sensitive to the toxin of tuberculosis, any circumstance which tends to increase the amount of these toxins in the general circulation will cause a rise of temperature. Thus most tuberculous patients show an increase of temperature after exercise, because the exercise causes an auto-inoculation by forcing some of the toxins from the tuberculous focus into the circulation. The temperature may also be influenced by the activity of the disease in the local focus. Thus one patient may have a lesion which is in a state of activity that will produce a rise of temperature, while another may have a lesion of the same character, but not active, in which the temperature may be even subnormal. In other cases the rise of temperature is presumably due to a mixed infection by other organisms cooperating with the tubercle bacillus to produce the rise of temperature.

2. Since the causes of the temperature are so various it would be impracticable to state the duration, which depends largely on the treatment and the course of the disease.

3. Our correspondent is referred to the Syphilis Number of The Journal, Oct. 5, 1912, which contains much information about salvarsan, and which, in the Queries and Minor Notes Department, contains references to other articles in previous issues, out of some of which he can doubtless find an answer to his questions.

4. Rheumatism Phylacogen was discussed in this department Aug. 10, 1912, p. 464.

IODEX AND IODIN PETROGEN

To the Editor:—Please give the composition and therapeutic value of iodex and iodin petrogen.

W. J. Merrill, M.D., Philadelphia.

Answer.—These preparations have not been submitted to the Council on Pharmacy and Chemistry, which is in itself an indication that the claims made for them would probably not be verified. The claim is made that they will not stain the skin after they are applied locally. As a rule such preparations do not contain free iodin Usually the base is of such character that if iodin is added to it a chemical combination occurs so that iodin is no longer free.

Iodex is said to be an ointment of iodin, containing 5 per cent. of therapeutically free iodin. What the significance of this term "therapeutically free" is we cannot tell. Until further evidence is offered we feel safe in stating that the preparation probably does not contain any considerable amount of free iodin.

Iodin petrogen is claimed to be a solution of iodin in petrogen —a proprietary preparation essentially equivalent to liquid petrox. Two varieties are offered: iodin petrogen 5 per cent., and iodin petrogen 10 per cent. From the nature of petrogen, which contains ammonium soap, it is probable that the greater part of the iodin enters into chemical combination.

TREATMENT OF WINTER PRURITUS

To the Editor:—I have a patient who is subject to an intolerable itching over the entire body, most intense about the waist-line, which occurs only in cold weather, and principally after taking a bath. There is no evidence of eruption, nor is there any skin affection. Her general health is good. This has been troubling her for a good many years, but of late it has been growing worse. I have tried many remedies, but as yet have found nothing of especial benefit. It appears to be an irritation of the peripheral nerve-endings, but what is the causative influence?

B., Lima, Ohio.

Answer.—Evidently the case is one of so-called winter pruritus. It is essentially a hyperesthesia or hypersensibility of the skin, and the itching is due in part to the dryness of the skin, which increases its vulnerability, and in part to the irritation produced by cold. In its slight form winter pruritus is exceedingly common. The severer cases in which the irritation amounts to an affliction are rare. The itching is excited not only by cold, but by bathing, the wearing of rough underclothing and similar irritants.

The treatment, in large part, consists in avoiding as far as possible all sources of local irritation. The underclothing should be as smooth and non-irritating as possible; light cotton underwear or, better, light linen or silk should be worn next to the skin. Bathing with soap and water ought not be indulged in beyond the point of necessity. The bath may be made less irritating by the addition of bran, starch or marshmallow. The bath should be taken in as short a time as possible and the body dried by dabbing the surface, not by rubbing. Then the body should be powdered with talcum, starch or some other inert powder. If the patient dresses quickly and does not go to bed for an hour or so the itching is less than if he gets immediately into bed after the bath. In many cases the greatest comfort is obtained from anointing the body after the bath with a preparation such as olive oil, liquid petrolatum or a well-made rose ointment. Sometimes these applications are made more soothing by the addition of an antipruritic drug, usually phenol, menthol or camphor. A good application of this sort is made from olive oil or rose ointment containing from 0.5 to 1 per cent. of phenol, menthol or camphor-menthol, or from 2 to 4 per cent. of thymol or camphor-chloral. A good liniment for use in some of the cases is phenol, ½ to 1 dram, zinc oxid and calamine, each 1 ounce, olive oil, 8 fluidounces and enough lime water to make 1 pint. It requires trial to determine which applications are most comfortable. Internal remedies are of no use.

USE OF TUBERCULIN

To the Editor:—As the authorities, judging from the literature, think differently in regard to the following questions, please give me the answers according to general professional usage:

1. Should tuberculin be given when fever is present?

2. Should it be given after the patient has been in bed for quite a while, say two months, and the fever still persists?

3. As a routine, which tuberculin is best as a therapeutic measure in pulmonary tuberculosis?

4. What is the interval (consensus of opinion) between injections when there is no reaction?

5. With the minimum dose a reaction is manifested. Is it a contra-indication for its further employment?

W. H. Smith, M.D., Goldsboro, N. C.

Answer.—1. As a rule, tuberculin should not be given in the presence of fever, as the fever is an indication of a toxemia due to the existence of the tuberculous toxin (tuberculin) in the blood.

2. In such a case the physician must exercise his own judgment, but if he believes that the fever is due to an active tuberculous process the use of tuberculin would be contraindicated.

3. Some form of the old tuberculin (Koch's) is generally to be preferred. The new tuberculin may be used, due precautions being taken as to dosage.

4. The injections are usually repeated at intervals of about a week or ten days.

5. Reactions should be avoided in the use of tuberculin. In such a case the use of tuberculin should be suspended, or, at any rate, a smaller dose which will not provoke a reaction should be used.

PROPHYLACTIC TREATMENT OF ECLAMPSIA

To the Editor:—Please tell me in what number of The Journal I can find the extract from W. Stroganoff's paper on the "Prophylactic Treatment of Eclampsia." I remember reading the article at the time it appeared and am anxious to see it again. Also refer me to any other article by Professor Stroganoff on this subject.

Adam P. Leighton, Jr., M.D., Portland, Me.

Answer.—Stroganoff's technic was described in The Journal, July 3, 1909, p. 86, and abstracts in reference to it have been published recently.

Stroganoff, W.: Prophylactic Method of Treating Eclampsia, *Ztschr. f. Geburtsh. u. Gynäk.*, 1912, lxx, No. 1; abstr. in The Journal, May 18, 1912, p. 1555; *Ann. de gynéc. et d'obst.*, 1912, xxxix, 396; *Zentralbl. f. Gynäk.*, 1912, xxxvi, 800.

Voigts: Stroganoff's Prophylactic Method of Treating Eclampsia, *Berl. klin. Wchnschr.*, 1912, xlix, 1771.

Steiger, M.: *Cor.-Bl. f. schweiz. Aerzte*, 1912, xlii, 617; abstr. in The Journal, July 20, 1912, p. 232.

Zoeppritz, B.. Prophylactic Treatment of Eclampsia, *München. med. Wchnschr.*, 1912, lix, 409, 1798.

ARTICLES ON VENTILATION

To the Editor:—Please give me titles of articles on humidity and the effect of tropical sun and heat and confinement with and without circulating air, etc. Also carbon dioxid accumulation in connection with the circulation of confined air.

Edmund P. Fowler, New York.

Answer.—We have published in The Journal two editorials on the subject of ventilation. One of them appeared Sept. 16, 1911, p. 980, the other, March 9, 1912, p. 702. There was also published in The Journal an article by H. Sewall: On What Do the Hygienic Virtues of the Open Air Depend? Jan. 20, 1912, p. 174. Other articles on the subject appear in the following periodicals:

Paul: *Ztschr. f. Hyg.*, 1905, xlix, 405.

Crowder, T. R.: *Arch. Int. Med.*, January, 1911, p. 85.

Billings, Mitchell and Bergey: The Composition of Expired Air and Its Effect on Animal Life, Smithsonian Institution Publications, 1895.

Rosenau and Amos: Organic Matter in the Expired Breath, *Jour. Med. Research*, 1911, xxv, 35.

Weichard: *Arch. f. Hyg.*, 1911, lxxiv, 185.

Inaba: *Ztschr. f. Hyg.*, 1911, lxviii, 1.

THE ULTRAMICROSCOPE

To the Editor:—Please give me what information you can in regard to the ultramicroscope. It has been mentioned editorially in The Journal recently. W. B.

Answer.—The ultramicroscope was invented by Dr. H. Siedentopf and is manufactured by Carl Zeiss. It renders visible particles which are beyond the limits of vision with the ordinary microscope, even with the highest powers, and are hence described as ultramicroscopic. The effect is obtained by arranging the condenser at right angles to the optical axis of the microscope, so that its concentrated light enters the slide containing or forming the object laterally—through the edge. The light diffused by small particles is the only light that reaches the eye, and the latter will therefore be sensitive to its utmost limit.

It is further necessary to limit the illumination to particles within the depth of focus, as otherwise the light scattered by *particles not in focus would form a luminous background.* This object is attained by focusing the source of light, generally the electric arc, on an adjustable spectroscope-slit, then focusing the slit in the object.

In this way particles of gold having sides equal to from 1/6 to 5/1,000,000 inch are made visible. By its means minute particles of other origin, such for instance as the flagella of certain bacteria, can also be demonstrated. Other devices for dark-ground illumination are employed, and these are sometimes considered as synonymous with the ultramicroscope. This, however, is not correct, although they afford in some cases a useful substitute for it.

ARTICLES ON TOBACCO

To the Editor:—If within the last six years any articles on tobacco have appeared in The Journal, please tell me in what issues I can find them. A. G. Sinclair, Memphis, Tenn.

Answer.—The article "Tobacco" in the department of Therapeutics of The Journal, May 8, 1909, p. 1495, is a rather full statement on the subject. In addition the following editorials have appeared:

The Pharmacology of Tobacco Smoke, The Journal, Jan. 30, 1909, p. 386.
The Use of Tobacco, The Journal, July 2, 1910, p. 32.
The Effects of Tobacco on Body and Mind, The Journal, Oct. 1, 1910, p. 1206.
Some New Evidence on the Tobacco Question, The Journal, Nov. 16, 1912, p. 1798.

The last-named editorial contains two references to articles which appeared in the London *Lancet* (April 6, 1912, p. 944, and Aug. 24, 1912, p. 547). These report experiments in the *Lancet's* laboratory. New methods of research were employed, and the whole question of tobacco shown in a new light.

LITERATURE ON HORMONES AND HORMONAL

To the Editor:—Kindly give me Journal references to hormones, especially with regard to hormonal, for and against; also "secretin gastrin." H. Kingsley Hine, M.D., Waterbury, Conn.

Answer.—The subject of hormones was discussed in this department, Oct. 19, 1912, p. 1474, while hormonal was discussed Aug. 10, 1912, p. 465, where a considerable bibliography is given. In addition, we find another article:

Jurasz, A. T.: Death After Intravenous Injection of Hormonal, *Deutsch. med. Wchnschr.*, May 30, 1912; abstr. in The Journal, July 6, 1912, p. 75.

With reference to gastric secretin, we find only two recent articles:

Wentworth, A. H.: The Cause of Infantile Atrophy, The Journal, July 20, 1907, p. 204.
Meltzer, S. J.: Animal Experimentation in Relation to Our Knowledge of Secretions, Especially Internal Secretions, The Journal, May 7, 1910, p. 1507.

EFFECT OF MAGNESIUM SULPHATE

To the Editor:—In an article entitled "The Treatment of Eclampsia," in a recent journal, a well-known obstetrician makes the following statement: "The stomach should be washed out and from one to two ounces of a saturated solution of Epsom salt left in the stomach, to be repeated at intervals when the patient can swallow."

In the light of our present knowledge of Epsom salt poisoning (through the work of Boos), may not such treatment prove dangerous? Inquirer, Boston.

Answer.—The treatment advised is certainly heroic and it is possible that in some cases poisoning might result. Usually, however, a dose of one ounce of magnesium sulphate would merely secure a very loose evacuation with the removal of considerable water from the tissues. Such a saturated solution placed in the stomach would not be likely to be absorbed, but would excite a marked secretion of water into the stomach. If the solution was passed into the intestine the chances for absorption would be greater. We believe it would be better to limit the dose to one ounce of the salt, which would be contained in about an equal quantity of the saturated solution.

"TIZ" AND "MUM"

To the Editor:—Can you give me any information relative to the composition of the following preparations: Mum, advertised as a perspiration deodorizer, and Tiz, a sore-foot remedy?
Rodman E. Sheen, M.D., Atlantic City, N. J.

Answer.—In the *Pharmaceutische Zeitung*, Oct. 26, 1907, p. 904, an analysis is given of the salve known as "Mum," used as a deodorant. It was reported to contain salicylic acid, zinc oxid, glycerin, water, a tallow-like fat and traces of essential oils. The quantities of these ingredients were not given.

"Tiz" was analyzed by the Association's chemists and the results reported in The Journal, Dec. 2, 1911, p. 1853. It was found to have essentially the following composition:

Alum	60 per cent.
Tannic acid	10 per cent.
Salicylic acid	5 per cent.
Talcum	5 per cent.
Starch	20 per cent.

FREQUENCY OF DOSAGE OF DIGITALIS

To the Editor:—In the discussion on the action of digitalis in The Journal, Oct. 26, 1912, page 1565, it is recommended to give the drug every two or three hours. Kindly reconcile this with the statement often made that digitalis does not begin to produce its effects for twenty-four hours, and hence that one dose a day is all that should be given. T. R. Y.

Answer.—So far as we know, it is not commonly recommended to give digitalis only once a day. The frequency of its administration should depend on the rapidity with which it is necessary to secure the maximum effect on the heart. In acute cases it may be necessary to give it once in two or three hours, but as a usual treatment the administration of the remedy three times a day is sufficient. Accumulative effects appear to be due to the slow elimination of the drug, so that after the physiologic action of the remedy is apparent, doses should not be repeated any more frequently than the drug can be eliminated from the system.

LITERATURE ON ENTERTAINMENT FOR THE INSANE

To the Editor:—I have been asked by our local society to deliver a paper on insanity, and I have decided to write on the value of entertainment for the insane. Please refer me to articles on the subject. W. H. S., ————, Ohio.

Answer.—The following may be referred to:

Zeller, G. A.: More Work and Recreation for the Chronic Insane, *Kansas City Med. Index-Lancet*, October, 1910.
Cohn, E.: Systematic Occupation and Entertainment of the Insane in Public Institutions, The Journal, April 18, 1908, p. 1249.
Barrus, Clara: Nursing the Insane, Macmillan Co., New York, 1908. (This book has a chapter on the occupation and amusement of patients.)

Dr. William L. Russell of the National Committee on Mental Hygiene, 50 Union Square, New York, would probably be able to give further information on this subject.

NORMAL BLOOD-SERUM IN HEMOPHILIA

To the Editor:—Please give me a list of recent articles on the use of normal blood-serum in the treatment of hemophilia and hemophilia neonatorum. C. E. Spicer, Litchville, N. Dak.

Answer.—In The Journal, Oct. 26, 1912, are published a number of articles and a Current Comment on the subject. The use of normal horse-serum is discussed on page 22 of New and Nonofficial Remedies, 1912.

THE RUSSO REACTION IN TYPHOID

To the Editor:—Please give me the formula for Russo's typhoid fever test and state its efficiency.
J. Turner Googe, M.D., Booneville, Miss.

Answer.—The method of Russo's reaction in typhoid, its time of appearance, relative value and the necessary reagents were given in The Journal, Aug. 10, 1912, p. 465, in answer to a similar query.

Medical Economics

This Department Embodies the Subjects of Postgraduate Work, Contract Practice, Legislation, Medical Defense, and Other Medicolegal and Economic Questions of Interest to Physicians

SOCIALIZING THE BRITISH MEDICAL PROFESSION

In last week's issue the general effects of the new Insurance Act of Great Britain were discussed, with special reference to the possibility of such a plan being considered in this country.[1] In one important particular the British situation differs materially from that in this country: there have existed in Great Britain for many years, medical clubs, insurance organizations, and the so-called "friendly societies," which have made a business of furnishing medical attendance to members in return for a low annual fee. As the total membership of these organizations is estimated at about 6,000,000, and as most of these would come under the operation of the Insurance Act, it is evident that the attitude of the clubs and "friendly societies" constitutes an important factor in the situation in England. In an article in a recent number of the *Medical Press and Circular*, of London, Mr. Harold B. Grimsdale, ophthalmologic surgeon of St. George's Hospital, discussed the conditions which led to the passage of this law. After commenting on the advance in modern scientific methods and the vastly increased cost of a modern education, Mr. Grimsdale took up the discussion of the Insurance Act. He said:

> "It has been a strange spectacle which has been presented to the world during the months that have passed since the passage of the Insurance Act—a spectacle without parallel in the history of medicine. We have seen the united profession—united more completely than ever before—standing firm together in their resistance to an act which professes to carry out the work which is specially the province of the profession, namely, to provide benefits which it is the boast of our profession to give freely to all, very often without thought of reward, seldom with an adequate one. It is indeed a strange spectacle, and the profession must have been sorely tried before they rose, almost unanimously, in protest against such an act.
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> "We are told almost daily by one section of the press that we are employing the worst methods of trades unions, that we have adopted all the vices of syndicalism, and none of the virtues, if it has any; that we have forfeited the right to the name of a generous profession. Now, however much some of us may regret the conduct of this dispute between the government and the profession, however much small incidents may distress us and rankle in our minds, there can be no doubt that, on the main questions, the medical profession come out with clean hands. We are certainly not on strike, for what is a strike? When the coal-miners struck, coal went up to such price that the poor were unable to buy it at all and the rich were forced to economize. When the taxi drivers came out, taxis could hardly be procured. But there is no evidence that any medical man has refused to treat any sick person.
>
> "What is it, then, that has united the profession as it has never been united before? Why are all medical men throughout the country breaking away from all their natural instincts, unwilling to take service under the act? To explain this it is necessary to go into a piece of somewhat ancient history. We must examine the origin of clubs and voluntary hospitals, and so discover the reasons why the terms of the act are so little to our taste.
>
> "It is, in a sense, our own fault that our services are regarded as of so little value. It goes back to the commencement of medical charities. All clubs had their inception, in so far as the medical benefits were concerned, in the charitable work of medical men. When, about the beginning of the last century, or earlier, the difficulty of the medical treatment of the thrifty poor was recognized, a species of insurance was started so that the cost of an illness might not cripple any one individual, being spread over many. Medical men, altruists by training, were willing to give their services to these clubs for little or nothing. It was recognized that the work was a form of charity, and it was not pretended that the fees received by the medical men were in any degree adequate reward for the services rendered, but were to prevent them from being largely out of pocket by their kindness. Many such clubs in the country have been run by my personal friends, who were out of pocket at the end of each year, but were content to continue their charitable actions, knowing how great was the value of their services to the poor.
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> "Another form of contract practice is not uncommon in some parts of the country, especially in the colliery districts. Here the medical officer is the servant of the colliery, and the manager deducts an amount varying with the weekly wage from the pay of each collier.
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> "Thus a roughly equitable scale is worked; a man earning £1 a week or less pays 1d., and for each £1 or fraction of £1 he pays another 1d. In this way the collier whose total earnings average £156 (£3 a week), will pay 13s. a year for his doctor. This sliding scale is in accordance with the usual medical practice to charge according to the capacity of the patient. When the large friendly societies began to cater for the same medical benefits, they were able to point to the small honoraria accepted by the medical officers of these clubs, to induce men to undertake their seemingly similar duties for the same insufficient payment.
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> "The astute business men who were in charge of the clubs pointed out to the young practitioner how valuable was the advertisement and introduction which followed his acceptance of the club terms, and were usually able to persuade him to come to an agreement. The terms were absurdly low; some clubs even made money out of their medical attendants, that is, they levied a certain sum, say 1d. a week, from each member, and paid the medical man 3s. or 3s. 6d. a year, saving the balances for other uses of the club. If no local medical man were willing to take the work, they were often able to import an outsider who would take the post; and the mere hint of such a proposition would weigh heavily with a struggling man who would be called on to face new opposition. It did not occur to the managers of the club—or at least they showed no signs of appreciating the fact—that the advertisement would have been just as good for the doctor if he were reasonably paid. By degrees, the status of the club altered; instead of being confined to the really poor, the limits were so widened that any one was able, for the absurd pittance at which the club was started, to demand the services of the medical officer.
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> "Men who joined poor became rich, but were still entitled to the medical benefits. Often, it is true, the more successful men, who belonged to the club, were willing to forego their benefits, while continuing their subscription for the good of their poorer brethren, and called in, when occasion required, a medical man at his usual fees. This might or might not be the medical officer of the club; but this was a purely voluntary sacrifice on their part, and though many did not demand sick pay in illness, feeling a natural hesitation to take from the club funds a few shillings a week which their fellows would know to be of small importance to them, a much smaller proportion refused the medical benefits; they were not unwilling to accept the benefits which could not so easily be traced.
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> "No medical officer of such a society could make a living without a very large club, and, on the other hand, with a large contract practice, the number of patients to be seen was so great that the medical man could not give adequate attention to each. It was physically impossible to go carefully through all the differentia in making an investigation, and hence, since the work had to be done, it was very tempting to make a snapshot diagnosis, or give a placebo. . . .
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> "By degrees this system of clubs became so prevalent that in many large towns there were hardly any inhabitants left who were not swept into the net of the insurance companies, and thus brought into the range of medical benefits. All private practices were swallowed up by the clubs.
>
> "What wonder, then, that there came an outcry from all those most interested in the welfare of the profession, that by the contract system all initiative was being destroyed and that the medical men engaged in this work were being ruined mentally and financially by it, in the name of charity? What wonder that the men who found themselves fleeced on every side were anxious to escape from it? And yet it had some advantages. The contract system did away with the necessity for a great deal of bookkeeping, always irksome to a busy man, and at the same time there was a certain income with no risk—so far as the contract extended—of bad debts. Hence many practitioners, with wife and family dependent on them, dared not, as individuals, make a stand against the clubs. And who shall blame them?
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> "At the time when the insurance bill was first heard of it was recognized by all that some system of state insurance against sickness was most desirable. Medical men were all in favor

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[1] Socializing the British Medical Profession, editorial, The Journal A. M. A., Nov. 23, 1912, p. 1890. Those who wish to read further of the progress of the movement are referred to our weekly London Letter during the past few months.

of the idea. A workable scheme, providing a service throughout the country, had indeed been suggested by some of them, and had been tried in certain localities; medical men, therefore, taking into consideration that they would have to be the chief workers under the act, and that they had already some little experience in the treatment of the people who would come under it, remembering also that they had protested on every opportunity against the system of contract practice, not unreasonably, expected that they would be asked through their organizations, to advise on the best methods of working. However, as I shall tell you, they were not consulted; they might have thought—since they were going to bear all the risk—that the state would deal not only fairly but generously with them.

"They were doomed to disappointment; the action of the government is barely credible, and not at all creditable.

"The bill was brought in in May, 1911. In spite of repeated requests, the chancellor of the exchequer saw the representatives of the British Medical Association for the first time in April. This was the only deputation from the Association received before the introduction of the bill, and at this meeting no special opportunity was afforded to the Association for ascertaining the provisions of the bill. Nor, apparently, was the General Medical Council, nor the Royal Colleges of Physicians and Surgeons treated with more courtesy. Presumably the chancellor had medical advisers. Who they were has not, I think, been made known; but they certainly were not the associations of medical men, who would have commanded the respect, and been in some sense at least the representatives of medicine.

"When the medical provisions were known, it was at once seen that they were most unfavorable to the best interests of medicine. In the first place, the payment was to be *per caput*. This alone must stamp any scheme as liable to failure. It is not in the interest of any man's work that he should be paid at a higher rate the less work he does. It cannot induce to keenness and initiative, if the keen man is penalized because of his keenness.

"The more care taken in diagnosis and investigation, the less the reward. It must not be forgotten that investigation on modern lines costs money, and this had to come out of the funds for payment of medical men.

"The chancellor of the exchequer has, throughout, shown himself ignorant of the first requirements of modern medicine. It is, if one may judge from his attitude, his opinion that doctors are engaged in a guessing competition, with numbered bottles which agree with the number of the disease from which the patient suffers.

"Lastly, the suggested remuneration is inadequate. Of course, it is perfectly true that nowhere is it laid down in the act what the rate of remuneration is to be; but it is acknowledged that only a certain rate is justified by the actuaries.

"The chancellor has been very generous—at our expense—to the working man in an approved society. Under the present act the laboring man pays about ¾d. a week for his medical attention. He is often willing to pay 7s. 6d. a year for the fun of keeping a dog; it is not too much to expect that he should pay as much for keeping his health.

"And, again, let me mention the case of firms who own large numbers of horses. They usually pay the veterinary surgeon a contract fee to look after them, and this is usually 21s. a head. Now a horse cannot malinger, and cannot demand unnecessary medical attention.

"Or we may look at the matter another way. The government has been hitherto willing to pay 8s. 6d. a year for the medical attention of each employee in the post-office, who are men of picked physique and in good health. It is not likely that the government has been paying to the medical men, who have had charge of these and other public servants, twice the value of the services rendered. Why should we be asked now to undertake the treatment of all lives—healthy and unhealthy—who are compelled by the act to insure themselves, at about half the sum which the government has previously thought equitable for healthy lives? . . .

"Surely, on all counts we are fully justified in our rejection of the scheme designed by the government and in our determination to build up a better public medical service by our own efforts."

Although frequent references have been made to this measure in various departments of The Journal, during the past two years, the principal points in the controversy may not be fresh in the minds of our readers. A summary of the situation may therefore be of value.

Mr. Lloyd George introduced his bill in May, 1911. A special representative meeting of the British Medical Association was called for May 31 and June 1, 1911, in which the general features of the bill were approved with reservations and the "six cardinal points" stating the objections of the Association to the bill were formulated. The points on which the British Medical Association agreed to stand were:

1. An income limit of £2 ($10) a week, as the maximum for those entitled to medical benefits.

2. Free choice of physician by patient, subject to the consent of the physician to act.

3. Medical and maternity benefits to be administered by local health committees and not by "friendly societies."

4. The method of remuneration of medical practitioners adopted by each local health committee to be according to the preference of the majority of the medical profession of the district.

5. Medical remuneration to be what the profession considers adequate, having due regard to the duties to be performed and other conditions of service.

6. Adequate medical representation in the various boards and committees charged with the operation of the act.

At the annual representative meeting of the Association at Birmingham, in July, 1911, the action of the special committee was reaffirmed. A second special representative meeting was held in London, Nov. 23 and 24, 1911. The action on the six cardinal points was again reaffirmed and the Association voted to use all means to prevent the establishment of any form of medical service under the act, except under arrangements consistent with the six cardinal principles. Since the passage of the act, in December, 1911, the position of the British Medical Association and of practically the British medical profession, has been one of refusal to work under the provisions of the law in its present form. As a result, the law, while enacted, is at present practically inoperative, pending an adjustment of the differences between the provisions of the law and the demands of the profession. The law as it stands creates an insurance fund by contributions from the insured, the employers and the state, the control of which fund is in the hands of the insurance commissioners. The power of fixing the income limit is left to the local committee in each district, but the general position taken by the government has been in favor of a maximum income limit of £160 ($800) per year, while the British Medical Association has insisted on a maximum limit of £2 a week, £104 ($520) a year. The controversy over freedom of choice of physicians has been modified by the adoption of regulations by the committee, but is not as yet satisfactorily adjusted. The third point was practically conceded in the passage of the bill, and the administration of the medical benefit is in the hands of insurance committees and not in that of friendly societies. The method and amount of remuneration are the points over which the fiercest controversy has been waged. The method under the law is to be determined by the insurance committee after consultation with the local medical committee. This is not regarded as of so much importance as the amount, since the sum paid to each physician has been shown to be about the same under any one of five proposed methods. Regarding the amount, the representative meeting fixed 8s. 6d. as the minimum capitation fee, without including medicines or extras. The chancellor of the exchequer, October 23, offered 8s. 6d. per insured person, out of which 1s. 6d. was to be definitely allotted for drugs and instruments, 6d. additional being held for drugs in case the first amount proved insufficient, and the remaining 6s. 6d. being for the compensation of the physician. This is a considerable increase over the terms first proposed, but lacks 2 shillings (48 cents) of the minimum amount adopted by the British Medical Association. The sixth condition, that of representation, has probably been granted, but a seventh, relating to dispensing, has been added. The present situation seems to be that after eighteen months of constant warfare, the British Medical Association has succeeded in having the provisions of the law materially modified either by changes in the bill itself, or by the adoption of regulations by the insurance committee. The question of whether the modifications are sufficient to make the present arrangements satisfactory to the physicians was referred to a third special representative meeting, which was to be held November 19 and 20.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

California: Los Angeles, December 3-6. Sec., Dr. Charles L. Tisdale, 929 Butler Bldg., San Francisco.

Delaware: State Society and Homeopathic Examining Boards, Dover and Wilmington, December 10-12. Secretary of the Medical Council, Dr. Henry W. Briggs, 1026 Jackson St., Wilmington.

Kentucky: The Armory, Louisville, December 12. Sec., Dr. J. N. McCormack, Bowling Green.

Maryland: Regular, 1211 Cathedral St., Baltimore, December 10. Sec., Dr. J. McPherson Scott, Hagerstown; Homeopathic, St. Luke's Hospital, Baltimore, December 13-14. Sec., Dr. O. N. Duvall, 1326 N. Mount Street.

Ohio: Columbus, December 10-12. Sec., Dr. George H. Matson, State House.

Pennsylvania: Philadelphia, December 3-5. Sec., Nathan C. Schaeffer, Harrisburg.

Virginia: Richmond, December 17-20. Sec., Dr. Herbert Old, Norfolk.

West Virginia July Report

Dr. H. A. Barbee, secretary of the State Board of Health of West Virginia, reports the written and oral examination held at Charleston, July 8-10, 1912. The number of subjects examined in was 16; total number of questions asked, 170; percentage required to pass, 80. The total number of candidates examined was 48, of whom 37 passed and 11 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Howard University, Washington, D. C.	(1912)	87
Chicago College of Medicine and Surgery	(1912)	82, 83
Bennett Medical College	(1912)	84
University of Louisville	(1911) 86; (1912)	80, 81, 81, 82, 82, 85
College of Physicians and Surgeons, Baltimore	(1912)	80, 80, 80, 81, 81, 82, 83, 84, 85, 86, 86, 87.
Maryland Medical College	(1905) 81; (1912)	81, 83
Baltimore Medical College	(1899) 87; (1912)	85
University of Maryland	(1911)	80
American Medical College, St. Louis	(1912)	81
Jefferson Medical College	(1906) 85; (1912)	85, 88
University of Pittsburgh	(1912)	84
Meharry Medical College	(1912)	82
Medical College of Virginia	(1911)	81
University College of Medicine, Richmond	(1912)	88
FAILED		
University of Louisville	(1911) 76; (1912)	70, 78
College of Phys. and Surg., Baltimore	(1912)	73, 77, 77, 79
Maryland Medical College	(1911) 74; (1912)	73
Eclectic Medical College, Cincinnati	(1912)	71
Illinois Medical College	(*)	71

* Information obtained indicates that this candidate did not graduate.

The following questions were asked:

ANATOMY AND EMBRYOLOGY

1. Give the anatomic divisions of the spinal column, and the bones in each division. 2. Name the bones of the middle-ear and give their connections. 3. Describe the different kinds of joints, giving examples of each variety. 4. Describe the sartorius and the occipitofrontalis muscles. 5. Describe the thoracic duct. 6. Give the branches of the aortic arch. 7. Give origin, course and distribution of the sciatic nerve. 8. What bony cavities communicate with the nose? Describe the development of the frontal sinuses. 9. Give the early steps of development after impregnation. 10. Trace the fetal circulation.

CHEMISTRY AND MEDICAL JURISPRUDENCE

1. Give a simple test for organic impurities in water. 2. What is the difference between urea and uric acid? 3. What chemical tests are most important in the analysis of urine? 4. Describe the test for bile, blood, pus and urea in urine. 5. Give test for detection of morphin. 6. What is the effect of inhaling air rich with ozone on the respiratory organs? 7. What is the reaction of blood during gout? 8. In a medicolegal sense, what constitutes a dying declaration and what is necessary to make it evidence in a court of justice, and how should it be taken? 9. At what period will a body float after being drowned? 10. What are symptoms of poisoning by wood alcohol and treatment for same?

PHYSIOLOGY AND HISTOLOGY

1. Define afferent, efferent, tropic, inhibitory and motor and vasomotor nerve-fibers. 2. State the functions of the vas deferens, the vesiculæ seminales and the prostate gland. 3. Define secretion, excretion and assimilation. 4. What digestive changes take place in the small intestine and the large intestine? 5. What is the physiologic function of the liver? 6. What changes are produced in the air and in the blood by respiration? 7. Give the histologic structure of a tooth. 8. Describe a malpighian body. 9. Describe hyaline cartilage. 10. Describe the histologic structure of a lobule of the lung.

SPECIAL MEDICINE

1. Describe the physical signs and symptoms on which you would base a diagnosis of aneurysm of the thoracic aorta. 2. Diagnose renal calculus; stone in the ureter; pus kidney. 3. Define, diagnose and treat adenoid growths of the nasopharynx. 4. What is "hay-fever"? Give the etiology and treatment. 5. Describe the technic of making intralaryngeal applications. 6. Give the etiology, diagnose and treat edema of the larynx. 7. Give the etiology, diagnose and treat simple conjunctivitis, acute epidemic conjunctivitis and trachoma. 8. Define, give the etiology, diagnose and treat iritis. 9. Describe the effect of lead-poisoning on the nervous system. 10. Describe the technic of lumbar puncture.

SURGERY

1. Discuss the principles underlying the local and general treatment of surgical infection. 2. Give the pathologic and clinical difference between sarcoma and carcinoma. 3. Name three suture materials in common use, give a method for the sterilization of each and discuss the relative advantages and disadvantages of these materials. 4. Give the diagnosis of cerebral compression due to extradural hemorrhage and differentiate it from compression due to depressed bone. 5. Name the varieties of dislocations of the shoulder-joint and describe the symptoms of the most common one. 6. Give the etiology and diagnosis of empyema of the pleura. 7. Give the pathology and early diagnosis of intestinal obstruction. 8. Give the causes and diagnosis of rupture of the urinary bladder. 9. Give the diagnosis and treatment of a fracture in the lower half of the femur. 10. Give the pathology and treatment of ingrowing toenail.

BACTERIOLOGY AND HYGIENE

1. By what agencies does the body protect itself against the entrance and harmful effects of pathogenic bacteria? 2. What are some of the phenomena attending pus formation? 3. Describe the formation of an abscess. 4. State the most common sources of infection in diphtheria. 5. Name some diseases that are communicable to human beings through cow's milk. 6. How much fresh air is required for normal respiration during twenty-four hours? 7. What infectious diseases may be due to impure drinking-water? 8. Describe the agency of the ptomains in inducing diseases and the disorders produced by them. 9. Name six carbohydrates used as food. 10. What are the principal measures which you would employ for the prevention of the spread of infectious diseases?

OBSTETRICS AND GYNECOLOGY

1. Give the symptoms of pregnancy in the first three months. 2. Give the indications for premature interruption of pregnancy. 3. Tell how you would manage a case of face presentation. 4. Give the causes and treatment of post-partum hemorrhage. 5. Give the prophylactic care of the breast before and after labor. 6. Give the symptoms and treatment of puerperal eclampsia. 7. Differentiate fibroid, ascites, fat and cysts. 8. Under what conditions would you advise a hysterectomy in cancer of the uterus? 9. What are some of the peculiarities of gonorrhea in a female? 10. How would you treat extreme prolapse?

PRACTICE OF MEDICINE AND PEDIATRICS

1. Give the symptoms and treatment of chronic myocarditis. 2. Give the treatment of intestinal hemorrhage in typhoid fever. 3. Give the period of incubation and of eruption of the exanthemata. 4. What is uremia and how should it be treated? 5. Differentiate heat exhaustion from sunstroke. 6. What is the significance of the patella reflex as a sign of disease? 7. What are the indications of beginning hip-joint disease? What is the treatment? 8. Give the treatment of summer diarrhea in infants. 9. What would you do in the case of a baby having convulsions about once or twice a week? 10. Give the symptoms and treatment of infantile scurvy.

MATERIA MEDICA AND THERAPEUTICS

1. Give rule for dosage of children. 2. Write a prescription containing four drugs. 3. What are somnifacients, analgesics, antipyretics? Give example and dose of each. 4. What are serums? Name three and give dose. 5. Digitalis; preparations, doses and physiologic action. 6. Coal-tar derivatives: name four principal ones and give physiologic action. 7. Cathartics: name three varieties; give therapy. 8. Strychnin: give therapy. 9. *X*-ray: describe it and give therapeutic uses. 10. 606: describe methods of use. Is it preferable to mercury and iodids?

PRACTICE OF MEDICINE AND PEDIATRICS (ECLECTIC)

1. Discuss acute articular rheumatism in children, including complications and sequelæ. 2. Define cretinism. Give etiology, diagnosis and treatment. 3. Make diagnosis, direct and differential, of small-pox. 4. Give the etiology, diagnosis and treatment of hip-joint disease. 5. Give the etiology and name the cardinal symptoms of tabes dorsalis. 6. Give the symptomatology, diagnosis and treatment of myocarditis. 7. Define herpes zoster. Give the etiology and make diagnosis. 8. Give symptoms, diagnosis and treatment of poliomyelitis. 9. Diagnose and treat scarlet fever. 10. Diagnose and treat pneumonia in children.

MATERIA MEDICA AND THERAPEUTICS (ECLECTIC)

1. Give properties, specific symptomatology and dose of apocynum. 2. What is the source of salicylic acid? Give therapeutic indications for the use of salicylates. 3. What is the composition of Dover's powder? Give dose and indications. 4. Name three emetics. Give dose and indications for use. 5. What is the therapeutic value of heat and cold? Methods of application? 6. Discuss therapeutic value of elimination. Describe effective measures. 7. Discuss therapeutic use of KI. 8. Name three bromids. Give properties, dose and therapy. 9. How would you proceed with the management of hyperpyrexia? 10. What remedies are available for the removal of tapeworm? Give dose and methods of administration.

Overwork as a Cause of Neurasthenia.—Talking of the causes of neurasthenia, Dr. Savill says: "The first of these is fatigue or overwork, and that you are no doubt familiar with in every-day practice. Just as a faradic battery will become weaker and weaker if it is used and will be restored by rest and warmth, so will the nervous system become weaker and weaker if it is overworked, that is, if there is prolonged forced functioning."—Thomas D. Savill in *Clin. Jour.*

Book Notices

Public Health Chemistry and Bacteriology. A Handbook for D. P. H. Students. By David McKail, M.D., D.P.H., F.R.F.P.S.G., Lecturer on Public Health and Forensic Medicine, St. Mungo's College, Glasgow. Cloth. Price, $2.50. Pp. 409. New York: William Wood & Co., 1912.

This work is intended as a text-book for students taking laboratory courses in public health examinations, both chemical and bacteriologic. The author has endeavored to make it as complete as possible while leaving out matters which can be more satisfactorily taught and demonstrated than written about. For this reason no illustrations have been introduced, as the various instruments and apparatus are seen and used in actual work. An examination of the volume shows that the various methods are well described and the work is sufficiently complete to form a reliable guide for such examinations of foods, etc., as the physician may have an occasion to make.

Recent Advances in Hematology. Being the Dr. James Watson Lectures for 1910. By Walter K. Hunter, M.D., D.Sc., Physician to the Glasgow Royal Infirmary. Cloth. Price, $2.25 net. Pp. 119, with a Colored Plate. William Wood & Co., 1912.

This volume represents the James Watson lectures for 1910, delivered before the Royal Faculty of Physicians and Surgeons of Glasgow. The book covers the domain of hematology as represented in the most recent text-books and many articles in current medical literature. The statements are for the most part brief and practical. For instance, the subject of viscosity of the blood is discussed in two paragraphs with the conclusion that the estimation of the viscosity of the blood has not thus far come into general use in clinical medicine. While the book will not replace the more extensive treatises on clinical diagnosis or the special works on the blood, it will be of service in giving a clear idea of the present status of this important subject.

A Collection of Papers (Published Previously to 1909). By William J. Mayo and Charles H. Mayo. Two Volumes. Cloth. Price, $10 net. Philadelphia: W. B. Saunders Company, 1912.

These are reprints, the articles having appeared in various medical journals, although it seems incongruous to apply this term to such handsome volumes, which in appearance compare with the finest text-books. The books are uniform in type and are handsomely illustrated. These articles are arranged according to subject and the table of contents shows what a broad field of surgical subjects the Mayos have been discussing in the literature of the country. Instead of yielding to the temptation to prepare text-books, as is too often the custom, the Mayos have simply gathered here the results of their prolonged study, analysis and experience, as contributions to the general subjects. The fortunate possessor of these volumes will peruse them with pleasure and profit, knowing that he is learning from men who are painstakingly thorough and conscientiously exact.

Digestion and Metabolism. The Physiologic and Pathologic Chemistry of Nutrition. For Students and Physicians. By Alonzo Englebert Taylor, M.D., Rush Professor of Physiologic Chemistry, University of Pennsylvania. Cloth. Price, $3.75. Pp. 560. Philadelphia: Lea & Febiger, 1912.

To quote from the preface: "The author is convinced from perusal of current medical writings in this country that there is need among American physicians for a work presenting the subjects of digestion and metabolism in a popular manner, without technical details, and from the standpoint of dynamics rather than from that of analytic statics usually occupied by text-books of physiologic chemistry." This need Professor Taylor has endeavored to meet by rewriting in the form of a concise, systematic treatise the substance of his lectures on this subject. The book presents a thorough scientific account of the subject, beginning with the composition of foodstuffs and the nature of ferment action, and tracing the changes occurring in salivary, gastric and intestinal digestion and in the processes of metabolism inside of the organism. After a detailed consideration of the metabolism of various elements of the food, the subject of metabolism considered as a whole is taken up in a chapter of moderate length. In this are discussed the relations of protein, carbohydrate and fat, with such subjects as inanition, normal diet and nutrition. Another chapter considers the production of body heat, regulation of body temperature, the nature of fever, etc. The book is well written and presents many conclusions of importance to physicians.

Medicolegal

Sufficient Authority for Action of Coroner's Physician

(Hassard vs. Lehane (N. Y.), 135 N. Y. Supp. 711)

The First Appellate Division of the Supreme Court of New York, after having, on a previous appeal, reversed a judgment of nonsuit and granted a new trial, as reported in The Journal of August 5, 1911, page 502, now reverses a judgment rendered in favor of the plaintiff, and grants another new trial. The action was brought by a mother to recover damages from a coroner's physician for an alleged wrongful dissection of the remains of her son and detention of parts of the remains. The excuse offered on the first trial appeared to be that it was an "interesting case," which was held insufficient. But on the second trial a quite different defense was set up. The evidence tended to show that the defendant had received from the coroner's clerk a list of cases for investigation, including the case of the plaintiff's son, who was reported to have met his death by falling from a vehicle. The defendant then went to the hospital where the remains were, examined the hospital records, and talked with the house surgeon, and was told that the deceased was found in a drug store by a policeman, whither he had been carried from the street by a citizen who disappeared; that there were no marks of violence on him; that he died about two hours after being received at the hospital; that the house surgeon was unable to account for the cause of death; and "that there was a question of suspicion about it." The defendant then reported to the coroner over the telephone what he had learned, and was directed by that official to make a "complete" autopsy, and discovered that the immediate cause of death was a hemorrhage from a ruptured spleen, but was unable without a microscopic examination to determine whether the rupture was traumatic or due to disease. He again reported the facts discovered to the coroner, and was directed by the latter to make a microscopic examination of the spleen, and, pursuant to that direction, he removed the spleen from the body and sent it to a laboratory for examination. The trial court charged the jury that the direction of the coroner was not a subpena, but that, if given, it might be considered on the question of the defendant's good faith in assessing damages, and that an autopsy, even if directed by the coroner, was not justified unless necessary to disclose the cause of death, and then only to the extent required for that purpose. The Appellate Division holds that there was error in these instructions. It suggests that the word "summon" would have been more appropriate than "subpena" in the governing statute; but that, at any rate, a formal subpena was not indispensable to the protection of the coroner's physician. The question was whether the coroner actually directed the dissection of the body and the microscopic examination of the spleen, and the uncontradicted evidence was that he did. It was for the coroner to determine whether the death occurred under such circumstances as to justify an inquest and an autopsy. It was the defendant's duty to obey the direction of the coroner and to ascertain the cause of death. Obviously, he was concerned only with the medical side of the case, and was not required to interpose his judgment against that of the coroner as to whether the deceased had died from criminal violence, etc. His duty was to make an autopsy "as may be required," which should be construed "as may be required by the coroner." If therefore the coroner directed the dissection and the microscopic examination of the spleen, those directions, unless exceeded by the defendant, constituted a complete defense.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, Cleveland, Dec. 31-Jan. 2.
American Physiological Society, Cleveland, Dec. 26-28.
Southern Surg. and Gynec. Assn., Old Point Comfort, Va., Dec. 17-19.
Western Surgical and Gynec. Assn., Cincinnati, Dec. 20-21.

KENTUCKY STATE MEDICAL ASSOCIATION

Forty-Seventh Annual Meeting, held at Louisville, Oct. 28-31, 1912

(Concluded from page 1918)

Vaccine Therapy

Dr. John H. Blackburn, Bowling Green: Vaccine therapy is not a panacea for bacterial diseases. Much may be accomplished by the prophylactic use of the vaccines in certain types of infection. They also have a distinct value in the treatment of many infections, acute and chronic, local and general. Each case requires careful study and attention, a microscopic and cultural diagnosis being always made, if possible, and the proper dosage used at the proper intervals.

Pellagra as Related to Insanity

Dr. W. E. Gardner, Lakeland: Physicians in hospitals for the insane do not, as a rule, see the case of pellagra until the mental symptoms are well developed, and it is with the mental condition that they are chiefly concerned; while the physician in private practice sees the patient from the point of view of the body first, and the mental condition afterward. The form of insanity that predominated in the cases already in the institution, when pellagra developed, was that of dementia praecox. The manic-depressive types, with the depressive forms predominating, seem to come next in order, in our cases, but with less tendency to suicide than seems to occur in cases outside of institutions, and reported by authors. Melancholia of involution or the "anxiety psychoses" come in for a few cases, with some distressing symptoms of fear and impending danger. We have had only one case occurring in a patient with general paralysis, which was of short duration, due to the advanced stage of the latter disease. The treatment in our twenty cases has been largely symptomatic and supportive.

The Present Status of the Operative Treatment of Fractures of Shafts of Long Bones

Dr. A. H. Barkley, Lexington: The advantages of the open method are apparent. The operator can place the bones in exact apposition, as the whole field is directly under the eye; all overriding or angulation is at once overcome. In some types of fractures of the shafts of long bones, in spiral and oblique, for instance, it is obvious that no amount of traction will reduce the fragments, and no known dressing will hold them with any degree of certainty in apposition as will the method of direct fixation. The patient is relieved of annoying pain due to the movement of the fragments. This is especially noticeable in many cases treated in a nonoperative way, and is sometimes due not so much to any movement of the patient's body as to the involuntary contractions of muscles. This disagreeable feature is obviated when internal splints are used, as the bones are held firmly apposed. There is less extravasation into the tissues when direct fixation is employed early than when treated otherwise, and the possibility of any intervening fragments of tissue and bone which defeat union is entirely obviated. The deformity is practically *nil*, and the bones are left more nearly normal and in no wise interfere with the wage-earning capacity of the individual. As a rule, fractures that have been plated have no exuberant callus. In cases in which other methods have failed, and much deformity is likely to follow, this method offers the best result.

I cannot subscribe to the views of those who never look at a fracture except in the light of an operation, and while the open method in selected cases is beyond doubt the best procedure, its employment in every case must be condemned. In order to use internal splints, one must be prepared by training in surgical work and carry asepsis to the highest degree; that it should be done in a well-equipped hospital and require special instruments goes without saying. The application of internal splints requires specially constructed instruments, such as bone drills, elevators, long forceps for assisting in approximating the ends of bones, a special screw-driver, etc. The set of instruments used by Lane will be found adequate for this operation.

Alcohol, Its Therapeutic Uses and Limitations

Dr. W. F. Boggess, Louisville: Alcohol is unquestionably a therapeutic agent of no little value to be used as a medicine with the same care, and with the same safeguards around its use and abuse as in the case of other poisonous drugs, such as morphin, cocain and strychnin. In my opinion no drug requires greater acumen and therapeutic knowledge for its use than alcohol. The continued use of alcohol has a tendency to destroy fine cell structure everywhere, as well as the finer moral and intellectual functions and faculties. There are some types of fevers in which alcohol is of benefit, and certain types of patients with whom it also could be used with benefit. The converse is equally true. A great deal has been written for and against the use of alcohol in typhoid fever. Some have asserted that it should be used from beginning to end, others that it is a drug which can be entirely dispensed with in the treatment of this disease. None of these statements is correct. There are many cases of typhoid fever in which, if the patients receive in the second or third weeks of the disease sufficient quantities of alcohol to support the system by lessening tissue metamorphosis, supplying something that is easily oxidized and thus saving food products and combating asthenia, there is great benefit and lives are saved. It has been my practice for years in certain types of tuberculous states to prescribe half an ounce of brandy, well diluted, three times a day. It assists the appetite, relieves pain by its quieting effect, and increases the fat-forming tendency by its own oxidation and the effect it has in assisting digestion and lessening metabolism in the tissues. The common routine and liberal use of alcohol as a remedy in influenza is to be discouraged and condemned. There are many other remedies indicated in the depressing effects and complications of this disease that are as good as alcohol in the majority of cases, if not better.

Fractures

Dr. J. Garland Sherrill, Louisville: The object of the treatment of a fracture is to obtain repair of the injury and restoration of function with the minimum amount of deformity, loss of time and discomfort to the patient. To obtain these results most perfectly, accurate apposition of fragments, restitution of contour, the prevention of redisplacement by complete reduction and proper appliance, and proper position, with rest, are necessary. When should one employ the closed and when the open method of treatment? It is needless to say that no patient should be subjected to a cutting operation unless there is some clear and distinct reason for such procedure. This, I believe, would be accepted as an axiom without argument, no matter how many and cogent reasons one might offer in support of the simplicity of interference. Here, as in all departments of surgery, it is the surgeon's duty to exercise care and good judgment in selecting the method of treatment. To illustrate my meaning let me cite fracture of the patella, which I have never treated by incision and suture of the bone, because I have thus far always been able to bring the fragments together satisfactorily by hooks, subcutaneous suture or splint. In one or two instances I have almost decided to lay open the overlying tissues in order to obtain approximation by direct appliances, but I have finally not been obliged to do so. The open operation I believe to be legitimate, and probably needful in a few selected cases, but I am opposed to it as a routine treatment. I would strongly urge frequent inspection of fractures, especially during the early and later time of treatment, the first to avoid deformity, the second to promote restoration of function. In the treatment of a fracture of the clavicle, that form of appliance must be employed which will hold the shoulder upward, backward and outward without being irksome to the patient. In fractures of the shaft of the humerus, in my opinion there is no dressing equal to the Stromeyer cushion or a pad of towels along the chest with the arm bandaged to the chest. The forearm should be placed in a bandage and placed in a sling at the wrist, thus allowing the weight of the arm to make extension at the elbow and prevent the overlapping of fragments.

How the United States Public Health Service Can Help in the Eradication of Preventable Diseases in Kentucky

Dr. Joseph Goldberger, Washington, D. C.: The first step in the eradication of preventable diseases is to know of their prevalence, and hence it is extremely important that there be provided some means of obtaining and distributing this information. In the nature of the case the reports of sickness must in the first instance come from the local communities, and machinery must be provided to give the state this information. But the state is not an isolated unit; it must know not only what is going on within its own borders, but also within those of its immediate neighbors, at least. This information the U. S. Public Health Service attempts to supply through its weekly publication, the *Public Health Reports*. Morbidity reports give the sanitary officer information with respect to the existence and the degree of prevalence of disease. In order, however, that measures looking to the eradication of preventable sickness may be planned intelligently and the money of the community most advantageously spent, the sanitary officer must know what factor or factors are at work favoring their prevalence and to estimate the relative importance of the various factors involved. The Service is ready and willing to help your health board in this great work. Its willingness to help is unlimited and the amount of aid which it is able to render is circumscribed only by the limits of its available personnel and appropriations. Your state can have this assistance for the asking; it can have more, if it will do its share through its representatives in Congress toward supplying the Service with more men and more money.

The Public Health Problem: Constructive Efforts Toward Its Solution

Dr. W. L. Heizer, Bowling Green: The chief objects of cooperation of these forces, it would seem, are: (1) to educate the public in the proper methods of preventing disease through the public schools, press, pulpit and from the platform; (2) to furnish a sufficient number of competent speakers, and large audiences to greet them; (3) to elect county and state officials who will establish a county department of health with a competent health officer, well paid, to devote his entire time to the prevention of disease in his county; a laboratory where immediate microscopic and chemical analyses can be made, free of charge, of water and milk and of bodily excretions from persons ill; (4) to secure the enactment and enforcement of sanitary laws to guarantee pure food, water and air to the people; (5) to secure larger investments by the state in good roads, better schools, higher salaries for more competent teachers, and increase in appropriations to the state department of health.

SOUTHERN MEDICAL ASSOCIATION

Sixth Annual Meeting, held at Jacksonville, Fla., Nov. 12-14, 1912

The President, Dr. J. W. Jackson, Miami, Fla., in the Chair

The list of officers elected was given November 23, page 1899.

Diagnosis of Malaria

Dr. Graham E. E. Henson, Jacksonville, Fla.: In cases of suspected malaria the blood should be examined carefully for the detection of the parasites. It should be the aim to secure laboratory confirmation of the clinical findings before placing the patient on specific treatment, provided there are no symptoms suggesting the more pernicious type of the disease. In the event that quinin has been administered before the patient comes under observation, a tentative diagnosis of malaria, even in the absence of the detection of the parasites, is justifiable when (1) the clinical history of malaria is obtainable; (2) the patient has an enlarged spleen; (3) a leukopenia is present; (4) the red-cell count is below normal; (5) the hemoglobin is reduced, and (6) the differential count shows an increased percentage of large mononuclears.

DISCUSSION

Dr. E. C. Thrash, Atlanta, Ga.: A case came under my observation three or four weeks ago in which a diagnosis of tuberculosis had been made. For six or eight weeks the diagnosis lay between malaria and typhoid. I found the spleen much enlarged, and ruled out tuberculosis. I thought that the patient had either typhoid or malaria. He had been taking quinin systematically and regularly in all sorts of ways. I gave him treatment for ten days, watched him, and found that he had high temperature continuously and occasionally a chill. At the end of the eighth or ninth day I began to make examinations of the blood every six hours, and in the fourth examination I found estivo-autumnal parasites. I put him on 4 grains of sodium cacodylate hypodermically daily, and on large doses of quinin hypodermically, to which he responded promptly, and he has had no trouble since.

Dr. Charles F. Craig, M. C., U. S. Army: A man became unconscious on the street, was picked up and taken to the emergency hospital. He died in a short time. I had the opportunity of examining the brain and spleen and found both loaded with estivo-autumnal parasites. Another patient was in the hospital for a week before a blood examination was made. This patient died, and post-mortem examination revealed the spleen filled with these parasites.

Dr. James H. Randolph, Jacksonville: Three cases of the cerebral form of malaria recently came under my observation, which illustrated the importance of blood examinations. These cases were characterized by delirium.

Dr. William E. Ross, Jacksonville: A child had six convulsions in five hours, was unconscious, and had absolutely all the symptoms of acute epidemic cerebrospinal meningitis, with a temperature of 102 F. My diagnosis was cerebrospinal meningitis. I was about to make a lumbar puncture. I took a blood-smear, and found malarial parasites of both the estivo-autumnal and tertian type. The child was unconscious for six days before it responded to quinin treatment.

Dr. L. A. Green, Jacksonville: The records of our state hospital show that a number of patients admitted as insane were suffering from pernicious malaria. These patients reacted promptly to quinin and recovered, but left the institution with the stigma that they had been insane, when, as a matter of fact, they had been suffering from malaria.

Dr. Joseph Goldberger, Washington, D. C.: There can be no doubt that a routine examination of the blood is absolutely essential, but the general practitioner does not, as a general rule, avail himself of this means of diagnosis, believing that it is unnecessary.

Dr. C. C. Bass, New Orleans: As to the time of taking blood from the patient, if we are dealing with the estivo-autumnal type, the parasites may now be present in the blood for six or eight hours. In estivo-autumnal cases in which the clinical course is more or less tertian, with chills and intermittent fever, with, perhaps, normal temperature, the parasites segment almost altogether in groups as they do in the tertian and quartan types. In such cases the number of parasites present in the blood after six or eight hours would be smaller than at any other time. There never occurs a time when parasites cannot be found in the blood of the patient who is having chills and fever from malaria. The proper time to make a blood examination for malaria is whenever you see the patient.

Malaria in Alabama

Dr. R. H. von Esdorf, U. S. P. H. Service, Mobile, Ala.: All forms of malarial fevers prevail in Alabama. The types of infection in the order of prevalence are tertian, estivo-autumnal, subtertian, quotidian and quartan. A large factor in the spread of infection is the colored race, in which the chronic type of malarial infection is proportionately greater than in the white race. To obtain an index of infection in the community, a blood examination should be made of adults as well as children. Latent or non-chronic cases should be treated vigorously for at least a month, and then with prophylactic doses of quinin from April to November. Prophylactic doses of quinin should be taken between April 1 and November 1 by all persons in Alabama living in the localities known to be infected. The prophylactic dose I use is 5 grains of quinin sulphate, given morning and evening. The microscope should be more generally used for making a diagnosis or confirming the diagnosis of malaria, or, if practicable, advantage should be taken of the state laboratory, where examinations of blood will be made.

Malaria in the Puerperium

Dr. J. V. Freeman, Jacksonville, Fla.: When there is elevation of temperature during the puerperium in a woman who has caused her physician a great deal of anxiety and trouble during her pregnancy, and he discovers malarial infection, he is justified in giving prophylactic doses of quinin if he delivers her a second time; but he is not justified in giving it in every case he sees.

DISCUSSION

Dr. Graham E. E. Henson, Jacksonville, Fla.: Owing to the fact that any rise of temperature in the puerperium causes great alarm not only to the attending physician, but also to the members of the family, it has been my custom for the last five years, as soon as a patient is delivered, to put her on 10 grains of quinin a day. By following this line of procedure in delivering 100 or more women, I have never seen malarial fever develop in the puerperium. I generally give 5 grains in the morning and 5 grains at night.

Dr. Stevens T. Harris, Highlands, N. C.: It is erroneous to make a diagnosis of malaria simply from fever returning periodically. I have seen fever, chills and sweats, typically malarial in character, recur without the presence of malaria. You may also have chills occurring periodically and with regularity in tuberculosis and possibly in other septic conditions. I would strongly urge that the microscope is the only way to diagnose malaria.

Dr. B. B. Simms, Talladega, Ala.: Chills and fever may be present, and even if we find the plasmodia we cannot call the case malaria every time, because plasmodia frequently occur in the blood. In Alabama it has been found that 11 per cent. of the people have malarial parasites in the blood without manifesting symptoms of malaria.

Dr. W. A. Boyd, Columbia, S. C.: If a puerperal woman shows a febrile condition, and we are not sure of the actual condition present, I do not believe that we are justified in putting that woman on the routine treatment of quinin until we have proved by bacteriologic examination that she is infected with malaria.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Annals of Surgery, Philadelphia

November, LVI, No. 5, pp. 665-808

1 *Tetany Following Extirpation of Thyroid. F. J. Shepherd, Montreal.
2 *Surgical Treatment of Aortic Aneurysm. J. A. C. Macewen, Glasgow.
3 *Primary Sarcoma of Peritoneum. C. S. Venable, San Antonio, Texas.
4 Thrombosis of Mesenteric Vessels. H. B. Delatour, Brooklyn.
5 Malignant Tumors of Mesentery. P. E. Sawyer, Sioux City, Iowa.
6 *Volvulus of Stomach. H. H. Kerr, Washington, D. C.
7 Two Cases of Tumors of Ampulla of Vater. H. Upcott, Hull, England.
8 Clinical Diagnosis of Congenital Anomaly in Kidney and Ureter. W. F. Braasch, Rochester, Minn.
9 Operative Procedure in Cancer of Prostate. E. Fuller, New York.
10 *Treatment of Fistula in Ano, with Special Reference to Whitehead Operation. A. W. Elting, Albany, N. Y.
11 Salvarsan and Neosalvarsan; Their Intravenous Injection. E. G. Ballenger and O. F. Elder, Atlanta, Ga.
12 *Ivory Dowel for Preserving Finger in Case of Enchondroma of a Phalanx Complicated by Fracture. A. Primrose, Toronto.
13 *Reduction of Fragments in Fractures of Long Bones. J. C. A. Gerster, New York.
14 Tying Knots of Ligatures and Sutures with One Hand. G. H. Monks, Boston.
15 *Modification of Bartlett's Gastro-Enterostomy Clamp. J. J. Buchanan, Pittsburgh.

1. **Tetany Following Thyroidectomy.**—Shepherd says he always thought there was little danger of removing all the parathyroids or injuring them in performing total thyroidectomy, for he had in quite a number of cases removed the whole thyroid and in others left only the isthmus or a part of one of the lateral lobes, and he never saw a case of tetany or cachexia strumapriva. However, last January he operated in a case in which he was forced to remove nearly all the thyroid, and this operation was followed by severe tetany. In this case no trace of any parathyroids was found in a most careful examination of the removed gland so that he concludes that the parathyroids were so injured at the operation that they were rendered useless. The third day the patient complained of a feeling of formication over the whole body and of a great weight which pressed on her brain. She had slept well the night before and had a normal pulse and temperature. Toward evening she complained of severe pain at the base of both lungs and next day felt dizzy and had numbness of the legs and feet. On the fifth day, in the morning she felt fairly well but complained of numbness and tingling in the legs and face and a feeling as if ants were crawling over her skin. A few hours later she had cramps in both hands and pains in the joints and considerable stiffness of the fingers and flexion of the toes. Then there were severe paroxysms in both arms and legs. The thumbs were contracted in the palm of the hand, the fingers flexed at the metacarpophalangeal joint, the wrist flexed, and elbows bent. The toes were flexed and adducted and the feet extended. She complained of great pain in the legs, which was at times spasmodically increased; her face twitched and there was numbness and stiffness about the jaws. Chvostek's sign was well marked, and pressure on a nerve trunk produced spasms (Trousseau's sign). Pulse was 80 to 100, and she had no temperature. Her voice was very husky and she seemed stupid; she complained most of the acute pain in the legs, which at times was very severe.

Shepherd put her on dram doses of the lactate of calcium every three hours. This was about eleven in the morning and at 5 p. m. the spasms and cramps had disappeared; the fingers were relaxed, the voice became natural, and she said she felt very well, only tired. After five doses the lactate of calcium was discontinued as she disliked it so. The seventh day after operation, she began to feel the sensation of formication again, with a feeling of weight in front of head and great depression. She was again put on calcium lactate, dram doses, with 2½ grains of thyroid extract, every four hours. She had slight cramps in her extremities that night with pain in the left side. Next day she was free from cramps but still had pressure symptoms in the head and a creepy sensation over the body. For the next two days she remained about the same and refused to take any more calcium lactate. On the eleventh day she was worse than ever, all previous symptoms being much exaggerated. She was given 1/20 grain parathyroid extract, every four hours, with 3 grains of thyroid extract. As she was no better next day she was persuaded to commence taking the calcium lactate again in addition to the extracts, and in consequence the improvement was rapid, the cramps disappeared, and she felt very much better. The patient left the hospital on the twenty-first day and was directed to take 30 grains of calcium lactate and 1/20 grain parathyroid extract every four hours. Twice the lactate of calcium was discontinued and the symptoms always returned, though parathyroid was still administered. This case agrees with the conclusions found by Voegtlin and MacCallum, that calcium can cure temporarily any case of tetany due to insufficiency or removal of the parathyroids.

2. **Treatment of Aortic Aneurysm.**—Following the method used by his namesake. Macewen introduced a fine steel needle, highly polished, into the interior of the inner surface of the opposite wall of the aneurysm, so as to produce a series of slight abrasions of that surface. In seven weeks, a needle was twice introduced and a large area of the posterior wall was treated. The patient expressed herself as feeling better after the treatment. She returned to the hospital three months later, had a needle introduced once, remained in hospital for a month, and was able to go home in a cab. She now felt so much better that she was able to walk a little, and go about and enjoy herself. She returned to the hospital in October, 1910, remaining there for a month, and on this visit had two needles introduced simultaneously on two occasions, at an interval of a fortnight. Thereafter patient began to feel very much better. In July, 1912, patient expressed herself as feeling better than she had for many years back. Not only can she go about freely, but she can go up and down stairs actively without assistance or inconvenience; she can perform ordinary light household duties; there is no pain nor choking sensation, and she further states that she has entirely recovered from severe headaches which had caused her much suffering prior to the appearance of the aneurysm. Pulsation is still noted in the neck, as is to be expected, owing to the deep or posterior wall being the one which was treated, but it is not marked, and only becomes noticeable when patient is excited.

3. **Primary Sarcoma of Peritoneum.**—Four months before Venable saw this patient, the man was kicked by a horse in the right side of the abdomen just within the anterior superior iliac spine. From this time patient had suffered pain and tenderness in this locality, but not, however, till about two and a half months after the injury did he suffer any digestive disturbances. This presented as an intermittent diarrhea accompanied by anorexia and nausea and abdominal pains, from which time he dates the beginning of his loss of weight. This continued for two or three weeks, when patient himself discovered a mass in his right iliac region, which is described as then feeling about the size and shape of a lemon and which was movable and not tender. During the succeeding twenty-four days it attained the size of two cantaloupes placed end to end. Lost thirty-four pounds in weight. Complained of a dull ache in his right side and sense of weight. Anorexia pronounced, accompanied by seizures of nausea but no vomiting. Frequent stools, six to ten or fourteen daily, watery in character, some mucus and occasional traces of blood. The abdomen was opened, exposing a neoplasm springing by a large pedicle, soft and vascular, from the peritoneum just over the brim of the pelvis, about two fingers' breadth to the outer side of the sacro-iliac synchondrosis. There were no other intestinal or mesenteric or omental attachments or adhesions. Removal of the growth including the base of the pedicle was easy, after which further examination revealed no evidences of metastasis. He was discharged on the eighteenth day. The pathologist's report was "spindle-cell sarcoma." The gross appearances of the tumor were typical of sarcoma. In about three weeks after returning home, the patient suffered a recurrence of the diarrhea from which he had suffered prior to operation, accompanied progressively by anorexia, severe abdominal pains, and seizures of extreme nausea, which continued till the time of his death, Jan. 26, 1912, a little over three months after his operation.

6. **Volvulus of Stomach.**—Kerr's patient gave a history of frequent attacks of pain and indigestion after eating. About one hour after eating the largest meal of the day the patient was seized with sudden cramps in his stomach. Induced vomiting and deep, prolonged massage in the stomach region finally brought relief. These attacks lasted about twelve hours, but the patient did not recover sufficiently to return to work for several days. The patient admitted excessive, constant gin drinking, and is a tremendous eater, gulping his food without mastication. On examination there was noticed a most remarkable distention of the upper abdomen, reaching from the ensiform cartilage to the umbilicus, and everting the costal arches; this tense swelling extended to the mammillary line on the right. On palpation the limits of this mass extended slightly beyond those noted on inspection; it felt hard and very tense. The abdomen below the umbilicus was not distended, but the muscles showed some rigidity. On percussion this distended area was highly tympanitic. Heart action was rapid, weak and irregular; a beat was quite frequently dropped. All attempts to pass the stomach tube was futile.

The abdomen was opened. The tense stomach was exposed, not covered with omentum, and was punctured with a large trocar. Gas under great pressure escaped with a whistling sound, and the distention began to subside. A catheter was then introduced in place of the trocar and a great quantity of gas and 54 ounces of brown grumous fluid were evacuated. Incision, in what was thought to be the anterior wall of an acutely dilated stomach, was sutured with silk and the abdominal wound closed. The abdomen had then resumed its normal contour, and the heart had moved back to its usual place. The patient's condition, however, did not improve. Death occurred fourteen hours after onset. At the autopsy the stomach was found completely inverted and markedly dilated, so that the posterior wall became anterior, and the greater curvature was pressing against the diaphragm. The gastrocolic omentum was torn free from the greater curvature of the stomach, and the transverse colon was found lying below the stomach. After a careful review of the literature, Kerr found eight similar cases of true idiopathic volvulus.

10. **Treatment of Fistula in Ano.**—Of 105 consecutive cases on which Elting's report is based, ninety-six were found to be histologically non-tuberculous and nine histologically tuberculous. Of the nine tuberculous patients, seven had demonstrable pulmonary tuberculosis at the time of the operation. Of the 105 cases, sixty-four occurred in males and forty-one in females. Arranged according to age, two occurred in the first decade; one of them in a child of 10 months; eight occurred in the second decade; thirty-seven occurred in the third decade; thirty occurred in the fourth decade; fifteen occurred in the fifth decade; ten occurred in the sixth decade and three occurred in the seventh decade. In practically all of these cases it had been possible to trace the subsequent history of the patients, and in all of them, so far as Elting has been able to determine, the fistulas have healed and remained well. Some of the patients have died, but none from causes associated with the fistulas except in patients with pulmonary tuberculosis, four of whom have died. There was no mortality associated with the operation. In one case an abscess formed in one of the ramifications of the fistulous tract, which required incision about one month after the operation, but which subsequently healed and has remained well. This was the only case in which any kind of a second operation was required.

In seven of the cases some degree of stenosis or stricture developed subsequently, but all of these were cases with very extensive perirectal inflammation and necrosis, in most instances associated with bowel openings from 2 or 3 inches above the anal margin. The use of hard rubber rectal dilators inserted by the patient once or twice daily effectually relieved the stricture in all of the seven cases, so that at this time none of them has occasion to use the dilators. These strictures were the result of the extensive scar tissue due to the widespread inflammation. One of these patients now has marked incontinence of feces due to an almost complete degeneration of the external sphincter muscle associated with partial degeneration of the internal sphincter. Three others of these seven have more or less incontinence of feces, when the bowels are loose, due, so far as can be determined, to the same cause. The remaining cases of the entire series have practically normal sphincteric function. From several years' study and experience in the treatment of fistula in ano, Elting concludes: that probably not more than 10 per cent. of fistulae in ano are tuberculous and that a great majority of these are secondary to demonstrable tuberculosis elsewhere in the body, usually in the lungs. The great majority of fistulae in ano originate from a diseased condition of the rectum, existing in the lower 1½ inches, and that this diseased condition is usually a hemorrhoid. The essential principles underlying the cure of fistulae in ano consist in: (a) the severance of the communication between the bowel and the fistulous tract and (b) the removal of the diseased portion of the bowel, including the fistulous opening. A widespread and often destructive dissection and removal of the fistulous tracts in the perirectal tissues is unnecessary. It is possible to cure fistulae in ano without injury to the sphincters and with a preservation of all the sphincteric function possessed prior to operation, by the application of the Whitehead principle of rectal excision.

12. **Ivory Finger Dowel.**—Primrose's patient had an enchondroma of the proximal phalanx of the index-finger of the right hand. Through this region a fracture had taken place. An ivory peg was procured, 2.5 cm. long and 3 mm. thick, which was pointed at both ends. An incision was made along the radial side of the phalanx and the bone exposed at the seat of fracture. The tumor was removed by a curet, and then a longitudinal slit 4 mm. wide was made in the compact tissue of the distal fragment, by means of a Dahlgren's rongeur forceps; the ivory peg was inserted and firmly secured in the center of the shaft of the bone, each sharp end being embedded in the cancellous tissue toward the articular extremities of the phalanx. The wound was then closed and a splint of plaster-of-Paris applied. Healing took place *per primam.* Firm union of the fracture followed, and subsequently the patient was able to use the finger in his work as accountant. The functional result as to movement and utility was perfect and it was difficult to detect any abnormality at the seat of former trouble.

13. **Reduction of Fragments in Fractures.**—Two methods for reducing fractures are described by Gerster. One is a traction method in which he separates the fragments forcibly by means of a special apparatus (hook and chain) which overcomes overriding and makes accurate approximation possible. The other is a reduction method. After proper exposure and freeing, a Lowman clamp is applied to each fragment. A turnbuckle is so inserted that the jaws at its ends engage the shafts of the clamps on either fragment. As the barrel of the turnbuckle is rotated, the clamps (fragments) are forced apart. When the turnbuckle has reached its maximum extension, a second longer turnbuckle is applied and continues the extension as far as necessary. The turnbuckle's jaws are made loosely to fit the shafts of the Lowman clamps in order to permit of the fragments (which are out of line) being gradually brought into their proper relation.

15. **Bartlett's Gastro-Enterostomy Clamp.**—The clamp described by Buchanan has a fixed center bar and a separate pair of thumb screws from each viscus. This allows the fold of stomach to be fixed in place first between the fixed center bar and one of the movable side bars. It thereafter requires no attention while the intestine is being fixed between the center bar and the other movable side bar. To render it possible to slip the rubber tubing over the middle bar and to facilitate removal, the latter is made in two sections, which are screwed together after the tubing is applied, and require to be separated for removal of the clamp after the anastomosis has been made.

Archives of Pediatrics, New York

October, XXIX, No. 10, pp. 721-800

16 *Infant Milk Depots. R. G. Freeman, New York.
17 Acute Yellow Atrophy in Child Three Years of Age. F. Huber, New York.
18 Various Meningitides: Their Diagnosis and Treatment. W. P. Lucas, Boston.
19 Blindness as Result of Inflammatory Disease, Affecting Conjunctiva and Cornea. C. W. Cutler, New York.
20 Hemophilia Neonatorum in Family of Four Infants. R. L. Pitfield, Germantown, Philadelphia.
21 Congenital Hydronephrosis, with Aplasia of Ureter. F. Van Der Bogert, Schenectady, N. Y.

16. **Infant Milk Depots.**—The ideal milk depot, in Freeman's opinion, is one equipped with rooms for preparing the milk, pasteurizing it in the nursing bottles and distributing it from depots very near the home of the mother at cost, or to the destitute free. The ideal equipment for accomplishing this would be a large plant for preparing and pasteurizing the milk, with a consulting room and dispensing room attached and with refrigerator wagons for transporting the milk. There should also be a number of sub-stations for distribution and consultation, with still more sub-stations for distribution only. Each of the consulting stations should be provided with a physician, who would spend certain hours there each day, and a nurse, who would spend all her time on the work in the depot and the homes. This scheme provides the most economical method of preparing and distributing the milk. It provides consulting rooms, where the mother may take her baby once a week for weighing and for advice, as well as nearer distributing stations, where the milk may be obtained on other week days without going as far as the consulting station. Very efficient work can be done with less equipment, where the funds are limited, when certified milk is distributed and clinics are held by physicians and nurses are provided who are active in the milk depots and at the homes. Thus the New York Diet Kitchen Association which, with a small income from subscriptions and endowment, was doing a very limited work in dispensing milk to babies and invalids, has recently rapidly expanded its work through a policy of charging those who can afford to pay, so that during the past year, with an income of some $82,000, $45,000 of which was contributed by the mothers who bought the milk, they have been able to dispense more than a million quarts of milk from nine stations, and their results have been wonderfully good. Consultations with physicians are held, and trained nurses have been attached to some of the depots and will soon be attached to all. The mortality in the patients treated at these depots has been extremely small. Of 2.421 babies under their care between June and October last, four months, including the summer months, they report only thirty deaths from all causes, a mortality of 12 to 10 per cent. for these hot summer months. Where funds are available the scheme first mentioned should be carried out. As to the results of milk depots in lowering mortality, it has been found that where they are generally established so as to supply all the babies that need their help a reduction of about 60 per cent. is obtained.

Boston Medical and Surgical Journal

November 14, CLXVII, No. 20, pp. 675-714

22 *Traumatisms of Cranium and Spinal Column; Neurologic Aspects of Injuries to Cranium and Spinal Column. E. W. Taylor, Boston.
23 *Idem: Surgical Treatment of Head Injuries Affecting Brain. J. Homans, Boston.
24 Idem: Surgical Treatment of Injuries of Spinal Column Affecting Cord. J. T. Bottomley, Boston.
25 New Device for Safe and Certain Administration of Salvarsan. W. J. McGurn, Boston.
26 Unusual Anomaly of Hands (Polydactylism). H. W. Goddall, Boston.

22. **Neurologic Aspects of Injuries to Cranium and Spinal Column.**—From a study of the clinical disturbances and pathologic findings in traumatic injuries of the cord, Taylor concludes that hemorrhage external to the cord is unusual and need not be seriously considered in deciding on operation; that concussion of the cord without definite microscopic lesions is a possibility; that the damage to the cord is immediate following the injury; that delay in operation is advisable; that operation is unavailing when signs of complete transverse lesion persist and that laminectomy may help toward restoration of the functions of a partially damaged cord.

23. **Surgical Treatment of Head Injuries Affecting Brain.**—Unless there is pressure to be relieved, hemorrhages to be stopped or fluid to be drained off, Homans says, there is nothing to be gained by operation. In properly selected cases, however, the following results are to be expected: An edematous, swollen brain is given sufficient room so that it is not compressed. In such a case rapid recovery is probable. Blood-clot from ruptured meningeal vessels is removed, and hemorrhage is stopped. Here rapid recovery is to be expected. Where concussion and laceration exist together the brain is not only given more room, but blood and cerebrospinal fluid, now no longer properly disposed of, may be drained away. Here recovery is uncertain and slow. Finally, and in general, recovery in all kinds of cases is tremendously hastened, and there is some reason to believe that many of the late neuroses, epilepsy or other mental defects, so greatly dreaded by all, are done away with.

Illinois Medical Journal, Springfield

November, XXII, No. 5, pp. 541-648

27 Some Accidents and Complications Attending or Shortly Following Extraction of Senile Cataract. C. Wood, Chicago.
28 Use of Conjunctival Flap in Perforated Wounds of Eyeball. G. F. Suker, Chicago.
29 Significance of Arteriosclerosis in Fundus Oculi. E. Hill, Chicago.
30 Prevention of Blindness and Conservation of Vision. T. A. Woodruff, Chicago.
31 Treatment of Corneal Ulcers. C. A. E. Lesage, Dixon.
32 Hemorrhage as Cause of Blindness. C. B. Welton, Peoria.
33 Treatment of Secondary Divergent Strabismus. H. W. Woodruff, Joliet.
34 Traumatic Dislocation of Crystalline Lens Without Rupture of Eyeball; with Report of Case. C. F. Burkhardt, Effingham.
35 Chicago Epidemic of Septic Sore Throat, with Special Reference to Its Pathology and Bacteriology. D. J. Davis, Chicago.
36 Septic Infection of Throat. M. T. Goldstine, Chicago.
37 Artificially Deformed Skulls, with Special Reference to Temporal Bone and Its Tympanic Portion. W. P. McGibbon, Chicago.

Journal of Biological Chemistry, Baltimore

November, XIII, No. 2, pp. 111-289

38 Tryptic Proteolysis of Cynoscion Regalis. G. F. White and A. Thomas, Woods Hole, Mass.
39 *Formation of Glycocoll in Body. A. A. Epstein and S. Bookman, New York.
40 *Comparative Efficiency for Growth of Total Nitrogen (Amid) from Alfalfa and Corn. E. B. Hart, G. C. Humphrey and F. B. Morrison, Madison, Wis.
41 *Animal Calorimetry: Influence of Ingestion of Amino-Acids on Metabolism. G. Lusk, New York.
42 *Idem: Influence of Mixtures of Food-Stuffs on Metabolism. G. Lusk, New York.
43 Creatin Metabolism of Growing Pig. E. V. McCollum and H. Steenbock, Madison, Wis.
44 Synthesis of Lecithin in Hen and Character of Lecithins Produced. E. V. McCollum, J. G. Halpin and A. H. Drescher, Madison, Wis.
45 Metabolism Studies on Cold-Blooded Animals: Urine of Fish. W. Denis, Boston.
46 *Maintenance Experiments with Isolated Proteins. T. B. Osborne and L. B. Mendel, New Haven, Conn.
47 Kyrine Fraction Obtained on Partial Hydrolysis of Proteins. P. A. Levene and F. J. Birchard, New York.

39. **Formation of Glycocoll in Body.**—The experiments recorded by Epstein and Bookman did not afford any definite evidence of the conversion of native leucin into glycocoll. In the absence of such evidence it appears likely that much of the glycocoll liberated on feeding benzoic acid is the result of a synthetic process in the body.

40. **Efficiency of "Amid Nitrogen" for Growth.**—This paper includes the records of the comparative efficiency of nitrogen from alfalfa hay and the corn kernel for growth. Also data on the relation of creatinin output to nitrogen storage in heifers. On the basis of total nitrogen ingested, the utilization of nitrogen for growth was as efficient when the source was from alfalfa hay as when it came from the corn kernel. With high intake of total digestible crude protein, which in the case of alfalfa includes the "amid nitrogen," the storage of nitrogen was essentially alike on the two rations. There was no sudden decrease or increase in the nitrogen content of the urine or feces when the animals were suddenly changed from one ration to the other. This is evidence that the "amid nitrogen" was being used in the same way as the true protein nitrogen. It is apparent from these data that full value, at least for growth, can be given to the total nitrogen of alfalfa hay. The "amid nitrogen" should not be considered worthless. The influence on milk production will be studied later. With growing heifers there was no very concordant rise in creatinin output with increased storage of nitrogen. This precludes the possibility of using this index for these animals as a measure of the efficiency of a given source of nitrogen to produce nitrogen storage.

41. **Metabolism of Amino-Acids.**—Briefly, Lusk is of the opinion that the increase in metabolism after the ingestion of meat is due to the mass action of amino-acids acting as stimuli on the cellular protoplasm.

42. **Metabolism of Mixtures of Food-Stuffs.**—Lusk concludes that there are the following forms of metabolism in the quiet or sleeping dog excluded from thermal influences: (1) A basal metabolism, when the cells are nourished by a bloodstream which does not receive food from the intestinal tract but the composition of which is regulated by the organs of the body; (2) a metabolism due to plethora, induced by an increased quantity of carbohydrate or fat metabolites in the blood on account of absorption from the intestine, and (3) a metabolism due to the stimulus of amino-acids. The metabolism of plethora and the metabolism of amino-acid stimulation cannot be added to each other; there is no summation of effect when both influences are brought into action simultaneously. In other words, the level of cellular oxidation induced by plethora is not further heightened by the stimulus of amino-acids, unless the latter alone would accomplish such increase in activity.

46. **Maintenance with Isolated Proteins.**—The authors' experimental records suggest that in the past the possibility of a transmutation or synthesis of amino-acids in the organism has been greatly underestimated, and that these chemical processes may play a more significant part in nutrition than has been credited to them hitherto. The realization of the possibility of a transmutation of amino-acids has an obvious bearing on the question of the quantity of protein in the diet; for the arguments in favor of a liberal protein intake have in part been based on the belief that all of the "Bausteine" must be supplied in adequate amounts. To what extent the daily "wear and tear" of metabolism may require a new supply of Bausteine to replace depleted tissue, remains a matter of conjecture at present. Studies to determine the amount of nitrogenous material involved in what Rubner has termed the "Abnutzungsquote" show that it is not large in quantity. The experiments here recorded give no answer to the possible extent of the synthesis of new amino-acids, except, perhaps, in the case of glycocoll and lysin. Further investigations with the various proteins must be undertaken to determine the relative minimum quantities of each of them essential for long continued maintenance.

Journal of Iowa State Medical Society, Clinton

November 15, II, No. 5, pp. 303-374

48 Surgical Operations Outside of Hospital. J. L. Augustine, Ladora.
49 General Practitioner and Surgery. E. Hornibrook, Cherokee.
50 *Right Rectus Incision for Appendicitis in Females. J. R. Guthrie, Dubuque.
51 Preoperative Treatment of Hypertrophied Prostate. J. Crawford, Cedar Rapids.
52 Preadhesion and Postadhesion in Abdomen and Pelvis. F. E. Walker, Hot Springs, S. Dak.
53 Septic Sore Throat. J. W. Thornton, Ackley.
54 Anterior Poliomyelitis—Differential Diagnosis. C. W. Negus, Keswick.
55 *Etiology and Pathology of Chronic Arthritides. W. H. Rendleman, Davenport
56 Fractures. W. J. Egloff, Mason City.

50 and 55. Abstracted in THE JOURNAL, May 25, pp. 1628 and 1629.

Journal of Missouri State Medical Association, St. Louis

November, IX, No. 5, pp. 133-166

57 Icterus Gravis Simulating Phosphorus Poisoning: Report of Case with Post-Mortem Findings. E. Smith, St. Louis.
58 *Empyema in Infancy: Report of Case. J. M. Brady, St. Louis.
59 *Surgery of Female Urethra. F. J. Taussig, St. Louis.
60 Principles Underlying Treatment of Gonorrheal Infections. J. W. Marchildon, St. Louis.
61 *Training of Physicians for Service in Hospitals for Insane. H. Unterberg, St. Louis.
62 Lessons from Recent Advances on Syphilis and Gonorrhea: Wassermann Reaction, Weil Test, Luetin Test, Gonorrheal Complement-Fixation Test. R. B. H. Gradwohl, St. Louis.
63 Medical Ethics. F. R. Anthony, Maryville.
64 Hydrophobia: Report of Two Cases. W. E. Harral, St. Louis.
65 History of Medicine; Some of Its Accomplishments. H. B Norton, Center.

58. Abstracted in THE JOURNAL, July 6, p. 159.

59. **Surgery of Female Urethra.**—The essentials of success in plastic surgery for the relief of incontinence, Taussig says, are: (1) The temporary formation of a vesico-vaginal fistula; (2) firm support by the levator ani muscle through additional sutures; (3) reinforcement of the sphincter urethra muscle by bringing together the surrounding tissues of the triangular ligament; (4) the formation of a new urethra, when necessary, by flaps from the surrounding vaginal and vestibular tissue.

61. **Physicians for Insane.**—The training of physicians for service in the state hospitals for insane in Unterberg's opinion must take place in these institutions. The greatest efficiency can only be obtained by men willing to make it a life work; men who will lay their foundation at the bottom and not in the superstructure.

Laryngoscope, St. Louis

October, XXII, No. 10, pp. 1157-1236

66 Sphenoidal Sinusitis in Relation to Optic Neuritis. J. P. Tunis, Philadelphia.
67 Artificially Deformed Skulls, with Special Reference to Temporal Bone and Its Tympanic Portion. W. McGibbon, Chicago.
68 Hypophyseal Tumor from Rhinologist's Point of View. G. McBean, Chicago.
69 Tuberculosis of Tongue. S. Von Ruck, Asheville, N. C.
70 *Some Untoward After-Effects of Too Radical Tonsillectomy. J. A. Stucky, Lexington, Ky.
71 Three Cases of Acute Follicular Tonsillitis with Unusual Sequela. S. McCullagh, New York.
72 Anesthesia for Peroral Endoscopy. C. Jackson, Pittsburgh.
73 Direct Laryngoscopy in Removal of Laryngeal Tumors. R. H. Johnston, Baltimore.
74 Three Cases of Foreign Body in Bronchus. S. Yankauer, New York.
75 Esophagoscopy in Removal of Foreign Bodies from Esophagus. R. McKinney, Memphis.
76 Stricture of Upper End of Esophagus. M. E. Holmes, Boston.
77 "Split" Mask for Administration of Anesthetics During Operations Within Mouth. S. Iglauer, Cincinnati.

70. **After-Effects of Too Radical Tonsillectomy.**—Complete tonsillectomy, according to Stucky, should be advocated as a routine procedure. He claims that tonsillectomy should be regarded as a major operation and as such should be performed in a hospital with careful surgical technic. In many, probably in the majority of cases where tonsillectomy is performed, there is more or less injury done to the pillars of the fauces. In removing the tonsils and capsule some shreds of muscular tissue are usually cut or torn off and are adherent to the removed gland. Even should this not occur, the muscle is left uncovered, hence unprotected, over the area to which the capsule of the tonsil was adhered. Tonsillectomy is not a simple operation nor is it free from danger, yet it is being performed more frequently by general practitioners and embryo specialists than any operation in surgery. Stucky has seen one case of facial paralysis lasting for five weeks. This patient was operated on by a well-known laryngologist, and there was a cellulitis following the operation. Two months after, the cicatricial tissue between the anterior and posterior pillars had the appearance of that so often seen following syphilitic ulceration. He has seen three cases in which a claim was made of marked impairment of the voice, especially of the high tones.

In two other cases the pillars of the soft palate were out of alignment due to cicatricial contraction, causing tension and interference with palatal movements, making swallowing a discomfort. The anterior and posterior pillars were matted down by adhesions, causing the traction to be so great around the fossa of Rosenmueller as to cause a partial closure of the eustachian tube with subsequent tinnitus. In three other cases the uvula had been caught in the loop of the snare as it was being placed around the tonsil and was removed with the tonsil. In two other cases there was a loss of tonicity of the tensor palati and levator muscles, which resulted in the regurgitation of fluids through the nares, lasting for several weeks. This was evidently due to the great traction made with the tonsillar forceps which was necessary to pull the tonsil out so as to make a dissection. There was one case of fatal hemorrhage a few hours after the operation, two cases of cellulitis involving the entire neck, and nine cases of secondary hemorrhage requiring a second anesthesia and tying a spurting vessel or plugging the space between the pillars and sewing the pillars together.

Maryland Medical Journal, Baltimore

November, LV, No. 11, pp. 261-286

78 Some Laryngoscopic, Bronchoscopic and Esophagoscopic Cases. R. H. Johnston, Baltimore.
79 Medical Fathers of Baltimore County, Maryland. W. J. Todd, Mt. Washington.
80 Rural Sanitation; or Physical Betterment in Country Life. C. W. G. Rohrer, Baltimore.

Medical Record, New York

November 16, LXXXII, No. 20, pp. 879-924

81 *Operation for Extreme Cases of Uterine Procidentia, with Rectocele and Cystocele. J. R. Goffe, New York.
82 Some Practical Points in Interpretation and Management of High Blood-Pressure. E. E. Cornwall, Brooklyn.
83 Modified Radical Mastoid Operation for Cure of Otitis Media Purulenta Chronica. W. S. Bryant, New York.
84 Parinaud's Conjunctivitis. J. S. Kirkendall and C. P. Fitch, Ithaca, N. Y.
85 Roentgen-Ray Therapy. H. E. Smith, Norwich, N. Y.
86 Significance of Some Urinary Constituents. J. B. Ogden, New York.
87 Congenital Stricture of Ureter, Producing Pyonephrosis; Nephrectomy. L. M. Kahn, New York.
88 *Poisoning by Scarlet Red. H. H. M. Lyle, New York.
89 Pregnant Woman, Tuberculosis and Safety. D. H. Stewart, New York.

81. **Operation for Procidentia, with Rectocele and Cystocele.**—In Goffe's operation the underlying motive is to restore not only anatomic structures, but also physiologic function. In the first class of cases, after attending to any minor lesions, the uterus is restored to its normal position by shortening the round ligaments through the vagina, and in extreme cases the utero sacrals as well. This is done with the prominent idea in view of reconstructing the normal anatomic arrangement, and thereby reestablishing the important function of the uterus and broad ligaments as a deflecting plane of intra-abdominal pressure. In dealing with the cystocele, the effort has been made to observe with scrupulous care also the anatomy, function, and topographic position of the bladder. The trigone of the bladder is spread out and made fast to the anterior face of the uterus and broad ligaments, by carrying the base of the bladder up and stitching it at three points; one stitch at each cornu, and one in the median line at the center of the anterior face of the uterus. The uterovesical peritoneal fold is restored as well as the hinges on which the dome of the bladder moves in its function of receiving and discharging the urine. This gives a fixed point of exit for the urine and a rigid canal in the passage of the ureters through the wall of the bladder.

In the restoration of the floor of the pelvis Goffe uses the method of distinct isolation of the levator ani muscles and stitching them together with buried sutures.

In the second class of cases, that is, in patients at, near, or beyond the menopause, unless there is positive objection on the part of the patient the uterus is removed per vaginum. In order to restore the deflecting plant of tissue the broad ligaments are stitched together across the pelvis from the infundibulopelvic and round ligaments down to cardinal ligaments. In this procedure a plane of tissue is restored in exactly the same situation and under control of the same ligaments as under normal conditions. This deflects from its posterior surface back into the pelvic outlet, the intraabdominal pressure, and thus physiologically takes place of the original structures. On its anterior face it also affords a surface on which to spread out and fix the trigone of the bladder, restoring its hinges and all its physiologic functions. The floor of the pelvis is restored in the usual manner.

88. **Poisoning by Scarlet Red.**—Lyle's case was that of a woman, 50 years old, suffering from extensive burns of the anterior chest, both forearms and wrists, caused by exploding benzine. They were treated by the dry method until the sloughs separated. A scarlet red ointment (8 per cent. scarlet red in U. S. P. boric acid ointment) was applied to a small portion of the granulated edges. As the wound reacted kindly the area of application was extended. On the sixteenth day of the employment of the scarlet red ointment the patient complained of headache, dizziness and general faintness. The following morning she was seized with severe cramp-like pains in the epigastrium, was intensely nauseated, and vomited violently. The pain was accompanied by tenderness in the upper right quadrant of the abdomen, the maximum point being in the region of the pylorus; the temperature rose to 102 F.; the pulse to 120; the blood count showed a slight leukocytosis; urination was frequent and painful, the urine showing albuminuria but not casts. Despite gastric sedatives and lavage the nausea and vomiting persisted for ten hours. The violent onset coupled with the pain and tenderness in the upper abdomen, suggested the possibility of a duodenal perforation. However the low blood count, the lack of abdominal rigidity, and the peculiar intensity of the nausea pointed to some form of poisoning rather than to a perforation. After the discontinuance of the scarlet red and the employment of repeated stomach and colonic washes the symptoms gradually subsided. One week later the scarlet red was again applied to a small area, and gradually increased until two-thirds of the circum-

ference was covered. The same toxic symptoms appeared, but of a milder degree, and again disappeared on the withdrawal of the scarlet red. After a second interval of rest the scarlet ointment was applied in a 4 per cent. strength; no further toxic symptoms developed. Throughout the treatment there were no signs of local wound irritation. Four months after admission to the hospital the patient was discharged cured.

New York Medical Journal

November 16, XCVI, No. 20, pp. 993-1048

90 Infant-Feeding. L. Fischer, New York.
91 *Salvarsan in Leprosy. C. Wellman, New Orleans.
92 Heliotherapy. A. M. Forbes and G. G. Copeland, Montreal.
93 Removal of Ureteral Stone by Cystoscopic Methods. B. Lewis, St. Louis.
94 Angioma of Pons. G. R. Lafora, Madrid, Spain.
95 Venereal Diseases; Sanitary and Social Problem. F. Bierhoff, New York.
96 Rational Therapy of Syphilis in Light of Recent Investigations. J. S. Eisenstaedt, Chicago.
97 Review of Newer Methods of Diagnosis in Cancer. M. J. Sittenfield, New York.
98 Deformities of Nose. F. S. Lovell, New York.

91. **Salvarsan in Leprosy.**—In the case of four or five patients the administration of salvarsan by Wellman resulted in clinical improvement. The other case ended fatally from the result of accidental burns before observations could be completed. Two cases in which the disease was least advanced showed the best results. One of the controls remained unchanged in condition and the other grew steadily worse and finally died. In one case, *Bacillus leprae* disappeared from the nasal secretion after treatment. Four patients showed partial or complete resolution of the specimen nodules examined after treatment.

Northwest Medicine, Seattle, Wash.

November, IV, No. 11, pp. 325-356

99 Micrococcus Catarrhalis Infection of Urethra Resembling True Gonorrhea. L. Buck, Portland, Ore.
100 Treatment of Pus in Urine. G. S. Whiteside, Portland, Ore.
101 Treatment of Ruptured Appendix. W. B. Holden, Portland, Ore.
102 Surgical Treatment of Constipation. A. E. Rockey, Portland, Ore.
103 Treatment of Pneumonia. J. H. Bristow, Portland, Ore.
104 *Vaccine Treatment of Rheumatism. A. W. Moore, Portland, Ore.
105 Rationale of Treatment of Typhoid with Vaccine. W. F. Amos, Portland, Ore.
106 Few "Don'ts" in Obstetrics. G. Parrish, Portland, Ore.
107 Treatment of Toxemia of Pregnancy. J. M. McGaven, Portland, Ore.
108 Treatment of Psoriasis. G. H. Douglas, Portland, Ore.
109 Treatment of Whooping-Cough. J. B. Bilderbach, Portland, Ore.
110 Treatment of Cross-Eyes in Children. F. A. Kiehle, Portland, Ore.
111 Use of Culture Products in Treatment of Tuberculosis. C. C. Browing, Los Angeles, Cal.

104. **Treatment of Rheumatism.**—Summing up the treatment of rheumatism, Morse says, prevent the bacteria from entering the system, rest in bed, immobilize the joints affected with great pain, ascertain which specific bacterium causes the trouble and use its bacterin. The salicylates either alone or in connection with the latter, abundance of fluids by the stomach, together with counter irritants, will offer about as much as can be given for this affliction.

Texas State Journal of Medicine, Fort Worth

November, VIII, No. 7, pp. 181-204

112 Simple Rules for Effective Teaching and Safe Practice of Obstetrics. H. Schwarz, St. Louis.
113 Plea for Square Deal for Patient. R. R. White, Temple.
114 Relation of General Practitioner to Surgical Diagnosis. J. E. Dildy, Lampasas.
115 Treatment of Chronic Suppuration of Nasal Accessory Sinuses. J. H. Foster, Houston.
116 Gangrenous Appendix. W. H. Walker, Wichita Falls.
117 What Shall We Do to Be Saved? A. B. Leeds, Chickasha, Okla.

West Virginia Medical Journal, Wheeling

November, VII, No. 5, pp. 147-180

118 Some Modern Factors of Safety in Surgical Operations. J. S. Horsley, Richmond, Va.
119 Suggestions to Medical Society. J. Schwinn, Wheeling.
120 Management of Cases of Ophthalmia Neonatorum. H. McGuire, Winchester, Va.
121 Surgery of Biliary Tract. G. C. Rodgers, Elkins.
122 Personal Observations in Practice. E. Walker, Tunnelton.
123 Liver Cirrhosis in Boy of Four Years. G. R. Davis, McDonald.
124 Radical Treatment of Acute Gonorrheal Epididymitis. W. S. Robertson, Charleston.
125 Antityphoid Vaccination. M. P. Ravenel, Madison, Wis.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

November 2, II, No. 2705, pp. 1173-1260

1 *High Blood-Pressure; Its Associations, Advantages and Disadvantages. Sir W. Osler.
2 *Calculation of Drug Dosage for Children. W. J. Dilling.
3 Successful Removal of Tumor in Adrenal. H. T. Mursell.
4 Some Experiments with Ionic Medication. N. S. Finzi.
5 Case of Uremia Treated by Morphin. A. H. Carter.
6 Two Cases of Peptic Ulcer of Esophagus. C. G. Watson.
7 Trypanosoma Rhodesiense. J. W. W. Stephens and H. B. Fantham.
8 Identity and Mode of Transmission of Trypanosomes. F. K Kleine.
9 Trypanosoma Rhodesiense and Trypanosoma Gambiense. F. Mesnil.
10 Trypanosomes Infecting Game and Domestic Stock in Luangwa Valley, Northeastern Rhodesia. A. Kinghorn and W. Yorke.
11 Pathologic Histology of Trypanosomiasis. S. B. Wolbach and C. A. L. Binger.
12 Organisms Isolated from Lesion of Human Leprosy. C. Duval.
13 Problem of Leprosy. M. E. Marchoux.
14 Comparative Experimental Study of Leprosy Cultures of Clegg, Duval, Kedrowsky, Rost and Williams. H. Bayon.
15 Kala-Azar Problem. W. S. Patton.
16 Some Experimental Facts on Kala-Azar (Indian). R. Row.
17 Some Insect Flagellates and Problem of Transmission of Leishmania. H. B. Fantham.
18 Demonstration of Specimens Relating to Transmission of Artificial Cultures of Leishmania Infantum to Mice and Rats. H. Bayon.
19 Sanitation of Agricultural Estates in Tropics. M. Watson, W. C. Brown, W. F. Law, K. S. Wise and E. P. Minett.
20 Helminthic Toxins. M. Weinberg.
21 Blood Determination in Case of Katayama's Disease. Bassett-Smith.
22 Importance of Hyphomycetes and Other Fungi in Tropical Pathology. A. Castellani.
23 Copra Itch. A. Castellani.
24 Treatment of Elephantiasis of Legs by Lymphangioplasty. F. C. Madden, A. Ibrahim and A. R. Ferguson.

1. **High Blood-Pressure.**—Of drugs, says Osler, none are entirely satisfactory in chronic hypertension. Nitrites in various forms may be used, and are often of temporary benefit, but he thinks the general opinion now is that neither the nitrites nor potassium iodid are of permanent benefit, though now and again one meets with an instance in which the prolonged use of potassium iodid is followed by marked lowering of the pressure. A preparation of mistletoe has also been much lauded, but it, too, is very variable in its effects. Osler advises caution in this point—if the patient does not feel so well, and begins to get thin and look badly, stop all drugs, trust to general measures and let the pressure rise. In the robust man of full habit in the hypertensive crises with headaches, dyspnea or angina, a free venesection is indicated, to be followed by mercurial and saline purges.

2. **Calculation of Drug Dosage for Children.**—The method suggested by Dilling for the metric system $\frac{\text{Age} \times 5}{100}$, or for the imperial system $\frac{\text{Age}}{20}$, results in doses which correspond closely with those demanded by the average weights of nonadult individuals of both sexes at different ages. Using 100 as the denominator and 20 as the adult age, thus, the formula $\frac{\text{Age} \times 5}{100}$ gives a curve which lies for the greater part of its course between the percentage weights of males and females. Such a fraction is extremely easy to calculate when metric weights are in use. Thus, if 0.33 gram be the adult dose. the dose for a child of 7 is 0.1155 gram, obtained by multiplying 0.33 by 35, and shifting the decimal points two places to the left.

Lancet, London

November 2, II, No. 4653, pp. 1199-1270

25 Eugenics: "Unto the Third and Fourth Generation." J. G. Adami.
26 *Importance of Examining Urine Bacteriologically. W. H. White.
27 *Histology of Experimental Rheumatism. C. Coombs, R. Miller and E. H. Kettle.
28 *Analysis of Injuries to Bones at Wrist. R. Knox and R. W. A. Salmond.
29 Auricular Fibrillation. C. E. Lea.
30 Case of Auricular Fibrillation and Pregnancy. C. H. Miller

26. **Bacteriologic Examination of Urine.**—The importance of a bacteriologic examination of the urine is emphasized by

White, and he cites a number of cases to prove the correctness of his contention. He points out that the contamination of urine by microorganisms, even when it is withdrawn from the bladder with aseptic precautions, is not uncommon, and females are more affected than males; the right kidney is much more frequently implicated than the left, and *Bacillus coli* is by far the commonest microorganism. Various treatments of the illness associated with *Bacillus coli* in the urine have been advised, and in estimating their value regard must be paid to the great variation in the severity of the cases and to the fact that some get well without any treatment. The patient should certainly be put to bed and have plenty of fluid to drink. Those who attach much importance to the state of the intestinal tract will, if there are any symptoms that this is disordered, try to get into a healthy condition. Alkalies have been largely used, and some think with great benefit. They are given because it is thought that *Bacillus coli* will not grow in an alkaline fluid, but in reality it will grow equally luxuriantly in either alkaline or acid urine. White's usual treatment is to give plenty of hexamethylenamin; say, 10 grains dissolved in water four or five times a day for an adult, together with from 10 to 20 grains of acid sodium phosphate dissolved in water every hour the patient is awake so as to keep the urine acid, for hexamethylenamin acts by the liberation of formaldehyd. He usually also uses an autogenous colon vaccine, giving an adult from 3,000,000 to 5,000,000 for the first dose, a second similar dose is given three days afterward, and later from 20,000,000 to 50,000,000 are given once a week. Even with the most thorough treatment, it is often difficult or impossible to get rid of the microorganisms from the urine, but that seems to White the very reason why every means should be taken, and therefore he uses vaccines as well as urinary antiseptics. Certainly patients benefit while on this treatment, although often the illness passes away, but the microorganisms remain in the urine. When this is so it may be that the bacilli having changed their character, a fresh, autogenous vaccine is desirable, but, he says, we must have a much larger experience before we know whether a change of vaccine causes the bacilli to disappear more rapidly than they would if vaccines were discontinued altogether after the subsidence of symptoms.

27. **Histology of Experimental Rheumatism.**—The authors have attacked this problem afresh from the histologic point of view. Do the rabbit lesions which follow inoculation with streptococci isolated from human rheumatism correspond microscopically with those of human rheumatism or not? Their results hitherto have been few, but such as they are they enable them to reply to this question in the affirmative. Inoculation of rabbits with streptococci recovered from cases of rheumatic infection provoked arthritis, carditis and other lesions. Histologic examination of these lesions discovered (*a*) that they are identical with similar changes provoked in rabbits by inoculation with a similar microorganism in the hands of other investigators; (*b*) that they include all the phenomena, even the submiliary nodule, found in the rheumatic lesions of man. Such differences as exist between the experimental rheumatic infection and the human variety are accounted for by a difference in the mode of entry of the infective agent in the two conditions.

28. **Injuries to Bones at Wrist.**—The analysis of 214 cases by Knox and Salmond has shown that the most common injury at the wrist in cases in which the epiphyses have joined their shafts is a transverse fracture one-half inch above the lower end of the radial bone, the lower fragment being displaced backward, and with or without a fracture of the styloid process of the ulna, while in cases in which the epiphyses are not yet united, the commonest injury is a transverse fracture about 1 inch above the lower ends of both forearm bones and with both lower fragments displaced backward.

Clinical Journal, London

October 2, XL, No. 26, pp. 401-416

31 Treatment of Hemorrhage. M. Smith.
32 Diagnostic Value of Sensory Changes in Diseases of Nervous System H. Head.

October 9, XL, No. 1, pp. 1-16

33 Diseases of Pleura. C. Wall.
34 Three Demonstrations on Methods of Investigating Gastric Diseases. W. L. Brown.
35 Flat-Foot. R. C. Elmslie.

October 16, XLI, No. 2, pp. 17-32

36 Syphilis of Nervous System in Infancy, Childhood and Early Adult Life. S. A. Owen.
37 Diseases of Pleura. C. Wall.

October 23, XLI, No. 3, pp. 33-48

38 *Treatment of Bronchitis in Stout and Elderly. H. Campbell.
39 Methods of Investigating Gastric Disease. W. L. Brown.
40 Syphilis of Nervous System in Infancy, Childhood and Early Adult Life. S. A. Owen.

October 30, XLI, No. 4, pp. 49-64

41 Methods of Examination of Ophthalmic Cases. M. L. Hepburn.
42 Syphilis of Nervous System in Infancy, Childhood and Early Adult Life. S. A. Owen.

38. **Treatment of Bronchitis.**—As to the treatment of a stout patient suffering from acute bronchitis, Campbell says: First of all, give him cool fresh air to breathe. Next, order a tube of oxygen to be at hand. Apply a dozen leeches over the liver and encourage the flow of blood by subsequent hot fomentations. Order 5 gr. of calomel and a mixture containing carbonate of ammonia and senega. As for the edema, the most effective way of getting rid of it is by means of digitalis and theocin sodium acetate (5 gr. *ter in die*). As regards food, it should in all cases of this kind be practically withheld altogether for a few days at least. Starve the patient. Campbell says many lives are sacrificed through ignorance of this common-sense precept. Every particle of food which is absorbed goes to increase the production of carbonic acid, and it is the excess of this in the blood which causes the dyspnea. The patient may drink as much water as he likes, or he may have weak tea.

As to the treatment of chronic bronchitis in an obese subject: The air the patient breathes shall be as pure as possible, and endeavor should be made to bring about a vigorous circulation of healthy blood throughout the body. As regards climate, a pure, dry, warm air is the best. Cold air is not in itself bad for the lungs; it has rather a stimulating effect. The injurious effect of cold climate, especially a cold damp climate, on the respiratory mucous membrane depends on its unfavorable effect on the skin. The skin excretes less actively in a cold damp than in a warm dry climate. The respiratory mucous membrane and the skin are to some extent complementary to one another, and if the action of the skin is checked, much of the poisonous material which is normally eliminated by it is got rid of by the respiratory membrane, which in this way may be irritated into inflammation. The bronchitic therefore does best in a warm, dry climate.

The promotion of a vigorous circulation of healthy blood is secured by common-sense means. Get the patient down to his normal weight. Have recourse to diabetic diet and prescribe a due amount of exercise. The withdrawal of starch and sugar is often followed by a considerable improvement in digestion and a reduction in the generation of poisons, which by their absorption into the blood exercise so injurious an effect on the bronchial mucous membrane. Such starch as is allowed should be chewed very thoroughly, so as to secure, as far as possible, its predigestion in the buccal cavity. In this way much of it may be converted into dextrins, and some of it even into maltose, before it reaches the stomach. A favorite plan of Campbell's is to order the patient a grain of grey powder and a teaspoonful of castor oil (in the form of a tasteless emulsion) every night for some months, or, instead of the oil, we may find it better to give half an ounce to 1 ounce of paraffin. As regards expectorants, alkalies and ether are probably the best. The part of expectorants in the treatment of bronchitis is, however, a subsidiary one. Too great reliance has been placed on them in the past to the neglect of common-sense measures. Bronchitis has never been cured by drugs, any more than dyspepsia has, but it often yields to common-sense treatment, and no variety more so than the chronic bronchitis of the elderly stout person. Campbell believes that there is a danger that as we become more scientific we may neglect the more prosaic dictates of common sense.

Medical Press and Circular, London

October 2, XCIV, No. 3830, pp. 343-368

43 Pneumococcal Meningitis. Lafforgue.
44 Clinical Significance of Albumin Reaction in Sputum. M. Fishberg.
45 Subphrenic Abscess. F. Jeans.
46 Rupture of Intestine in Hernial Sac. R. A. Stoney.
47 Relationship of National Insurance Act to Voluntary Hospitals, Especially Those with Attached Medical Schools. W. M. Eccles.

October 9, XCIV, No. 3831, pp. 369-394

48 Decompression Operation for Cerebellar Tumor. A. A. McConnell.
49 *"Penny Signs" in Pleurisy and Ascites. M. Brelet.
50 Eye-Strain and Its Detection in Practice. S. Stephenson.
51 Medical Men and Contract Practice. H. B. Grimdale.

October 16, XCIV, No. 3832, pp. 395-420

52 Plaster-of-Paris in Surgery. W. C. S. Stevenson.
53 Some Practical Points in Treatment of Eczema. G. S. Stopford-Taylor.
54 Clinical Importance and Significance of Acidosis in Diabetes. H. Montlaur.
55 *Carcinoma of Breast. S. J. Ross.

October 23, XCIV, No. 3833, pp. 421-448

56 Two Cases of Acromegaly. T. G. Moorhead.
57 Passing of Morbid Anatomy. J. F. Goodhart.
58 Widening of Scope of Abdominal Surgery from Life-Saving to Health-Restoring Operations. A. E. Giles.
59 Pulmonary Tuberculosis and Medical Gymnastics. F. Sylvan.

October 30, XCIV, No. 3834, pp. 449-476

60 Treatment of Icterus. G. Hoppe-Seyler.
61 Diet in Nervous Disorders. T. A. Williams.
62 Bacteriology of Uterine Cavity Fibromyomatous Disease. C. H. S. Webb.
63 Colloid Selenium in Treatment of Cancer. M. Laurent and J. Bohec.

49. **"Penny Signs" in Pleurisy and Ascites.**—Many years ago Professor Pitres of Bordeaux called attention to a new sign in pleurisy with effusion, based on the transmission of the sound obtained by tapping one coin on another, which he called the "*signe du sou.*" Brelet says that Pitres' sign is often of the greatest assistance in the diagnosis of pleural effusion, often a matter of some delicacy. To elicit Pitres' sign in a case of pleurisy with effusion, a coin is placed flat on the chest, in front, just below the nipple, and an assistant taps it with another coin, striking vertically. While this is being done the observer listens over the back and side of the thorax. If the interior of the thoracic cavity be occupied by a homogeneous medium, either solid or liquid, which conducts sound more perfectly than normal pulmonary tissue, the percussion sound is audible as a clear ringing silvery vibration. The "penny sign" is, therefore, not pathognomonic of pleural effusion, but as massive indurations of the pulmonary parenchyma are much more uncommon than pleural effusions, this sign, taken in conjunction with the more or less complete series of other signs and symptoms, will, in most instances, indicate the existence of a liquid effusion into the pleural cavity. In a normal abdomen the "penny sign" is negative. In obesity the "penny sign" is always negative; one gets a sound like that of bronze. In meteorism and tympanism the results are the same. In ascites, of which the author gives thirty-five instances, the result in thirty-one cases was very obviously positive; that is to say, he heard a clear, silvery sound. In four cases it was doubtful or faintly positive. It follows, therefore, that when there is a mass of fluid between the two points the transmitted sound is clear and silvery in tone. With regard to the cases in which the result was doubtful, it is to be noted that in one of them the ascites was very abundant and under great pressure, so that possibly the heightened tension hindered the transmission of the sound. In the other instances it may be that peritoneal adhesions fixed the loops of the intestine, locking up the effusion into compartments and thus interfering with the production of the "penny sign." In most of these cases it was found possible, by shifting the point of percussion and auscultation, to demonstrate the limits of the effusion.

55. **Carcinoma of Breast.**—Ross firmly believes that as the precancerous stage of cancer is inflammatory, all breasts affected with chronic mastitis after the patient has reached fifty years should be removed. No breast tumor should be regarded as simple until it has been proved so by microscopic examination. The sooner we cease to worship the age incidence of malignant disease as a fetish, the better it will be for the patient and the reputation of surgery. The sooner we recognize that the extensive wounds of breast amputations should be closed and not necessarily drained, the less frequently we shall hear of "recurrence" in the scar. Merely to dissect away the pectoralis fascia when operating for breast cancer is to court disaster. When operating on cases of cancer of the breast we must be prepared for an extensive and tedious dissection; otherwise, we had better leave the case alone. In every case, however small the primary growth may be, we must remove the breast, open the axilla and clear away all glands and fat, and remove the pectoralis major; if we have the least doubt about the state of affairs around the coracoid process we should also remove the pectoralis minor. Finally hemostasis must be complete, and drainage of the wound is to be avoided.

Indian Medical Gazette, Calcutta

October, XLVII, No. 10, pp. 381-420

64 *Treatment of Snake-Bite by Permanganate of Potassium. W. B. Bannerman.
65 Extraction of Cataract in Its Capsule by Division of Suspensory Ligament. V. B. Nesfield.
66 *Special Type of Recurrent Fever Due to a Spirocheta. G. V. Browse.
67 Gleanings from Calcutta Post-Mortem Records. L. Rogers.

64. **Treatment of Snake-Bite.**—The conclusions reached by Bannerman as to the action of potassium permanganate powder on small doses of cobra venom injected just under the skin appear to be that this treatment is of some little use under these highly artificial conditions. It must be remembered, however, he says, that a snake does not deposit its venom under the skin, but striking as it does with its fangs at right angles to the skin, the poison must usually be placed well below the fascia of the part, and therefore further removed from the application of a chemical antidote. With regard to Daboia venom injected just under the skin, the results are very similar to those obtained with the venom of the cobra; *i. e.*, that under artificial conditions the treatment by free incision and rubbing with powder of potassium permanganate is of some little use. As a practical measure for employment after actual snake-bite it appears to be of no use whatever.

66. **Recurrent Fever.**—Browse calls attention to a disease observed in Quetta which appears to differ in many respects from the classical forms of recurrent fever at present described, and which at the same time has certain characteristics common to each. The disease is caused by a spirochete. It differs from classical recurrent fever in the type of pyrexia, and the blood changes, namely, the slightly marked polymorphonuclear increase and distinct large mononuclear increase; it resembles classical recurrent fever in some of its clinical features. It differs from African tick fever chiefly in the very great contrast in climatic conditions under which it develops. In other respects, such as the type of pyrexia and blood changes, there is a decided resemblance. The clinical features of the disease are not very distinctive, and to a modified extent resemble those which occur in relapsing fever. It is a mild disease, and in no case were there, at any time, symptoms of a serious or alarming nature. In most, the only symptoms were those common to any febrile condition. In the eighteen cases seen by Browse the onset was sudden, with a feeling of cold but no actual rigor. Vomiting was the exception and in no case was jaundice or rash noticed. All the patients invariably felt perfectly well directly the fever ceased and much resented being detained in hospital. A few, after late relapses, became anemic and debilitated; otherwise the disease was trivial in its effects. Pains in the limbs and joints were not uncommon, but were only marked in three cases out of eighteen. Eight patients had enlargement of the spleen on admission, but of these, five were men with chronic splenitis not due to the spirochetes. Pain and tenderness over the spleen and liver during the fever paroxysms was observed in three cases, but was the exception. The temperature follows a course similar to that of African tick fever, as it attacks the foreigner to the country. In no case did the temperature remain constantly elevated for as long as four days, as it does in relapsing fever.

Annales de Gynécologie et d'Obstétrique, Paris

October, XXXIX, No. 10, pp. 577-640

68 *Prophylaxis of Operative Infection of the Peritoneum. P. Lecène. Commenced in No. 9.
69 *The Urea Index in Pregnancy. (La constante urémique chez la femme enceinte.) Le Lorier.

68. **Prophylaxis of Wound Infection in Gynecology.**—Lecène looks to improved technical skill in operating for prevention of operative infection, the use of gloves, asepsis and limitation of the field of operation, exact peritonization of all raw surfaces, with or without the roofing over of the small pelvis, and a more skilful selection of the methods to be applied in the individual cases. Progress will be along the lines of stricter asepsis and closer adherence to physiologic processes.

69. **Urea Index in Pregnancy.**—Ambard's formula for estimating the "uremic constant" in individual cases was described in The Journal, September 7, p. 818, and July 20, p. 229. Le Lorier has determined this index in twenty-four pregnant women; in ten the index was within normal range, in four much below and in four much above. In one in the latter group the index was 0.850 (the normal average is 0.065), and it thus indicated defective elimination on the part of the kidneys. The patient was a primipara of 24 at the eighth month who had three eclamptic convulsions three weeks before but none since. The Esbach test showed still considerable albuminuria. The second patient in this group had an urea index of 0.106 and there was considerable albuminuria due in part to infection of the bladder. The third patient had an index of 0.104 and although the urine seemed normal yet the woman required strict dietetic measures to bring her safely to term. The fourth patient had an index of 0.896; she was in coma at the time and died the next day. The details of the twenty-four cases are tabulated for comparison. They demonstrate anew that the proportion of urea in the blood-serum is not a reliable criterion alone for determination of the degree of permeability of the kidneys.

Bulletin de l'Académie de Médecine, Paris

October 15, LXXVI, No. 34, pp. 247-276

70 *Influence of Chemical Composition of Air on Vitality of Microbes. A. Trillat and Guéniot.
71 *Direct Sunlight in Treatment of Surgical Tuberculosis, etc. (Héliothérapie.) A. Poncet and R. Leriche.

70. **Influence of Contamination of Air on Microbes.**—The extensive researches reported demonstrate that vitiation of the air by the emanations of putrefaction favor the vitality of microbes, and that certain gases in water have the same favorable action, such gases as are alkaline in nature and contain ammonia, fatty amins and volatile nitrogenized substances allied to the alkaloids. It was found that distilled water containing one five-millionth of its weight of a putrid gas and an infinitesimal amount of mineral matters serves as a fine culture medium when inoculated with germs; they grow luxuriantly in it. The experiments related confirm anew the deleterious influence of fogs, extreme humidity, low atmospheric pressure, vicinity of a focus of putrefaction or contamination with the gases of respiration. They throw light further on the changes in food noticed during storms and other unusual atmospheric conditions and the aggravation of unprotected wounds.

71. **Direct Sunlight in Treatment of Local Processes.**—Poncet has been utilizing for twenty years and in over three hundred cases the benefits from direct exposure of local tuberculous and other processes to the sunlight. He commenced this long before "heliotherapy" was heard of. His experience has shown that the method is applicable in nearly every climate and that scrofula, rachitis and all forms of inflammatory tuberculosis seem to do better at the seashore, while deep bone processes and any tendency to pulmonary tuberculosis indicate the mountains rather than the seashore. The exposures should not be over ten minutes at first, gradually increasing until the part is exposed to the direct sunlight for three hours morning and afternoon. One of his most successful cases was in a patient who got his exposures on the fifth floor of a tenement house in the center of Lyons. The heliotherapy does wonders, he says, in tuberculous peritonitis and as an adjuvant to operative measures in nearly all forms of tuberculosis, in tardy consolidation of fractures, and for all torpid, chronic infectious processes and trophic disturbances. Even when a plaster cast is necessary, he always applies it in such a way as to permit exposure to the direct sunlight. The benefit is most marked, as a rule, with patients who "burn" most readily.

Archives des Maladies du Cœur, Etc., Paris

October, V, No. 10, pp. 625-688

72 *Pathogenesis and Pathologic Anatomy of Chronic Aortitis and Atheroma in Children. A. L.-Franckel.
73 *Angina Pectoris and Tobacco. G. Mouriquand and L. Bouchut.
74 Case of Sporadic Hemophilia with Fatal Anemia. E. de Massary and P. V.-Radot.

72. **Aortic Disease in Children.**—Franckel summarizes thirty-four cases, including seven from his own experience and one reported by Wilson and Marcy in The Journal, 1907.

73. **Angina Pectoris and Tobacco.**—In the case reported a man of 34, a great smoker, developed attacks of angina pectoris and died in one. There was no trace of venereal disease or alcoholism, but signs of tobacco poisoning had been pronounced during life and the man had spontaneously reduced his daily ration of cigars and cigarets as he had noticed that too much smoking aggravated the dyspnea. He died five months after the first signs of heart trouble. The case would have been cited as one of fatal tobacco poisoning but necropsy revealed syphilitic lesions in the aorta partly closing up the openings into the coronary arteries. There is no evidence to date that tobacco alone can induce fatal angina pectoris, but of course it can aggravate an existing tendency.

Archives Mensuelles d'Obstétrique et de Gynécologie, Paris

October, I, No. 10, pp. 145-272

75 *Surgical Treatment of Cançer of the Uterine Cervix. J. L. Faure.
76 *Surgical Treatment of Uterine Hemorrhage. P. Bar.
77 Evolution of the Mammary Gland. (La glande mammaire. Les phases qu'elle présente au cours de son évolution et de leur déterminisme d'après les recherches de MM. Bouin et Ancel.) J. L. Chirié.
78 *Tuberculosis of Uterine Cervix. B. Desplas.

75. **Cancer of the Uterine Cervix.**—Faure states that his oldest cured patient was operated on over fourteen years ago, and he has remained faithful ever since to the method of removing the entire uterus and part of the vagina in a single mass. He has now an experience of 250 such operations, and advocates ligating the hypogastric arteries, mentioning several other useful points in technic. Radium applications are valuable after removal of the tumor but he warns expressly against the use of radium preliminary to an operation. Any advantage from it is far outbalanced by the sclerosis of adjacent tissues which it induces, hampering the work on the ureters in particular. But he commends in high terms the application of radium three weeks after the operation, introducing it into the funnel left by the excision of the cervix.

76. **Operative Treatment of Uterine Hemorrhage.**—Bar analyzes the 153 cases of excessive hemorrhage during pregnancy or childbirth at the maternity in his charge since 1897, in a total material of 20,000 obstetric cases. With hemorrhage from an abnormally implanted placenta, only 2.6 per cent. of the women succumbed to the hemorrhage while 6.5 per cent. died of infection for which obstetric procedures were probably responsible. No less than 31.37 per cent. of the 153 women presented symptoms of infection. Three of the women died from secondary hemorrhage caused during the extraction of the fetus. The danger therefore with an abnormally inserted placenta is mainly from infection and from new hemorrhage caused by maneuvers to hasten delivery. Laceration of the cervix from rapid dilatation seems to be particularly dangerous in this respect, the possibly minute hemorrhage from the laceration proving the last straw.

78. **Tuberculosis of Uterine Cervix.**—Desplas reviews the extensive monographs that have appeared on this subject of recent years and emphasizes the importance of traumatism, anomalies in menstruation and defective development of the genital system as contributing factors. The main point in the diagnosis is to think of the possibility of tuberculous lesions at this point, and then to differentiate them by exclusion. If primary lesions here prove rebellious to local treatment. iodin, silver nitrate, the actual cautery, interstitial injection of zinc chlorid or Bier's method of vacuum hyperemia, the cervix should be amputated or the entire uterus removed.

Abdominal hysterectomy is advocated by many in case there is suspicion that the adnexa are involved.

Presse Médicale, Paris

October 23, XX, No. 86. pp. 865-872

79 Perforated Gastric or Duodenal Ulcer; Five Cases. Recovery After Early Operation. F. Lecène.

October 26, No. 87, pp. 873-884

80 True and False Cancer. (De l'inflammation subaigue et des pseudo-sarcomes inflammatoires.) G. Durante.
81 *Dilatation of the Pylorus by Inflatable Ball in Treatment of Tardy Pain in the Stomach from Minute Ulceration in the Pylorus. L. Mennier.

October 29, Supplementary No., pp. 885-900

82 *Fibromas in Nasopharynx. J. and L. Ducuing.

81. **Treatment of Tardy Pains in the Stomach.**—Mennier has been impressed with the resemblance between the symptoms presented by a minute ulceration near the pylorus-duodenum junction and fissure of the anus. The tardy pains are the result of morbid contracture of the sphincter, and this may also be the primal factor in the development of the ulceration. The logical conclusion is that the lesion and pain may be amenable to the same treatment which has proved its efficacy with fissure of the anus, namely, forcible dilatation of the sphincter. He gives an illustration of the small inflatable ball he uses for the purpose, connected by a long tube with a rubber bulb. The little ball is swallowed by the patient as he drinks a glass of some alkaline beverage. The ball is left undisturbed for some hours, possibly over night, to make sure that it has passed into the duodenum. It is then inflated and is gently pulled upward. The resistance offered by the pylorus is felt distinctly when the ball reaches a point about 55 cm. from the teeth. The procedure is repeated every two or three days, inflating the ball more and more each time but never enough to cause pain. After five or six applications of the measure the tardy pains became attenuated, as a rule; if they persisted after this he advised operative measures, but he thinks that this mechanical dilatation should be given a trial before advocating an operation.

82. **Fibromas in the Nasopharynx.**—This article is accompanied by twelve illustrations showing the advantages of the different technics to meet various indications.

Revue Pratique d'Obstétrique et de Gynécologie, Paris

October, XX, No. 10, pp. 289-316

83 *Scraping Out Contents of Uterine Cervix in Subtotal Hysterectomy. (De l'évidement systématique du moignon cervical dans l'ysterectomie subtotale.) De Rouville.
84 Advantages of Formaldehyd in Sterilization of Gloves and Instruments. G. Gross and M. Barthélemy.

83. **Scraping Out the Stump of the Uterine Cervix with Subtotal Hysterectomy.**—De Rouville has applied the method he describes in about a dozen cases, and declares that it combines the advantages of both the total and subtotal operation without the drawbacks of either. After the uterus and adnexa have been excised, he seizes the upper edge of the stump of the cervix with two forceps and has an assistant pull down on the forceps as if he were trying to turn the cervix inside out. With a bistoury De Rouville scrapes out the center of the stump with circular sweeps until he has emptied it completely, leaving only a thin shell a few millimeters thick. The lips of the shell are then sutured together which arrests all hemorrhage. The vagina is left intact, while all the tissue in the stump which might cause trouble later has been cut out.

Semaine Médicale, Paris

October 30. XXXII, No. 44, pp. 517-528

85 *The Atropin Test in Diagnosis of Brain and Meningeal Disease. (L'épreuve de l'atropine dans le diagnostic des états méningés et cérébraux.) M. Roch and E. Cottin.

85. **The Atropin Reaction.**—Roch and Cottin declare that while the atropin reaction in cases of bradycardia cannot be relied on absolutely, yet it furnishes valuable presumptive evidence, and as it is so harmless and within the reach of every practitioner it deserves wider application. It is invariably positive in the cases of bradycardia of nervous-cerebral origin and negative with bradycardia from heart-block. Bradycardia due to auto-intoxication is never so pronounced as when a definite brain lesion is involved. The test is merely the subcutaneous injection of 0.002 gm. of atropin sulphate and control of the heart-beat afterward. The heart-beat is not modified by the drug in case of actual heart disease while the pulse is accelerated when the myocardium is sound. The atropin has a paralyzing action on the vagus terminals in the heart. The reaction becomes evident in fifteen minutes and reaches its maximum in about an hour. The only by-effect is possibly a little dryness of the throat. Experiences with the test in Bard's service have shown that an abnormally slow pulse can be whipped up by the atropin when it is of extracardiac origin and thus may turn the scale in favor of the diagnosis of meningitis or brain tumor in dubious cases. Intracranial pressure on the nerve centers in these cases is causing the bradycardia and the atropin counteracts this. In a recent case the symptoms suggested meningitis eight months after infection with syphilis. The pulse was very slow but after injection of atropin it rose from 40 to 100 and then gradually dropped back to 60. Under antisyphilitic treatment recovery was soon complete. The atropin reaction was equally marked in a case of meningitis following trauma of the head, the heart-beat rising from 55 to 125 under the atropin. A number of typical cases are related in which the diagnosis was suggested by the atropin reaction when the symptoms seemed to indicate typhoid. One young man had fever, chills, vague headache, enlarged spleen and agglutination reaction with a tendency to stupor; pulse only 52. The cerebrospinal fluid seemed normal but the atropin test was applied after several days of uncertainty and the pulse climbed to 120 in an hour. The diagnosis of meningitis was thus possible several days before other symptoms of the general purulent meningitis developed. In another case a robust man of 50 developed violent headache accompanied by bradycardia but no fever; Wassermann and eye findings were negative, the spinal fluid was limpid and the atropin reaction pronounced. He died from intercurrent pneumonia five days later, and necropsy revealed a chronic pachymeningitis with adhesions and hyperemia. In another case the symptoms pointed to heart disease and the bradycardia observed was ascribed to this until the positive atropin reaction compelled reexamination of the patient when other symptoms were discovered previously unheeded, indicating cerebellar disease. In another series of cases the negative reaction excluded extracardiac factors and permitted effectual treatment. [Talley discussed the prognostic significance of the atropin reaction in heart disease in the *Am. Jour. Med. Sci.*, 1912, cxliv, 514, abstracted in these columns recently, p. 1485.]

Beiträge zur klinischen Chirurgie, Tübingen

September, LXXX, No. 2, pp. 191-430

86 *Serodiagnosis of Staphylococcus Infection. O. Homuth.
87 *Tumors Developing in Urinary Apparatus of Workers on Synthetic Dyes. (Die unter dem Einfluss der synthetischen Farbenindustrie beobachtete Geschwulstenwicklung.) S. G. Leuenberger.
88 Mammary Cancer. (Zur Statistik des Brustkrebses.) E. Schwarzkopf.
89 Dislocation of Tarsometatarsal Joint. (Fall von Luxation im Lisfranc'schen Gelenk.) H. Meyer.
90 Roentgenoscopy of Genu Valgum in Adolescents. K. Bracunig.
91 *Bullets Swept Along by the Blood-Stream. (Zur embolischen Verschleppung von Projektilen.) R. Rubesch.
92 *Technic for Exclusion of Pylorus. (Zur Frage der Pylorusausschaltung.) H. v. Tappeiner.

86. **Serodiagnosis of Staphylococcus Infection.**—With the technic described, Homuth obtained a positive response in all but two of forty cases of various staphylococcus affections, mastitis, furunculosis, follicular tonsillitis, etc., while the response was constantly negative in all but four of seventy-four persons healthy or with other diseases not of staphylococcus origin.

Cancer in Urinary Apparatus of Workers on Synthetic Dyes.—Leuenberger devotes 108 pages to his own experience with eighteen cases and reviews what has been published on the subject by others, his bibliography embracing 318 articles. He was able to find only forty-one previous authentic cases of tumor in the bladder or kidney from this cause. The data presented show that these tumors occur not only in those manufacturing but in those handling the dyes. The tumors include carcinomas, sarcomas, papillomas or fibromas; in one case there was a carcinoma in both bladder and right kidney, in another cancer in the kidney alone and in another a carcinoma in the bladder, right ureter and right kidney at once. In all the other cases the bladder alone was the seat of the tumor; all but eleven of the total material were supposed or known certainly to be malignant. The chemicals which seemed to be responsible for the tumor growths in his patients were safranin, dianisidin, dehydrothioxylidin, congo red and benzopurpurin; in the previously published cases fuchsin, eosin, "anilin dyes," benzidin, etc. They all belong to the group of aromatic amido hydroxyls. In some cases the tumors did not develop until years after the individual had ceased to have anything to do with the synthetic dyes. He discusses the predilection displayed by these tumors for the urinary apparatus, and measures for prophylaxis. It seems probable that the injurious influence is absorbed through the skin and he consequently urges that workers in these dyes should wear an overgarment impervious to these influences, and that arrangements for bathing and ample ventilation should be provided. In one of his cases the bladder contained a young papilloma, a papilloma showing malignant degeneration and also an advanced carcinoma. Leuenberger compares these bladder tumors with the experimental tumors induced by Fischer with injections of scarlet red, and with the research on the changes undergone within the organism by anilin compounds—the basis on which the synthetic antipyretics have been built up and applied in the clinic. His patients were all from industrial establishments at Basel making or using anilin dyes, and fourteen of the total eighteen were treated by extensive resection of the bladder with only six surviving to date. One of the survivors has a malignant recurrence now, eight years after resection of his papilloma; three other papilloma patients are still in good health seven or eight years after the operation, but only two cancer patients are still living and the interval since has been only a year or eighteen months. As a rule, the primary bladder cancer proves fatal in from six to fifteen months after the first signs of trouble. The fatal outcome is accelerated by the secondary inflammation throughout the entire urinary system, especially in the kidneys.

91. **Bullets Swept Along in the Blood-Stream.**—Rubesch reports a case in which a young man fired a bullet into his chest and almost immediately afterward felt great pain in his right leg. The course of the case showed that the bullet must have entered the left ventricle and been swept along almost at once into the femoral artery. It induced gangrene in the limb but the young man was finally cured after triple amputation. The heart showed scarcely any disturbance. Rubesch reviews and summarizes the similar cases on record of embolic transportation of projectiles, tabulating the total seventeen cases. In his patient, pain as the expression of the ischemia and changes in the pulse and temperature of the right leg were the predominant symptoms, and they developed almost at once after the shooting. The pulse in the leg showed great difference at the knee and foot from the other leg while in the femoral artery the pulse was alike on both sides. The outcome was fatal in all but three of the total seventeen cases. In the surviving patients the bullet had been swept into the subclavian, tibial or femoral artery, and the limb did not have to be amputated except in the latter case. The shortest route traveled was from the aorta into the heart, the longest from the upper arm to the liver vein and from the heart to the femoral vein.

92. **Exclusion of the Pylorus.**—Tappeiner concludes from his experimental work that the preferable technic for excluding the pylorus is to ligate it with a free strip of fascia.

Berliner klinische Wochenschrift

October 28, XLIX, No. 44, pp. 2065-2112

93 Defective Development. (Fehlerhafte Entwicklung.) E. Schwalbe.
94 *Inherited Vision Defects and Ocular Anomalies. (Vererbung von Augenleiden.) Crzellitzer.
95 *Examination in Case of Gastro-Intestinal Hemorrhage. (Untersuchung auf Blutungen aus dem Magendarmkanal.) E. Fuld.
96 Agar Tubes for Estimation of Pancreatic Ferments. (Agarröhrchen für Bestimmung der pankreatischen Fermente.) M. Einhorn (New York).
97 The Lipase in the Stomach. (Zum Studium der Magenlipase.) H. Davidsohn.
98 Nervous Instability of the Temperature. (Zur neurogenen Temperatursteigerung.) A. Döblin.
99 Direct Therapeutic Transfusion of Blood. (Blut als therapeutisches Agens.) A. L. Soresi (New York).
100 Technic for Determination of Arsenic in Urine. (Zur Frage der Anwendung des Antiformins bei der Arsenbestimmung im Harn nach Salvarsaninjektionen.) E. Freifeld.

94. **Heredity of Disease of the Eye.**—Crzellitzer has been collecting data for twelve years in regard to the conditions in families respecting hereditary transmission of myopia, hypermetropia, squint, cataract, astigmatism and tremor. He has a chart card for each family and now has 786 cards filled out giving three generations. In 525 families there is extreme myopia and in ninety-nine extreme hypermetropia; cataract in thirty-eight, and squint in fifty-four. The frequency of consanguineous marriages is striking in his material. Girls seem to inherit a tendency to extreme myopia more than boys. The material is studied and tabulated from various standpoints including Mendel's law. The important point now is to collect more material and he urges others to follow his example in this line.

95. **Simple Technic for Detecting Invisible Blood in the Stools.**—Fuld insists that the general practitioner should never neglect the search for occult blood in the stools in every case of stomach or intestinal disturbance which drags on at all, as also in every case of anemia of unknown cause. For the purposes of general practice, the guaiac test can be regarded as sensitive enough while its ease and simplicity commend it. He cites as an instance of the harm that may result from neglect of this simple measure the case of a man with much anemia and a positive Wassermann reaction, who was given merely specific treatment for syphilis and thus was brought nearly to the brink of the grave until the casual discovery of the bleeding stomach lesion and its resection restored him to complete health. It is not necessary to forbid meat before application of the guaiac test; if the meat is well cooked it does not interfere with the findings. He has the specimen of stool brought to him in a small glass jar with screw cover, containing a little water. After thorough shaking up, some of the stool mixture is poured into a test-tube; about ten drops of acetic acid are added and twice as much ether as of fecal material. After settling, the ether is poured into another test-tube and a knife-tip of pulverized gum guaiac is added and shaken up. Then the tube is held slanting and old turpentine is poured in, a drop at a time. The turpentine flows under the ethereal extract as the tube is held quiet and a ring forms at the line of contact, a narrow blue ring which gradually disappears while the ether above assumes a more or less deep violet tint according to the proportion of blood in it. The whole procedure is complete in less than two minutes by the clock, and the question is then decided with approximate certainty whether occult hemorrhage is to be reckoned with in the case or not.

Correspondenz-Blatt für Schweizer Aerzte, Basel

November 1, XLII, No. 31, pp. 1177-1208

101 Acute Edema of the Uterine Cervix During Pregnancy and Labor. H. M.-Ruegg.
102 Traumatic Neuroses; Exaggeration or Aggravation? (Nichtchirurgische Gedanken eines Chirurgen.) F. de Quervain.

Deutsche medizinische Wochenschrift, Berlin

October 24, XXXVIII, No. 43, pp. 2009-2056

103 *Serodiagnosis of Syphilis. H. Ritz and H. Sachs.
104 Salvarsan in Experimental Anthrax and Erysipelas. K. Bierbaum.
105 *Diphtheria. Eckert.
106 Serodiagnosis of Typhus. (Ueber die Komplementbindung bei Flecktyphus durch den wässrigen Extrakt aus dem Flecktyphuserreger.) M. Rabinowitsch.
107 *Spontaneous Rumpel-Leede Phenomenon. O. Meyer.
108 Post-Traumatic Pachymeningitis; Death Five Years After the Accident. E. Kasemeyer.
109 *Roentgenoscopy of Adhesions Binding Down Colon A. Pers.
110 *Proctosigmoiditis; Seven Cases. A. Ohly.
111 Treatment of Fracture or Contracture of Lower Jaw. Wieting.
112 Orthopedic-Surgical Treatment of Poliomyelitic Paralysis in Children. S. Peltesohn.
113 Prophylaxis of Tuberculosis. (Kindheitsinfektion und Schwindsuchtsproblem.) Hillenberg.
114 The German Malaria Commission in Palestine. Mühlens.

103. **Serodiagnosis of Syphilis.**—The experiences and tests with varied technics reported were made at the institute for experimental therapy at Frankfurt in charge of Ehrlich.

105. **Treatment of Diphtheria.**—Eckert discusses the present status of diphtheria treatment, saying that if he had to choose between antitoxin and all other measures he would cling to the antitoxin. He regards intravenous injection as the ideal; where this is not practicable he advocates intramuscular injection. The method of injecting the antitoxin at the angle of the jaw, to bring it as close as possible to the primary lesion, has been abandoned as edema is liable to develop afterward, and as intravenous injection accomplishes the same and more. He reviews the experiences in the children's department in charge of Heubner, and some recent experimental research at Marburg. They all seem to show that prophylaxis of paralysis depends more on the earliness of the injection than on the size of the dose. If 17 units can be injected thirteen hours after the animal is inoculated with the diphtheria toxin, better results are obtained than with 4,000 units the twenty-fourth hour. But the treatment may prove effectual with large doses even when not begun until late. Even when the paralysis has actually developed, antitoxin should be given as Morgenroth has demonstrated that the toxin-antitoxin combination is reversible, and as living diphtheria bacilli may be cultivated from the internal organs of children dying from post-diphtheria paralysis. Eckert explained in this way the sudden death of a healthy young man who had complained four weeks before of slight pain in his throat; living diphtheria bacilli were found in a pinhead abscess. Such experiences justify thorough antitoxin treatment of post-diphtheria paralysis. Eckert adds that the antitoxin had always been injected subcutaneously in the cases of death after its injection. The experimental work to date confirms the possibility of danger of a fatal mishap under antitoxin treatment of diphtheria, and this is perhaps greater with the intravenous route. One experience of the kind occurred at the Heubner clinic; the patient was a much debilitated girl with multiple enlarged lymph-nodes in the chest. Eckert is convinced that it will be possible in time to make an antitoxin free from the anaphylaxis-producing elements. His research seems to indicate that the antitoxic properties are confined to a small proportion of the albumin, and that it may be possible to omit the useless remainder.

107. **Rumpel-Leede Phenomenon of Scarlet Fever.**—Meyer reports a case in which the hemorrhages in the skin occurred spontaneously, not, as usual, only after application of a Bier's stasis bandage. The typical phenomenon occurs in the bend of the elbow but in the case reported the petechiae developed suddenly over the chest and neck as the child was coughing and retching. The phenomenon in question occurs regularly in scarlet fever but is found also in measles, and in some cases of diphtheria, syphilis and tonsillitis. (The phenomenon was described in detail in The Journal, May 18, 1912, p. 1540.) The pathologic element is shown by the ease with which the phenomenon can be elicited. It permitted an early diagnosis of scarlet fever in a number of Meyer's cases, before the eruption developed.

109. **Roentgenoscopy of Adhesions Binding Down the Colon.** —Pers calls attention to the instructive evidence afforded by attempts to push the colon around as the patient is being examined in front of the screen. The normal colon can be readily pushed around, but when bound down by adhesions this cannot be done, as is readily seen in the shadow on the screen.

110. **Proctosigmoiditis.**—In three of Ohly's seven cases the chronic inflammation was accompanied by small superficial hemorrhages from the mucosa; in one case the inflammation was the result of irritation and reflex action from a small pedunculated polyp. There was no deep ulceration in these cases, but this was marked in a case of gonorrheal ulcerative proctosigmoiditis in a middle-aged man. In another case the inflammation was probably to be ascribed to chronic severe constipation; the local and general symptoms suggested cancer, but under local measures, care for soft stools, sitz baths, bismuth and bolus alba, a clinical cure was realized, persisting for the three months to date.

Medizinische Klinik, Berlin

October 27, VIII, No. 43, pp. 1731-1768 and Supplement

115 *Big Inflatable Bag to Arrest Uterine Hemorrhage. (Die Atonia uteri und ihre Behandlung.) R. Jolly.
116 Post-Mortem Contractions of the Heart. (Ueber die Koeffizienten für das Auftreten postmortaler Herzcontractionen.) H. E. Hering.
117 Idiosyncrasy to Cow's Milk and Anaphylaxis. F. Lust.
118 *Acute Infectious Nephritis. F. Pawlicki.
119 Vaccine Diagnosis and Therapy in Gonorrhea in Males. H. Müller.
120 Improved Technic for Roentgenoscopy. (Neues Blendenverfahren bei Röntgendurchleuchtungen.) G. Bucky.
121 Experimental Polycythemia. (Zur Frage der experimentellen Hyperglobulie.) O. Steiger.
122 Gout. (Die neuren Wendungen in der Pathologie und Therapie der Gicht.) E. Frank.

115. **Treatment of Post-Partum Hemorrhage.**—Jolly remarks that the bleeding may come both from atony of the uterus and from a laceration. The failure of the uterus to contract normally and the constant flow of blood from the raw surface left after separation of the placenta can be both combated, when all else fails, by introducing a large inflatable bag into the uterus and filling it with a weak antiseptic fluid. He experimented on cadavers and found that a bag 15 cm. across at the widest part and 20 cm. long, with a narrow neck, the outline of the whole much like that of a tennis racket, would fill the uterus completely when distended and exert firm and constant pressure on the bleeding raw surface while its presence would be the best means to stimulate the uterus to contract properly. He reports three cases in which he has applied this bag. It arrested the hemorrhage at once in all the women, but two had already lost so much blood that they were unable to recuperate. He filled the bag with 2 or 2.5 liters of a weak disinfectant fluid in these cases. In another case the uterus started to contract after only a small amount of fluid had been introduced.

118. **Acute Nephritis.**—Pawlicki emphasizes that conservative measures can be safely applied to the kidney longer than to any other organ in case of acute local infection. Even in the severest cases conservative measures may still prove useful, as he illustrates with some instructive experiences. One patient was a woman of 32 with acute infectious disease of the right kidney developing from a mild chronic cystitis. The temperature ran up to 104 F. and over, the pulse 120, with local pains, rigidity of the muscles above and great general disturbance. The adjacent organs seemed to be sound, and under salol and Wildunger mineral water the temperature slowly subsided. It was only 100 by the end of a week and in two or three weeks the patient was free from all disturbances; even the cystitis had healed under local treatment. Pawlicki had expected every hour to have to remove the kidney, but kept postponing the operation as the risk from delay with an inflamed kidney is not the same as with an inflamed appendix or gall-bladder or other organ. The kidney is peculiarly liable to retain bacteria passing through it, but for the same reason it is especially easy to act directly on it with medicinal measures and thus sterilize it effectually as in the present case. If the temperature had kept up the third day, nephrectomy would have been done, but it began to drop just in time to save the kidney. These same principles were successfully applied in another case in which the acute infectious nephritis involved the only remaining kidney, the other having been removed years before on account of multiple abscesses. The clinical picture was that of severe acute septic nephritis, but under salol, etc., the temperature began to go down the third day and by the end of the third week convalescence was complete and the patient has been in undisturbed health during the more than a year since. If an operation finally becomes necessary, he reiterates, no harm is done by a delay of two or three days under internal measures.

Münchener medizinische Wochenschrift

October 22, LIX, No. 43, pp. 2221-2376

123 *Extraperitoneal Cesarean Section. (Extraperitonealer Kaiserschnitt.) O. Küstner.
124 *Cholecystitis Masquerading as Bronchitis. (Zur Diagnose der Gallensteine: Respirationsorgane und Cholezystitis.) R. Bahrdt.

125 *By-Effects of Neosalvarsan. (Nebenwirkungen des Neosalvarsans.) J. Simon. (Todesfall nach Neosalvarsansinfusion.) O. Busse and L. Merian.
126 Salvarsan in Chorea Minor. L. Szametz.
127 Roentgenoscopy of Intestinal Peristalsis Under Influence of Dietetic Measures. J. Kretschmer.
128 Warning Against Catgut for Sutures Which Must Stand Much Strain. W. Kausch.
129 Treatment of Whooping-Cough. (Behandlung des Keuchhustens.) Althoff.
130 *Mechanical Means to Arrest Epistaxis. Ritschl.
131 Absorption of Digitoxin from Preparations of Digitalis and Its Relation to the Action and By-Effects of the Drug. R. Gottlieb and S. Ogawa. Commenced in No. 42.
132 Salvarsan in Syphilitic and Parasyphilitic Nervous Disease. J. Donath. Commenced in No. 42.
133 Reporting of Industrial Disease. (Anmeldung von Gewerbekrankheiten.) F. Koelsch.

123. **Extraperitoneal Cesarean Section.**—Küstner has had this operation done in seventy-two cases in his maternity, and regards it as a very valuable method for delivering the child when the smallness of the pelvis or other reason renders it improbable that the child can be spontaneously expelled without injury to it. None of the mothers succumbed except one from a chloroform accident, and only four of the children died, one from an eclamptic mother and three which were so deeply asphyxiated that it proved impossible to reanimate them. It is immaterial with this technic whether there is infection or not, so it can be applied in cases in which without it there can be question only of craniotomy.

124. **Occult Cholecystitis.**—Bahrdt refers to cases of cholecystitis in which the fever comes on with symptoms only on the part of the lungs and bronchi. The first sign of trouble is fever which may run high for a day or so, and râles are found in the lower part of one lung, with slight dulness and signs of mild bronchitis. Then the fever subsides and with it the symptoms in the respiratory apparatus. They return at a new attack, but there are no sounds of friction in the pleura. The patients seem very ill during the attacks but nothing can be found to explain them at first except the slight and inadequate local bronchitis and infiltration of the lung. Then suddenly slight jaundice is noticed, generally during or after an attack of fever, and it soon subsides. The next attack may be ushered in with a chill; the bronchial findings return and with them the slight jaundice, and this time there may be local pain and tenderness in the gall-bladder region. One patient passed a hard gall-stone after sixteen such attacks and there has been no recurrence of any of the symptoms on the part of either the respiratory or biliary apparatus during the seven years since. Pneumonia is sometimes accompanied by cholangitis, but here the condition is reversed; the lungs and bronchi are secondarily affected. The germs must be comparatively avirulent in such cases as they are conquered each time by the local defensive forces. This assumption is sustained by the absence of suppuration; no abscess was found even in a case in which attacks of fever up to 104 F. had returned at intervals for years. In one of his four cases the right lung was exclusively affected during the sixteen attacks, but in the others both sides were involved, always the lower lobe. One patient was a man of 87 who for ten months had one or two of these attacks of fever for one or more days each month, with signs of bronchitis and later slight jaundice and finally pains in the liver region, but no gall-stones were passed. The man died then of intercurrent pneumonia. This was responsible also for the death of another patient, a robust woman of 79 with arteriosclerosis. In 1903 she had a day of high fever and bronchitis, returning at brief intervals during two months and then with longer intervals, accompanied later by jaundice and exacerbation of the bronchitis which became chronic. Necropsy revealed a large gall-stone in the dilated common bile duct, but no abscess. In the fourth case the man had chronic eczema, and the jaundice and tenderness in the liver region developed at his second attack within one month. After four or five attacks there were no more for six years, when the febrile bronchitis returned; jaundice and gall-stone colic coming on the fourth day cleared up the diagnosis. Treatment should aim to promote the flow of bile and cholesterin metabolism and to sterilize the intestines, possibly with naphthalin, if the patient can bear it.

125. **By-Effects with Neosalvarsan.**—Simon reports two cases in which the neosalvarsan caused severe angioneurotic symptoms, collapse, congestion or acute swelling of the brain, with an exanthem. The latter patient had complained of headache and the pupils did not react alike, before the drug had been given. Two days after the second injection of neosalvarsan he became unconscious for five hours and had violent headache on rousing. Busse reports the death of a girl of 18 after two injections of neosalvarsan, and necropsy revealed the changes characteristic of salvarsan and neosalvarsan intoxication. He declares that these fatalities are not due to any fault in technic but to the treacherous action of arsenic, which can never be foreseen in the individual case. This danger inheres in the new preparations of arsenic just as in the old classic preparations, and the physician must reckon with the possibility of encountering it when he uses large doses of any one of them. The only symptom presented by Busse's patient was the recurrence of nodules on the external genitals during the last eight months; the two injections of 0.6 neosalvarsan were given intravenously with an interval of eight days. Serious symptoms developed the day after the second injection, with death two days later.

130. **Treatment of Epistaxis.**—Ritschl calls attention to the prompt arrest of epistaxis by Nägeli's method of pulling on the nerves and vessels in the neck—the so-called *Kopfstützgriff* and *Kopfstreckgriff*. The stretching of the cervical sympathetic stimulates the vasoconstrictors, and thus acts on the epistaxis. Standing behind the seated patient, place your hands under the angle of the jaw and the sides of the back of the head and try to lift the head up. The head can be drawn a little backward at the same time, which permits the blood to escape into the nasopharynx. Ritschl has found this simple measure invariably successful in arresting epistaxis in one or two minutes at most. Nägeli has called attention to a number of these mechanical measures as a means to combat neuralgia and neuroses.

Wiener klinische Wochenschrift, Vienna

October 24, XXV, No. 43, pp. 1693-1728

134 *Facts and Theories in Medical Science. (Tatsachen und Theorien in ihrer Bedeutung für Naturwissenschaft und Medizin.) M. Kassowitz.
135 *Local Predisposition to Cancer. (Zur Chemie der Prädilektionsstellen für Karzinom.) E. Freund and G. Kaminer.
136 Meiostagmin Reaction and Pregnancy. A. Julchiero.
137 Idiosyncrasy as Manifestation of Anaphylaxis. (Experimentelle Beitrag zur Frage der Idiosynkrasie gegen Brom- und Chininsalze als Ueberempfindlichkeiterscheinungen.) E. Manoiloff.
138 Serodiagnosis of Malignant Anthrax. (Die Diagnose der Milzbrandsepsis aus dem Lumbalpunktat.) L. Pollak.
139 Hernia of the Diaphragm. (Ein radiologisch diagnostizierter Fall von traumatischer Zwerchfellhernie.) M. Haudek.

October 31, No. 44, pp. 1729-1772

140 Percussion of the Heart. M. Heitler.
141 Relations Between Structure and Functioning of the Cerebellum. (Beziehungen zwischen Bau und Funktion des Kleinhirns am Menschen.) R. Barany.
142 *Vaccine Therapy of Multiple Staphylococcus Abscesses in Infants. (Immunotherapie der multiplen Staphylokokkenhautabszesse der Säuglinge.) P. v. Szily.
143 Action of Bile Salts on Gonococci. (Einwirkung von gallensauren Salzen auf Gonokokken.) K. v. Hofmann.
144 *Hydronephrosis in Children. H. Anscherlik.
145 Technic for Therapeutic Application of Radium Emanations. (Neue Methode zur Einverleibung grösserer Emanationsmengen.) E. Kühnelt.

134. **Facts Versus Theories.**—Kassowitz' address on facts and theories in their respective importance for natural science and medicine was delivered at the festival in his honor arranged by the *Gesellschaft für innere Medizin und Kinderheilkunde*, as mentioned in the Vienna Letter, Nov. 23. He warned against the too ready acceptance of theories before they have been substantiated by facts, and cited concrete examples of how such theories have stood in the way of progress. Scientists refused to accept the evidence of their own eyes in regard to some new fact discovered because it did not fit into the theory on the subject prevailing at the time. As an instance in kind he cites the history of rachitis: The bones are soft and flexible because they contain less lime than they need. Theoretically, all that is necessary is to feed the child more lime. No one heeded the fact that rachitic bone shows signs of inflammatory hyperemia and that all inflamed bones contain an abnormally small proportion of

lime. In the course of his research on phosphorus necrosis, Wegner noticed that feeding small amounts of phosphorus to growing animals caused the bones to grow more compact, but he never thought of applying this discovery to rachitis as it seemed so improbable that the inorganic salts in the blood could be influenced by such means. A long time had to elapse before it was finally recognized that phosphorus is actually the specific remedy for rachitis and osteomalacia in adults. Its importance now is appreciated and its efficacy not only in bone production but in the convulsions of rachitic children formerly ascribed to "teething." Among the theories which time has overthrown Kassowitz cited Darwin's "natural selection" which he thinks is shown to be erroneous by even the one fact that the most serious infectious diseases of man do not occur spontaneously in animals; it is absurd to think that by a process of natural selection only those strains of human beings have survived which are exceptionally susceptible to these infections. According to the theory of natural selection this would have had to be the case.

135. **Local Predisposition to Cancer.**—Freund and Kaminer have isolated from organs which are the seat of primary cancer a substance which protects cancer cells against the destructive influence of normal serum or extracts of normal organs. They ground up normal organs and made an extract with 0.85 per cent. salt solution. This rapidly destroys cancer cells while it has no action on normal cells. On the other hand, similar extracts made from organs the site of a primary cancer not only have no destructive action on cancer cells but they also paralyze the action of otherwise destructive fluids. The authors found further that certain pathologic tissues yield an extract which behaves like the extract of cancerous organs. For example, an extract of the inflamed tissues from an old leg ulcer or gastric ulcer had no destructive action on cancer cells. Extract of tuberculous tissue, of a uterine polyp and of recent suppurative processes behaved like normal tissues. They conclude from their research that the tissues and blood of normal persons contain an ether-soluble fat acid which has a destructive action on cancer cells. Under the influence of chronic irritation this cell-destroying acid becomes used up at the point in question, leaving it defenseless if a cancer happens along that way. Their research has further shown that another factor is involved, namely, a nucleo-globulin found in cancer serum; this protects the cancer cells against normal serum and paralyzes the destructive action of the ether-soluble acid.

142. **Vaccine Therapy of Furunculosis in Infants.**—Szily has simplified the technic and applied vaccine therapy in thirty cases of furunculosis in infants from 3 to 8 weeks old, some reduced to actual skin and bone. No by-effects were observed, and complete recovery followed in every case after eight or ten injections. The vaccine was made by inoculating a slanting agar tube with pus from an abscess. The tube was kept at 37 C. for twenty-four hours and then filled up with 10 c.c. of physiologic salt solution and the contents shaken up well, then filtered into a tube containing one or two glass beads. Then the tube was shaken for half an hour in a vibrating apparatus, sterilized by heating to 60 C. for an hour, and lysol added to 0.25 per cent., and the whole diluted to 20 c.c. Ten drops of this emulsion were injected into the thigh, increasing the dose by five drops twice a week, diluting with a little saline. No reaction was observed in any case. Attempts to count the cocci or determine the opsonic index were soon abandoned as superfluous.

144. **Hydronephrosis in Children.**—The kidney, the seat of the hydronephrosis, had to be removed in a boy not quite 4 years old. Forty days afterward the child developed scarlet fever and had a severe hemorrhagic nephritis in the remaining kidney, but this soon subsided and the urine was normal again in a month. The tendency to hydronephrosis had been noticed in early infancy but the kidney apparently often emptied itself spontaneously so that relief was always obtained and the condition did not become serious until the child had a fall, striking on the abdomen. After this the kidney evidently became permanently shut off.

Gazzetta degli Ospedali e delle Cliniche, Milan

October 22, XXXIII, No. 127, pp. 1329-1336

146 *Disproportion Between Hydrochloric Acid and Digestive Ferments with Gastric Cancer. (L'abbondanza di presame e lo elevato potere proteolitico del contenuto gastrico per la diagnosi di cancro dello stomaco.) R. Pelosi.

October 27, No. 129, pp. 1345-1360

147 Woody Phlegmon and Inflammation Tumors. (Flemmone ligneo e tumori infiammatori.) M. Fasano.

146. **Digestive Ferments in Diagnosis of Gastric Cancer.**—Pelosi found in three patients with certain gastric cancer that one had no hydrochloric acid secretion but there were much lactic acid and large proportions of a milk-curdling ferment and a high proteolytic power. In the second case the conditions were the same except that there did not seem to be any proteolysis, and in the third case there was none of the milk-curdling ferment and no proteolysis. The marked contrast in two of the cases between the lack of hydrochloric acid and the abundance of the milk-curdling and proteolytic ferments shows such abnormal conditions that malignant disease must be suspected. The products of the cancer, he thinks, mask the hydrochloric acid and stimulate the production of lactic acid and may even act as digestive ferments, curdling milk and digesting protein. Further research is now under way to determine if cancer in the stomach or elsewhere is able to generate products capable of curdling milk and breaking down protein, and the results to date seem very suggestive in this line. In any event, the discovery of abnormally high digestive ferment content with achlorhydria should suggest possible malignant disease.

Policlinico, Rome

October 27, XIX, No. 44, pp. 1593-1628

148 Successful Operative Treatment of Recurring Echinococcus Cyst in the Liver. (Il metodo Lindemann-Landau nella cura della cisti d'echinococco del fegato.) P. Ercolani.

149 Advantages of Tannic Acid in Sterilization of the Hands. (Metodo di Tatarinov e Zabloudowsky.) G. Dialti.

Riforma Medica, Naples

October 19, XXVIII, No. 42, pp. 1149-1176

150 *Roentgenoscopic Sign of Pericardial Effusion. (Nuovo segno radiologico dei versamenti pericardici.) V. Maragliano.

151 *Artificial Pneumothorax. (Risultati immediati ed innocuita della cura pneumotoracica.) A. Fagiuoli.

150. **Sign of Pericardial Effusion.**—Maragliano remarks that all writers agree that the effusion must be of considerable volume to be evident on roentgenoscopy; the curve of the heart outline is changed from normal, the shadow assuming more a triangular shape and the pulsation of the heart becoming less evident. The pulsation of the lower margin of the heart is transmitted to the air bubble in the stomach in normal conditions, but when there is an intervening accumulation of fluid in the pericardium only a minimal pulsation is transmitted from the right ventricle. The findings are more pronounced if the air bubble is rendered conspicuous by taking an effervescent powder. Five cases are described in which the lack of a transmitted pulsation in the air bubble in the stomach confirmed the assumption of an effusion in the pericardium, and puncture or necropsy revealed the fluid. The sign disappeared as the patients recovered. In three other cases in which a pericardial effusion was suspected, the marked pulsation in the stomach bubble testified to the absence of an effusion in the pericardium, and this was confirmed by the course of the cases. In dilation of the heart without effusion there was always more or less pulsation.

151. **Artificial Pneumothorax.**—Fagiuoli likes to have other patients present when he is making an artificial pneumothorax so that they can see for themselves the simplicity and harmlessness of the method and lose all fear of it for themselves. The only by-effects he ever encountered in his forty cases was a brief spasm in one instance, following injection of 300 c.c. of nitrogen. The patient fell back on the bed, the eyeballs turned to the left, the pupils became dilated and rigid, the lips blue, pulse small and 180, breathing slow and shallow, with fibrillation of the muscles and partial unconsciousness. Under heart stimulants, artificial respiration and massage the patient recovered, the entire attack lasting ten minutes. The results of the pneumothorax seem to be excellent as they are tabulated for comparison.

Brazil Medico, Rio de Janeiro

October 1, XXVI, No. 37, pp. 385-394

152 *Overeating and Hasty Eating, Arthritism and Arteriosclerosis. (Tachyphagia, polyphagia, arthritismo e arterio-esclerose.) J. C. Ferreira. To be continued.

152. **Hygiene of the Table.**—Ferreira reiterates anew that tachyphagia and polyphagia—eating too fast and too much—are responsible for arteriosclerosis and the gouty diathesis and shorten our days materially. He quotes Flourens' "Man digs his grave with his teeth;" Seneca's "Man does not die, he kills himself;" Carton's "*Nous mourons de fautes alimentaires et sédentarité,*" and Heckel's "To the overfed: inertia, asthenia, short life; to the temperate muscular: action, power, endurance," and "Those who eat too fast soon lose the normal sensation of satiety;" Montenuis' "The modern table is ruining the health of the individual and the vigor of the race. Instead of supplying the furnace with only enough fuel to keep it running in good order, the furnace is kept red hot all the time." Ferreira thinks that the tuberculous should not be urged to eat so much.

Medicina Contemporanea, Lisbon

October 27, XXX, No. 43, pp. 337-344

153 *Complications in and Around the Kidney with Furunculosis. (Les complications rénales et périrénales de la furonclose.) R. D. Santos.
154 Kala-Azar in Children in Portugal; Seven Cases. P. D. Silva.

153. **Renal and Perirenal Complications of Boils.**—Dos Santos insists on the necessity for keeping watch over the kidneys and their environment in every case of furunculosis. The kidney is the favorite point for metastasis in staphylococcus affections. A chill and fever with localized pain under the twelfth rib reveal that the renal or perirenal complications are installed. The infected fat tissue around the kidney is liable to harden and encapsulate a septic focus in it and finally absorb it harmlessly. Vaccine therapy gives encouraging results in staphylococcus sepsis, and it is easy to obtain from the peripheral boil material to make an autovaccine. These facts suggest the advantages of refraining from operative measures at first, trying first a stock vaccine and the third or fourth day an autovaccine. Hot local applications may prove useful besides. He waits till the tenth or twelfth day, and then if no improvement is realized, he exposes the adipose capsule and seeks for the various abscesses and opens them. An abscess in the kidney proper seems inevitably to precede the perirenal lesions.

Semana Medica, Buenos Aires

September 26, XIX, No. 39, pp. 597-644

155 *Tetanus. (El tetano y su curabilidad.) F. R. Torres.
156 Electric Sleep. (Provocacion del sueño con la corriente de Leduc.) C. Heuser.
157 Radio-Activity of Mineral Waters. (Concepto higienico de las aguas minerales. La supuesta radioactividad de dichas aguas.) V. Delfino.
158 *Hematemesis from Ulcerated Arteriole in Gastritis. (Exulceratio simplex de Dieulafoy.) F. I. Castro.

October 3, No. 40, pp. 645-692

159 Pneumonia and Purulent Pleurisy in Month-Old Infant; Recovery. A. Zubizarreta.
160 Artificial Plasma. (Recientes conquistas de la plasmógenia.) V. Delfino. (Una evolucion organica en miniatura.) A. Pratelle. Commenced in No. 39.

155. **Tetanus.**—Torres concludes from twenty years of experience with tetanus at the Muñiz Hospital that intravenous injection of 120 c.c. of tetanus antitoxin (Paris) should be the rule in tetanus. He calls this the saturation dose; it should be repeated twice in the twenty-four hours and be followed by a third injection of 100 c.c. before the close of the second day, and this last dose repeated on the following days if there are still symptoms. This technic has been applied in 110 cases of severe, acute tetanus in the last eight years, and the mortality was only 32.7 per cent. Saturation doses every six hours until improvement sets in should be the rule, he asserts.

158. **Gastritis with Ulceration.**—Castro opened the stomach in a case of recurring hematemesis and found it apparently normal except for a minute ecchymosis and erosion on the anterior wall with a bleeding arteriole in its depths. The arteriole was ligated and the ecchymosis patch drawn up with a suture and all further hemorrhages ceased. The patient was an apparently healthy young woman free from all gastric and other disturbances except the recurring hematemesis. The sudden onset of the gastric hemorrhage, and the absence of all pain and tenderness suggested by exclusion Dieulafoy's exulceratio simplex, and this diagnosis was confirmed by the operation. It came too late, however, to save the almost exsanguinated patient. The reds had been reduced to 508,800 and there was nothing to rally on. Castro discusses the literature on the subject. The patients in the fourteen cases he has found on record were all healthy young men or women except two men of 35 and 60, hard drinkers, and a woman of 30 with hyperchlorhydria. The underlying cause is some acute or chronic gastritis. Operative treatment is indispensable as soon as the diagnosis is made.

Hospitalstidende, Copenhagen

October 9, LV, No. 41, pp. 1149-1180

161 Serodiagnosis of Syphilis. (Fortsatte Undersøgelser over Herman & Perutz' Reaktion. I. V. F. Møller. (Undersøgelser over Fældningsreaktioner ved Syfilis med særligt Hensyn til den af Herman & Perutz' udarbejdede Modifikation af Elias-Neubauer-Porges & Salomons metode.) O. Thomsen and H. Boas.

October 23, No. 43, pp. 1221-1260

162 Ileus from Lane's Kink. S. Hamburger.
163 *Albumin in Sputum. (Undersøgelser over Aeggehvidestofs Forekomst i tuberkuløst Opspyt.) J. Pindborg. Commenced in No. 42.
164 Curvature of the Spine Is Merely a Symptom. (Om Skolioser og Holdningsfejl.) P. Lorenzen.

163. **Albumin in Sputum.**—Pindborg has been applying the acetic acid test for albumin in the sputum, adding a few drops of 3 per cent. acetic acid to diluted sputum and testing the filtrate like urine for albumin. Albumin seems to be present in all cases of active pulmonary tuberculosis, and the relative amount seems to be proportional to the intensity of the tuberculous process. Systematic determination of the albumin in the sputum is a very simple and easy means to obtain an oversight of the course of the affection. It is also important for the differential diagnosis. In sixty-two afebrile cases in the third stage he found an average of 2.5 per 1,000 albumin while it averaged 4.3 per 1,000 in twenty-five febrile cases. In thirty-eight cases in the first stage, with few if any tubercle bacilli, the average was 0.4 per 1,000 and in twenty-three with bacilli, 1 per 1,000. In forty in the second stage, with the bacilli in the sputum, the albumin averaged 2 per 1,000, while it was only 1 per 1,000 in the nine in the third stage without bacilli. Over 76 per cent. of the patients in the third stage had more than 3 per 1,000 albumin in their sputum. The course of the cases later confirmed the importance for the prognosis of the albumin in the sputum, the proportion dropping as the patients grew better and rising in the progressive cases. The albumin in the sputum is probably derived from some morbid exudation in the alveoles or bronchioles around the infectious process; this assumption is sustained by the occurrence of albumin in the sputum for the first time with an inactive tuberculous process when a febrile reaction is induced with tuberculin. This assumption is sustained further by the constant absence of albumin from the sputum in three cases in which everything indicated the complete healing of an old tuberculous pulmonary process. In another case there was a slight febrile reaction to injection of 0.01 gm. of tuberculin, but even then no albumin could be detected in the sputum, confirming the extremely torpid nature of the process. On the other hand, Pindborg never noted any increase in the proportion of albumin in the sputum during courses of tuberculin treatment. He used always 10 c.c. of fresh sputum for the test, free from blood, or saliva, stirring it up with an equal amount of distilled water and 2 c.c. of a 3 per cent. solution of acetic acid. He examined the filtrate for albumin by Walbum's method.

Ugeskrift for Læger, Copenhagen

October 24, LXXIV, No. 43, pp. 1561-1600

165 Pathogenesis of Glaucoma. (Om Paavisningen af det "inflammatoriske" Glaukoms Aarsag.) C. F. Heerfordt.

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CLINICAL FEATURES OF SUDDEN OBSTRUCTION OF THE CORONARY ARTERIES

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Obstruction of a coronary artery or of any of its large branches has long been regarded as a serious accident. Several events contributed toward the prevalence of the view that this condition was almost always suddenly fatal. Parry's writings on angina pectoris and its relation to coronary disease, Jenner's observations on the same condition centering about John Hunter's case, Thorvaldsen's tragic death in the theater in Copenhagen with the finding of a plugged coronary, sharply attracted attention to the relation between the coronary and sudden death. In Germany Cohnheim supported the views of Hyrtl and Henle as to lack of considerable anastomosis, and as late as 1881 lent the influence of his name to the doctrine that the coronary arteries were end-arteries; his Leipsic necropsy experience, as well as experiments on dogs, forced him to conclude that the sudden occlusion of one of these vessels or of one of the larger branches, such as the ramus descendens of the left coronary, meant death within a few minutes. Others emphasized the same view.

No one at all familiar with the clinical, pathologic or experimental features of cardiac disease can question the importance of the coronaries.[*] The influence of sclerosis of these vessels in the way of producing anemic necrosis and fibrosis of the myocardium, with such possible results as aneurysm, rupture or dilatation of the heart, is well known. So also is the relation of the coronaries to many cases of angina pectoris, and to cardiac disturbances rather indefinitely classed as chronic myocarditis, cardiac irregularities, etc. It must be admitted, also, that the reputation of the descending branch of the left coronary as the artery of sudden death is not undeserved.

But there are reasons for believing that even large branches of the coronary arteries may be occluded — at times acutely occluded—without resulting death, at least without death in the immediate future. Even the main trunk may at times be obstructed and the patient live. It is the object of this paper to present a few facts along this line, and particularly to describe some of the clinical manifestations of sudden yet not immediately fatal cases of coronary obstruction.

Before presenting the clinical features of coronary obstruction, it may be well to consider certain facts that go to prove that sudden obstruction is not necessarily fatal. Such proof is afforded by a study of the anatomy of the normal as well as of the diseased heart, by animal experiment and by bedside experience.

The coronaries are not so strictly end-arteries, i. e., with merely capillary anastomoses, as Cohnheim and others thought. By careful dissections, by injection of one artery from another, by skiagraphs of injected arteries and by direct inspection of hearts made translucent by special methods, there is proof of an anatomic anastomosis that is by no means negligible.

Jamin and Merkel's[†] beautiful stereoscopic skiagrams show the remarkably rich blood-supply of the heart, with occasional anastomoses between vessels of considerable size. The possibility of injection of one coronary artery from the other is admitted even by those who deny that such injection proves more than a capillary non-functioning anastomosis. Amenomiya,[1] by injecting hearts of young persons, showed naked-eye anastomoses in the subepicardial tissue. He feels that Hirsch and Spalteholz[2] have nearly cleared up the question as to the relation between the heart muscle and disease of the coronary artery from the anatomic standpoint. Hirsch says that in dogs the anastomosing vessels are functionally competent, and Spalteholz says that in man the vessels are nearly the same as in dogs, rich in anastomoses even in those of considerable caliber. The latter investigator, by a method of injection and treatment of the heart so as to make the muscle transparent, shows to the naked eye that there are anastomoses of considerable size.

Among others who are on record as believing that there are non-negligible anastomoses may be mentioned Haller, Huchard, Orth, Michaelis, Langer, Legg, West. All recognize, however, that there are individual differences, and also that though the heart may show rich anastomoses, these are not necessarily functional, i. e., that an artery which anatomically is not a terminal artery may yet be such functionally.

But there is proof not only of anatomic connection between the two coronaries, but that in certain instances, at least, such connection is of functional value. Experiments on lower animals and the clinical experiment of disease of the coronaries with autopsy findings show this.

Much of the earlier experimental work on the lower animals, obstructing the coronary arteries by ligatures, clamps or artificial emboli, gave promptly fatal result. Among those who worked along this line and reached these conclusions may be mentioned Erichsen (1842), Panum (1862), von Bezold, Samuelson (1880), Cohnheim and Schulthess-Rechberg (1881), G. Sée, Rochefontaine and Roussy (1881), Bettelheim (1892), Kronecker, and, to some extent, Michaelis. The work of Cohnheim[3] attracted particular attention and his conclusions as to end-arteries, irreparable injury, and cessation of the beat of both sides of the heart within two minutes from the time of shutting off the coronary circulation confirmed and elaborated the conclusions of the earlier experimenters, and was in turn confirmed by the French writers just named, by Bettelheim and others.

[†] Jamin and Merkel: Die Koronararterien des menschlichen Herzens in stereoskopischen Röntgenbildern, Jena, 1907. Extensive bibliographies are contained in the articles by Thorel (Lubarsch-Ostertag's Ergebnisse, ix, Abt 1), and in Amenomiya (Virchows Arch. f. path. Anat., 1910, cxcix, 187). I repeat only some of the more important references and add new ones.

1. Amenomiya: Ueber die Beziehungen zwischen Koronararterien und Papillarmuskeln im Herzen, Virchows Arch. f. path. Anat., 1910, cxcix, 187.

2. Hirsch and Spalteholz: Koronararterien und Herzmuskel, Deutsch. med. Wchnschr., 1907, No. 20.

But soon dissent was heard from various quarters as to many of Cohnheim's results, and among other things as to the sudden death following the ligations. Michaelis found that the injury from ligation in rabbits was not so serious or irreparable as in dogs. Fenoglio and Drouguell, in 1888, found that some dogs might live. Porter showed that after ligation of one or two large branches of the coronary artery a dog might live hours or days. More than half his animals lived after ligation of the descending branch of the left coronary. Von Frey, at the Congress for Internal Medicine in 1891, said that he doubted the sudden stopping of the heart as Cohnheim taught; he believed that clearly the greater weight should attach to those observations in which the ligation was borne without harm; and that the stopping of the heart was not a necessary consequence of the obstruction of a large coronary branch. Hirsch in eight dogs and two apes had no sudden deaths from ligation. Bickel,[4] under Orth and Amenomiya, had a dog live nineteen days after the ligation of the descending branch of the left coronary; he killed two dogs, one on the eighth and the other on the seventeenth day after ligation. Kölster ligated smaller branches; his dogs lived, and when killed at intervals of several weeks showed the progressive changes of fibrosis of the myocardium. Imperfect technic, by which damage was done to the heart muscle and pneumothorax produced, is offered as a partial explanation, at least, for the more rapidly fatal results obtained by Cohnheim and others. Miller and Matthews[5] call attention to the better results where ether as an anesthetic is employed rather than curare or other drug. With ether they were able to ligate large branches, many of their dogs living several weeks.

Experimentally, then, sudden death, even late death, is not a necessary consequence of obstruction of even large branches, such as the descending branch of a coronary artery.

There are numerous autopsy observations, frequently with helpful clinical history, that show directly or by inference the existence of efficient anastomoses, and the ability of the heart at times to survive the obstruction of a coronary or some large branch. Some of these instructive cases may be mentioned. Pagenstecher, on account of an accident, ligated the descending branch of the left coronary artery and the patient lived five days. Thorel has seen hearts with complete obstruction of the artery, with fibrous or calcified myocardium, and yet no symptoms during life, the patient dying of some other disease. I have seen the descending branch completely occluded with an extensive fibrous area in the interventricular septum and at the apex, the latter aneurysmally dilated, where the process was clearly one of long standing. West[6] cites several cases in which at autopsy complete obstruction of one coronary was found, yet the patients had long survived this serious lesion.

Chiari, in a 32-year-old nephritic, found a sclerosed right coronary plugged by a thrombus, with resulting scattered patches of myomalacia cordis in the areas supplied by this artery. A portion of this thrombus had become detached and had embolically plugged the left coronary, resulting in sudden death. From the symptoms and the autopsy findings the thrombus in the right artery had formed at least two days before. The fact that the softened patches in the myocardium were scattered, with normal tissue between, and that the heart functionated fairly well until the left artery also was obstructed, leads Chiari to infer that anastomoses must exist between the right and left coronaries. Merkel[7] drew the same inference as to anastomoses from the patchy character of the lesions in the heart of a woman of 76 years, there being normal muscle between the softened areas. The left coronary was the seat of the obstruction. He also saw in a man of 37 the left coronary closed, with nourishment through the right artery. Dock[8] in a case of gradual occlusion of the right coronary artery was able to demonstrate a direct opening of the finer branches of the left coronary into the end of the right.

Spalteholz says that we all know cases of stoppage of large vessels without large infarcts resulting. Recklinghausen and Fujinami found this condition in man, as Hirsch had in dogs and monkeys; i. e., smaller infarcts than the distribution of the vessel would lead one to expect. Galli saw complete closure of the entrance to the right coronary artery yet no change in the myocardium. By injection he found a round-about anastomosis between the right and left coronary arteries. Samuelson cites the case of a patient living five hours after obstruction, Huber one of a patient living several days. Aschoff and Tawara[9] saw a patient live fourteen days, "with nearly complete infarction of the parietal wall of the left ventricle." In several cases of angina pectoris cited by Huchard[10] the patients lived many hours after the onset of the final attack, which autopsy showed was due to a thrombotic closure of an artery. Osler refers to the fact that the patient may live for some time after obstruction. Krehl expressly states that in man the more or less sudden occlusion of an entire coronary artery, or at least a large branch, such as the descending branch, is compatible with a continuance of life.

One may conclude, therefore, from a consideration of the clinical histories of numerous cases in which there has been careful autopsy control, from animal experiments and from anatomic study, that there is no inherent reason why the stoppage of a large branch of a coronary artery, or even of a main trunk, must of necessity cause sudden death. Rather may it be concluded that while sudden death often does occur, yet at times it is postponed for several hours or even days, and in some instances a complete, i. e., functionally complete, recovery ensues.

The clinical manifestations of coronary obstruction will evidently vary greatly, depending on the size, location and number of vessels occluded. The symptoms and end-results must also be influenced by blood-pressure, by the condition of the myocardium not immediately affected by the obstruction, and by the ability of the remaining vessels properly to carry on their work, as determined by their health or disease. No simple picture of the condition can, therefore, be drawn. All attempts at dividing these clinical manifestations into groups must be artificial and more or less imperfect. Yet such an attempt is not without value, as it enables one the better to understand the gravity of an obstructive accident, to differentiate it from other conditions presenting somewhat similar symptoms, and to employ a more rational therapy that may, to a slight extent at least, be more efficient.

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[3] Cohnheim and Schulthess-Rechberg: Ueber die Folgen der Kranzarterienverschliessung für das Herz, Virchows Arch. f. path. Anat., 1881, lxxxv, 503.

[4] Cited by Amenomiya (See Note 2).

[5] Miller and Matthews: Effect on the Heart of Experimental Obstruction of the Left Coronary Artery, Arch. Int. Med., June, 1909, p. 476.

[6] West: Tr. Path. Soc., London, 1882, xxxiv, 67.

[7] Merkel, H.: Ueber den Verschluss der Kranzarterien des Herzens, Festschrift für Rosenthal, Leipsic, 1906.

[8] Dock, George: Notes on the Coronary Arteries, Ann Arbor, 1896.

[9] Aschoff and Tawara: Die heutige Lehre von den pathologisch-anatomischen Grundlagen der Herzschwäche, p. 56, Jena, 1906.

[10] Huchard: Traité clinique des maladies du coeur, Second Edition, p. 560.

The variations in the results are to be accounted for in part by variations in the freedom with which anastomosing branches occur. Presumably, too, symptoms will vary with the vessel or branches occluded. It is conceivable that with occlusion of the right coronary the symptoms might be different from those following obstruction of the left artery; systemic edema might be a consequence of the former condition and pulmonary edema of the latter. These points are, however, by no means settled either by experimental or clinical observation. The condition of the remaining vessels as to patency and presence of sclerosis must play an important part in deciding how much they are capable of doing in the way of compensatory nutrition to the anemic myocardium; the strength of the heart itself, as determined, perhaps, by old valvular or myocardial disease, would also have its influence. And presumably a sudden overwhelming obstruction, with comparatively normal vessels, would be followed by a profounder shock than the gradual narrowing of a lumen through sclerosis which has accustomed the heart to this pathologic condition and has perhaps caused collateral circulation through neighboring or anastomosing vessels to be compensatorily increased. The influence of the vessels of Thebesius is also not to be overlooked in this connection; compensatory circulation through these accessory channels may be of considerable importance in nourishing areas of heart muscle poorly supplied by sclerotic or obstructed arteries.

Attempts to group these cases of coronary obstruction according to clinical manifestations must be more or less unsatisfactory, yet, imperfect as the groups are, the cases may be roughly classified.

One group will include cases in which death is sudden, seemingly instantaneous and perhaps painless. Krehl[11] has emphasized the peculiarities of the sudden death of this type, the lack of terminal respiratory agony, of distortion of the features, of muscular contractions.

A second group includes those cases in which the attack is anginal, the pain severe, the shock profound and death follows in a few minutes or several minutes at the most.

In a third group may be placed non-fatal cases with mild symptoms. Slight anginal attacks without the ordinary causes (such as walking), perhaps some of the stitch pains in the precordia, may well be due to obstruction of small coronary twigs. Such an interpretation of these phenomena is, however, only a surmise based on the fact that other causes for the pains are lacking and that the patchy fibrosis of the myocardium that is later found at autopsy may have originated in obstruction of the sclerotic vessels; and such obstruction in small vessels may well have produced symptoms differing chiefly in degree from those caused by obstruction of larger arteries of the heart.

In a fourth group are the cases in which the symptoms are severe, are distinctive enough to enable them to be recognized as cardiac, and in which the accident is usually fatal, but not immediately, and perhaps not necessarily so. It is to the clinical features of this group that attention is directed in what follows.

By way of introduction, I give in outline the history of a case, experience with which acutely attracted my attention to this subject.

Case 1.—*History.*—A man, aged 55, supposedly in good health, was seized an hour after a moderately full meal with severe pain in the lower precordial region. He was nauseated and, believing that something he had just eaten had disagreed with him, he induced vomiting by tickling his throat. The pain continued, however, and his physician was called, who found him cold, nauseated, with small rapid pulse, and suffering extreme pain. The stomach was washed out and morphin given hypodermically. The pain did not cease until three hours had passed. From this time the patient remained in bed, free from pain, but the pulse continued rapid and small, and numerous râles appeared in the chest. When I saw him twelve hours from the painful attack his mind was clear and calm; a moderate cyanosis and a mild dyspnea, were present. The chest was full of fine and coarse moist râles; there was a running, feeble pulse of 140. The heart tones were very faint and there was a most startling and confusing hyperresonance over the chest, the area of heart dulness being entirely obscured. The abdomen was tympanitic. The urine was scanty, of high specific gravity, and contained a small amount of albumin and a few casts. The temperature was subnormal, later going to 99 F. Occasionally there was nausea and twice a sudden projectile vomiting of considerable fluid material. This condition remained with slight variations up to the time of death, fifty-two hours after the onset of the pain, though at one time the râles seemed nearly to have disappeared. A few hours before death the patient described a slight pain in the heart region, but said it did not amount to much. A remarkable circumstance, and one that occasioned surprise in those who saw the patient and who realized from the almost imperceptible pulse and the feeble heart tones how weak the heart must be, was the fact that he frequently indulged in active muscular effort without evident harm. He rolled vigorously from side to side in the bed, sat suddenly bolt upright, or reached out to take things from the table near by; and once, feeling a sudden nausea, he jumped out of bed, dodged the nurse and ran into the bathroom, where he vomited; and yet he seemed none the worse for these exertions.

Necropsy (Dr. Hektoen).—The heart was of normal size, but both coronary arteries were markedly sclerotic, with calcareous districts and narrowing of the lumen. A short distance from its origin the left coronary artery was completely obliterated by a red thrombus that had formed at a point of great narrowing. The wall of the left ventricle showed well-marked areas of yellowish and reddish softening, especially extensive in the interventricular septum. At the very apex the muscle was decidedly softer than elsewhere. The beginning of the aorta showed a few yellowish spots, these areas becoming less marked as the descending part was reached. An acute fibrinous pericardial deposit, which showed no bacteria in smears, was found over the left ventricle. (The pericarditis probably explains the slighter pain complained of a few hours before death.) There was marked edema of the lungs. In other respects the anatomic findings were those of health.

A colleague personally related to me the case of a man of 60 who, three days after a severe anginal seizure, felt well enough to walk on the street, though with some dyspnea. He died suddenly on the fifth day. The obstruction in the left coronary, and the muscular softening found at autopsy were similar to those in the case just described.

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[11] Krehl: Der Verschluss der Kranzarterien; in Nothnagel's System, xv, 369.

Since my attention has been called to this condition, I have seen five other cases that I am convinced were instances of coronary thrombosis, the patients living many hours after the accident, though no autopsy control confirms this opinion. All were men beyond 50. In all there was some evidence of peripheral arteriosclerosis; all had had previous anginal attacks. In all the final attack was described as the severest and most prolonged in the experience of the patient. Morphin alone had given relief. In all the sudden development of a weak pulse, with feeble cardiac tones, was a striking feature; the pulse was generally rapid. Dyspnea and cyanosis varied in degree. Râles, moist and dry, were usually present. Emphysema was present to a moderate degree in two of the five. Only one patient left his bed after the attack. His pulse showed great improvement as to quality and rate, though dyspnea, râles, edema of the legs, albumin, increased area of cardiac dulness, etc., showed failure of the heart muscle. From the time of the seizure, i. e., the time of the obstruction, to death was in one case three days, in one seven, in two twelve, and in one, twenty days.

One of these cases is, it seems to me, a typical one of this sort and, though necropsy is lacking, I venture to give the history.

Case 2.—The patient was a man of 65, of exemplary habits. His health had been good up to three years before, when he noticed at times a tight feeling in the precordia on walking. For the past three months typical anginal seizures often compelled him to stop after walking two or three blocks. Three days before he had had a moderately severe angina. Thirty-six hours before I first saw him, in the night he made a noise, awakening his wife. For a few seconds he was, perhaps, unconscious. He complained of unbearably severe pain in the upper stomach region; the pain did not radiate. He was nauseated and belched gas freely. His physician saw him inside of twenty minutes and gave sodium bicarbonate, which was vomited. The pain continuing, a hypodermic injection of morphin was necessary. The patient was pale, covered with cold sweat and had a small, rapid pulse. His appearance was that of collapse. His distress seemed to him largely abdominal.

When I saw him his color had returned and he was ruddy-cheeked. He complained of extreme weakness. His mind was clear. There was a little cyanosis, and respiration was somewhat labored. There were numerous râles in the chest. The pulse was 110 and small. The heart tones were faint; there was no murmur. The heart was a trifle enlarged, as it had been for some years. The area of cardiac flatness was decidedly small on account of overlying lung. The liver dulness was but a narrow band along the costal margin; the edge of the liver could be palpated. No spleen could be made out. The urine contained a distinct ring of albumin and a few granular and hyaline casts. There was a doubtful faint trace of bile. On digalen and nitroglycerin there seemed to be some improvement in the quality of the pulse.

At a second visit the condition was much the same. There had been a few periods of more marked oppression in breathing, with some increase in cyanosis and weakness of the pulse.

At a third visit, Oct. 19, 1910, it was learned that the patient had had a bad night, with severe attacks of dyspnea. The pulse had been but barely perceptible at the wrist and beat 120 to the minute. At 5 a. m. both the physician and the patient himself had felt that death was at hand. The patient had rallied, however, and when I saw him was conscious, with very feeble pulse of 110, and barely perceptible heart tones. He was extremely weak. Breathing was of the Cheyne-Stokes type. The patient seemingly dozed during apnea, yet answered questions. What I took to be a faint pericardial friction could be made out over the lower left sternal border. The patient said he was not in pain. He declared that he obtained relief from swallowing orange juice, which he repeatedly sipped. He remained in this condition for sixteen hours longer. From the onset of his severe anginal attack to death was seven days.

The instructive case of Professor Panum is described by Fraentzel.[12] For a few weeks Panum had noticed dyspnea and a tight feeling on going up stairs. May 1, 1885, coming home in the wind, he stopped often, and on reaching home had a sudden, severe, tearing pain in the precordia, running out to the left arm and fingers. The pulse became rapid, small and irregular. The patient broke out into a profuse sweat. He was nauseated and induced vomiting by tickling his throat. The physical findings are not accurately known. The mind was clear to the last. Death occurred suddenly about fourteen hours after the onset of symptoms. At the necropsy both upper lobes of the lungs and the middle lobe were found emphysematous. The left coronary artery was atheromatous, narrowed, and a white soft thrombus was attached to the wall. The musculature of the left ventricle was degenerated and softened and had ruptured just to the left of the septum.

Engelhardt[13] describes the case of a man of 54 in whom, after a thrombosis of the left coronary artery with suddenly developing gastric and abdominal symptoms, there was an illness of eight days, with fever, meteorism, vomiting, oppression, and then in a tachycardial attack rupture of the anterior wall of the left ventricle, with hemopericardium. Death twelve hours after the rupture. The symptom-complex resembled the picture of the abdominal-pectoral vascular crises (Pal).

A study of cases of this type shows that nearly all are in men past the middle period of life. Previous attacks of angina have generally been experienced, though, as shown by my first case, the fatal thrombosis may bring on the first seizure. The seizure is described by patients who have had previous experience with angina as of unusual severity, and the pain persists much longer. In some instances there has been no definite radiation of the pain, as to the neck or left arm, though this may have been a feature of other anginal attacks, and the pain, as in these two cases, may be referred to the lower sternal region or definitely to the upper abdomen. Cases with little or no pain have been described. In Chiari's case pain is not referred to, the patient though with slow, irregular and weak pulse being out of bed. The obstruction of the right coronary was, as Chiari says, "so to speak, latent." Thorel also refers to a painless case. Some of Huchard's cases with obstruction did not show anginal pain. Nausea and vomiting, with belching of gas, are common. There may be tympany. Ashy countenance, cold sweat and feeble pulse complete the picture of collapse. The attention of the patient and the physician as well may, therefore, be strongly focused on the abdomen, and some serious abdominal accident be regarded as the cause of the sudden pain, nausea, collapse. The cardiac origin may be the more easily overlooked when there has been no previous typical angina, and when, as may happen (Case 1), there is no arteriosclerosis manifested peripherally and no enlargement of the heart to be made out.

Cohnheim found that in dogs the pulse after obstruction was slow. This may be so in the thrombotic obstruction of disease in man. In Hammer's case[14] the pulse dropped from 80 to 8 per minute, the patient living thirty hours from the onset of the symptoms that marked the closure of the right coronary opening. A rapid pulse is frequently seen however. The pulse may be irregular. A striking feature has been its weakness. In two patients I have seen a rapid, thready, almost imperceptible, radial pulse, of such a quality that if met with in pneumonia or typhoid fever it would have warranted one in presaging death within a few minutes or hours. Yet one patient lived forty hours and another four or five days with a pulse of this quality. Blood-pressure is low. The heart tones have been feeble—in fact, often startlingly feeble. Feeble contraction of the weakened, anemic heart muscle accounts for the weak pulse and the weak tones. Still another reason for the faint tones is found in the acute emphysema—*Lungenschwellung* and *Lungenstarrheit* of von Basch—by which condition the heart sounds are obscured by overlapping air-containing lungs. This also makes it difficult to map out the outlines of the heart and, coupled with the feeble apex impulse, may make such an examination for the size of the heart very unsatisfactory.

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[12] Fraentzel: Krankheiten des Herzens, Berlin, 1892, iii, 51.

[13] Engelhardt: Ein Fall von Herzruptur, Deutsch. med. Wchnschr., xxxv, 1910, No. 19, p. 838.

[14] Hammer: Wien. med. Wchnschr., 1878, No. 5.

Dyspnea and cyanosis have been variable, at times much less than one would expect from the character of the accident and the quality of the heart's action. Râles, dry and moist, have been present in many cases, in some, as in my first case, largely moist, diffuse, not very large. Here there was a moderate amount of thin, frothy, slightly blood-tinged fluid expectorated, as in edema of the lungs, which condition was found at the autopsy. I mention this because some, with Cohnheim, contended that the conditions for edema would not be produced by coronary obstruction, as both right and left heart ceased beating simultaneously. Others, e. g., Samuelson, Bettelheim and Michaelis, found edema. My case shows such edema. Possibly the right heart may have remained relatively stronger than the left after the accident, and so Welch's condition for edema has been presented.

The weakness of the heart and the low blood-pressure will account for the scanty urine and the trace of albumin. A palpable liver may likewise owe its enlargement to passive congestion.

Nearly always the mind is clear—at times unusually clear—until toward the last. Some patients seem conscious, as is so common in angina, that they are face to face with death, but in none that I have seen has there been uncontrollable fear or the restlessness of fright. The seriousness of the accident seemed to be realized, but there was no panic. Perhaps the relief from the agony of the initial pain causes an unnatural mental calmness.

General weakness has been marked in some cases, in others not. One patient showed for more than a week an asthenia comparable to that of the terminal stage of pernicious anemia or Addison's disease. He hesitated to move in bed for the further reason that even turning on the side caused him the sensation as though the heart were giving out. Even slight movement caused some pain. His case is representative of the type of status anginosus. Obrastzow regards this as the usual manifestation of coronary thrombosis. My experience shows that such obstruction may be followed by a complete cessation of pain for hours, and even to the time of death. Some of these patients of the latter type will, if permitted, move freely or even get out of bed.

The occurrence of a serofibrinous exudate over the area of myocardial softening, with roughening of the pericardium, has been noted in several instances. This may explain a later precordial distress, as in Case 1. A fine pericardial friction, therefore, occurring several hours or a few days after the initial pain, may be confirmatory evidence of coronary obstruction. Osler[15] concluded, in one of his cases of angina, that the attack was probably associated with acute infarct of the ventricle, "as a pericardial rub was detected the next day." Dock[8] recognized this pericarditis *intra vitam* in one of his cases and found it post mortem over the softened area. In one of Leyden's cases in which the patient lived five days from the onset of symptoms of dizziness, faintness, small pulse, there was found myomalacia cordis, and especially at the apex, where a softened area reached to the surface, there was pericarditis; cloudy fluid was in the pericardial sac. This was almost certainly a case of coronary obstruction, though the occluding lesion is not described. This pericarditis is in keeping with some of the experimental work on lower animals, e. g., that of Bickel, who in his dogs killed nineteen and seventy days after ligation found localized pericarditic adhesions over the area representing the myocardial softening.

Death is the result in nearly all of these cases. Yet it may be delayed for many days. More than this, there is, as has been shown by reference to experimental work, no intrinsic reason why some patients with obstruction of even large branches of the coronary artery may not recover. Experimental animals sometimes do. And, as already said, mild cases must occur, and one cannot pretend to say where the dividing line should be drawn between the mild obstruction of a coronary branch, whose recovery means a few fibrous patches in the myocardium, and the more serious one that in a few days is to lead to rupture of the heart or is to produce an extensive weakened fibrous area that will ultimately yield in cardiac aneurysm. Death may then be caused by rupture, by sudden asystole, or by gradual giving out of the weakened heart muscle — by "ingravescent systole," as Balfour[16] styles it—a mode of death occupying from half an hour to a week, illustrated by one of his cases in which death occurred one week after the obstruction, which was found post mortem. In one instance in which I believe the anginal seizure was thrombotic a dilatation of the heart, with orthopnea, dropsy, etc., followed the seizure. Death here was, as in cardiac failure, from other causes. Some of the dogs of Miller and Matthews died in this way several weeks after the ligation of the coronary. In cases in which the heart slowly wears out in the course of a few days, Cheyne-Stokes respiration, general asthenia, urinary scantiness, with mental apathy and exhaustion may be present.

Emphasis ought to be laid on the resemblance of some of these cases to surgical accidents. The sudden onset with pain over the lower sternal and epigastric region, the nausea and vomiting, the tympany, the feeble pulse, ashy color, cold sweat and other signs of collapse make one think of such conditions as gall-bladder disease, acute hemorrhagic pancreatitis, perforation of gastric or duodenal ulcer, hemorrhage into the adrenal capsule, etc. The dyspnea, hyperresonant thorax, obscured heart tones, may suggest pneumothorax or diaphragmatic hernia. In my first case, while the diagnosis made was that of cardiac accident, there were so many disquieting features that surgical counsel was called to make sure that some surgical accident, such as those enumerated, had not been overlooked. Details as to differential diagnosis need not be given. Where there is arteriosclerosis, enlarged heart, a history of previous angina, typical radiation of the pain to the neck and arm, the diagnosis will not be so difficult as where these suggestive aids are lacking. The bilateral character of the emphysema, the persistence of breath sounds, often with râles, the failure of the heart to be dislocated, will help exclude pneumothorax and diaphragmatic hernia. The absence of blood from the vomitus, the absence of peritonitic tenderness, a study of the temperature, the leukocytes, etc., will help in excluding subdiaphragmatic accidents.

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[15] Osler: Lumleian Lectures on Angina Pectoris, Lancet, London, March 12 and 26, and April 9, 1910.

[16] Balfour: Clinical Lectures on Diseases of the Heart, Edition 3, 1898, pp. 316 and 328.

Obrastzow[17] calls particular attention to this resemblance to surgical accidents which my own experience corroborates. Engelhardt's case also illustrates this point.

If these cases are recognized, the importance of absolute rest in bed for several days is clear. It would also seem to be far wiser to use digitalis, strophanthus or their congeners than to follow the routine practice of giving nitroglycerin or allied drugs. The hope for the damaged myocardium lies in the direction of securing a supply of blood through friendly neighboring vessels so as to restore so far as possible its functional integrity. Digitalis or strophanthus by increasing the force of the heart's beat, would tend to help in this direction more than the nitrites. The prejudice against digitalis in cases in which the myocardium is weak is only partially grounded in fact. Clinical experience shows this remedy of great value in angina, and especially in cases of angina with low blood pressure, and these obstructive cases come under this head. The timely use of this remedy may occasionally in such cases save life. Quick results should also be sought by using it hypodermically or intravenously. Other quickly acting heart remedies would also be of service.

122 South Michigan Avenue.

LAWS RELATIVE TO THE SANITARY CONTROL OF PUBLIC EATING- AND DRINKING-PLACES *

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The sanitary knowledge of the ancient Egyptians was tolerably extensive, and, gauged by the measure of those early ages, by no means unimportant. It corresponds to the reality in both the actual and chronologic points of view to consider the Jews (Moses) as creators of public hygiene.

The Egyptian priests bathed their bodies twice every day and twice every night. This was not altogether a priestly custom, for history relates that Pharaoh's daughter bathed daily in the Nile.

The ordinance of Leviticus xv, 11, was made the basis of a sanitary system of ablutions before meals, for which vessels were provided, and further, to secure against defilement in any other way, a system of washing of cups, pots and brazen vessels was devised (Hebrews ix, 9 and Mark vii, 4). In Leviticus xiii and xiv it is noted that the patients' clothing, the vessels they used and the houses they lived in were disinfected. Later St. Mark viii, 4, reads: "And when they come from the market, except they wash, they eat not. And many other things there be, which they have received to hold, as the washing of cups and pots, brazen vessels and of tables."

The rich of Greece (460 B. C.) had their private baths and the Athenians their public baths. The Athenian maiden, unlike her Spartan sister, did not think it proper to exhibit her bodily skill and beauty publicly in her chiton, but taking a bath seems to have been one of her every-day habits, as shown by numerous bathing scenes on vases.

When in the Greek home, as guests, persons reclined comfortably at the table and water was poured over the hands and dried with individual towels. Then small portable tables were brought. After the repast was over, the tables were removed, the floor swept clean of crumbs, bones and the like, and once more water was poured over the hands. The use of knives and forks was unknown at this period, whence the custom of washing the hands and drying them on towels.

Roman laws provided no protection for the individual. In older times of Roman history, lavatrinæ or wash-houses were next the kitchen. Later, hot, sudatory, tepid, cold and shower baths were in the homes. At the end, as at the beginning of a meal, the hands were washed with scented soap. The public baths, such as the thermæ of Veleia and Pompeii and the baths of Caracalla, in Rome, (217 B. C.), were masterpieces of architecture It has been calculated that 62,000 people could have bathed any hour in the public baths of Rome, not to mention the private baths.

Hygienic measures were a part of the religious observances among the ancient Jews, as well as among the peoples of Assyria and India. The measures were enforced by their priests. Among the Greeks this duty was transferred to the physicians. Through the whole, the Jews enjoyed a remarkable immunity from epidemic diseases, while their Christian neighbors perished around them. In medieval and modern history, down to the present time, the filthy habits of the Christian population offered a premium for plagues of every kind. Two centuries ago the mortality of London was eighty per thousand. Until a comparatively recent date the mortality of our large cities compared favorably with the London of two centuries ago.

The gradual deviation from the sanitary ideals of mosaic times, to the beginning of the twentieth century, was such as to lead to the belief that the standard of civilization was declining, instead of rising. It is not an uncommon thing to see, in the densely populated sections of our large cities, in the small towns and even in country districts, hygienic and sanitary conditions, relative to public eating- and drinking-places, that would put primitive peoples to shame. On a tour of inspection I saw many eating-places where no provisions were made for ablutions before meals. The knives, forks, spoons and dishes (some the cat and dog had used) were rinsed, not washed, in water that had not been changed for days. Among the patrons of these eating-places were whites, blacks and mongols. The diseases represented were tuberculosis, syphilis, gonorrhea, trachoma, scabies, tinea sycosis, and no doubt typhoid, scarlet fever, etc. In another series were found eating-places where provisions were made for ablutions of face and hands but all used the same bowl, towels, soap, etc. The eating- and drinking-vessels were washed in pans, but no attempt was made at sterilization.

In first-class eating-places provision is made for the hygienic and sanitary comfort of the patrons, yet it is the personal element that enters into the protection of the individual in the higher class places.

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[17] Obrastzow and Straschesko: Zur Kenntniss der Thrombose der Koronararterien des Herzens, Ztschr. f. klin. Med., 1910, lxxi, 116.

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

The standard of public drinking-places may be classed in much the same way as the eating-places, with this exception: even in places of the highest class, glasses and bottles are only occasionally sterilized. In lieu of the foregoing conditions I would suggest the following:

1. The enactment of laws relative to the sanitary condition of public eating- and drinking-places, which shall provide for (a) the personal hygiene of owners and employees and (b) sanitary precaution on the part of owners and employees.

2. The owner of each and every public eating- and drinking-place shall be licensed under such law, such license to continue in force as long as there is no violation thereof.

3. Any and every glass, cup, dish and other eating- or drinking-vessel or utensil used in any hotel, saloon, restaurant, drug-store, soda-fountain, or other place of public refreshment in the state shall be sterilized in steam or boiling water after being used by any patron and prior to any further use thereof in eating or drinking by any other patron; and no such glass, cup, dish or other eating- or drinking-vessel or utensil after use by one patron in eating or drinking, shall be offered or be permitted to be used by any other patron without having first been thoroughly cleansed and then sterilized in steam or boiling water.

4. No person, firm or corporation shall at any time or place keep, expose, offer or prepare for sale, or shall store pending sale, any article or substance of human food or drink in any place or premises which is not, at such time, screened so as to prevent insects from having access to such article or substance; and no person, firm or corporation shall at any time or place keep, expose, offer or prepare for sale, or shall store pending sale, any article or substance of human food or drink in any place or premises unless such article or substance is pure and wholesome and entirely free from contagious and infectious bacteria.

5. No drinking-vessel, used in common or to be used in common, shall be kept, exposed, provided or permitted in any railway station, public or private school, public playground, public park, public building or in any place to which the public are admitted.

6. No drinking-vessel used in common shall be exposed, kept, provided or permitted in any mill, factory, railway train, ship, boat, hospital, private or public institution, public works or in any place where a number of persons are employed or assembled.

7. No table-linen or coverings, towels, cloths, sponges, soap, combs or water used in common or to be used in common shall be exposed, kept, provided or permitted in any public eating- or drinking-place.

8. No person or persons shall be served food or drink at any public eating- or drinking-place until they shall have thoroughly cleansed the hands and face with soap and water, as provided for in Suggestion 7.

9. No person or persons known to be suffering from an infectious or contagious disease shall be served food or drink at or in any public eating- or drinking-place unless isolated from other patrons under proper sanitary conditions, in order that no other patron shall in any way be exposed or endangered in any manner whatsoever to said infection or contagion.

It may be argued that no sanitary system can supplant present conditions unless entailing great expense and inconvenience. To this I agree; but whatever is humane and promotes the progress of civilization is expedient and necessary. I would therefore suggest the following as a few of the many things that may be used: sanitary paper cups, straws, cupless attachments on faucets, sanitary systems of drinking-fountains in mills, factories, stores, institutions, etc., bubbling fountains, which make cups unnecessary, paper napkins, individual towels, cloths, soap; installation of systems for rapid cleansing and sterilization of dishes, glasses, cups or other utensils, used in or about public eating or drinking places.

Most, if not all, of the state boards of health have condemned the public drinking-cup. The progressive cities have passed ordinances prohibiting the use of the public cup. St. Louis has taken advanced measures to enforce the cleansing of any and every glass, cup, dish and other eating- or drinking-vessel or utensil used in or at any public eating- or drinking-place, in running water or clean water. This ordinance is a great stride in the right direction, but falls far short of the mark.

Railway companies announce that passengers do not demonstrate any great desire for individual sanitary cups. Other large corporations maintain that there is no particular benefit derived from the use of the individual cup, and further that the added expense is necessarily great. The same argument comes from the individual in respect to slot machines, paper napkins, etc.

The solution of this great problem of sanitary control of public eating- and drinking-places depends on the elimination of two factors — avarice and ignorance. The mercenary motive of the individual, as regards hygienic and sanitary methods, predominates over his moral obligation to himself and his fellow men. Hence the sequence of his reasoning leads to antagonism of laws respecting sanitary science, basing a great deal on the aphorism that "the Lord giveth and the Lord taketh away." The community reasons that the enactment of laws relative to the control of sanitary conditions brings on it added hardships in the form of increased tax-rate, higher cost of living, physical discomfort and infringement on its personal liberty.

The state, until a comparatively recent date, did not take marked interest in sanitary affairs. It does not at the present time consider seriously the individual. The most notable advances made by the state have been when great commercial interests were endangered. It is said that "Ignorance of the law excuses no one." Such being the case, we have one of two ways of solving a serious problem. The laws must be enacted after the mosaic method and then enforced, which is a most plausible way, or the laws must lie dormant until the masses are educated or have reached a higher standard of civilization.

Realizing that any community that wishes to be prosperous must be healthy, sanitarians have taken the initiative in formulating laws to that end, and have accomplished more for their respective communities than has been achieved in this or any other country in the last 2,000 years. This may seem a broad assertion, but is it not true? The brilliant and noble work of Gorgas, White, Blue, Stiles, Sternberg, Wyman, Guiteras, Carroll, Lazear and associates who forged the chain enabling the United States government to have and to hold its many possessions, had the sanction and legal support of the government.

Then must we work and wait until we are in the face of a great commercial enterprise, or until we are in the throes of epidemics of typhoid, diphtheria, scarlet fever, small-pox, cholera, yellow fever or bubonic plague before we awaken to the necessity of legislative measures of sanitary control? No! there is one reality — our duty. It demands of us as medical men and sanitarians to let the light of our knowledge shine and point out the way. Let us blot out the black pages of the last 2,000 years and take up the work that the ancient Babylonians, Jews and Egyptians so nobly began. It is for sanitarians to apply sanitary science to the affairs of civilization; the masses depend on sanitarians for leaders and teachers.

We know what the epidemics of the past have cost us. We know how much we have accomplished and how far we have advanced, but we are not left without a guide. It is true we do not have a Moses to lead us, but we have more in Hurty, Bracken, Evans, Dixon and their kind, great broad-minded men, unselfish, forceful and considerate of the humane advancement of sanitary propaganda. These men have taken the initiative in health work. Now let us have the hearty cooperation of every member of the American Medical Association — every person, it matters not his walk in life, interested in the progress of civilization, in securing for every state in the United States laws relative to the sanitary control of public eating- and drinking-places. It should therefore be our earnest endeavor and duty to make hygiene and sanitary science one of the basic principles of our civilization.

401 Fourth Avenue.

THE CONTROL OF CONTAGIOUS DISEASES IN A MUNICIPALITY *

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Accepting the word "contagious" in its broadest sense, we have a subject before us which would make a better title for a book than for a discussion of this kind, and yet I desire at the start to say that I shall use the word "contagious" as synonymous with "infectious" and "communicable," and speak of contagious diseases as those diseases which are capable of transmitting infection from one person to another in one way or another.

If I had been asked ten years ago to give my opinion as to how to control contagious diseases in a municipality, I would have said "by immunization, isolation and disinfection"; but after more than ten years in this field of work, it would seem that the answer would be even more simple, namely, "by education." It is true to-day, as it was then, that some acute contagious diseases, principally small-pox and diphtheria, are controllable by immunization, the former by vaccination, the latter by the use of diphtheria antitoxin; but in order to get good results from these methods, it is necessary to have the people of a community so educated that they will submit to them readily and whenever the health officer finds it necessary for them to do so. Immunization is undoubtedly valuable in the control of some of the other diseases, among which may be mentioned typhoid fever, but it would be difficult to make any great use of this method in any municipality at the present time because of the lack of knowledge of this procedure on the part of the community. Isolation, the second method which has been in vogue for a number of years for the control of contagious diseases, is desirable and satisfactory when it can be employed, but it is necessary first to have knowledge of a case before it can be isolated. It was because of the fact that so many cases of acute contagious diseases, particularly diphtheria, scarlet fever, measles, German measles and others of that nature were never reported and consequently escaped the attention of the public health officials and could not be isolated, that a system now known as medical inspection of school children was first introduced.

Medical inspection of schools, as it is better known, comprises at the present time not only the detection of contagious diseases among school children but also the detection and correction of physical defects and the study of mental defects; but it was originally planned for the purpose of detecting cases which otherwise escaped the attention of the authorities.

In considering the isolation of cases of contagious diseases, the question of hospitalization comes to our mind and with it the fact that many cases of contagious diseases cannot be properly isolated in private houses. I would not take the position that all cases of all contagious diseases, including typhoid and tuberculosis, should be hospitalized, but on the other hand, I think it is absolutely necessary for the success of the preventive measure known as isolation that in each municipality there should be a properly equipped and constructed municipal hospital for contagious diseases under the control of the board of health in which such patients as cannot properly be isolated in their own homes may be cared for. By having facilities for early reception of such patients, it will be possible to reduce not only the morbidity but also the mortality from contagious diseases.

Disinfection is the one method of the three that I have mentioned that has been bitterly attacked by some progressive sanitarians, among whom may be mentioned Dr. Charles V. Chapin, of Providence, R. I. In a paper[1] read before the American Public Health Association in 1910, Dr. Chapin took the position that "terminal disinfection," or disinfection of a room or house after a case of contagious disease has been terminated, really has no value, and he showed by a series of figures that in Providence, where "terminal disinfection" had been discontinued, the results obtained with regard to additional cases arising in the houses in which there had been an original case, were almost as good without "terminal disinfection" as when it had been performed. In spite of this opinion, and the opinion of other progressive men, the fact remains that "terminal disinfection," properly done, does disinfect; in other words, that formaldehyd used in sufficient quantities for sufficient lengths of time, in a room which has been properly prepared, does destroy such infection as may be within the room. Of course the method of disinfecting for the purpose of controlling the spread of contagious diseases should not be limited to terminal house disinfection by formaldehyd or sulphur, but should consist in a disinfection during the course of the disease of everything that has been known to have become infected. All materials which have no intrinsic value and which have become infected by contact with the patient during the course of the disease should be destroyed by fire, and whenever this procedure cannot be followed, we should resort to boiling, immersing in chemical solutions, or some other method equally satisfactory.

If it were possible to apply one or more of these methods, namely, immunization, isolation and disinfection, to all of the communicable diseases within a municipality, there can be no question but that the result

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* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] Chapin, C. V.: The Value of Terminal Disinfection, Jour. Am. Pub. Health Assn., January, 1911.

would be favorable, and the number of cases of such diseases held under control; but considering the appalling ignorance on the part of the public of these diseases and the manner in which they are spread, we have before us, as I have said earlier in my discussion, a problem of education.

EDUCATION AS TO CONTACT INFECTION

It seems to me that the public health official who hopes to accomplish much in the future in the control of contagious diseases must be the one who will best educate the public in his community in the necessity for such control. In speaking of the need of education among the general public, we must not forget that the medical profession needs some instruction. While it is true that the majority of the profession are in the front rank of our work for the prevention of disease in all of its phases, it is equally true that a good-sized minority are absolutely indifferent and many of them ignorant in this respect.

In the campaign of education which it is necessary to conduct vigorously for the control of contagious diseases, we must first correct some erroneous ideas which have existed in the minds of the public and of some physicians for years. The theory of aerial convection of contagious diseases must be eliminated from their minds, and the fact that all of these diseases are transmitted by direct or indirect contact substituted in its place. So long as the people and many of the medical profession believe that these diseases are spread broadcast through the air, just so long will it be difficult, if not impossible, for us to make much headway in our fight against their spread. Not many years ago nearly all text-books on contagious diseases took the position that while all of these diseases are certainly transmitted by contact directly or indirectly, they may also be carried through the air for a shorter or longer distance. The most modern text-books deny that any of the acute contagious diseases are carried through the air except small-pox, and for some unaccountable reason nearly every author makes an exception when it comes to a consideration of this particular disease. As far as my experience goes, I am just as convinced that small-pox is not carried through the air as I am that scarlet fever, diphtheria, measles and other acute contagious diseases are not transmitted in that way. During the winter of 1902-1903 there were 1,023 cases of small-pox in Detroit, and the outbreak began in the Polish district of the city. The cases did not spread from one house to the next as might be expected had they been transmitted through the air, but they went from one family to the family of a friend or relative who lived, in some cases, a short distance, in others a considerable distance away, but had been in contact with the infected household. In this epidemic it was possible to trace the origin of nearly all the cases, and never did we fail to find direct or indirect contact as the cause of the transmission of the disease. According to the old theory, the "striking distance" of small-pox is several thousand feet. During the past ten years we have treated nearly 1,500 cases of this disease at the municipal small-pox hospital; at one time we had 104 patients confined there, and during all of these years we have had but three cases within the reputed "striking distance" of the hospital. These cases were contracted from other cases outside of the hospital with which the patients had, to my personal knowledge, been in contact.

The building which had been occupied in 1902-1903 by this large number of patients with small-pox has since been remodeled and is being used as a tuberculosis sanatorium and hospital, and the small-pox patients are kept in a separate building, but located on the same grounds and not more than 500 feet away. Before this complete change was made, the small-pox patients were confined in one part of the large building and the tuberculosis patients in another part with an air-space of only 3 feet separating the two; during that time, and since then, no case of small-pox has developed on the grounds outside the small-pox hospital, without reference to the vaccination status of the patients admitted to the tuberculosis sanatorium.

It is my opinion that not only the acute contagious diseases, including small-pox, are transmitted by direct and indirect contact alone, but that this applies with almost equal force to such diseases as were formerly classed as infectious, of which typhoid fever and tuberculosis are the type. It is undoubtedly true that typhoid epidemics are traceable to infected water- and milk-supplies, but we have cities in which the water-supply and also the milk-supply, as a whole, at least, are beyond suspicion and in which we have every reason to suppose that they are safe as far as typhoid infection is concerned. I believe Detroit is such a city. There may be, and occasionally there are, cases traceable to infected milk from an infected dairy, and I have traced such cases; but as a whole, as I have said, the milk-supply is not infected or we would have many more cases. How, then, is the disease transmitted? In the very interesting and thorough investigation made of the cause of the transmission of typhoid in the United States Army during the time of the late war with Spain by a committee appointed by the government, of which Dr. V. C. Vaughan of the University of Michigan was chairman, the conclusions, as I remember them, were that the disease was spread in three ways, and in the order of frequency they were (1) personal contact, (2) flies, (3) water-supply. All the latest studies of the subject in Germany lean toward the side of direct personal contact rather than the indirect one of transmission by flies and infected water if, indeed, these modes of transmission may be considered "contact," as I would have you believe. Certain it is that no one nowadays adheres to the theory of air-convection as far as typhoid fever is concerned.

With tuberculosis, the proof of "contact infection" may seem even farther away to some than is the case with typhoid, and yet the more this disease is studied, the more evident its method of transmission becomes. Not many years ago it was believed that the disease was hereditary, but bacteriology turned on the light and dispelled this erroneous theory. Now we know that consumption is spread from infected persons, principally by the "droplet method," which certainly requires close proximity on the part of the victim, or by means of particles of dried, infected sputum gaining access to the mucous membranes of the mouth and throat of the susceptible individual. But is it not reasonable to believe that in the great majority of cases this infected material may be brought to the lips and mouth of the victim by his own fingers which have become infected in one of the many ways in which this is possible? Or if a man, perchance, carry some infected material on the bottom of his trousers or even on his shoes, and then come into close proximity with these infected articles, is not that contact infection? If consumption were so universally carried through the air as has been supposed, would there not be more cases even than there are now? Certainly not so many of us are immune to the disease.

REPORTING VENEREAL DISEASES

The first step necessary in our campaign of education, then, is to teach the public something about contact infection; and in this instruction we must not forget to lay emphasis on the fact that contact resulting in the spread of the disease may be had not only with the patient himself, but with an infected person or thing; and under this head let us not forget the danger of the ever-present house-fly. The fly that has been in contact with the patient certainly becomes an infected "thing," and one which may be the cause of our taking the disease from which the patient is suffering. As we progress in our campaign of education, it is necessary for us constantly to add to our list diseases to which formerly little attention was paid. In scientific discussions of the past, a fine distinction can always be found between contagious and infectious diseases, and yet there is one class of diseases which is certainly contagious, which is dangerous to the public health, and which is perhaps more prevalent than any one of those which have received more attention at our hands and which, until recently, has been mentioned, if at all, only in a whisper. I refer now to the venereal diseases. The time has come when the public must be taught to lay aside false modesty and prudery and must learn something of the terrible results and of the immense mortality following attacks of gonorrhea and syphilis. Here again is an example in which the method of isolation, so highly recommended, has failed utterly in the past because of the fact that the cases are not known to the public health official whose duty it is to isolate them. Each municipality should have a properly equipped hospital for the reception of the most infectious cases of this kind.

In order that cases of venereal diseases may come under control of public health officials, they should be reported just the same as other contagious diseases, but a mere suggestion even to the medical profession that venereal diseases be reported to public health officials encounters disapproval. At a recent meeting of the Michigan Health Officers Association I had occasion to talk on this subject and made the suggestion that the association endeavor to secure legislation during the next year requiring the reporting to public health officials of cases of venereal diseases. The suggestion met vigorous opposition on the ground that physicians would not report such cases and could not be asked to do so. Ten years ago the same opposition was met when it was suggested that tuberculosis be reported. It was argued that the disease was not contagious in the same sense as is, for example, small-pox, that the board of health would isolate all cases and placard the houses, that a patient should not be told when he is suffering from tuberculosis and that the public should not be told about the affliction of the patient. All of these objections have been met and overcome and tuberculosis is now being reported, at least, in most cases. In the case of venereal diseases the objections could be even more easily met. The diseases are certainly contagious, as much so as any acute contagious disease that can be mentioned. It will not be necessary to isolate all cases and placard the houses; it is certainly wise and proper to tell a patient when he is suffering from either of these diseases, and as far as the publicity of the report is concerned, that can be overcome in the same way as has been done in laws requiring the reporting of cases of tuberculosis by providing for a protection of the records and making it a violation of the law for the health officer to divulge any of the information contained in the report except for the purpose of enforcing the tuberculosis law itself.

CONTROL OF TUBERCULOSIS

The good results attending the campaign of education for the control of contagion in a municipality are perhaps best seen in the case of tuberculosis. A few years ago this problem looked so large that it seemed impossible to know how to take hold of it; but now the work has become systematized in most cities to such an extent that it is moving along as easily as the work for the prevention of any of the other diseases. In Detroit we had no knowledge of the whereabouts of our cases of tuberculosis until about six years ago. At that time an effort was made to do something in the way of control of this disease, and the first thing necessary was to locate some of the cases. Accordingly, a nurse undertook a house-to-house canvass for the purpose of educating members of the household in the prevalence and danger of tuberculosis and in the methods of its prevention, and incidentally for the purpose of locating some cases of this disease; at the same time a clinic was established in charge of a physician and nurse in the board of health building for the purpose of examining such applicants as might apply, and to give them medical advice and, if necessary, a proper diet. It was not long before a number of cases were located, and subsequently the Municipal Sanatorium was started for the reception of the most infectious cases. Now we have nearly 400 patients under the care of the board of health physicians and nurses outside of the sanatorium, and seventy-five constantly receiving sanatorium care. In the meantime and partly as a result of the work done in Detroit, a law was passed by the state legislature providing for the reporting of all cases of tuberculosis in Michigan, and while this law is not being universally obeyed, it has had the effect of adding a great many cases of tuberculosis to the statistics of the departments of health of the state and of the various municipalities, and has given the health officials an opportunity of having general supervision over all these cases.

REDUCTION OF INFANT MORTALITY

Again, the good effect of an educational campaign conducted by the department of public health can perhaps best be seen in the work that is being done all over the country for the reduction of the excessive infant mortality. In Detroit there was a reduction in the number of deaths under 1 year of age during the four summer months, June to September, 1911, as compared with 1910. This reduction was due to a great extent at least to the instructions given by the board of health nurses to mothers on infant hygiene, to the advice and medical attention given babies and mothers in the mothers' clinic at the board of health building, and to the careful supervision of the milk-supply by the milk inspection department. The instruction referred to was given by six nurses who visited the homes when babies were born and told the mothers how to keep the babies well. During the winter months the same nurses act as school nurses in our city; during those months, when it might be expected that it would be easier to reduce the infant mortality, the reduction in 1911 over 1910 was only very slight. During the four summer months there were 139 less deaths in 1911 than in 1910 and during the remaining eight months the total reduction was only ninety. This seems to indicate that what is necessary for the promotion of this sort of public health work is nstruction, and as far as possible, instruction by word f mouth from the public teacher to the community.

What has been said about the work for the prevention f tuberculosis and for the reduction of infant mortality pplies equally well to the restriction of all contagious liseases. It is necessary for a progressive department of ublic health to have a large corps of competent trained isiting nurses, the larger the number and the more rained, the better. Each case should be promptly eported to the board of health and, after being properly ecorded, it should be investigated by a nurse. In her nvestigation the nurse, besides giving instruction to the family in the prevention of the particular disease, could make a note of the housing condition of the family and n this way this most important branch of public health work would receive proper attention and this predisposing cause of contagious disease — insanitary housing — would be much improved.

In closing I desire to say, as I said in the beginning, hat the control of contagious diseases in a municipality must be accomplished by education, and this education can best be given to the public by trained nurses in the mploy of the board of health.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. DUTTON AND KIEFER

Dr. Pauline M. Townsend-Hanson, Marshalltown, Iowa: To my mind, the idea of reporting, quarantining and confessing about other diseases and not reporting the social diseases as been a farce for all these years. Who that understands would not rather have small-pox than have one of the venereal liseases? Dr. Dutton suggests laws requiring the cleanliness f patrons at a restaurant before eating their meals, and that ll public eating-houses shall have provision made so that he diner may wash up before eating. This we all know would dd to the cost of maintaining eating establishments and add o the final cost of the meal. Thousands of the well-fed do ot realize the effect of 10-cent meals. If any physician of the American Medical Association had to live on 10-cent meals hree times a day for a year, that physician would be very pt to feel sick and grievous, but there are thousands of men, women and children who cannot afford ten cents three times a lay for a meal. It is a great deal more insanitary to be without a meal entirely than it is to eat a dirty meal. These people who cannot afford the ten or fifteen cents to pay for their meals go to the garbage barrels to find their food, and dirt on he hands is as nothing to the dirt that is found in the food hus gathered. All the dirt on hands which is conveyed to the mouth by the handling of food in eating is as nothing to the irt that is found in the food during its manufacture from the original products; laws that merely require cleanliness of the hings that are going on the table will not touch the problem ntil there is supervision of food from start of manufacture to ating-time. In connection with this problem, comes the problem of poverty. In this day of speedy processes of manufacture, of increased scientific knowledge and of rapid production, t is a disgrace that we have poverty existing in America, r anywhere else in the world. It is not at all necessary; t is one of the things we have to get rid of, and it is one of he problems for this section to take up. I do not see why we could not have a committee from this section to investigate nto the matter of the speediest method of doing away with poverty in America just for sanitary reasons.

Dr. Otto P. Geier, Cincinnati: Cincinnati is building a municipal hospital which will cost over two million dollars. t was with a great deal of difficulty that a few of us were ble to impress on the hospital commissioners that it was safe o place the small-pox hospital near the group of contagious isease buildings. Every speaker this afternoon has emphaized the need of education. Dr. Kiefer speaks about the pubic teacher. Who is properly the public teacher? Dr. Kiefer ays the public teacher should be the nurse. In this crusade of preventive medicine we are gradually narrowing the field of the physician. Most of them are cooperating with the health officer in bringing about this lessening of their field; and it is to their credit. There is a minority who cannot cooperate because with them it is a matter of bread and butter. Possibly in discussing these questions we have overlooked the economic side. Should we not make the physician a part of the program of public educational work? It is said that the average income of the physician in the country to-day is a thousand dollars a year. I would like to suggest this question to Dr. Kiefer. Do we properly value the physician in this program of education? Are we replacing the work which we are taking away from him by preventive medicine? In this campaign of education we must, in self-defense, take care of the physician if we care to have this work progress to its ideal limit. If we do so, it will first bring into line that small minority who are fighting for their bread and butter and lastly, I think, it will bring a better recognition from the public itself; because, after all, free service is never appreciated.

Mr. W. A. Howe, Albany, N. Y.: It seems to me we ought to be willing to do more for the general practitioners. They are the men who are suffering most and who will continue to suffer most from this progressive wave of preventive medicine. If we are going to conduct a campaign of education along these lines let us utilize for that purpose the family physician that he may profit rather than suffer therefrom. Let him be the teacher, as he is so well fitted to be, the cooperator, the contributor to our success. Within the last three weeks we have placed in the hands of every member of the graduating class of every medical college of the state, a package of literature bearing on public health. This contains the Public Health Law, various leaflets published by the Department on Communicable diseases and much other material instructive and useful to them as prospective practitioners. We are endeavoring to acquaint them with the various resources of the department and to urge their more liberal employment by the medical profession. We are endeavoring to cultivate a closer cooperative plan between the medical profession and our department, believing that no department of health can be stronger than that which is measured by the willingness of the medical profession in its cooperation. We believe that just in proportion as we can interest the practitioner in our work so are we going to succeed, and that just in proportion as we embarrass the practitioner or discourage him so will success with us be impossible. So thoroughly convinced are we in New York of the necessity of this line of activity that steps have already been taken to introduce into the various medical colleges a uniform course of instruction in public health. This plan has already been approved by the deans of several of our leading medical colleges, and it is my expectation that it will receive their unanimous consent within the next fortnight. Our scheme includes lectures by representatives of the State Department of Health, field instruction to the medical students by the municipal health authorities, and instruction by members of the faculty of the several medical colleges. We also hope to perfect the plan in such a manner that one lecture will be given in each of the ten medical colleges by a representative from each of the other colleges on some subject pertaining to public health. This educational movement among the medical colleges we regard as highly important, believing that by successfully conducting it, within a few years we will secure a large number of medical men trained in at least the rudiments of sanitation, far better capable of making efficient health officers and more susceptible of interest in public health questions. This is one of the lines of practical public health instruction which I believe we as health workers must encourage and promote.

Dr. Seneca Egbert, Philadelphia: The question of popular education in public health work is an old one. As a matter of fact it seems to me that we must realize that the greatest field of work is among the laity. Under force and stress of public opinion we have moved our municipal hospital in Philadelphia miles away from the center of the city. It would be much better for Philadelphia if we could have a number of sectional hospitals, each serving its own neighborhood. We might easily enough have these hospitals for infectious diseases if we could get rid of that bugbear in the minds of the people that if there is small-pox or scarlet fever on the other side of the street it is going to be dangerous for people who live on this side. We know that that is largely nonsense. I believe with Dr. Kiefer that the theory of the air transmission of small-pox is largely a fallacy to-day. We owe a great deal to Dr. Chapin of Providence for what he has taught us, although we may not agree with him entirely.

When we can impress on the people the importance of vermin, the fly, the bedbug, etc., and when we can get the public to realize that contagious diseases are transmitted by such agencies or by contact and not by germs floating through the air, then I think we can get people to appreciate what they must do in order to eradicate these diseases; and we can then get to the point where we can have the hospital in the vicinity of the home. One can scarcely blame a mother to-day for objecting to send her child with measles or scarlet fever to a hospital which is possibly a day's travel distant. I am not much in favor of compelling people to do things by law which they do not understand and which they do not want to do. I think we are teaching the people in Philadelphia how to take care of their babies. For instance, Dr. Neff's reports for certain wards show a considerable saving of infant life. It is because the people have been taught, and because many of our health inspectors have been brought into contact with the people and have been able to show them that their neighbors' children were doing the damage in spreading the disease and that they themselves could help in checking it. I know that this matter of popular education will appeal to people if we can put it in the right way. A great many of our social workers are doing splendid work; but we must not forget that not every person can go out and teach health matters without preliminary training; it takes considerable training before people are able not only to teach but to get those whom they are teaching to absorb and apply what is taught.

Dr. Mary Dunning Rose, New York: Nurses will work for $1,000 a year or less and give their entire time. If physicians were asked to do for $1,000 a year the district work which these nurses are doing, and devote their time to it, I think that but few would respond to the call. Again, if the number of physicians who register in the United States continues to diminish—there were more than a thousand less in 1911 than in 1910—it seems as though it will not be many years before physicians will be able to obtain more than $1,000 a year, even though preventive medicine is pushed forward as rapidly as possible.

Dr. Walton Forest Dutton, Carnegie, Pa.: I do not think the scope covered by my paper was at all too broad. The suggestions relative to the sanitary control of public eating- and drinking-places are appropriate to present-day conditions. If we will stop and consider just for a moment, we fully realize the necessity for such laws as I have advocated. Since this paper was written, four cases of gonorrheal ophthalmia have come under my service. The infection was directly traceable to a towel used in common by the men and boys employed in a certain part of a mill. Another patient employed in a downtown office gave about the same history.

Some days ago while drinking at a soda fountain, I saw the same glass and spoon which had been used by a person who had a chancre at the angle of the mouth, rinsed off hurriedly, not washed, and placed on the working board. Ten minutes later I saw the same glass, and spoon, filled and handed over to a little girl about 10 years of age. In the name of Him who said "Suffer the little children to come unto me," is there no help? Must we work and wait on the education of the masses and in the meantime sacrifice the lives of thousands of men, women and children to years of loathsome disease, suffering and death?

For the sake of the innocent mother, sister or child in your own home or that of your brother who must of necessity patronize public eating- and drinking-places, assist in enacting laws which will be an honor to yourself, to your neighbor and to your country.

Dr. Guy L. Kiefer, Detroit: I agree with Dr. Howe in his statement that the principal thing necessary for the success of public health and work is the cooperation of physicians, and, of course, the cooperation of the people. There is no question about that. I desire to emphasize what I have said about employing nurses as teachers. In the first place, as Dr. Rose said, you cannot get many physicians to devote all of their time to the work for $900 a year; in the second place, the more of this educational work there is done, the more successful your public health work and the more business you make for the physicians. There are always going to be people in every community who are going to employ the physician to do the very thing that the nurse is doing through the public health department. I agree absolutely that sanitary education is better than sanitary legislation. You cannot enforce legislation unless you have the education and the public sentiment back of your laws; but the way to give the people this education is by sending a nurse to the house, because, while the physician might in many cases be more able to give knowledge, people will not listen to him as they will to the nurse. The nurse goes to the home and talks to the mother, who will not listen to the physician. If physicians go around giving this education, the physicians at large will think that the former are getting into their families, and there is the question of professional jealousy.

PROCEDURE IN QUARANTINE PRACTICE

DESIRABILITY OF THE RECONSIDERATION OF PRESENT METHODS, ESPECIALLY IN RELATION TO THE "MINOR" INFECTIOUS DISEASES *

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Quarantine has been defined as "the adoption of restrictive measures to prevent the introduction of disease from one country or locality to another." In the broader sense, therefore, it includes many measures, following the notification of disease, to prevent the transmission of the infection from the sick to the well. Among these measures may be mentioned placarding of buildings, observation and surveillance of patients and contacts, prohibition of public funerals, disinfection, etc.

In recent times, inquiries have been frequently made to determine the degree of uniformity that prevails regarding restrictive measures and their manner of enforcement by health authorities to prevent the spread of diseases such as diphtheria and scarlet fever. These inquiries disclosed the facts that while placarding, isolation, disinfection and prohibition of public burials were in general insisted on, great differences existed in the provisions governing the character and duration of isolation, because of diversity of opinion with respect to the modes of infection and the period of infectivity.

The object of this paper is not to deal with such measures as placarding, disinfection, etc., in regard to which more or less uniformity exists, but to invite attention to those provisions relating to observation and surveillance of infected and exposed persons.

REASONABLE AND UNIFORM PROCEDURES

One of the principles governing the conduct of quarantine is that it should be reasonable and based on scientific knowledge respecting the period of infectivity and modes of transmission of communicable diseases. Quarantine of places, persons and things should extend over the least possible period of time consistent with safety, should cause the least possible expense and inconvenience, and should be reasonably effective in preventing the transmission of infection to other localities.

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* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

The great importance of reasonable and uniform procedures has led practically all civilized countries to enter into international agreements, in which are specifically outlined the quarantine restrictions to be observed by the respective governments for the control of certain diseases. These diseases are plague, cholera and yellow fever. This international cooperation suggests like action on the part of state and local governments looking to the adoption of definite and uniform methods of procedure in local quarantine practice. That there is need for greater uniformity is evident.

In practically all of the states and territories the duration and conditions of quarantine in different diseases are specified by the regulations of the respective state and territorial boards of health. In certain jurisdictions, on the other hand, such as the District of Columbia, Ohio, Delaware, Idaho and Utah, the duration of quarantine of certain specified diseases is fixed by law. In Iowa quarantine may be imposed only in cases of scarlet fever, small-pox, diphtheria, cholera, leprosy, cerebrospinal meningitis, plague and anterior poliomyelitis.

In all of the states and territories, patients may be quarantined at their residences. In practically all depending on the disease, they may be removed to a special hospital or other place, and in many there is specific authority to establish contagious-disease hospitals. Under certain conditions removal of patients to a hospital is made compulsory in certain states, but in Indiana and New Jersey no person may be so removed except on the certificate of two physicians.

In some jurisdictions the duration of quarantine is left to the judgment of the local health authority or physician in charge, and in the several states there are great differences as to the length of isolation in the disease subject to quarantine.

EXISTING REGULATIONS

From a collection of the health laws of the several states and territories which I have made and analyzed to some extent, a striking variation is revealed in the length of quarantine of the minor diseases. A summary of some of these data will be presented to point out such variations and to emphasize the desirability of greater uniformity in view of existing knowledge regarding the causes and methods of transmission of communicable diseases.

Small-pox is usually classed as one of the "major" infectious diseases, but it may be cited as an excellent example of the points that this paper is intended to emphasize. Although the period of incubation has been more definitely determined in this than in most other diseases, the duration of quarantine of exposed persons varies in the several states from ten to twenty-one days, the stated period depending on vaccination and other conditions. Vaccination is recognized by sanitarians generally as a reliable preventive of small-pox, yet in many jurisdictions quarantine of exposed persons is required even after successful vaccination for periods varying from ten to twenty days.

Small-pox patients are also subjected to varying periods of isolation after recovery and disinfection. For instance, in North Dakota it is five days, and in the District of Columbia, sixteen days. In other states numerous periods are fixed from twenty-one to forty days from date of onset, and in still others the time of release is fixed by the health officer or physician.

Even greater differences exist in the periods during which persons shall be excluded from school on account of small-pox. In all the states, either the laws or the regulations require the exclusion from school of persons from infected premises during the period of quarantine, and in some states the period of exclusion is prolonged for subsequent periods varying from seven to fifty days.

DIPHTHERIA

In the case of diphtheria, which has been declared contagious, infectious or dangerous to the public health in practically all the states and territories, some form of quarantine or isolation is usually required. In a number of states these different forms have been classified as "absolute,"[1] "modified" or "special," the modified form being generally practical even in those states where absolute quarantine is prescribed.

Duration of Isolation of Diphtheria Patients.—In a large number of states and municipalities the period of quarantine of patients is determined preferably by the culture method, but there is variation in the number and time of making the cultures. For instance, in the laws and regulations of eight states examined, two negative cultures are required to be obtained twenty-four hours apart. In five other states only one negative culture is required, in four others two cultures taken two or three days apart, and in three others the number is not specified. Out of twenty cities whose ordinances were examined, ten likewise require two cultures taken twenty-four hours apart, six require one culture, and two do not specify the number or time of taking.

In some of the states and cities the length of quarantine is specified in case cultures are not made. These periods, following the disappearance of all signs of the disease, are: in one state, five days; in one, fourteen days; in eight, twenty-one days, and in two, twenty-eight days. In other states, in the absence of cultures, the number of days of isolation prescribed dates from the beginning of the illness or report of the case, and is variously stated to be twenty-one, twenty-eight, thirty and forty-two days. In those states and municipalities in which the taking of cultures is not prescribed, the duration of isolation of patients is variously stated to be from ten to thirty-five days from date of onset of the illness or report of the case.

Isolation of Exposed Persons.—In some states, as in Ohio, the duration of isolation of exposed persons is prescribed by law to be the same as for patients. In others the time is fixed by regulation with reference to the last exposure, and is variously stated to be from four to fourteen days. For instance, in North Dakota it is at least four days or until negative cultures are obtained; in Idaho, five days; in Washington, ten days in the case of children, and in Michigan, fourteen days.

Exposed persons usually comprise the members of the family or persons in the house, and in a number of states, as Idaho, Montana, Michigan, North Carolina, South Dakota, Utah and Wisconsin, the length of quarantine applies to all, regardless of age. In other states, children in the same house are isolated for longer periods than are adults. In Virginia, isolation ordinarily applies only to persons under 15 years of age.

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[1] "Absolute" quarantine implies absolute prohibition of entrance to or exit from quarantined premises. "Modified" quarantine allows, under certain restrictions, the passing in and out of persons in the family. "Special" quarantine merely prohibits the patients from attending public assemblies and sleeping with others, and requires the use of separate eating-utensils, towels, etc.

In a large number of states, quarantine terminates after death or recovery of the patient and disinfection of the premises; but in some states the time is prolonged in the case of children. In Georgia this additional period of isolation is stated to be seven days after disinfection of the premises. In Indiana and Oregon, children, like adults, may be released following disinfection if they receive an immunizing dose of diphtheria antitoxin of at least 1,000 units. In Iowa, quarantine must be prolonged for ten days when children are present in the house, unless negative cultures are obtained and the children recently immunized with antitoxin.

Diphtheria serves as a good example of the enforcement of modified quarantine. In many jurisdictions, as Iowa, Minnesota, Nebraska, Pennsylvania and Wyoming, modified quarantine is prescribed in the interest of wage-earners or heads of families working under certain conditions and observing certain precautions.

In Iowa, bread-winners may at the discretion of local health authorities follow their occupations, provided they change clothing on leaving and entering the house, and do not enter the sick-room.

In Nebraska, bread-winners and heads of families, if not teachers or persons associated with children, or employed in the milk industry, may be allowed to follow their vocations, provided they change their clothing on leaving and entering the house, and do not attend public meetings.

In Pennsylvania, wage-earners are allowed to continue work, provided they do not come in contact with the patient or persons caring for him, and provided they are employed in industries other than the production, manufacture or sale of fabrics, wearing apparel, upholstered furniture, foodstuffs, milk, cigars, candies, etc. If so employed, it is specified that they should submit to disinfection and remain away from the premises during quarantine.

In Virginia, all adults over 15 years of age may follow their vocations if not engaged in the production or sale of milk or food, or employed in factories, schools, offices, stores or other places where persons under 15 years are employed, and provided that they do not enter any school, place of public amusement or other place where children are in attendance.

Exclusion From School on Account of Diphtheria.—Exclusion from school on account of diphtheria usually applies to both patient and children and sometimes to adults in the same house. The lack of uniform requirements is striking. The length of time varies according to different state and municipal laws and regulations. According to some the time ends with the removal of quarantine, and according to others, seven, ten, fourteen and even thirty days later. In at least eleven states the period of exclusion extends until the health authorities issue certificates or give permission to return to school. In Porto Rico, such certificate or permission may be issued by the attending physician.

The culture method is apparently prescribed in only a few state regulations as the means to determine the length of exclusion from school. In Massachusetts, convalescents are by regulation permitted to return seven days after the second negative culture has been obtained from the nose and throat and when the physician certifies that all danger has passed; in the case of other children in the house only one negative culture is required.

In cities the culture method appears to be more generally depended on, some allowing school attendance as soon as one or two negative cultures are obtained, others requiring an additional absence for seven days or longer. In Providence, R. I., children in the house are allowed to return after the removal of quarantine; in the better families only one culture is required, and after the expiration of one month all children are usually admitted even if they are bacillus-carriers.

SCARLET FEVER

Scarlet fever, like diphtheria, is subject to control by law or regulations in practically all the states and territories, but the control varies much.

Duration of Isolation of Patients.—In a number of states isolation of patients is required by regulation to be continued until desquamation is complete. In some other states regulations require that quarantine of patients shall continue for varying periods after this event has occurred. In North Dakota it is five days, in Maryland seven days, and in Georgia, Idaho, Oregon and South Dakota ten days. In other states, in addition to completion of desquamation, the absence of other symptoms, including disappearance of inflammation of eyes and respiratory tract, or stopping of discharges, is required. In some of these states a minimum time limit is also specified, which is variously stated as twenty-one, thirty, thirty-five and forty-two days.

In those states where a time limit only is specified it is variously stated as twenty-one, thirty, thirty-five, forty-two and forty-nine days. In Delaware and Ohio the time is ten days following terminal disinfection. Regulations in Pennsylvania, in addition to other requirements, specify that the physician must certify in writing that desquamation has ceased and nasal irritation and ear-discharges have healed.

In a considerable number of other states the duration of quarantine is not specified except that it shall continue until death or recovery of the patient, freedom from infection, etc.

Similar variations exist in the requirements of cities studied, the minimum periods of quarantine being variously stated as fourteen, twenty-one, twenty-eight, thirty, thirty-five and forty-two days. In Chicago, in addition to cessation of desquamation and a specified limit of one month, examination by a health inspector is required before removal of quarantine.

A committee on communicable diseases of the American Public Health Association in a report[2] on the practice prevailing in eighty-seven cities in which 52,620 cases of scarlet fever were reported in 1910, states that sixty-four of the cities had a minimum period of quarantine which varied from ten days to six weeks. This report states further as follows:

> In fifty cities the board of health inspects the patient after the report of recovery before release, while the remainder rely on the report of the family physician. The cessation of desquamation is the sign of readiness for release in fifty-nine cities, although fifty-six pay some attention to the condition of the nose and throat. Only four will release a patient when nose and throat appear normal, paying no attention to desquamation, and eleven will release when desquamation has ceased even though a nasal discharge exists.

Quarantine of Exposed Persons.—Quarantine of exposed persons appears usually to apply only to children, but it is stated in the report quoted that in thirty-nine out of eighty-seven cities, all the members of the family are segregated during the continuance of the disease.

In some states, by regulations, quarantine of exposed persons continues during isolation of the patient. These apply in some states, as Illinois and Virginia, only to children, and in others, as Nebraska and Montana, to all persons in the house. In a considerable number of states, modifications similar to those in diphtheria are made in the case of wage-earners. In Iowa the regulations prescribe, in case of death of the patient, that the quarantine of exposed persons shall continue ten days thereafter, if there are children in the family.

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[2] Am. Jour. Pub. Health, 1912, ii, 121.

Seven, ten and fourteen days after the last exposure are variously prescribed in regulations of other states, but these requirements affect only children, and in North Carolina the requirement does not apply to persons who have had the disease and who submit to disinfection.

In a number of other states, quarantine of exposed persons is by law or regulation extended ten days after recovery of the patient and disinfection. This in some instances applies only to children and in others to all persons in the house. The regulations of Minnesota require extension of quarantine for twenty-one days from the appearance of the last case, wage-earners being exempted as in diphtheria.

Exclusion From School.—In many states, children and sometimes all persons in the house are required to be excluded from school on account of scarlet fever until release of quarantine and presentation of certificate of discharge. In other states, exclusion is continued after release of quarantine or disinfection for variously stated periods, as seven, ten, fourteen, twenty-one and thirty days. These requirements in most instances relate to convalescents, but in some, to other children in the house. When exposed persons are removed from the house, the period of exclusion is variously fixed at ten and fourteen days.

When no definite time is fixed, permission for readmittance to school is required to be furnished by the health officer at his discretion.

In the regulations of a number of cities studied, the requirements presumably with respect to convalescents are stated in effect as follows: seven, ten, fourteen and twenty-one days from release of quarantine, and thirty-five and forty-two days from the beginning of the disease. In other cities the period of exclusion, presumably of children in the house, is twenty-eight and forty-two days from the beginning of the last case.

Other variations might be mentioned, but these represent the usual requirements and serve to emphasize the decided lack of uniformity that exists.

MEASLES

In the case of measles, the disease is referred to for purposes of control in the laws and regulations of thirty-four states and territories. The control is in a number of cases limited to the reporting of cases, and in others to requiring placarding or exclusion from school.

Requirements Respecting Isolation of Patients.—Requirements with respect to isolation of patients are variously stated in the above-mentioned laws or regulations. For instance, in Maryland the duration of isolation is stated as fourteen days after the disappearance of the rash; in New Hampshire and North Dakota at least fourteen days presumably from the date of the beginning of quarantine; in Indiana at least fourteen days or until desquamation has ceased; in Missouri, Pennsylvania and Vermont twenty-one days, and in North Carolina twenty-eight days. In North Caroline this time may be reduced at the discretion of the health officer. In Vermont it is also stated that quarantine shall continue until all complications are over, and in Pennsylvania, until the physician certifies in writing that the patient is well and that nasal irritation and ear discharges have ceased.

In the District of Columbia, Tennessee and Utah, isolation is specified to be continued until recovery; in New York, until skin and mucous membranes are clear, and in some other states, as Michigan, it terminates at the discretion of the health authority. In Kansas and Virginia, placards only are required.

Quarantine of Exposed Persons.—Quarantine of exposed persons, when required, generally applies to children in the same house, who are usually not allowed to leave it. In North Carolina the period is fixed at fourteen days after the last exposure.

Exclusion From School.—In the case of convalescents, the stated requirements are various. In a number of states, it is provided that they may be readmitted after recovery or release of quarantine. In others, the period is prolonged five, fourteen or twenty-one days beyond such release. In still other states, the duration of exclusion is left to the discretion of the health authority.

In some states, other children in the house are by regulation permitted to attend school if they have had the disease, and there are provisions in several states authorizing children in the same house to attend school ten or fourteen days after removal to another house. In Pennsylvania this applies if the house to which they are removed is occupied only by adults.

In a number of cities, the period of exclusion from school is variously stated as follows: until subsidence of catarrhal symptoms; until recovery or removal from quarantine; seven and fourteen days after recovery; fourteen and twenty-one days from appearance of eruption, and twenty-eight days from beginning of the disease.

In some of these cities, other children may be readmitted fourteen days from the appearance of the last case in the house, or in twelve or more days after removal to another house.

PRACTICAL APPLICATION OF EPIDEMIOLOGIC AND LABORATORY DATA DESIRABLE

In combating diseases, recourse has been made to isolation to meet not a single condition, but many conditions. It is apparent therefore that some variations will of necessity prevail, but they should be as few as possible and based in so far as practicable on accurate data.

By careful studies, it would be practicable to bring about greater uniformity than at present exists. The results of experiments and laboratory investigations should be utilized, and further investigations made to determine definitely the period of incubation, virulence and viability of infections, modes of transmission, etc., of the diseases in question.

Additional facts and opinions have recently been deduced as a result of laboratory studies and epidemiologic work which would justify some modification of quarantine procedure in certain of the communicable diseases. For instance, Anderson and Goldberger, working in the Hygienic Laboratory, have shown that the period of infectivity of the blood of measles patients begins at least some hours before the eruption appears, and continues for about thirty-six hours thereafter, and that mixed nasal and buccal secretions are infective about the time of the eruption and forty-eight hours later. These observers were unable to infect monkeys with "scales" from measles, and think it highly improbable that desquamated epithelium carries the virus of the disease. Lucas and Prizer have likewise shown that the virus of measles is present in the blood-serum at some time exceeding twenty-four hours before the appearance of the Koplik spots and persists more than thirty-six hours after the appearance of the skin eruption. On the basis of this work, it would probably be possible for the quarantine of measles patients to be reduced from the usual period of twenty-one days to not more than fourteen days from the beginning of illness, and probably twelve days. Similar data with respect to other diseases should be brought together and considered with the view to their practical application in quarantine practice.

ABSTRACT OF DISCUSSION

Dr. Alexander C. Abbott, Philadelphia: Dr. Kerr has shown us that many of our quarantine methods are not in accord with the newest knowledge. In measles, for instance, no account is taken of the latest experimental results. In scarlet fever we still lay stress on the desquamated particles as the carriers, whereas our English confrères have for several years been showing us that the disease is more often spread through discharges from the nose and throat than by scales from the skin. In diphtheria, we rely on two negative cultures as evidence that the convalescent is free from danger, yet we know that this is not a reliable guide. Repeatedly we have observed convalescents at the Philadelphia Hospital for Contagious Diseases whose upper air-passages were free from the germs of diphtheria in so far as could be decided by the ordinary culture methods, yet in many cases there has been a reappearance of the germs in the throats of those patients coincident with catching cold. Obviously the mucous discharges have washed from the crypts of the membranes living bacilli which had been beyond our reach in efforts to detect their presence. The period of quarantine of diphtheria, in localities not possessing advantages of laboratory aid, is usually thirty days. It is of incidental interest to note that the average quarantine period for 5,000 cases taken at random from our case-book, all of which had been released on bacteriologic indications, was twenty-eight days. It should be remarked, however, that such averages are also unsafe guides, as among the 5,000 cases tabulated several were in quarantine for from two to three months and a number for only about a week.

Dr. G. T. Schwartz, Providence, R. I.: I doubt if we can get at any common agreement until many of the old traditions of ignorant health officers are wiped away. Until we discard the old idea that long confinement of a case of contagious disease is necessary simply because the disease has lived in the same house with a certain family, we shall still have trouble. The inconvenience is still shown in local boards of health: the medical state officer of one town will quarantine a certain case for seven weeks; the neighboring town for three weeks. Both receive censure. It is a question of common sense, whether we are doing what we actually know we ought to do.

Dr. B. Franklin Royer, Harrisburg, Pa.: I want to confirm everything that Dr. Abbott has said with reference to the experience, at least while I was in charge, of the Municipal Hospital in Philadelphia concerning duration of quarantine in diphtheria. While the average quarantine in that hospital is possibly a little longer than we meet in private practice, it might not be amiss to mention that that average duration of quarantine perhaps included all chronic cases, that is, cases with continued irritation of the nasal or buccal mucous membrane or with discharging ears. If the average were taken with that group of cases eliminated (many of them remain six and eight weeks or longer), the average time would be reduced to about twenty-one days. In Pennsylvania we have a minimum limit, which has been fixed by statute, of twenty-one days, except in instances in which two negative cultures have been received on successive days when the time may be as short as fourteen days. Our request for disinfection from the attending physician is framed so as to make him certify that nasal and oral discharges have ceased. In this way it gives a long quarantine for a group of cases that seem to require it, and releases the average case (except in municipalities that may have some additional requirement) at the end of the twenty-one-day period.

The need for uniformity in quarantine regulations has been felt very keenly in Pennsylvania, and with the adoption of the revised act in 1909, certain minimum regulations were fixed for the entire state. There are 875 separate boards of health in the cities, boroughs and first-class townships in this commonwealth and the State Department of Health has direct administrative public health control over about 2,160,000 people scattered through 1,350 second-class townships, and advisory and supervisory control over the remainder of the state. In order to secure uniformity, the very thing that Dr. Kerr is arguing for this morning, a minimum standard, was fixed by the act of 1909; that minimum standard is required of all municipalities in the state; each community, entitled to a board of health, however, being allowed to go as much beyond that minimum requirement as they deem wise. It is very annoying to the state health officer to find a specific regulation in a certain community, and just across an imaginary line, the boundary of that municipality, an entirely different regulation. It is not creditable to public health workers or to the practice of medicine to find these wide variations. As worked out in Pennsylvania by the State Department of Health this standardizing of regulations is improving conditions a great deal, and is giving much greater satisfaction to the public.

Mr. W. A. Howe, Albany, N. Y.: It is my privilege to be associated with about 1,400 or 1,500 health officers in the state of New York. With them there is no one thing which so frequently occasions trouble and embarrassment in the proper administration of the duties of their office as the establishment and maintenance of proper quarantine over children's diseases. This universal lack of regularity or uniformity of quarantine methods seems to me to be one of the most serious defects of our present system. In my mind we should not only endeavor to adopt a universal state method of quarantining each quarantinable disease, but an interstate system, whereby one state would exert quarantine over the various communicable diseases in precisely the same manner as do the other states. I can see no reason why the quarantine of small-pox, diphtheria or measles should be different in one state from that in another, and I can appreciate many reasons why a uniform period of quarantine and a standard quarantine card should be put in operation in every state. Were the State Department of Health to adopt a uniform quarantine card and furnish the same to the various health officers, who in turn should place such cards on the various communicable diseases reported to them, much of the burden of responsibility would be lifted from the local health officer and his results greatly enhanced.

Dr. William F. Snow, Sacramento, Cal.: In California, we felt that we must do something, regardless of what the rest of the country was doing, to put our administration cases on some sort of common-sense basis. Nearly a year ago the State Board of Health appointed a committee of fifteen, which is termed the Committee on Standard Methods of Public Health Administration, and all winter long we have been meeting every little while; we have decided, as a common-sense proposition, to report to the State Board of Health for adoption in our form of rules and regulations next fall a number of things which are very far afield from the type of administrative procedure which we have been accustomed to carry out throughout the country. One simple measure which we proposed to relieve the local health officer from responsibility has been to make certain simple regulations with reference to two negative cultures in diphtheria; when that does not work, the local health officer shall report that case and all other cases that do not fall within the legal ruling to the State Board of Health, so that we may put all those cases that fall outside of simple handling, in the hands of the division of epidemiology for publication.

Dr. George Frederick Reinhardt, Berkeley, Cal.: We are trying to get at the question of control of contagious diseases from the point of view of the public. We are trying to convert some of you, ourselves first, before we try it on the public. The difficulty that we are having in dealing with contagious diseases is that medically our methods are arbitrary and do not consider the public point of view. We miss a great many cases that are hidden by the public. What states report contagious diseases with any degree of accuracy? Very few of them. So the reports that you read about the number of cases of measles, of diphtheria, scarlet fever are rarely any indication of the number that actually exists. If we can get at the question from the point of view of the public, enlist its interest in our efforts, and then by a process of education point out to it what ought to be done, I think we shall have accomplished a great good. The public is willing, if we will only try to help it; but we have in the past put ourselves in the attitude of policemen in dealing with them, and the result is that we have had opposition. To illustrate what happens: A student made a sanitary survey of Berkeley. In the manufacturing district, where everyone knew there were a great many cases of measles, mumps and chicken-pox and a few cases of scarlet fever, the map showed a very small number, but when he came to trace the deaths from these diseases many were in that district. In the intellectual part of the city he found a large number of cases reported, but a small number of deaths; that showed that where there was unintelligent opposition health office records did not show the facts. We should approach this problem from an educational point of view.

PLEURAL VOMICÆ

WITH AN ANALYSIS OF SIXTEEN CASES*

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ST. LOUIS

If left to Nature the destiny of pus within the pleural sac would be: first, absorption; second, formation of a pleural vomica; third, perforation of the chest-wall, resulting in empyema necessitatis; and fourth, perforation through the diaphragm into some of the abdominal organs or the peritoneal cavity. Of these several results, all quite rare, that by way of formation of pleural vomica is probably the most frequent.

Dieulafoy,[1] in the 1911 edition of his work on practice, says:

> Considering only its etymology, the word "vomica" (from *vomere,* to vomit) is improperly applied to the symptom which we are about to describe. Custom, however, has consecrated it and the word "vomica" serves to describe ejection of pus by respiratory channels just as hemoptysis denotes the ejection of blood from the same passages. Custom has even gone further and by an abuse of language has finally included under one term the symptom and the lesion, so we speak of pulmonary, pleural and hepatic vomicæ, that is to say, a purulent collection in the lung, pleura or liver, which has burst into the bronchi and has been coughed up.

Dieulafoy's work, moreover, is the only one of the standard text-books consulted which devotes any appreciable space to the subject, and even such special works on diseases of the respiratory tract as those by West[2] and Lindsay[3] give little attention to the condition, the former covering it in two pages, while the latter merely mentions it. And so it has seemed that it might be both timely and profitable to direct attention more closely to this class of cases that must appear important because often difficult of recognition, though at times simulating closely other conditions some of which may be incurable, and when thus wrongly appreciated may be the cause of not only great and prolonged suffering to the poor victim of this distressing malady, but even of a fatal termination.

The present series comprises sixteen cases, ten of which were seen in private practice; of the remaining six cases five occurred in the services of the staff of the St. Louis Mullanphy Hospital, and one in the practice of a colleague. The reading of the histories of all these cases would trespass on more than the allotted time, and therefore a brief account of Case 14 will alone be presented, as with its symptoms, physical signs and x-ray findings it may well be taken as the type of the group of cases to be studied.

Case 14.—The patient, A. L., aged 35, American, married, housewife, first seen Nov. 14, 1911, had never been strong; she had had appendicitis five years ago, and several attacks since. Oct. 12, 1911, the patient was operated on in one of her mild attacks of appendicitis. One week later pneumonia of the left side developed and a few days later pneumonia of the right side with pleurisy of the left side. There was pneumonic sputum. About November 2 the sputum suddenly became offensive and copious, filling a sputum-cup in a short while. The cough then became most distressing and exhausting. November 14, physical examination showed an area of localized flatness below the angle of the left scapula extending to the base below and from 1 inch to the left of the spinal column to the posterior axillary line, over which breath sounds and tactile fremitus were absent. Just inside the angle of the right scapula, signs were present pointing to the formation of a cavity in the right lung (Fig. 2). A skiagram showed a distinct shadow in the left infrascapular region, the location of the pleural vomicæ. In the sputum streptococci were found, but no tubercle bacilli.

Nov. 16, 1911, the patient was etherized, the ninth rib resected, and entrance made into a cavity in the left pleura

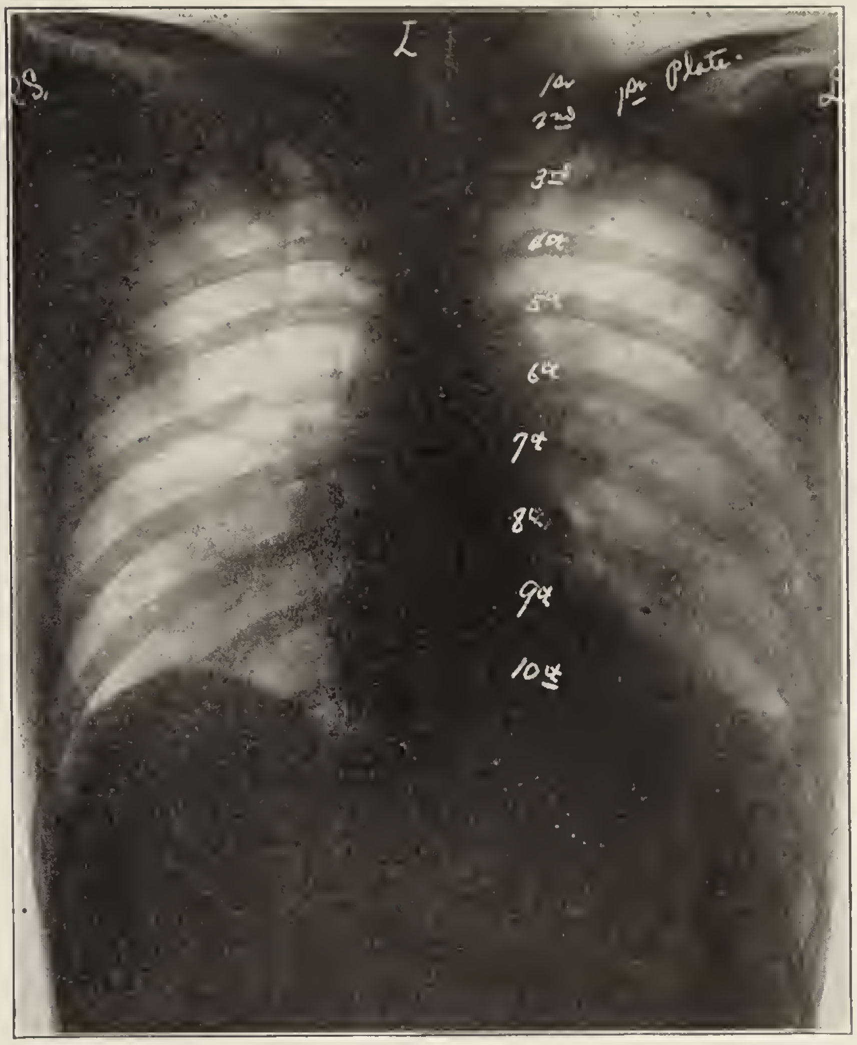

Fig. 1.—Case 14. Showing uniform shadow of localized purulent collection in left pleural sac posteriorly below level of sixth rib.

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* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] Dieulafoy Text-Book of Medicine, i, 367 (15th Ed.).

[2] West: Diseases of the Respiratory Organs, ii, 704.

[3] Lindsay: Diseases of the Lungs, Ed. 2, p. 169.

about 6 by 4 inches in dimension, liberating a large quantity of very offensive pus, of the same odor as in bad appendix cases and as of the patient's sputum (Fig. 3). The operation was well borne and gave prompt relief from expectoration of offensive pus. The patient's condition was satisfactory until December 10, when cough and expectoration appeared to increase and fever returned; in fact, cough and expectoration had never become so completely controlled after operation as in the other cases. A second examination of the patient confirmed the finding of a cavity in the lung at about the eighth interspace, just within the perpendicular, going through the angle of the right scapula and about the size of the chest-piece of a Bowles stethoscope. Distinct cavernous breathing, pectoriloquy and consonant bubbling râles were heard, limited absolutely to this area, indicating a cavity at this point as the probable cause of the persistence in the symptoms. A skiagram showed the shadow of the wall of the cavity with the clear central area.

Dec. 15, 1911, under general anesthesia resection of the eighth rib was made at a point midway between the spine and the perpendicular through the angle of the scapula, and a cavity was entered (Fig. 4). Only a few drops of pus were obtained, but, whether or not as the result of compression of the cavity consequent on partial pneumothorax created by the operation, the patient steadily convalesced and is perfectly well to-day, and physical signs of a cavity are no longer present.

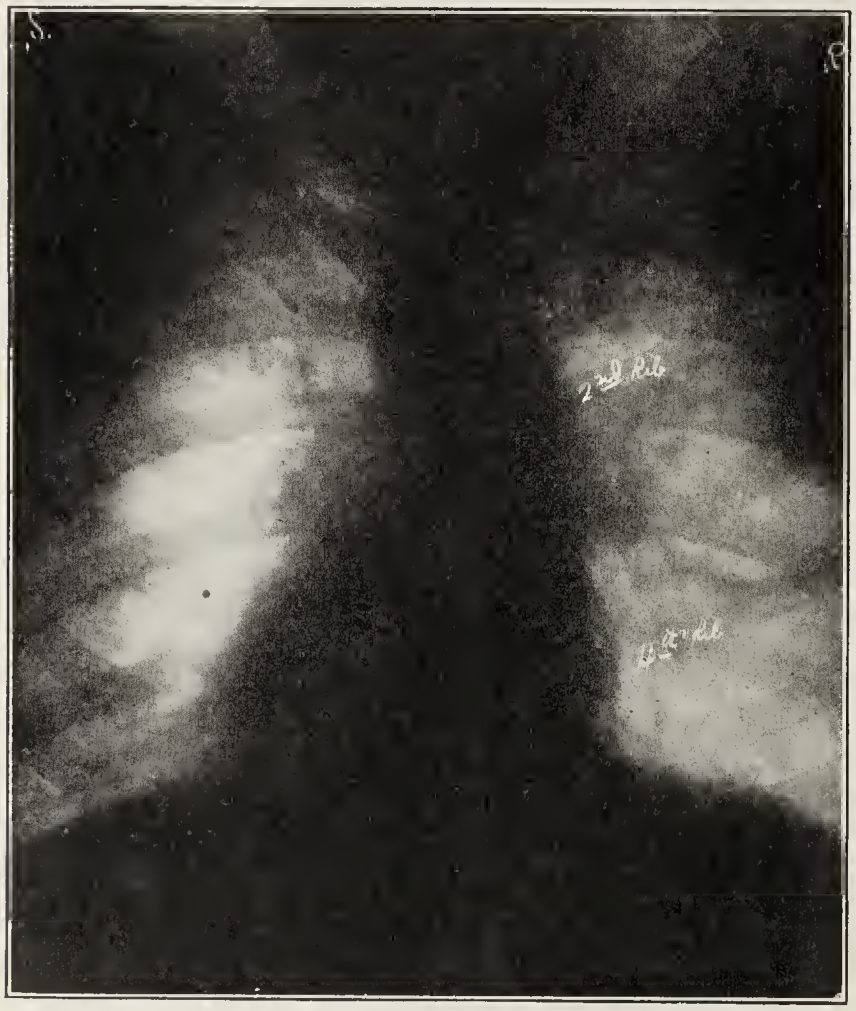

Fig. 2.—Showing tuberculous pulmonary cavity in right lung with the circular shadow of its walls and its clear central area.

An analysis of the sixteen cases from the following points of view develops some facts of interest and value:

Sex.—Thirteen males, three females.

Age.—First decade, one; second decade, three; third decade, three; fourth decade, five; fifth decade, three; sixth decade, one.

Occupation.—Business men, five; farmers, three; laborers, three; professional men, one; housewives, two; not stated, two.

Etiology.—Four cases developed during the course of pneumonia; one in appendicitis; one in an infection from mouth; two in chronic bronchitis with bronchiectasis; three in empyema; three in abscess of liver; four sources, therefore, were below the diaphragm.

Bacteriology.—In none of the sixteen cases were tubercle bacilli present. Case 1 had streptococci and staphylococci and colon bacilli in sputum; Case 12 *Staphylococcus albus* in sputum; Case 14 pneumococci and streptococci in sputum and in pus from the left pleura.

Symptoms.—Fever of a more or less septic type was present in twelve, absent in two, not stated in two. More or less profuse expectoration of pus in every case constituted a most characteristic, distressing and exhausting symptom and caused the statement by the patients in Cases 1, 2, 3, 6, 7 and 9 that this symptom could not have been borne more than a few hours longer if not relieved. Onset of sputum was sudden in seven, not sudden in two, not stated in seven. In Case 12 a sudden gush of pus was nearly fatal through suffocation and shock. In none of the sixteen cases were elastic fibers found in the sputum. A marked loss of weight and strength occurred in practically all the cases.

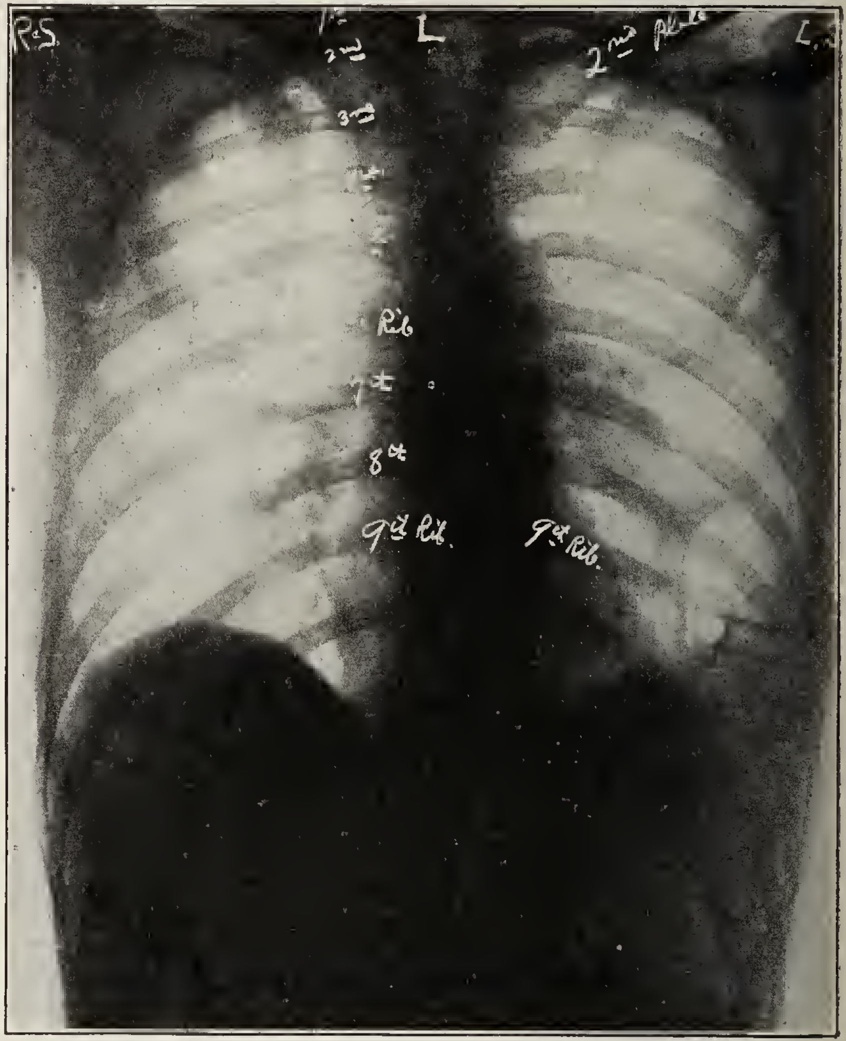

Fig. 3.—Case 14. Showing resection of left ninth rib with drainage tube in localized empyema cavity.

Physical Signs.—The important signs of fluid in the pleura, as flatness, and absent or diminished tactile fremitus and breath-sounds, were present over a localized area in the chest in ten of the cases. That of pyopneumothorax was present in only two. In Case 5, that of a child of 7 years with loud bronchial breathing over the entire involved left side, the muffled heart sounds on the left and accentuated sounds of this organ in its displaced position to the right were helpful diagnostic points, a phenomenon also present to a less degree in Case 6. That signs of pneumothorax were present in only two cases conforms to the dictum that in a great majority of cases of pleural vomicæ, pneumothorax does not develop either because of the so-called valvular character of the opening or, as suggested by Osler, that in many of these cases there is no definite opening but a necrosis of pulmonary pleura and a seepage through the spongy tissue of the lung.

Character of Fluid.—This was offensive in six, resembled that of amebic hepatic pus in one, and was simply purulent in the remainder.

Location of Fluid.—Right side in seven, left in four, not stated in five. Of the above pleural collections ten were located in the lower and posterior part of the sacs.

Leukocytes.—Slight leukocytosis in two cases, moderate in two, not stated in twelve.

Diagnosis.—The important points in the diagnosis were: (1) the history of an etiologic source for pus, as pleurisy, pneumonia, appendicitis, hepatic abscess, etc.; (2) septic fever, sudden, profuse and constant expectoration of pus, generally offensive and in large quantities; (3) most important of all, the localization of an area in the chest giving the classical physical signs of fluid in the pleura. On these findings had also to be based the differential diagnosis between pleural vomicæ and delayed pneumonic resolution, pulmonary tuberculosis, bronchiectasis, abscess of lung, pulmonary gangrene and the more rare conditions of new growth, lues, hydatid, mediastinal tumor, dermoid cyst, etc. From bronchiectasis, with which, as in Case 3 of this series, it is most apt to be confounded, pleural vomicæ were distinguished by the consideration that in bronchiectasis there is generally history of long-continued chronic bronchitis, gradual onset of characteristic sputum, presence of cavity signs, as cavernous or amphoric breathing and cracked-pot or amphoric percussion note alternated with signs of fluid when the cavity is full; while with pleural vomicæ the signs of pleuritic fluid remain fairly constant because the cavity generally contains only fluid and no air. The same distinction holds true also for abscess of the lung, in which condition elastic fibers may also be present in the sputum. The skiagram, moreover, gives a definite shadow over the site of the pleural vomica, while over the cavity in the lung we have the rather circular shadow of the cavity wall with the clear area in the center, the cavity being not too full.

As bearing on the incidence of empyema and pleural vomicæ, my assistants, Drs. Atwood and Judge, have collected some statistics covering a period of three and a half years at our large General City Hospital at St. Louis, and a period of eight years at our St. Louis Mullanphy Hospital. At the City Hospital there were during this period 35,900 admissions, with eighty-seven cases of empyema, or 0.24 per cent. Among the eighty-seven empyema cases there were only three cases of pleural vomicæ, or 3.4 per cent. At Mullanphy Hospital the admissions were 9,782, with twenty-eight cases of empyema, or 0.28 per cent., and among these empyema cases there were three of pleural vomicæ, or 10.7 per cent.

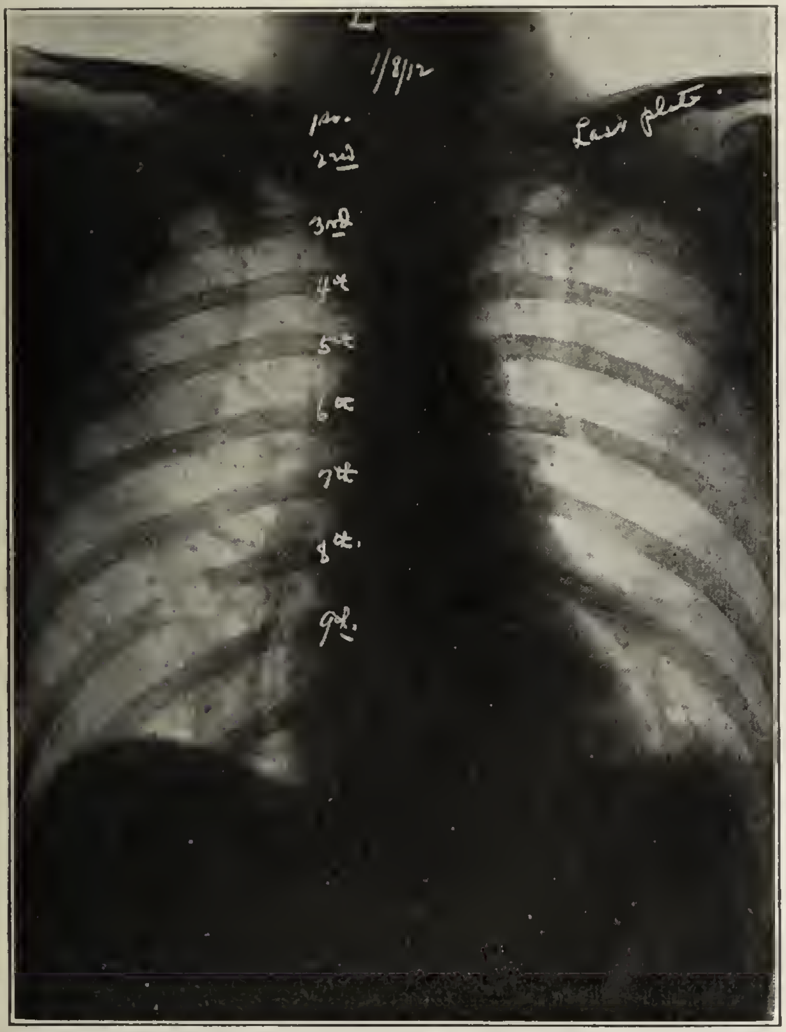

Fig. 4.—Case 14. Showing resection of right eighth rib for drainage of small underlying pulmonary abscess. Note complete clearing up of shadow on left side of chest.

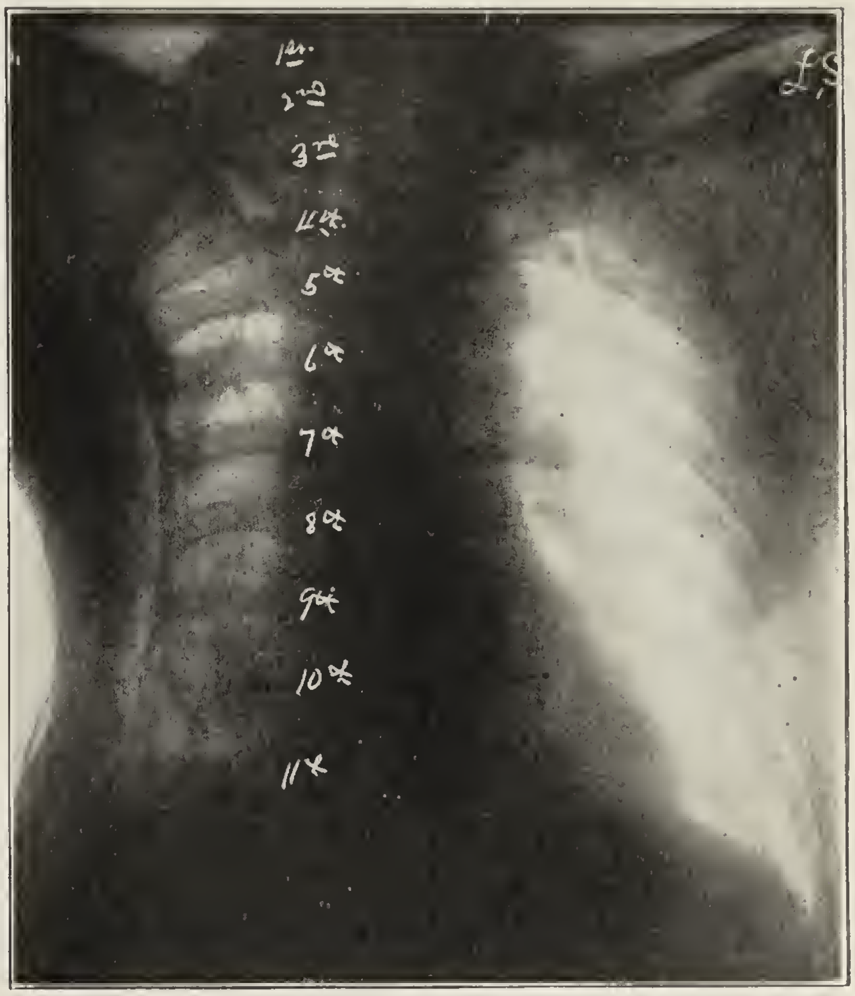

Fig. 5.—Case 13. End-result of an extensive thoracic resection for obliteration of a right-sided pleural vomica of many years' standing. Showing deformity resulting in a case depending too long on Nature for a cure.

Lord[4] found only five cases of pleural vomicæ in 145 cases of empyema, which gives 3.4, the same percentage as at our City Hospital; while James[5] of Edinburgh, in his recent work on pleurisy, found nineteen cases of pleural vomicæ in forty-three empyemas, or 44.18 per cent. May not these low percentages of ours, compared to the much higher ones of James, who has given a great deal of study to the subject, mean that perhaps we have overlooked many of these cases and probably classified them with such incurable conditions as inoperable bronchiectasis, abscess of lung, etc.? Lord says that it is a complication frequently overlooked.

In our series of cases:

Four had been considered as delayed pneumonic resolution.
Two had been considered as typhoid fever.

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[4] Osler: Modern Medicine, iii, 836.
[5] James, Alexander: Pleurisy, p. 139.

Two had been considered as bronchiectasis.
One had been considered as pneumonia.
One had been considered as pleurisy.
One had been considered as abscess of the lung.
One had been considered as malignant disease of the lung.

In Cases 2 and 4 correct diagnosis had been abandoned because pus had not been found with the aspirator. In Case 3 pleural vomica had been overlooked because of the complicating presence of bronchiectasis. Case 9 began as a septic pulmonary infarct following cauterization of epithelioma of the floor of the mouth, and for a time was taken to be malignant metastasis to the lung, because of etiology, hemorrhagic sputum, etc. In Case 14 pleural vomicæ had also been overlooked because of the complicating presence of pulmonary abscess.

If all of these cases could only be appreciated before the onset of pleural vomicæ! This is frequently a difficult task because the empyema is generally quite localized and often interlobar. It is at this stage that the skiagram is of great assistance in the localization, and in the very obscure conditions, especially interlobar collections, use of the aspirator under the guidance of the fluoroscope, as suggested by Engelbach[6] and Carman, should be a great help. The progress of the majority of the cases in the present series appeared to be toward a fatal termination until relieved by operation. The most important complications in unrelieved cases were septicemia, exhaustion, multiple pulmonary abscesses, bronchiectasis, myocardial degeneration, etc.

Mortality.—While the earlier writers considered pleural vomica a favorable curative occurrence, Saussier,[7] nevertheless, reports fourteen deaths in twenty-eight cases without operation, or a mortality of 48.27 per cent., and Frank Donaldson[8] says it is a serious condition and that if pulmonary fistula persists it will wear out the patient.

In our series of sixteen cases the fatalities were three, or 18.71 per cent., namely, Cases 4, 6 and 13. In the ten cases in private practice there was one death, or a 10 per cent. mortality. In Case 4, as post-mortem showed, death was due to pulmonary abscesses and bronchiectatic cavities and also pulmonary gangrene, all of which probably resulted from the persistence of symptoms for twenty-one months before relief by operation. In Case 6, while the patient was ill only two months, he undoubtedly suddenly succumbed to myocardial degeneration after apparently having been greatly relieved by the operation. In Case 9 death was due to shock following an extensive thoracic resection for obliteration of a long-standing empyema cavity.

Treatment.—A few points suggested by this series deserve mention. The ten patients in private practice were all operated on under ether and all stood the anesthetic well, although their condition when placed on the operating-table was bad, and in Cases 1, 2, 6 and 14, especially, the general resistance had been reduced to an alarming degree. The only patient operated on under local anesthesia died on the third day from a sudden heart-failure, though the quantity of cocain used was too small to be a factor in the fatal result. When the diagnosis of a localized empyema appears quite certain, failure to obtain pus with the aspirator should not deter the surgeon from entering the focus, for in a certain proportion of cases the pus is too thick and viscid to be obtained by the aspirator, as was experienced in Cases 2 and 4; and with precautionary measures against pneumothorax, as by use of Quinby's tracheal insufflator apparatus, invasion of the pleural cavity would be safe.

The relief through operation from the distressing, harassing and exhausting cough was in every case nothing short of magical, for in not one, at least of nine of the private cases, was any of the purulent and offensive pus raised through the mouth after drainage had been established through the chest-wall.

As to the completeness and permanency of the cures: Patient 1, operated on in 1902, and Patient 2, in 1903, are both absolutely well to-day, with entire reinflation of lungs, the former weighing 70 pounds, and the latter 40 pounds more than at dates of operation. The other recoveries, dating from 1904 to 1911, are also complete, in spite of the fact that the duration of illness before operation was as follows: one month in two cases; two months in three; three months in one; seven months in one; one year in three; not stated in six.

In conclusion, I simply wish to emphasize that pleural vomicæ cases form a class deserving far more attention than to date accorded it in the literature. Many a poor victim of this generally curable malady is doomed to an untimely grave because he is believed to be suffering from such hopeless affections as advanced pulmonary tuberculosis, inoperable bronchiectasis, pulmonary abscess or some of the more rare and fatal types of diseases of the respiratory tract. If the localized empyema is diagnosed before perforation, or if every case of copious purulent expectoration be carefully studied and correctly appreciated, much untold misery and suffering may be averted and many lives saved.

4502 Maryland Avenue.

ABSTRACT OF DISCUSSION

Dr. Theodore C. Janeway, New York: These cases should be recognized more frequently and adequately treated by methods employed in cases of empyema. Recently I had a case which showed what difficulties may be encountered in making a diagnosis, because of the presence of tubercle bacilli in the sputum. This patient, a physician, had had an abdominal operation for supposed appendicitis with abscess formation; an abscess was opened and drainage was instituted, but it was not satisfactory. He improved for a few days, then became septic again and a second incision was made for drainage in the flank below without relief. After a few days he developed harassing cough and soon coughed up pus in large quantities. The condition ran along through the winter; the patient developed clubbed fingers and a slight osteo-arthropathy. He then came to New York, and signs of a pleural effusion were found with a mass below the diaphragm resembling kidney. The sputum was loaded with tubercle bacilli, but nothing was found of a tuberculous nature in the lung by *x*-ray or physical examination. The history in this case was absolutely distinctive and I believe that the history alone enables a diagnosis to be made. A careful study was made. The pus that was squeezed from the opening in the flank also revealed the presence of large numbers of tubercle bacilli. I believed that a tuberculous kidney, then a tuberculous perinephritic abscess, then rupture upward of this accounted for the apparent pleural abscess. The patient went to the Mayo brothers for operation and I have not heard the result. Even if tubercle bacilli are present in such cases, I should therefore examine with great care before deciding that there is pulmonary tuberculosis present if the history is distinctive of the condition under discussion.

Dr. Samuel Robinson, Boston: I have reported about seventy-five cases of empyema; of these twenty-five resulted from some infectious conditions within the lung, and I have come to the conclusion that these so-called pleural affections which are localized are generally secondary. I believe that the cases decribed are almost invariably the result of some pulmonary infection; in my opinion, these infections occur first in the lungs. Occasionally an abscess forms at the periphery of the lung and there is formed a localized accumulation of pus. When certain cases of empyema appear they are not primary cases of empyema, but the result of abscesses occurring at the periphery which have burst into the pleural space because it was not walled off.

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[6] Engelbach: X-Ray Studies of Serofibrinous Pleuritis, Am. Jour. Med. Sc., December, 1911.

[7] Pepper: System of Medicine, iii, 543.

[8] Pepper: System of Medicine.

This class of cases is the most difficult that the surgeon has to deal with, because of the pulmonary involvement. When the surgeon operates, he does so on the empyema cavity and not on the lung cavity which is so deeply situated. We know the results that have followed operations on empyemas, secondary and subdiaphragmatic abscesses which have followed cases of appendicitis, duodenal ulcer and other abdominal conditions. I think that the first infection in these cases is a pulmonary infection, for the reason that the lung tissue becomes adherent to the diaphragm and because of the expectoration of so much pus. It appears that a pulmonary abscess has burst into a bronchus.

Dr. Arthur A. Gillette, Rome, N. Y.: I should like to make a report, from the general practitioner's standpoint, of a distinctive case that occurred in a young woman. There was difficulty in making an early diagnosis, but the abdominal symptoms were marked. They seemed to be referred well up and to the left side of the pelvis especially, and were without any apparent cause. The patient gave a history of an acute infection which took place during the grippal season and which pointed to some serious abdominal disease. Subsequently there was discharged by mouth large quantities of foul-smelling pus which was loaded with streptococci. With a hypodermic syringe there was withdrawn from the chest some very offensive pus which was loaded with streptococci. I am convinced that this was one of the cases with which we are now dealing. The patient recovered without surgical aid; the young woman is now in apparently perfect health and is very active. My difficulty lay in determining the point where the infective process was likely to become localized. In attempting to locate this point, the general practitioner must be constantly on the watch and must use every facility available and examine every organ. In cases in which operation for appendicitis has been advised, I have seen the development three or four days later of a distinct pleural or pulmonary process. In my experience I have often found that the symptoms referable to one side result from diseased conditions on the same side especially when associated with abdominal symptoms. In the instance I have just reported the local process was on the left side of the chest and back, and the abdominal symptoms were distinctly in the region of the left ovary.

Dr. Elsworth Smith, St. Louis: The case cited by Dr. Janeway is one of great interest. Dr. Robinson holds that all pleural vomicæ are due primarily to a focus in the lung, as he believes that it would be impossible for an empyema to perforate the greatly thickened visceral layer of the pleura. While he may be right in many cases, still in a large proportion the pus does actually perforate from the pleural cavity into the lung; and after all it should not be any more impossible for this to occur than for what happens in empyema necessitatis, for instance, in which it is of course conceded that the pus within the pleural sac does perforate the parietal layer of the pleura, even though greatly thickened. From the point of view of this paper, moreover, the recognition of the presence of pus within the pleural sac communicating with a bronchus and being expectorated is, of course, far more important than the question whether the primary source of this pus be pleural or pulmonary. Therefore, from this point of view it might be well to modify the definition of pleural vomicæ to be a collection of pus within the pleura communicating through a bronchus and being expectorated; with this definition the primary source of pus might be pulmonary, pleural or in the abdominal cavity.

PROGNATHISM, WITH OPERATIVE TREATMENT *

WILLIAM M. HARSHA, M.D.

CHICAGO

In the consideration of this subject I wish to distinguish between racial prognathism and pathologic types as illustrated by the case reported. Evolution is presumed to have been from the prognathous or forward-jawed type to the orthognathous or straight face, Mongolian or Caucasian type. The contraction from the prognathous jaws to the orthognathous has been a factor in the production of the irregularities of dentition so common in the higher races. Figure 1, shown through the courtesy of Professor Starr, represents a Taruscan Indian girl (Mexico) illustrating a racial type. With the occurrence of the recession of both jaws the teeth are crowded together.

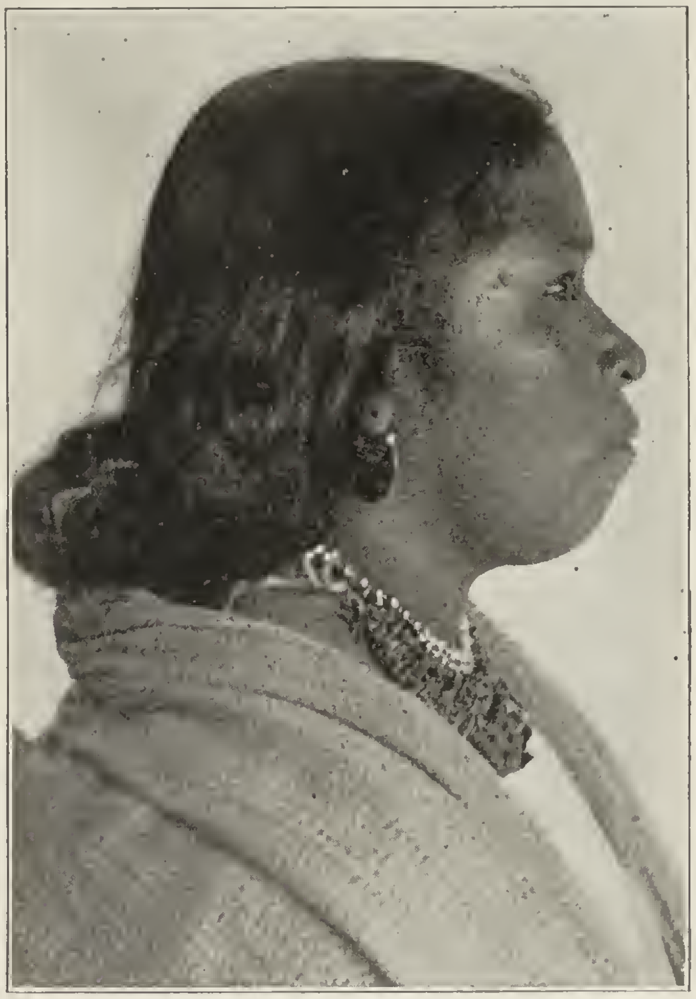

Fig. 1.—Taruscan Indian girl, showing (racial) prognathism. (Copyright by Frederick Starr.)

In the case of prognathism which is the subject of this report, only the lower jaw projects and therefore the occlusion of the teeth is very imperfect (Figs. 2 and 3). The incisal edges of the upper central incisors were five-eighths of an inch posterior to the incisal edge of the lower central incisors on one side and three-quarters of an inch on the other. There was also an overdevelopment of the mental portion of the mandible, and almost complete absence of the angle between the body and the ramus of the jaw. All the lower teeth were inclined sharply toward the tongue. Dental and labial sounds were inhibited. There was a marked thickening of the lower lip, and a depression of the upper, with depressed alæ nasi.

This pathologic prognathism stands in sharp contrast to the racial type because of the malocclusion, faults of alignment and overdevelopment of the mental process. The occlusion and alignment of teeth in the types of race prognathism are normal, even better than the average in the higher races (Fig. 4).

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* Read in the Section on Stomatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

ETIOLOGY AND EMBRYOLOGY

Nothing valid can be suggested as to the method of production of this deformity, except error or defect in development. The mandible develops from the first branchial arch, which has previously divided into a lower mandibular and an upper maxillary process. In this mandibular process appears what is known as Meckel's cartilage, which is straight and rod-like, extending from the periotic capsule, or site of the internal ear, to the distal part of the mandibular process.

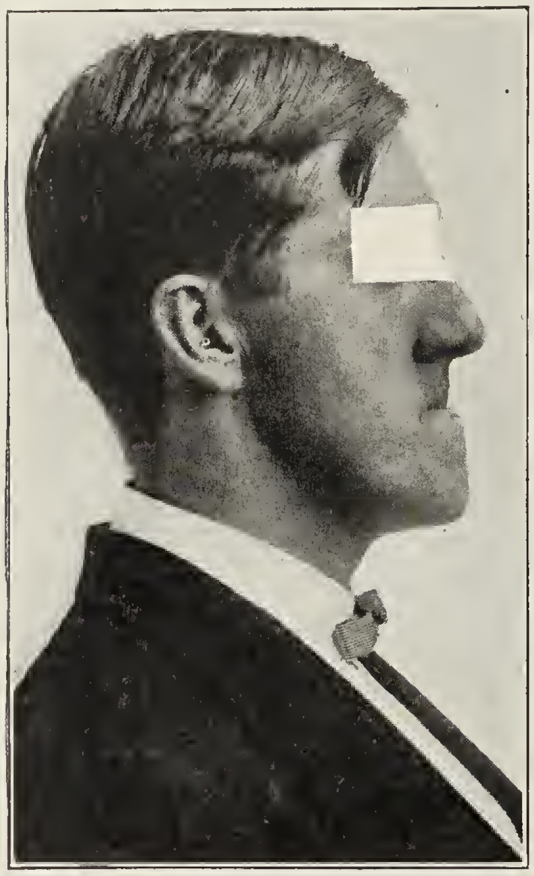

Fig. 2.—Case of pathologic prognathism; protrusion of lower jaw.

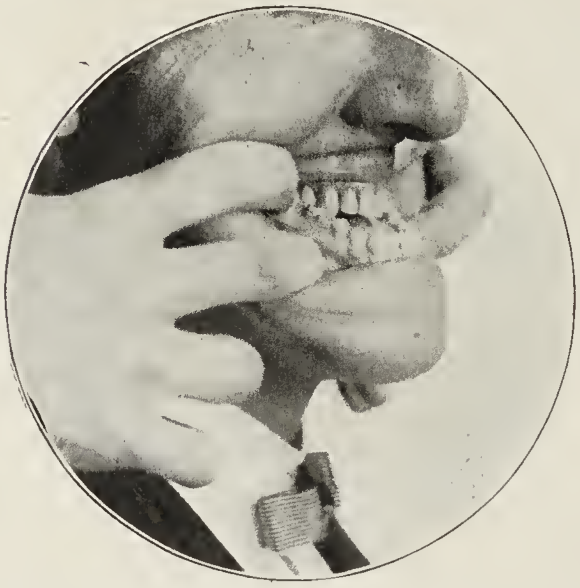

Fig. 3.—Pathologic type, showing faulty alignment and malocclusion.

The absence of a proper angle in the case which I report suggests this defective development. The absence of the third molars which never erupted is further evidence that it is not a reversion of type, as in racial types the full number of teeth is found, and Bertillon and Fontan have even observed an extra (fourth) molar in one of the New Caledonian races.

The diagnosis will require only the exclusion of an old forward dislocation of the lower jaw, with restored motion. This differentiation can be done by physical examination and verified by x-ray.

Indications for operation are:

1. Inability to secure through orthodontic measures a sufficient occlusion of the teeth.

2. Marked deformity because of overdevelopment of the mental portion of the mandible with malocclusion.

3. Development of the mandible in a straight course, and consequent absence of a proper angle of the body of the jaw with the ramus, preventing proper occlusion.

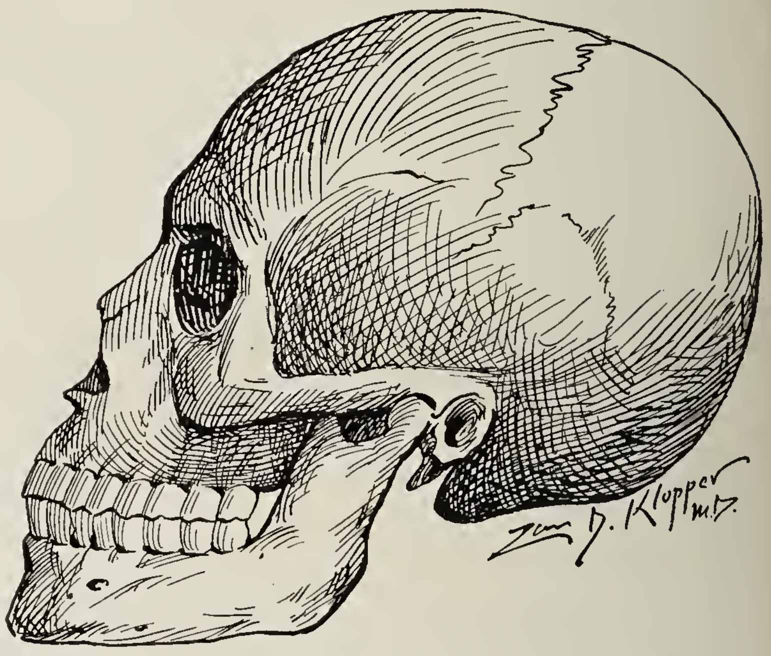

Fig. 4.—Occlusion and alignment of the teeth in racial type.

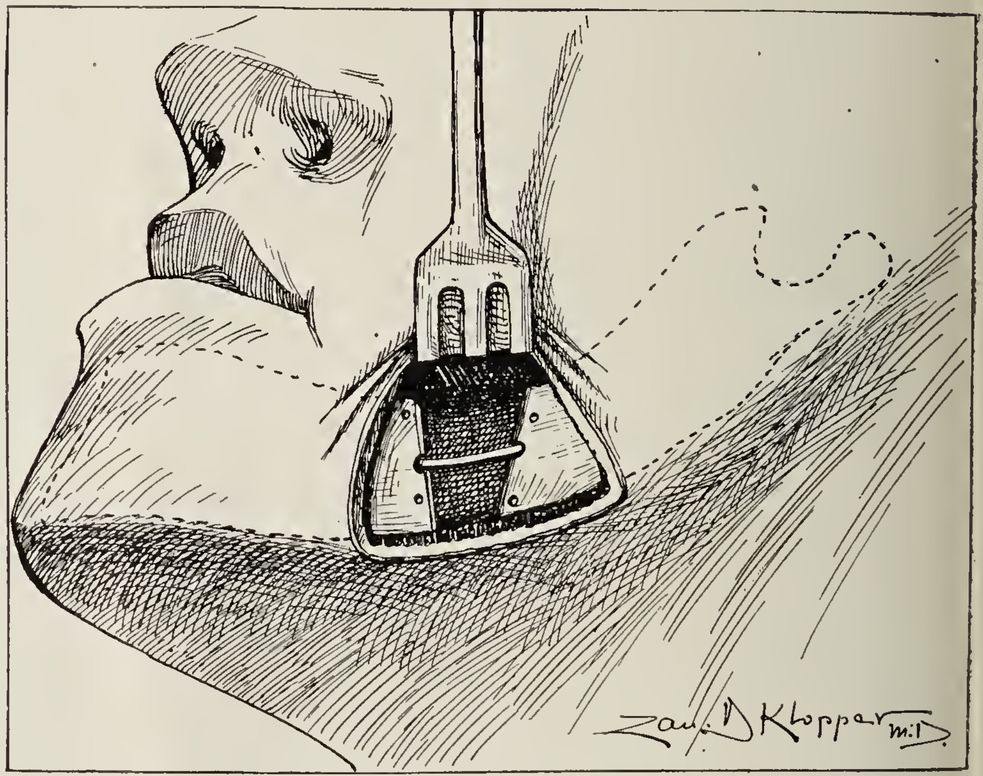

Fig. 5.—Space after removal of a section to permit proper articulation.

TREATMENT

Much can be done to prevent the deformity by orthodontic measures during the early years in the way of correcting the occlusion and alignment. After maturity the same means may aid in restoring alignment of the teeth and correcting the arches preliminary to operation.

The first surgical treatment of which I find record is that of Hullihen of Wheeling, W. Va., in 1848.[1] Dr. E. P. Blair of St. Louis, on the recommendation of

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[1] Babcock: Items of Interest, xxxii, 442.

Dr. Angle of that city did resection between the second bicuspid and first molar in 1897. Infection delayed healing. Later operations of this kind were done with the reported loss of the jaw in one case. W. W. Babcock of Philadelphia has in later years done several operations, resecting a portion of the ramus of the jaw with successful results. Dr. Max Ballin of Detroit, in 1907, did a double resection between the cuspids and molars with good results, secured by extra-oral operation.

The operation here reported was done with a view to secure occlusion, to correct the angle and to effect the best cosmetic result. Because of the length of the mandible and the absence of the last molars, there was room at the site of the angle for resection. This site for the operation seems best adapted for restoration of the proper angle which in most of these cases is lacking. Estimation of the size and shape of the fragment was made from the *x*-ray plate, and models kindly made for me by Dr. Joseph Eisenstaedt.

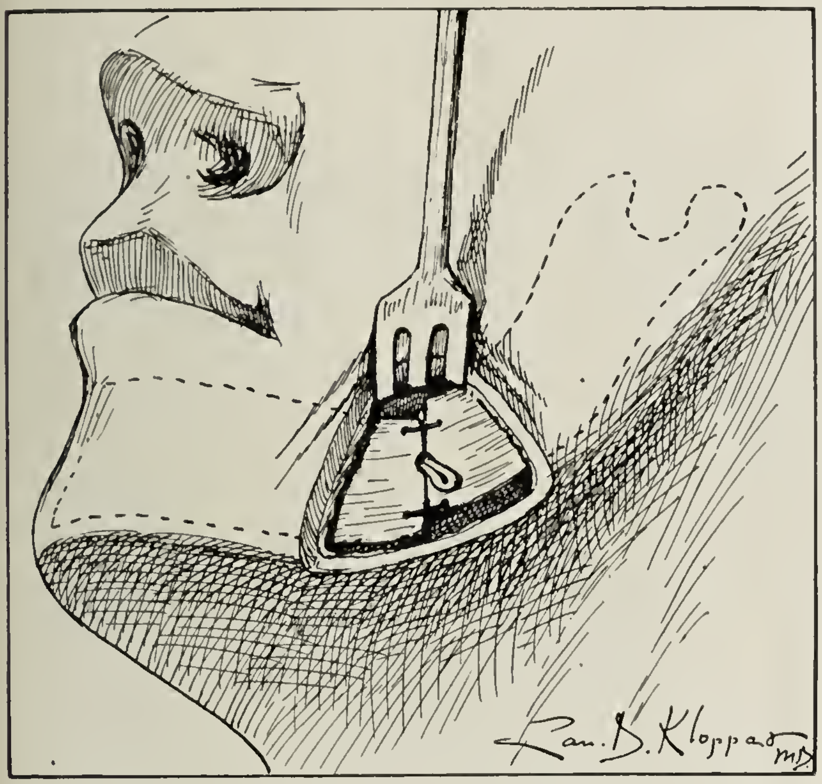
Fig. 6.—Fragments wired.

REPORT OF OPERATION

Operation.—Five-eighths inch on one side and three-fourths inch on the other were resected through a 2-inch incision along the lower border of the jaw on each side (Fig. 5). This was easily done with bone-cutting forceps. When the inferior dental nerve was reached, it was held out of the way by a ligature, while the upper portion was cut away. The fragment was rhomboid in shape with the base above. The ends of bone were fastened together, each with two wires (Fig. 6). Slight mobility was permitted so that the ends might be moved upward or downward, as required, to adjust the upper and lower teeth, which were wired together by Dr. Eisenstaedt by the method of Dr. T. L. Gilmer. The wound healed by primary union. Before bony union had taken place, the patient was called home because of serious illness in his family and further supervision was impossible. The slight immobility planned for advantage proved to be a disadvantage when the patient was out of reach. The wire splints were removed before union was complete, with the result that the distal fragments were displaced upward, and it was necessary to have two molars extracted.

Result.—In a communication the patient says he can now talk and masticate well and that his appearance is greatly improved (Fig. 7). He admits that a better result could have been secured if he had remained under treatment a sufficient time.

ADVANTAGES

The advantage of extra-oral operation is obvious. The selection of the site posterior to the molars is the best for correction of the angle which is desirable in almost all cases, while at this point submucous resection is easier than either anterior or posterior resection. In case there is lack of room back of the teeth, the last molar can be extracted and time allowed for healing over before operation, so as to make submucous resection possible.

I wish to acknowledge my obligation to Dr. Joseph Eisenstaedt for his valuable aid in the case along dental lines.

31 North State Street.

ABSTRACT OF DISCUSSION

Dr. E. S. Talbot, Chicago: I should say that this condition was an atavism of the lower jaw which returned to the original type because of an unstable nervous system of the father and mother. These conditions are not uncommon when one side of the jaw is longer than the other. The appearance of this picture leads me to believe that this was a very unstable individual, as far as the nervous system was concerned. I can say very little about the operation because I have never performed it in this way. Dr. Harsha has performed it successfully to all appearances, and perhaps a little differently from the technic which Dr. Babcock presented to our Section a year or two ago. This will go down no doubt in history as one of the first cases in which the operation was performed in this location.

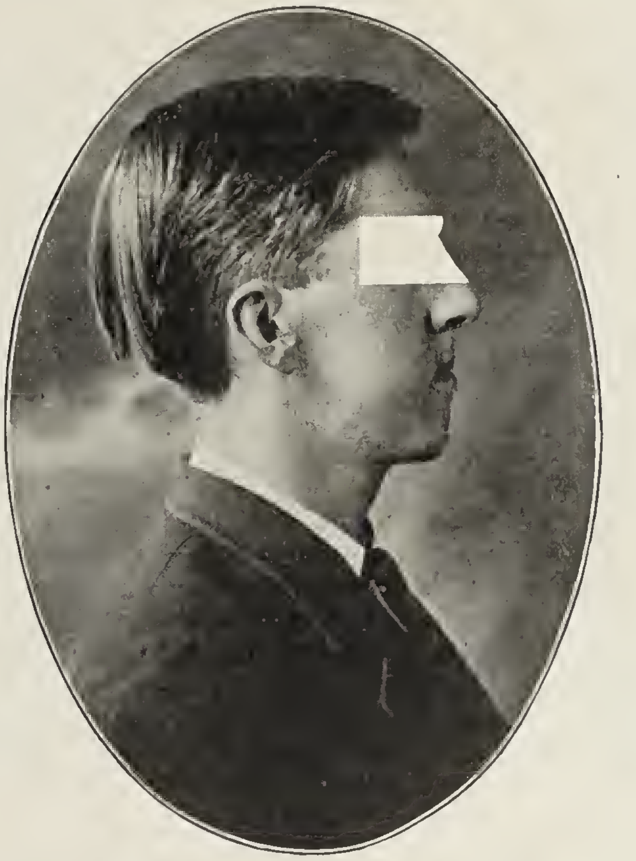
Fig. 7.—Profile of patient after recovery.

Dr. W. Wayne Babcock, Philadelphia: One of the great handicaps in operations of this type is the fact that the upper jaw is badly developed. If one could develop the upper jaw properly, the need for extensive resection of the lower jaw would not be so great. The tendency in many cases is to injure the patient's appearance by operation. Some operations take from the individual the firmness of character of the rather large lower jaw. There are difficulties in enlarging the upper jaw, but, of course, a great deal could be done for the patients if they went to a capable orthodontist early in life. It remains, however, after a certain degree of fixation has occurred, for the surgeon or dentist to get, not a perfect result, but something that will improve the appearance and the powers of mastication and speech. The portion of the body of the jaw, used by Dr. Harsha, has in this particular case worked very well. The difficulty, of course, in attacking the body of the jaw, is that we interfere with the teeth, and if the teeth are extracted and the jaw at once resected, the compound fracture into the mouth adds much to the danger of later sepsis. A suggested improvement is to remove one or two teeth and then, after healing occurs to do a submucous resection of the jaw from the under side. One need not fear to resect or to destroy the inferior dental nerve. The nerve rapidly regenerates, the teeth maintain their function and nutrition and the tissues their vascularity, unless infection spreads through the jaw, when necrosis is followed by menace to the teeth, as well as to the entire bony structure.

After the report of a somewhat similar case before this Section some years ago I had occasion to use a steel splint instead of wiring, and I was impressed by its value. I have applied Lane plates after resection or division of the jaw, and in one instance I screwed an angular ramus made of steel to the body of the jaw below the angle so as to form a false ramus and joint. This worked very well, but a rough projection at the angle finally worked through the overlying skin. The steel was not expelled and the patient wore this artificial ramus of steel with a point protruding for about four months without any inconvenience except a slight discharge from the perforation. Of course, during the healing process it is wise to have an additional support.

Dr. Thomas L. Gilmer, Chicago: There is certainly little known about the etiology of prognathism of the mandible, but it is known that inheritance has much to do with it; I know many children with prognathism of the lower jaw which can be traced to heredity. The operation is worth while for cosmetic purposes, if for no other, and, as Dr. Babcock has said, it is not impossible that the results cosmetically may be worse than the deformity, but it does not seem to me that this should often be the case.

The pictures exhibited by Dr. Harsha do not show that the mandible is much too long, but rather that the maxilla is too short. It may have lengthened somewhat on account of the occlusion of the teeth.

I do not think that it makes very much difference whether the nerve in the mandible is severed. I have done many operations for removal of the inferior dental nerve, also of the second branch, in cases of tic douloureux, and I have never seen a dead pulp in a tooth as a result. I hope that sometime it will be known what changes if any occur in the pulps of teeth after resection of the nerve. Dr. Babcock spoke of the advisability of cutting the bone at the angle. If the operation is done in this locality there is less danger of entering the oral cavity, since the thickness of soft tissues overlying the bone in the mouth is greater here than further forward.

I have used the Lane plates in fractures of the mandible, but if we can get along without drilling into the bone we lessen the possibility of bone and other infection. By wiring the lower to the upper teeth, we use the upper teeth as a splint which holds the parts rigidly. The only objection to this method is the fixed closure of the jaw. Any technic is good which in the experience of the operator succeeds.

Dr. G. V. I. Brown, Milwaukee, Wis.: This Section has had the opportunity to consider two methods which represent the newest and best surgical procedures for resection of the mandible for the purpose of improving tooth occlusion and facial conditions. Some of us at least have felt rather strongly about the unfortunate publicity that has been given the earlier attempts to perform the operation to which Dr. Harsha referred, in the course of which at least several important surgical principles were needlessly violated. Dr. Babcock's method as he explained it to us, and as since published, judged from a surgical standpoint, appears to be perfect for resection at the particular point he selected; this also may be said of Dr. Harsha's method. The point which Dr. Babcock raised, which was emphasized by Dr. Gilmer, is really the vital question. In some conditions such an operation may be called for, but they seldom occur. Most of the patients whose jaws present the picture exhibited by Dr. Harsha are persons who are being deprived of some very vital necessities, and it is vastly more important that these people be given general relief through better respiration, by spreading the upper arch in addition to facial improvement, than that we improve their appearance alone by the reduction of the lower jaw. If one examines the palates in such cases it will be found that most of those with upper arches shaped like that of this patient, and with palatal vaults similarly formed, are persons in whom there has been a distinct loss through arrested development of the upper maxillæ. This condition usually affects very vitally both nasal form and structure, and less directly, but almost certainly, general nervous conditions also. Such persons are commonly highly nervous, and many times have nervous habits of one kind or another that are closely akin to chorea or similar affections. I think these corrective possibilities should be considered first and surgical procedures afterward, but if it finally be decided that resection is necessary, I am satisfied that we can do no better than to follow either Dr. Babcock's or Dr. Harsha's method.

Dr. A. J. Flanagan, Springfield, Mass.: I would like to find out the length of time that such cases as these have been under observation. For instance, some have spoken of the inferior dental nerve not being affected in these operations; is there any instance of some years' standing in which the inferior dental nerve has been removed and a record kept of the conditions which follow? Has there been a case of which a record has been kept for more than fifteen years, in which there has been no paralysis, no nephritis and no symptom of conditions such as Dr. Brown spoke of? Is there any record of positive results of never having any trouble because of the removal of the inferior dental nerve?

Dr. T. L. Gilmer, Chicago: I have one case that I know positively is of fifteen years' standing, in which I removed the second branch of the fifth nerve, going underneath the eye to do so, and the pulps of all the teeth are still alive.

Dr. J. Lowe Young, New York: Study of Dr. Harsha's models shows that it is impossible to put these plaster teeth in occlusion. The best that can be hoped for from this operation, if these models are accurate, is the cosmetic effect. It is impossible, I think, for any man to get a good chewing apparatus with these teeth by any surgical operation, such as has been done here. There are cases in which it is advisable to perform surgical operations; I have had a few cases in my practice, but they were in adult life. I am not in favor of treating adults orthodontically, because the orthodontic trouble really goes back to bone development. Bone development is very slow at any time, and particularly so in adult life, and I do not want to attempt the treatment of a case without the possibility of seeing the finish. I would like to suggest, however, to the surgeons to whom these cases come, to be exceedingly careful of the conditions. Accurate impressions should be taken and plaster models should be made to determine if proper occlusion can be obtained in the place that the incision is to be made. In Dr. Harsha's case the wiring of the teeth together does not help very materially to hold the front portion of the mandible in place, because the incision is back of the last molar tooth. This also applies to Dr. Babcock's operation; that is why I think he had to use the steel plates in one of the cases to which he referred. If it were deemed practical to make the incision further forward, then I think it would be very much easier to get fixation of the part, which, of course, would facilitate the final union of the bone.

Dr. W. M. Harsha, Chicago: The contraction of the upper arch was from side to side; the upper incisors did not recede but were nearly normal in direction. The palate was high. It is known that afferent nerves regenerate much more readily (from the peripheral side) than the efferent. I have frequently resected the inferior dental nerve with apparently too early regeneration, and with no appreciable injury to the teeth. Resection at the point which Dr. Babcock selects does not, in my opinion, restore the proper angle, as is possible at the point where I did it. In my case the line of the mandible was almost straight. The Lane plates could be used on the jaw, but in compound fracture, for instance, they would generally have to be removed, while in simple fractures union is so prompt, that for the short time required apposition can be maintained by more simple means.

BLENNORRHAGIC KERATOSIS *

BURCHARD H. ROARK, S.B., M.D.
SPOKANE, WASH.

Last June I reported to the Spokane County Medical Society a case of an unusual keratosis attending gonorrhea, which I now report as a typical case of blennorrhagic keratosis. Except for the report of this disease by Simpson,[1] I should not be able at this time to classify this case properly. It is, I believe, the second case reported in America, and the twenty-second case recorded in medical literature. It is of special interest because it is probably a gonorrheal skin disease.

History.—The patient, W. B., aged 26, American of Welsh parentage, with negative family history, and unimportant personal history except for two attacks of gonorrhea, came under my care May 9, 1912, suffering with an acute gonorrhea and with horny-like, papular eruptions on the soles of both feet. His gonorrheal infection began two weeks previous to my seeing him, and had been running rather a mild course until about the tenth day of the gonorrhea, when he noticed about forty nodular patches on the soles of both feet, somewhat more on the left than on the right foot, which were intensely painful and made walking impossible, and his left ankle became greatly swollen, painful and tender.

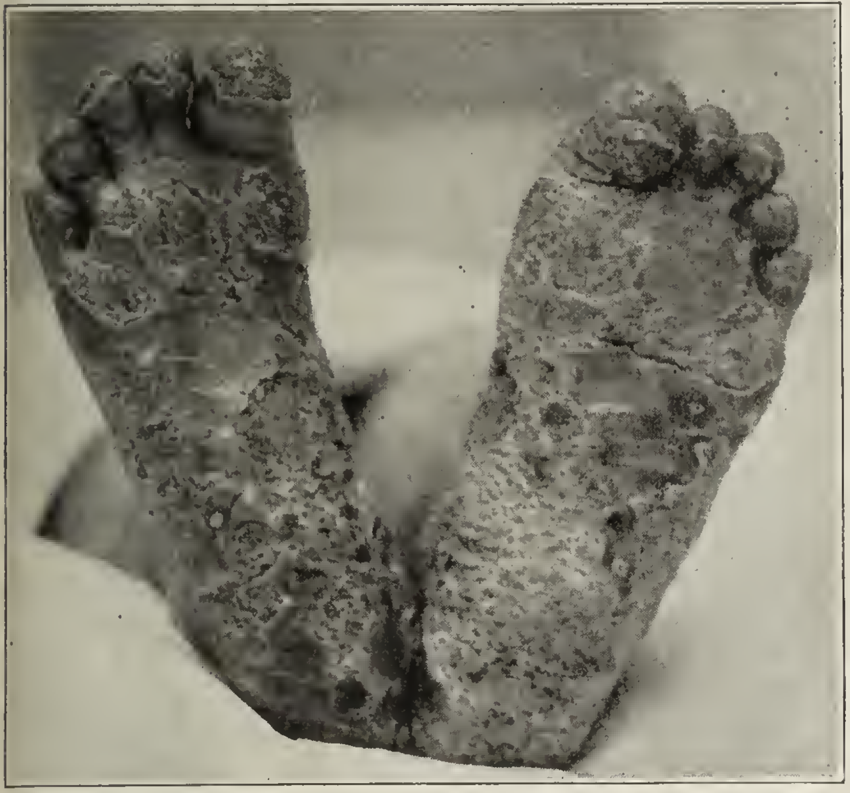

Fig. 1.—Appearance of the soles of the feet in a case of blennorrhagic keratosis.

Examination.—I found the patient with temperature of 101, pulse 100, and his appearance one of moderate toxemia. He was suffering with a typical gonorrheal urethritis, a gonorrheal arthritis, undoubtedly, of the left ankle, and the keratoid nodules mentioned. These were characterized by a greatly thickened epidermis beneath which was a disk-shaped gelatinous-like mass of secretion which could be picked out without breaking or crumbling, of the consistence of putty, yellowish-gray in color. When the keratoid formation and the disk-shaped mass were removed, a moist pinkish base remained, appearing as new skin. These nodules measured about 2 or 3 cm. in diameter, were round, and raised about 1 cm. above the normal surface. In this condition he was sent to the Sacred Heart Hospital where he remained under observation for four and one-half months. His temperature ranged from 99.5 in the mornings to 100 or 101 in the afternoons. At no time did his temperature exceed 101.8, though it sometimes varied greatly at different times of the day. His pulse varied from 86 to 120, going up and down with the temperature.

Course.—The crusty horn-like nodules multiplied on the soles of the feet until there was excoriation of large areas of the epidermis (Fig. 1). The toe-nails soon showed great thickening under their tips, becoming separated from their base, as this keratosis extended back under the nails, and a yellowish-gray transparent secretion escaped from under the nails. Within three weeks all of his toe-nails came off, leaving a pinkish tender nail-bed exposed. This bed would soon be covered (within two or three days) with a thick yellow crust which, when removed, would be followed with another similar formation. Meanwhile, over the dorsum of the feet and about the ankles there appeared little papular eruptions about the size of the head of a pin, containing under the thickening epidermis a little drop of yellow mucoid secretion. Gradually for several days these papules enlarged until waxy, horn-like nodules appeared as first described, giving the feet and ankles a loathsome appearance. If the top were pinched off and the yellow wax removed, the epidermal thickening continued and the result was the characteristic round cone-like nodule, "roughly resembling" as Simpson says, "in consistence and appearance the pustules of small-pox." Except where two or more of these patches coalesced, they were invariably round and cone-shaped (Fig. 1).

The patient's finger-nails began the same process of exfoliation as occurred with the toe-nails, the nails of the right thumb and middle finger coming off entirely, while the index finger-nail on the right hand and the thumb and little finger-nails on the left hand showed thickening under their tips and separated about half way back, at which point the process stopped with the general improvement of the patient.

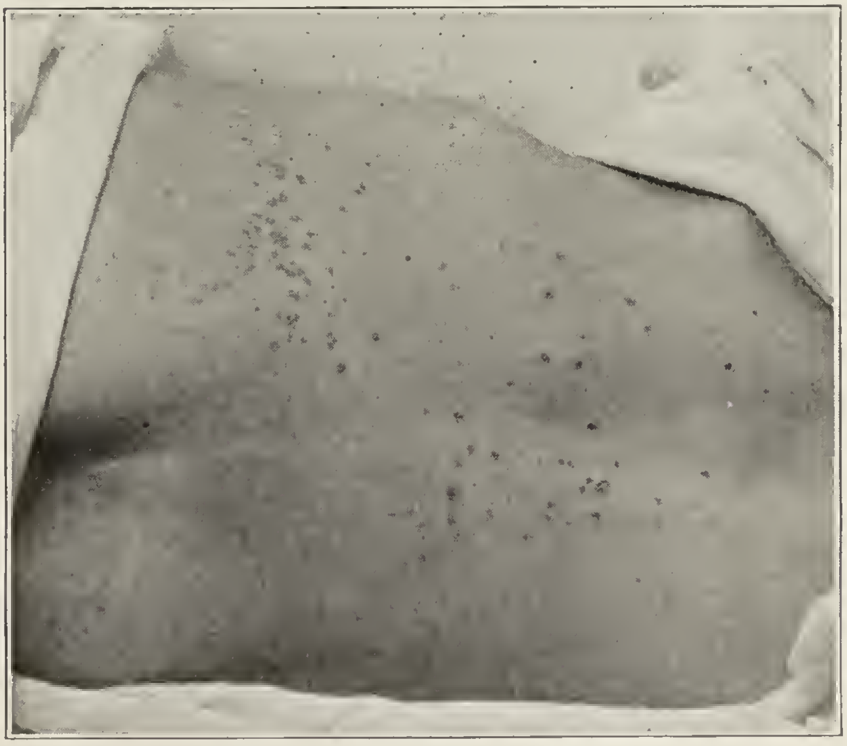

Fig. 2.—The back of the patient.

Meanwhile, within six weeks after the patient entered the hospital, the same crust-like nodules appeared on other parts of the body: eight on the scalp; two on the left arm; many covering the right thumb and middle finger; one on the dorsum of the left ring-finger; one over the sternum; three large ones on the front of the left knee; a few along the outer part of both thighs, and many over the lower back (Fig. 2).

A severe balanitis persisted for over two months.

In addition to the arthritis of the left ankle-joint, arthritis developed in both knees, left hip, second joint of right middle finger, right elbow, and slightly in both shoulders.

May 14, Wassermann test negative. Dr. M. M. Patton.

Smears from the little drop of yellow wax in the early formation showed no microorganisms. One blood-serum tube-culture showed, after three days, a watery growth which was a pure culture of a Gram-negative diplococcus, but appeared too fat for the Neisser diplococcus and not similar in cultural peculiarities, growing readily on potato, for example. I am inclined to attach no significance to this growth in the absence of any other results from smears or cultures, and account for it as a contamination, but relate its appearance because of a possible value it may have in further study of cases.

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* Read before the Spokane County Medical Society, Oct. 24, 1912.

[1] Simpson, Frank E.: The Journal A. M. A., Aug. 24, 1912, p. 607.

Treatment.—Beginning May 28, an injection of gonorrheal mixed vaccine (Cutter) was given every second day for sixteen days, beginning with 25 million gonococci and increasing to 250 million. During all this time the condition of the patient was grave, and because many who saw the patient regarded the case as possibly one of syphilis, I followed the eight injections of gonorrheal mixed vaccine, in spite of the negative Wassermann, with 0.6 gm. salvarsan, administered intravenously. Following this, while the patient was at his worst, Dr. M. M. Patton made an autogenous vaccine from cultures from the feet (containing *Staphlococcus aureus* and *S. albus*) and administered seven doses altogether.

Local treatments were superfluous, except in so far as mixed infection might be excluded. The isolated nodule seemed to do better if left absolutely alone.

Finally, along the first ten days of August, after the outlook began to appear hopeless, the patient began to improve and made a rather rapid convalescence. I believe that the administration of the gonorrheal mixed vaccine was of benefit; at least the joint involvement improved following its use, though the skin lesions did not seem to improve, possibly because the feet at this time began to show evidence of ordinary pus infection. For this the autogenous vaccine produced by Dr. Patton may have done more good than we were inclined to believe.

Internal medication was symptomatic and unimportant.

At present, Oct. 24, the patient is progressing nicely. The exfoliated nails are returning and the skin is smooth. All joints are normal except that the right middle finger and the big toe of the right foot remain flexed, and the shoulders are a little stiff. The left foot swells after walking, but only slightly. The patient's weight is 102, and during the last twenty days he has gained about 1 pound a day. His usual weight is 125.

The patient relates that in June of 1908 while suffering with acute gonorrhea and gonorrheal rheumatism he had many crusty horny-like nodules on the soles of his feet which disappeared with his convalescence from the gonorrheal trouble. In the absence of any other etiologic factor, I feel that we are justified in considering this peculiar condition a gonorrheal skin disease.

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EXOPHTHALMOS IN SCURVY[*]

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NEW ORLEANS

A review of the literature on the condition of the protrusion of the eye in connection with scurvy shows that the terms "proptosis" and "exophthalmos," which are synonyms, are used to designate varying degrees of the protrusion. Proptosis is the more commonly used, and specifies the condition when not extreme, whereas exophthalmos is the term always employed to signify the extreme protrusion of the eyeball.

The committee of the American Pediatric Society in its "Collective Investigation of Infantile Scurvy in North America," in 379 cases reported that swelling and protrusion of the eye was noted in forty instances.[1] Heubner,[2] in his collection of sixty-five cases, states that the orbit was involved four times; and Jacobi,[3] in forty cases, four times. In the foregoing cases it is not stated whether the protrusion of the eye was slight, or whether there was a decided exophthalmos. In view of this fact, and also becauses cases of exophthalmos in scurvy have been rarely reported, it is reasonable to presume that had these cases been extreme, they would have been published.

Text-books on the diseases of children make unimportant and subordinate mention of proptosis in some instances, and vague mention in other instances; in some text-books there is no mention at all made of the symptom. In text-books and journals on the diseases of the eye, even less is to be found on the subject. In only two instances[4] was it possible to find mention of orbital hemorrhage in scurvy. The references in both instances are practically the same.[5]

The case of Magnus, which he reported in 1878, is probably the first report of exophthalmos in scurvy. Before Barlow's[6] article in 1883, on "Cases Described as Acute Rickets, Which are Probably a Combination of Scurvy and Rickets, the Scurvy being an Essential, and the Rickets a Variable Element," many cases of scurvy were reported as acute rickets. A case appearing under the title of "Acute Rickets" was reported by Möller[7] in 1862, in which there was an exophthalmos. In this case, because of the absence of affection of the limb bones, either during life or at post-mortem, Barlow did not include it as one of scurvy in his analysis. It must be said in this connection that cases have appeared in more recent years in which the diagnosis of scurvy has been made with few symptoms other than exophthalmos.

The number of cases of exophthalmos in scurvy appearing in literature are very few. It has been possible for me to collect reports of only thirteen cases, including my own, which are reported in full. From the study of these cases, (which I have tabulated and appended to this paper,) and the literature on the subject, the following may be said:

Proptosis or exophthalmos in scurvy consists in a protrusion of the eyeball from its orbit. This protrusion may be of variable degree, from slight to extreme. It may occur at any time during an attack of scurvy; it is at times caused by violent fits of crying (Cohn,[8] Jacobi,[9] DeBuys) and appears suddenly, or it may be precipitated by prolonged crying (Jacobi[10]). Extreme exophthalmos is rarely seen, though protrusion of the eyeball may occur in from 6 to 11 per cent. of cases of scurvy. The condition may be caused by ecchymoses, into the loose areolar tissue around the orbit (Railton,[11] Fischer,[12] Carr,[13] Hutchison[14]) or the subperiosteal extravasations of blood which are seen elsewhere may be found also in the bones of the head and face (Miller,[15]

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[*] Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[*] Because of lack of space this article is abbreviated in The Journal by the omission of the skiagrams and the tabulated details of cases. The complete article appears in the Transactions of the Section and in the author's reprints.

1. Boston Med. and Surg. Jour., 1898, cxxxviii, 605.
2. Heubner: Berl. klin. Wchnschr., 1903, No. 3, p. 289.
3. Jacobi: Diseases of Children, 1909, p. 219.
4. Weill: Ztschr. f. Augenh., 1903, ix, 516. Grounouw: Graefe-Saemisch Handbuch, Ed. 2, ii, 324.
5. Magnus: Deutsch. med. Wchnschr., 1878, No. 28. Krukow. Vjest. Opthal., x, 275.
6. Barlow: Tr. Roy. Med. and Chir. Soc. of London, 1883, lxvi, 159.
7 Möller: Kronenberger med. Jahrb., 1862, iii, Part 2, p. 135.
8. Cohn: Referred to in article by Schlesinger in München. med. Wchnschr., 1905, No. 43.
9. Jacobi: Diseases of Children, 1909, p. 232.
10. Jacobi: Diseases of Children, 1909, p. 222.
11. Railton: Lancet, London, i, 532.
12. Fischer: Diseases of Infancy and Childhood, p. 337.
13. Carr: Practice of Pediatrics, p. 335.
14. Hutchison: Lectures on Diseases of Children, 1910, p. 174.
15. Miller: Medical Diseases of Children, p. 77.

Sheffield,[16] Pfaundler and Schlossman[17]). In the instance of exophthalmos the hemorrhage takes place beneath the periosteum within the orbit, and does not interfere with the motility of the eye. Barlow[18] believes that he has evidence for the conclusion that subperiosteal hemorrhage within the orbital cavity caused the exophthalmos in his cases, while Meyer[19] and Snow[20] were able to demonstrate at autopsy the presence of subperiosteal hemorrhage within the orbit in their respective cases.

The exophthalmos may appear in one or both eyes, beginning in one and involving the other subsequently. It comes on suddenly and causes a displacement of the eye forward, downward and outward. There may be an improvement, the eye returning to its normal position, to be followed by a recurrence (Magnus,[5] DeBuys); or the eye may remain stationary, and at intervals the symptoms increase (Jacobi,[3] DeBuys). If the hemorrhage extends in front of the fascia orbitalis there may be an associated ecchymosis and suggillation, the upper lid becoming discolored and puffy, caused by the infiltration of blood into the loose connective tissue of the lids; or the exophthalmos may exist as the sole evidence of hemorrhage into the loose areolar tissue within the orbit, or of subperiosteal hemorrhage within the orbit, providing the hemorrhage does not extend in front of the fascia orbitalis. This symptom is usually a late manifestation in scurvy, though it has been noted as being among the earlier evidences (Schlesinger[21]); and Barlow[22] has described a case in which the exophthalmos was the only symptom of the disease.

Proptosis or exophthalmos should not be confounded with the conditions more frequently found when there is actually no displacement, but the ecchymoses and suggillations are in the soft tissues in front of the eye, and hemorrhage under the conjunctiva, giving the effect of a displaced eye. In these conditions the tissues may become so much involved as almost to close the eye, whereas in exophthalmos the aperture of the lids is much wider than normal and the eye is seldom completely covered by the lids.

In injury of the eye producing a proptosis or exophthalmos, besides the history of the injury there are wanting the other evidences of scurvy, and the therapeutic test will clear the diagnosis.

In malignancy there is not the sudden swelling; the motility of the eye is impaired in extreme cases; the evidences of scurvy are not present, and antiscorbutic treatment also has no effect.

Gumma of the periosteum within the orbit may produce an exophthalmos, but the onset is very slow and gradual.

Mucocele, encephalocele and hydrocephalus may give rise to a displacement of the eye, but there are enough other symptoms in these conditions to permit a differential diagnosis.

Barlow[23] states that he is of the opinion that in no disease, even syphilis, is the therapeutic test of more value than in scurvy. In making a therapeutic diagnosis should there be no improvement in four or five days, the diagnosis should be questioned.

Within the past few months it was my good fortune to see the following case of extreme exophthalmos in a case of scurvy:

REPORT OF CASE

History.—T. G., white female, aged 11 months, only child of healthy parents, appeared at my clinic at the Touro Infirmary, Nov. 23, 1911, because of one eye protruding almost out of its socket, and because of pains in the limbs which were diagnosed as rheumatism by a physician.

The baby was born at full term by a foot presentation after a prolonged labor. She weighed about 4,082 gm. (nearly 9 pounds) at birth. Her eyes became sore shortly after birth, and she had a nasal discharge. The mother nursed her exclusively on the breast for six weeks. She was then given malted milk for two weeks. Then, because of frequent stools, condensed milk was given. She was ill with "cholera infantum" for two weeks, and was put back on malted milk, which was continued thereafter. Her feedings were irregular, as was also the quantity given at each feeding. At 4 months she had two teeth, and at 8 months she was able to sit alone. There had never been any convulsions. Aside from "cholera infantum" at 2 months, the only sickness up to the present illness was a siege of boils which continued throughout the past summer. From this time on it was noticed that the baby perspired very freely, particularly about the head. The present illness began about the middle of August, 1911, when her left leg was knocked on being lifted from her chair. "She screamed as if her leg were broken" and it began to swell. She seemed to be in pain when touched, and was very cross and restless at night. About one week later the parents consulted the family physician who diagnosed the condition as rheumatism. It was found out later that he believed it to be syphilitic, and the baby was treated with mercury by inunction. She was also given drops, persumably iodid in some form.

In the latter part of August one day about five minutes after her bath, the baby cried violently. The mother on going to her to investigate the cause of her crying, noticed that her right eye was protruding, and that the upper and lower lids were discolored and swollen. These symptoms remained the same for three or four days, and then became better gradually for three or four days, at the end of which time the eye was apparently back in its normal place so that it could not be noticed that it had been pushed out. Three weeks after this it again protruded, but the discoloration was not so marked as with the first attack. The discoloration remained for about one week. The exophthalmos continued for about one week, but improved slightly during that time. The protrusion was not so pronounced as on the first occasion, nor was the improvement so marked. It then suddenly protruded again much more than on the other occasions, and remained out until it was seen by me three weeks later. The mother stated that there was no discoloration the third time, and that the protrusion was increasing very slowly until I saw it. The patient's eye was not completely closed during sleep. The second and third occasions of protrusion of the eye were at night, the displacement being noticed in the morning.

The baby had four upper incisors and two lower central incisors when her leg was hit. Her gums were red and swollen at the time of the first exophthalmos. Three weeks later they were bluish-red. The baby seemed to be in much pain, cried a great deal and was irritable. At night she was restless. There had been no fever. The appetite was poor, and at times there was vomiting of a greenish substance. The stools were not noticed as being different from her normal stools. The urine was brown since before the first exophthalmos, was plentiful, and stained the napkins. On one occasion after the second exophthalmos, when the baby vomited, blood came from her nose. Other than these there were no hemorrhages noticed.

Examination.—The child was poorly developed and poorly nourished, anemic, much emaciated, 65 cm. (25½ inches) long, weighing 5,132 gm. (a little over 11 pounds). She was anemic, and the mucous membranes were pale. The right eye protruded almost out of its socket, being pushed forward, outward and downward. There was no pulsation. The eyelids were clear, but apparently puffy. The movements of the eye were not impaired, and the sclera and conjunctiva were normal. The baby lay with her legs everted and flexed, and there was apparently no muscular power. There was no inclination to move the arms. The skin was clear with the exception of the right leg, on which there were two ecchymotic spots. Over the thighs and legs, which were very much swollen, the skin was tense and glossy. The thorax was flattened anteroposteriorly, the sternum was depressed and the abdomen distended. On being moved for examination the baby cried as if in much pain. The head was rather square and the anterior fontanel was opened and depressed. The sutures were not closed. There was costal beading and slight kyphosis, but the epiphyses were normal. Examination of the abdomen showed it to be soft, with walls flabby, but liver normal and spleen not felt. Examination of the heart and lungs was negative. The arms, legs and back apparently lacked muscular power, though no attempt at determining the muscular power was made because movement was accompanied with great pain. The thighs were much swollen, the deeper structures especially so. The shafts of the femora were firm and thickened for almost their entire length. The same condition existed in both legs, the swelling being mostly about the lower ends of the tibias. The joints were normal. There was pain on moving the arms; in fact, touching the patient almost anywhere seemed to cause pain.

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[16] Sheffield: Modern Diagnosis and Treatment of the Diseases of Children, 1911, p. 507.

[17] Pfaundler and Schlossman: Diseases of Children, 1908, ii, 189.

[18] Barlow: Keating's Cyclopedia of the Diseases of Children, 1889, ii, 275.

[19] Meyer: Berl. klin. Wchnschr., 1896, p. 85.

[20] Snow: Arch. Pediat., 1905, xxii, 576.

[21] Schlesinger: München. med. Wchnschr., 1905, No. 43, p. 2073.

[22] Barlow: Centralbl. f. inn. Med., 1895, No. 16, p. 532.

[23] Barlow: Keating's Cyclopedia of the Diseases of Children, 1889, ii, 277.

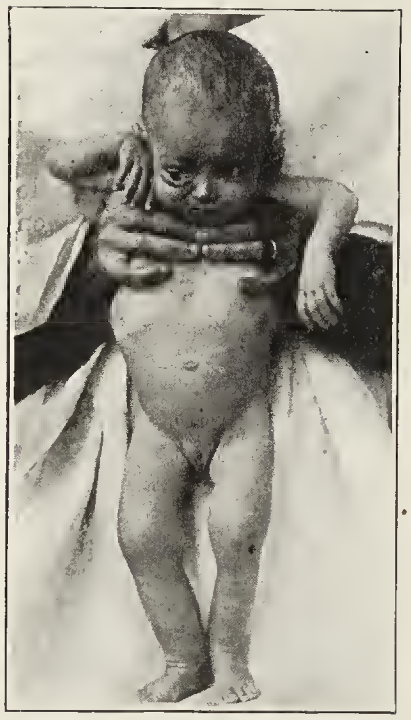

Fig. 1.—A photograph taken Nov. 23, 1911 (before treatment was begun), showing the exophthalmos with the forward and outward displacement. The peculiarly flattened chest may be noticed, and the angle or beading of the ribs. The thighs and legs, particularly on the right side, are much swollen. The feet also are swollen. The ecchymotic spots on the right leg can be seen.

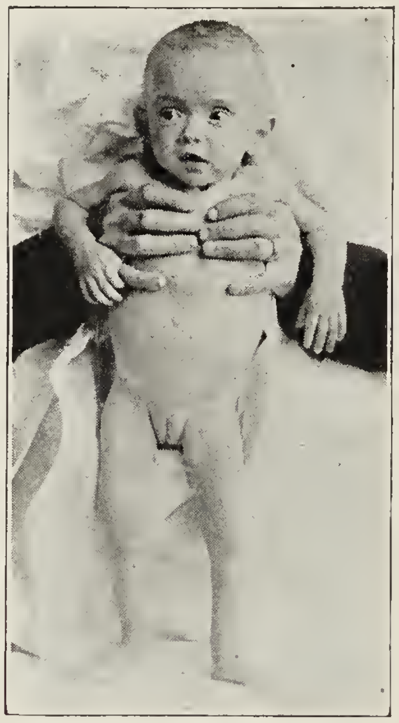

Fig. 2.—A photograph taken Dec. 5, 1911 (after treatment was begun), shows improvement in the exophthalmos and in the child's general condition. The expression of pain has disappeared. The state of nourishment is better. This can also be seen by comparing the abdomen with Figure 1. Improvement in the legs can readily be seen; also disappearance of the ecchymotic spots. Swellings of the feet also have disappeared.

The respirations were normal; pulse, 164; temperature, 38.8 C. (101.8 F.) by rectum. The gums were reddened, spongy and swollen. She was referred for examination of her eyes. Dr. M. Feingold reported that both fundi were normal, and that there was a tumor of some sort pressing within the orbit in the upper half and inner side. The examination of the nose was negative, there being no evidence of acute or chronic inflammation.

Treatment and Subsequent Course.—The mother was requested to take the child to the radiologist for skiagrams, but she did not do so, and was lost sight of for a few days, even before the blood and urine could be examined. Twelve days elapsed before the patient was seen again. In the belief that an interesting case was about to be lost sight of a special endeavor was made to complete the examinations, with the result that skiagrams, photographs and examinations of the blood were made. Owing to the inability of the mother to secure the urine, an examination of it was not made, but the mother stated that the urine was no longer brownish, it having cleared entirely two or three days after the first visit. On the occasion of the first visit, the mother was instructed to give the baby a teaspoonful of orange-juice every four hours; proper instruction regarding feeding was also given. When the patient was seen the second time the exophthalmos was much improved, the eye having almost returned to its normal position; the legs were greatly reduced in size, and were not very painful. The ecchymotic spots on the leg had disappeared, the baby was much more quiet and less irritable, and there was hardly any pain on being handled. This interesting improvement was attributed solely to the use of orange-juice, because the mother had not changed the diet as she had been instructed. The photographs (Figs. 1, 2 and 3) before and after twelve days of treatment also show the improvement. In spite of these marked changes, the skiagrams taken twelve days after the treatment was instituted (Figs. 5, 6 and 7) show unmistakable evidence of scurvy.

The result of the blood examination showed: hemoglobin, 65 per cent.; red blood-corpuscles, 3,920,000; white blood-corpuscles, 4,950; neutrophils, 42 per cent.; small lymphocytes, 50 per cent.; large mononuclears, 5 per cent.; eosinophils, 3 per cent. Coagulation time was between five and one-half and six minutes (Wright).

It developed that the reason the patient was not placed on the prescribed diet was for fear of the parents' incurring the displeasure of their society physician, who had continued the usual diet. The parents consented to allow further observations of the patient to be made in appreciation of the improvement following the antiscorbutic treatment.

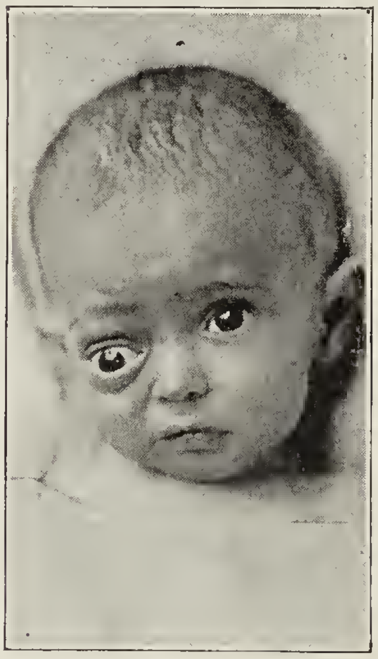

Fig. 3.—A photograph taken Nov. 23, 1911 (before treatment was begun), allows a better study of the exophthalmos. Its displacement downward, outward and forward can be seen. The facial expression also can be studied more closely.

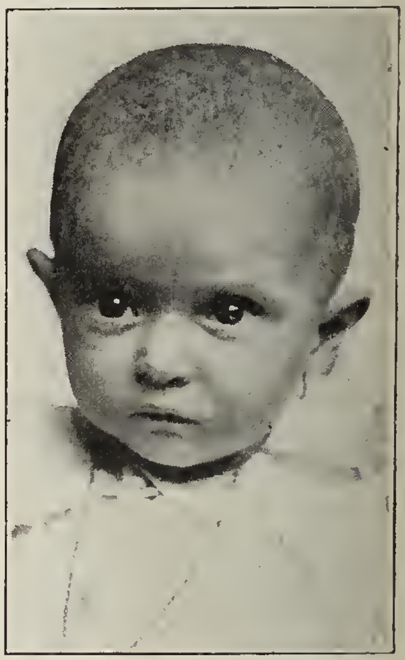

Fig. 4.—A photograph taken April 15, 1912, before the leg had thoroughly assumed its normal position.

The patient was again seen April 9. She was 15 months old, and with her clothes on weighed 6,987 gm. (nearly 16½ pounds). The anterior fontanel was open and measured 5 cm. by 5 cm. (nearly 2 inches). She was pale and sallow, had seven teeth and could sit up, but could not walk. There had been no further trouble with her eye, and no return of any other symptoms of scurvy. The orange-juice had been continuously given, the diet remaining the same. It is interesting to note that after the first marked change following the use of orange-juice, the further improvement had been very slow, probably because the diet had not also been changed. This was shown by subsequent photographs and skiagrams (Figs. 4 and 8) and also by the examination of the eye, there still remaining a slight exophthalmos. The report of Dr. Feingold was as follows: palpebral opening narrowed, difference of about 1 mm., and probably shorter, with Hertel exophthalmometer: unsatisfactory examination; exophthalmos of about 1.5 mm. on right side; lower half of right cornea more covered than in the left eye; upper lid also covering more of cornea in the right than in the left eye; pupillary reaction and motility perfect.

A series of examinations was made again on this visit resulting in some further improvement. The blood examination showed: hemoglobin, 90 per cent.; red blood-corpuscles, 4,230,000; white blood-corpuscles, 6,250; neutrophils, 44 per cent.; small lymphocytes, 50 per cent.; large mononuclears, 6 per cent. The coagulation time was between three and three and one-half minutes (Wright). Wassermann and von Pirquet reactions were negative.

DIAGNOSIS OF CASE AS SCURVY

The clinical picture of the case is typically that of scurvy. Certain conditions, however, must be excluded because they present some of the symptoms found in this case:

Rheumatism was excluded because it is a rare condition at this age, and also because when rheumatism is found before the fourth or fifth year it rarely manifests itself by swelling of the joints, and when rheumatism does involve them there are evidences of inflammation. In this case not the joints but the shafts were involved, and there was no redness or evidence of inflammation.

Osteomyelitis was excluded because it is a condition in which there are high fever, abscess, and usually one bone involved.

Sarcoma was excluded because it does not involve as a rule more than one bone; is progressive in its course; and because antiscorbutic treatment has no effect on it.

Syphilis was excluded because the pseudoparalysis in lues appears at a much earlier age and is one symptom of a condition in which there are many other manifestations. Again, had the condition been syphilis the liver and spleen would have been enlarged and the antisyphilitic medication used should have improved the condition in over two weeks' treatment instead of aggravating it. On the other hand, the improvement under the influence of orange-juice was a therapeutic diagnosis sufficient to remove all doubt. The negative Wassermann may have been produced by a prolonged course of antisyphilitic treatment, but the history does not warrant the suspicion of syphilis.

In confirmation of the diagnosis against the foregoing conditions, the skiagrams offer positive proof of their non-existence.

Anterior poliomyelitis was excluded because there was a negative history for infantile paralysis, and because of the symptoms of scurvy being characteristic. In doubtful cases an electrical reaction is diagnostic. This was neither advisable nor necessary in this case.

Purpura could not be considered because there is an absence of the history of improper feeding in purpura, and it is not accompanied with swelling of bones from hemorrhage with accompanying pain.

That medication had no influence on the production of the condition is shown in the history, as the disease began before the drugs were given, and the improvement was marked before they were discontinued.

In rickets there are no ecchymoses, no pain, no spongy gums, and also the ends of the long bones are involved. It must be remembered, however, that for a long time the two conditions were considered together until Barlow's original article. Moreover, rickets and scurvy are frequently seen together probably because the diet that produces scurvy may be also an etiologic factor in the production of rickets.

The exophthalmos might have necessitated differentiation from malignancy and trauma, but the other evidences of scurvy and the diagnostic significance earlier considered in this paper readily exclude both.

Finally, the therapeutic test of the diagnosis establishes the case as one of scurvy.

I wish to express my thanks to Dr. M. Feingold for the examinations of the eye; Dr. A. D. Henriques for the skiagraphic work; and Dr. C. C. Bass for the laboratory examinations.

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ABSTRACT OF DISCUSSION

Dr. H. M. McClanahan, Omaha: I see about four cases of scurvy a year in consultation. In three out of four of my cases the diagnosis had not been made. Out of ten cases of which I have records, in four the first symptom was hematuria. In three of these a diagnosis of scurvy was made on the hematuria as the only symptom.

Dr. W. W. Butterworth, New Orleans: In spite of all our education along certain lines we have not educated the physician to differentiate between so-called rheumatism and scurvy in the young infant. It seems that it is still possible to make this mistake.

Dr. L. R. DeBuys, New Orleans: I believe the English pay more attention to the examination of urine than we do. As I understand it, in some institutions a routine examination is made; consequently they find blood in the urine more frequently, and are thereby better able to recognize those cases of scurvy in which the bloody urine is an early symptom. In scurvy the lower extremities are more commonly involved than the upper. Rheumatism seems to be the condition most often confounded with scurvy, and this mistake in the diagnosis is the one most frequently made.

In one of my radiographs a condition can be seen which I have not been able to find before: the zones of proliferation in the bones. Most radiographs show the early conditions of scurvy which are important for diagnostic purposes, but I have seen no other radiographs which show these changes.

OCCUPATIONAL SKIN DISEASES *

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With the exception of certain well-defined types, occupation dermatoses as a class have not, in this country at least, received the attention they merit. While every dermatologic clinic numbers among its applicants each year many patients in whom occupation has a direct or indirect bearing on the causation of their eruption, it is difficult, owing to lack of systematic investigation, to give a definite idea as to the prevalence of skin affections in the various trades. At my own clinic at the University and Bellevue Hospital Medical College about 2 per cent. of the total number of new cases for 1911 constituted occupation dermatoses. The great majority of these were of the type known as trade eczemas, and while many cases yield readily to treatment and proper preventive measures, others constitute a serious inconvenience from an economic point of view, sometimes necessitating a complete cessation from work or a change of occupation.

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* Read in the Symposium on Industrial Diseases in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

Cutaneous vulnerability is more or less an individual peculiarity, for while there are persons who are so sensitive to an irritant — physical, chemical, thermal or actinic — that they react after a short exposure or contact by an acute dermatitis, others remain entirely unaffected. Occasionally such persons exhibit so high a degree of sensitiveness that instead of their acquiring an immunity, an increasing susceptibility is established. Fortunately these cases are not very common, and workers who are subjected to continuous injury usually do not develop lesions until after a longer time, either from the summation effects of the irritant or because the resistance of the skin has been gradually undermined.

After such a cutaneous outbreak there is frequently a tendency to acute exacerbations at regular intervals or when the occupation is resumed. These eruptions may then persist for years. While the skin both anatomically and physiologically is endowed with a relative amount of protection against the action of irritant substances, by reason of its exposure it is subjected to injuries of every description and these may lay the foundation for a subsequent eruption. In addition, there are other contributing factors, such as a "special susceptibility," a delicate skin or one presenting some congenital anomaly, as excessive dryness or ichthyosis, impaired gastro-intestinal, hepatic or renal function, a depressed state of health, neglected hygiene of the skin, or its lowered resistance because of a preexisting eruption.

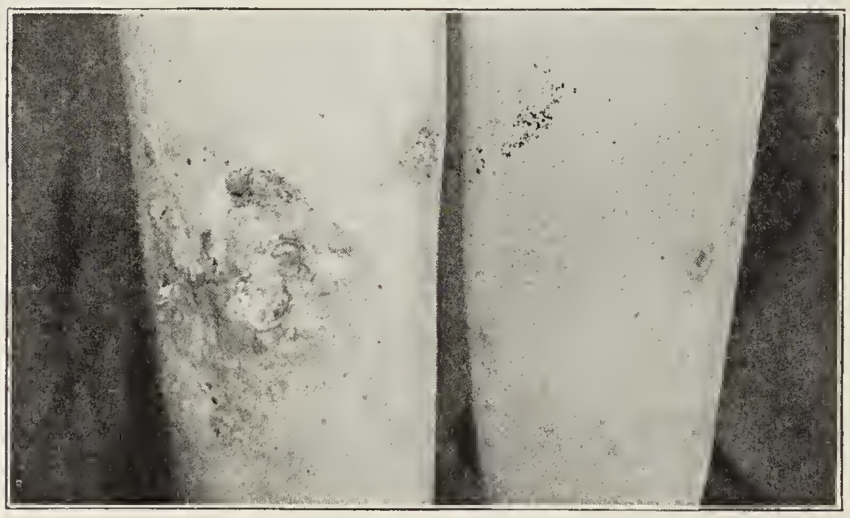

Fig. 1.—Erythema induratum (Bazin's disease).

The same etiologic factor is often found operative in both allied and unrelated trades owing to similar conditions under which the work is done; when, for example, men or women are exposed to excessively dry or moist heat. Such an atmosphere leads to congestion and interference with the normal activity of the skin which is followed by various inflammatory processes and sweat-eruptions like prickly heat. These affections are seen in cooks, stokers, firemen, foundry-workers, etc. A warm, moist medium such as laundresses work in sometimes produces a cystic condition of the sweat-ducts of the middle third of the face, known as hydrocystoma. Cold, by favoring the development of chilblains, causes much suffering among persons who are obliged to carry on their work outdoors or in poorly heated places. In factories in which drastic measures are employed for the removal of dirt or stains, cleansing agents like chlorinated lime (chlorid of lime) or benzin used on the hands supplies the base for an eczema by divesting the skin of its natural secretions. Oil, which is used wherever machinery is installed, is the causative agent of acneiform and eczematous lesions in employees who operate or are otherwise engaged about such apparatus. In occupations which necessitate standing, persons who have a tendency to varicose veins not infrequently exhibit this condition with a secondary eczema and ulceration. Slight traumatisms lead to erosions of the skin which often become infected in patients who, owing to the venous congestion, have slight resistance. Young women who are obliged to stand at their work sometimes develop erythema induratum or Bazin's disease, which is characterized by nodules beneath the skin which may break down and produce ulcers. Some of these forms of Bazin's disease have been proved to be tuberculous. The infection is usually of benign type and readily yields to rest in bed, improved nutrition and a change to better hygienic surroundings (Fig. 1).

Many occupations bring about changes in the skin which are not pathologic in the strict sense of the word but are so characteristic for certain occupations that Blaschko has given these changes the name of "trade stigmata." These include localized thickenings of the horny layer in shoemakers, tailors, musicians, etc.; bronzing of the skin in gardeners, farmers and other persons who follow outdoor occupations; staining of the hands of dyers, chimney sweeps, etc.; pigmentation in workers in silver from a deposit of the metal and in millers from iron particles, etc.

The skin may respond to the most diverse irritants by the production of a catarrhal inflammation, or may develop different types of eruption from the action of the same agent. An example of the former may be found in the trade eczemas and of the latter in the effects of tar, which may cause eczema, acne, warty and epitheliomatous lesions, alone or intermingled.

The commonest type of occupation disease is an eczematoid dermatitis. In a recent article Herxheimer[1] enumerates seventy-four trades provocative of this form of disease. It may vary in grade and intensity from an erythematous and scaling dermatitis to a vesicular and bullous eruption. As the condition becomes chronic, infiltration of the skin takes place with desquamation and fissuring. With the cutaneous defenses lowered, pus infection is frequently superadded.

The excessive use of soap and water reduces the resistance of the skin by extracting the fat and macerating the horny cells. They may then act as direct excitants or prepare the way for some other irritant, as washing powders, etc. Severe eczemas of the hands and forearms are seen in those whose occupation requires them to have their hands continually in water, as in the case of washerwomen, housemaids, barkeepers, etc. In my clinic nearly one-third of the occupation diseases during the past year were seen in persons whose vocations necessitated the frequent employment of soap and water and, in some cases, the various cleansing alkalis.

In bakers a form of dermatitis of the hands and forearms is known as baker's itch. The exciting causes are the heat, the moist dough and saccharin solutions. A mite said to live in flour has also been incriminated. Candy-makers suffer from a similar eruption as well as from impetiginous lesions. Confectioners, bakers and preservers of fruit frequently show an eczema of the fingers and peri-ungual tissues from the action of fruit acids.

Winfield[2] describes a dermatitis in sugar-refiners which involves the hands, forearms and legs and resembles an impetiginous scabies. It has been asserted that a mite found in raw sugar is responsible, but this lacks verification. Oliver[3] says that in sugar factories a condition known as "lymphangitis of sugar-makers" is sometimes found among the sugar-refiners and molasses-stirrers. It is accompanied by a slight constitutional disturbance, and a crop of boils is not an unusual sequel. According to Gaillot the lymphangitis is an infection caused by the *Staphylococcus pyogenes aureus.* This organism is said to be found not in the freshly made molasses but in the residue; the temperature of the factory and the condition of the skin of the workers favor its development.

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[1] Herxheimer, Karl: Ueber die gewerblichen Erkrankungen der Haut, Deutsch. med. Wchnschr., Jan. 4, 1912.

[2] Personal communication.

Builders and masons develop an eczematous affection of the exposed parts of the body from the irritating effects of lime and cement. In stone-cutters an analogous condition is caused by the stone dust. A palmar dermatitis is also seen in brickmakers.

Metal workers, from the constant irritation of the dust or filings, or from the direct cauterant action of these or the acids or turpentine used in the various processes, suffer from all grades of inflammation to intractable ulceration.

Printers and machinists, from contact with chemicals and oil, often develop a chronic eczema of hands and forearms. Electroplaters are also liable to an inflammation of the hands and forearms from the use of a mixture of lime dust and olive oil in "finishing," and from sour beer in the process known as "scratch brushing."

Workers who handle the chromates in the arts and trades suffer from an eczematous eruption as well as from ulceration of the skin and mucous membrane which shows little tendency to heal.

Hydrofluoric acid, employed in the manufacture of glass, the bleaching of cane, washing of manure, etc., produces sores of the nasal orifice and gums and painful blisters and ulcers of the skin.

The irritant action of arsenic on the skin is well known. In the arts and manufactures in which its compounds are employed workers are attacked with eczema or ulcerative or gangrenous lesions, which may be present on the face, neck and extremities, but more especially on the genitals. In color-works, ulcers of the hands are designated "arsenic pock." Arsenic sulphid which, with lime, is used in curing fur, sets up a very severe dermatitis in furriers, not infrequently with persistent ulceration (Fig. 2).

Chemists are prone to inflammation of the hands and sometimes of the face from handling various drugs and chemicals. Their skin often develops so marked a susceptibility that minute quantities or even fumes will call forth an outbreak. I have several times noted a similar anaphylactic condition from formaldehyd solution in laboratory workers. Another familiar example of an eczema caused by chemical action is eczema of the hands of physicians and nurses from the use of antiseptics, notably mercuric chlorid and phenol (carbolic acid). These forms of dermatitis are very rebellious to treatment.

Among miners, smelters and photographers an eruption of erythematous and pustular type is sometimes encountered from the irritant effects of mercury. Photographers are also subject to an eczema, more especially of the terminal phalanges and nails, from other reducing agents, particularly pyrogallic acid. In hat factories eczema of the hands is said to result from the manipulation of hot water acidulated with sulphuric acid.

The eczema in tobacco-workers is believed to be caused by the caustic solutions used in separating the tobacco leaves.

Calico-printers suffer from eczema, fissures and wounds which often become infected. The cause is attributed to the bleaching and cauterizing substances handled.

In flax-workers and linen-workers various skin affections are reported, among them a follicular eruption caused by the oils and irritating materials used in this occupation. In Belgium many of the flax-workers show a peculiar abrasion and ulceration of the palmar surface of the hands. Fissures form, exfoliation takes place and when the deeper structures are involved the condition simulates a syphilitic lesion. An eruption resembling small-pox has also been described on the forearm, arm and face of workers who remove the bobbins from the spinning-frames. From the pressure and friction caused by pulling threads the persons who engage in this part of the work present callosities on their index-fingers.

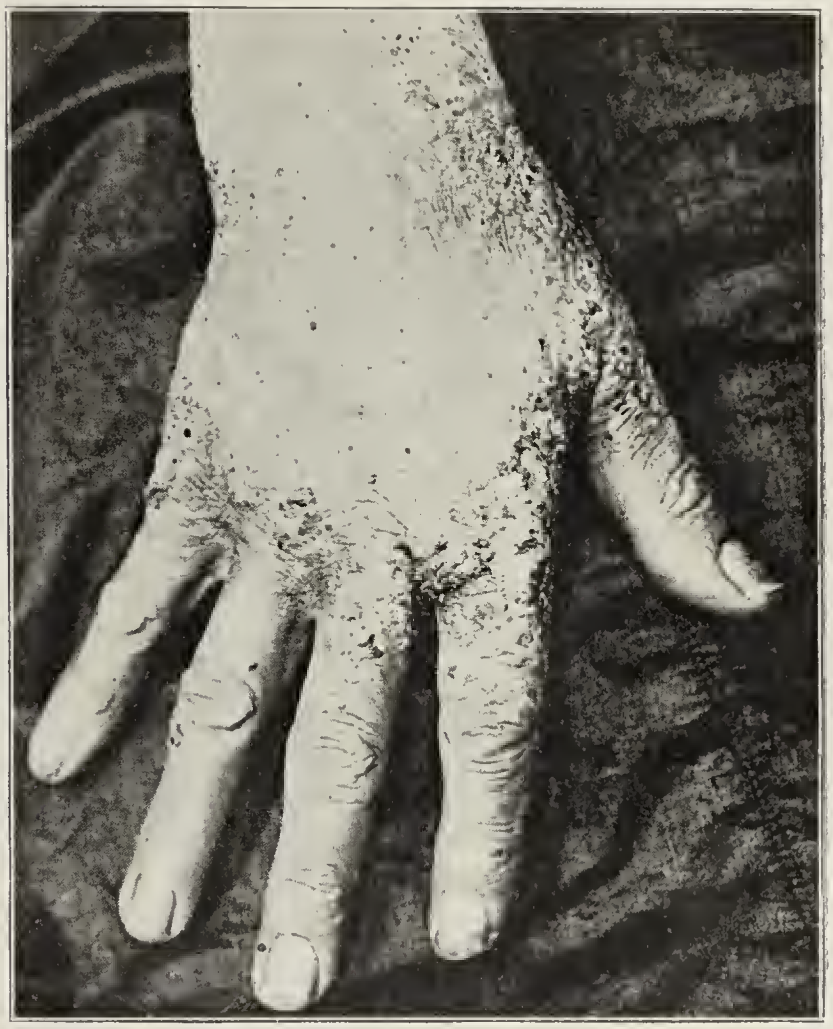

Fig. 2.—Chronic eczema of the hand in a furrier.

Callosities of the palms are also seen in laborers, engine-runners, etc. Among miners they form a special dermatosis called "beat hand." Painful thickenings develop over the regions where the handle of the pick makes greatest pressure, along the bases of the fingers, and over the ball of the thumb and outer side of the hand. The subjacent tissue becomes inflamed, and not infrequently is further complicated by suppuration. To this condition the term "keens" is applied.

Warts sometimes form troublesome lesions on the palms of persons engaged in manual work. In some cases they are purely epidermic growths; in others in which the epidermis has been removed, the underlying tissue as the result of irritation becomes the seat of exuberant granulations with papillomatous formation.

Dyers and workers in anilin colors are apt to develop eczematoid and pustular eruptions on different portions of the body. The bad effects are not limited to those in this trade, but the wearers of clothing prepared with certain of the dyes may ultimately be the victims of a severe dermatitis. The black, red and orange-yellow pigments are particularly irritating, marked inflammatory reactions having been caused by socks, gloves, underwear and shoes so colored. I have also seen unusually severe forms of eczematoid dermatitis in barbers who had employed proprietary anilin hair-dyes on their patrons (Fig. 3). It is not an uncommon experience in dermatologic practice to be consulted for a dermatitis of the face, neck and ears which had followed the application of some of these hair-dyes. In susceptible subjects the use of hair-tonics may produce similar trouble. Another dermatologic condition common in anilin workers is hyperhidrosis of the palms caused by washing the hands with chlorinated lime for the removal of the dyes. According to Blaschko,[4] it may be so intense as to amount to a flux. The affection is also seen among employees in chlorinated lime and soda works.

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[3] Oliver, Thomas: Diseases of Occupation, E. P. Dutton & Co., 1908.

The manufacture of calcium chlorid and sodium and potassium chlorid by electrolysis is sometimes attended by an erythematous and edematous inflammation of the face of the workmen, resembling erysipelas. This is attributed to the sodium hypochlorite that is formed. With the subsidence of the acute process an acneiform eruption is left behind, the so-called chloracne. This is the commoner cutaneous malady seen in this occupation and is characterized by the early development of blackheads on the face, trunk and extremities followed by a grayish discoloration of the face. Inflammation and suppuration of the follicular glands is not uncommonly followed by nodules, pustules, boils and disfiguring scars.

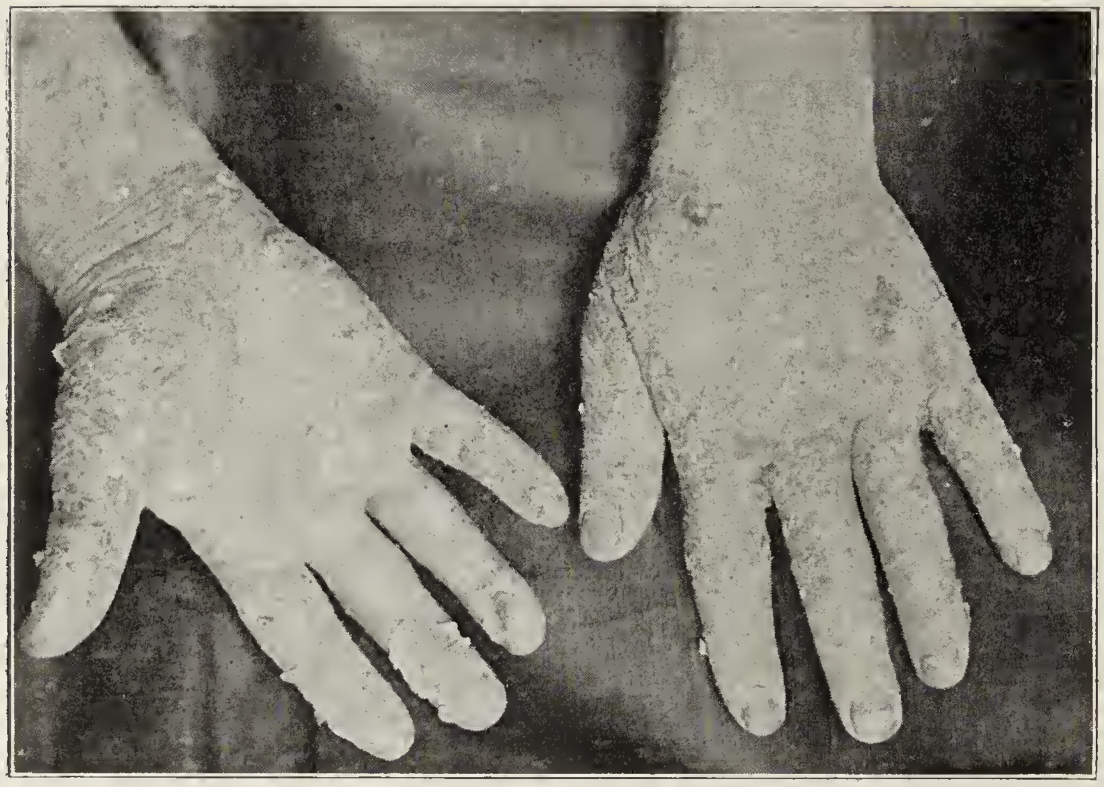

Fig. 3.—A dermatitis of the hands in a barber, resulting from the use of hair-tonics employed on his patrons.

Tar-workers and paraffin-workers develop a similar eruption which may last several months and then change to the so-called "tar itch." This is accompanied by hyperkeratosis and increased activity of the sebaceous glands, forming plaques and crusts, with the further development of multiple warts, one or more of which degenerate into malignant growths. The disease affects chiefly the hands, forearms and scrotum. It progresses slowly and in many instances no recurrence takes place after removal of the epithelioma. Oliver cites the case of a man aged 58, who had worked among coal-oil and tar products for thirty-years. He presented numerous indurated patches, some of which had ulcerated, as well as multiple black warts and scars, the remains of old ulcers. His son, aged 27, following the same employment, developed a malignant growth of the forearm which necessitated amputation. Metastases of the axillary and cervical lymph-nodes took place and the patient succumbed to secondary carcinosis.

Cancer in chimney-sweeps has been reported chiefly from England. The soot produces a chronic irritation of the skin and when retained in such regions as the folds of the scrotum causes warty growths which become epitheliomatous. In some instances the hands, arms and thighs have been involved. With the advent of machinery for cleaning chimneys the incidence of scrotal cancer has been markedly reduced. It is reported that gardeners who employ soot for the protection of plants from slugs in a like manner show the effects of this irritant in the development of malignant growths of the hands.

Gardeners and florists frequently suffer from some form of inflammation of the hands and arms occasioned by contact with certain plants. It is estimated that between sixty and seventy plants possess this irritant action and the power to induce a dermatitis. The more familiar ones are poison ivy, poison sumac, primrose, chrysanthemum and eucalyptus, the eruption varying from a simple erythema to marked swelling with the formation of vesicles and bullæ. Not only are the exposed parts involved but the affection may be carried by the hands or clothing to other portions of the body. It is probable, as in the case of *Rhus toxicodendron,* that the active principle in the majority of these plants is an essential oil. Lacquer,[5] which is obtained from a tree belonging to the genus *Rhus,* produces a dermatitis either by direct contact or through the fumes by evaporation. The symptoms, consisting of fever and edema of the skin of the face, limbs and generative organs, nasal and conjunctival catarrh, and a papular eruption of the legs and forearms, appear in a few hours.

The resinous dust of certain hard woods, like teak, ebony, satinwood, rosewood and others, will occasionally set up a dermatitis in carpenters and joiners. In teak, the exciting agent is believed to be an essential oil derived from the central part of the tree and present in the dust. The symptoms are sometimes very severe, the eruption becoming generalized and accompanied by vomiting. It may last for several months and is quite apt to recur when the patient resumes work.

The so-called polisher's itch of the forearms and hands, found in furniture-polishers, is attributed to the methyl or impure alcohol present in varnishes and polishes. Impure turpentine and benzin used for cleansing purposes likewise provoke an eczema of the hands.

In persons who follow an outdoor occupation the uncovered portions of the skin sometimes undergo peculiar degenerative changes. Under the name of

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[4] Blaschko, A.: Gewerbliche Hautkrankheiten, Handbuch der Arbeiterkrankheiten, T. Weyl and Gustav Fischer, 1908.

[5] Castellani and Chambers: Lacquer Poisoning, Manual of Tropical Medicine, 1910, p. 118.

"sailor's skin." Unna has described an affection which he observed chiefly in seafaring men. A diffuse cyanotic redness, not unlike chilblain, develops at first on the ears, adjacent parts of the cheeks and temples, the backs of the hands and fingers. The skin then becomes mottled, pigmented, rough and hard and in places papillomatous. These warts may last for years and slowly undergo a malignant change. A similar condition is seen on the face, neck and hands of people who follow agricultural pursuits. The cause is sought in the actinic rays. The effect of light on the skin is illustrated in *x*-ray workers, in whom, unless protected, the hands become the seat of a mild erythematous squamous eruption, more or less persistent, which is succeeded by pigmentation, telangiectases and atrophic wrinkling. This condition may remain unchanged or keratoses may be added which develop into epitheliomas.

Drivers and coachmen exposed to the rigors of the weather are often the subjects of the severer forms of rosacea. The use of alcohol, however, to which many of these people are addicted, cannot be wholly ignored as a contributing etiologic factor.

Certain callings, notably those dealing with dead or live animals or their products, favor the development of infectious diseases. Owing to the prevalence of pyogenic organisms, local pus infections, as boils, carbuncles, impetigo contagiosa or cellulitis are not infrequently encountered in butchers, slaughter-house men and other individuals who handle dead animal matter. A generalized bullous dermatitis with severe constitutional symptoms and a high mortality has also been observed. The starting point is usually an infected wound. Several years ago Bowen[6] pointed to a possible relationship between these cases of so-called acute infectious pemphigus and foot-and-mouth disease of cattle, as he had observed such instances during an epizoötic of the latter disease in New England. Foot-and-mouth disease takes place by inoculation of the skin or mucous membrane in butchers, dairymen, stable boys and drivers. Herxheimer records having seen a case in a horse-dealer.

The parasitic diseases which are more definitely identified with particular avocations are tuberculosis, anthrax, glanders and actinomycosis.

Inoculation tuberculosis occurs in its simplest form as verruca necrogenica, or anatomic tubercle. It is encountered chiefly among medical students, physicians, hospital ward attendants, and butchers as a localized papillomatous formation usually about the knuckles or other parts of the hand or forearm.

Anthrax is uncommon in this country, but it is prevalent in animals in certain parts of Europe and Asia, especially cattle and sheep. In man the disease occurs as the result of direct infection from such animals or their products via the skin, the intestines or more rarely the lungs. It is seen in the wool-sorting, wool-combing and spinning industries, horse-hair and brush factories, in stevedores, wharf-laborers, carters, farmers, shepherds, butchers, meat inspectors and cattle salesmen. The internal form is known as wool-sorter's disease. Of the external, which is also the more usual, there are two varieties, the malignant pustule and malignant anthrax edema, which is the more fatal of the two.

Glanders, usually contracted from horses, is seen almost exclusively in hostlers or those who have to do with these animals. It is rare in this country. The bacillus may gain entrance through the mucous membrane of the eye, nose, mouth or respiratory tract, or the site of inoculation may be a lesion of the skin. Clinically the disease is divided into glanders and farcy, according to whether the lesions of the mucous membrane or skin predominate. Both types present an acute and a chronic form.

Actinomycosis is endemic in cattle and more rarely affects horses, hogs and other animals. In man the disease is seen in those who come in contact with such animals or handle fodder or grain, as farmers, coachmen, dairymen, millers, etc. Infection in man takes place through a carious tooth or lesion in the mouth and less often through the skin. The ray fungus is believed to flourish on corn, hay and cereal grains, as the latter have frequently formed the nucleus of an actinomycotic lesion.

Erysipeloid, an infection of the skin caused by poisoning from meats, fish, poultry, cheese and similar animal products, is seen chiefly in butchers, fishmongers, poultry-dealers, cooks, and scullions. Gilchrist[7] observes that crab bites and injury by crabs are a frequent cause. The disease is believed by Rosenbach to be caused by a microorganism of the order *Cladothrix*. It is characterizeed by one or more areas of slowly spreading inflammation, clearing up at the part originally affected and progressing slowly to new areas, the advancing border being festooned or scalloped. Burning, pricking or itching sensations accompany the affection, which involves chiefly the fingers and hands.

Among the minor infections may be mentioned ringworm transmitted from horses, dogs and other domestic animals to men and boys employed about stables or engaged in the care of such diseased animals. Ringworm of equine origin is characterized by the formation of irregular and projecting nodular lesions studded with pustules involving the beard region, neck, wrist or hands.

In certain grain regions infested by a mite, *Pediculoides ventricosus,* an intensely itching urticarious eruption is endemic among the farmers and laborers who handle sacks of wheat, barley and other grains or straw harboring this parasite. Small epidemics have also appeared at different times from the use of mattresses made from straw which the organism has made its habitat. To Dr. Jay F. Schamberg[8] belongs the credit of priority in describing the affection in this country.

In conclusion, while many of the industrial dermatoses lead to little inconvenience, some forms of dermatitis may become so severe that they absolutely prevent a man from carrying on his occupation. In certain susceptible individuals the action of the irritant is confined not only to the parts exposed but may spread over the entire body. Patients who develop such an idiosyncrasy should be guarded against these forms of dermatitis becoming permanent and advised to use the best means of prevention. Such measures cannot be discussed at length in a paper of this scope as they must necessarily fit individual cases. If the nature of the work permits, the wearing of masks and gloves to protect the exposed parts, as practiced by Chinese lacquerers, is advisable, but obviously this is not feasible in all forms of occupation. The use of soap and water is to be recommended in some trades in order to remove the noxious substances, while in those instances in which they prove to be the irritants they are positively injurious and should be sparingly used. In any case, after washing, the hands should always be carefully dried and if practicable covered with a protective ointment, or a salve or cold cream should be thoroughly rubbed into the skin at night. Persons whose vocations bring them in contact with live or dead animals or their products should be instructed as to the mode of inoculation of infections from these sources, and all wounds or breaks in the continuity of the skin should be sealed with collodion, plaster or other protective dressing.

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[6] Bowen, J. T.: Acute Infectious Pemphigus in a Butcher During an Epizoötic of Foot-and-Mouth Disease with a Consideration of the Possible Relationship of the Two Affections, Jour. Cutan. Dis., 1904, xxii, 253.

[7] Gilchrist, T. C.: Erysipeloid, with a Record of 329 Cases, of Which 323 Were Caused by Crab-Bites or Lesions Produced by Crabs, Jour. Cutan. Dis., 1904, xxii, 507.

[8] Schamberg, Jay F.: Grain Itch (Acarodermatitis Urticarioides): A Study of a New Disease in This Country, Jour. Cutan. Dis., 1910, xxviii, 67.

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OCCUPATIONAL EYE DISEASES AND ACCIDENTS *

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A complete catalogue of the various trades and industries in which accidents, even preventable accidents, causing partial or complete blindness of one or both eyes, although suggestive, would be of little service and would necessarily include nearly all the causes of accidents in general. It will not be without profit, however, to consider those industrial accidents which are of frequent occurrence. Space forbids full consideration of the effects on the eyes of environment, lighting, improper or excessive use of the eyes, the special toxic effect of alcohol and tobacco, and special infections in the ordinary occupations.

COMMON, PREVENTABLE ACCIDENTS

I shall first discuss common accidents to the eye in foundries, machine-shops, mills, and in the building trades, domestic, agricultural and military pursuits, which can be greatly lessened by various known means, such as have been applied among iron workers, mechanics or weavers.

These accidents include blows from blunt force and wounds of all description — incised, punched, lacerated and contused—occurring from the use of tools or caused by foreign bodies of all kinds, magnetic or non-magnetic, retained or not within the eye. Ordinary domestic injuries, in addition to the above, include scratches of the conjunctiva or cornea and wounds from knives, scissors, forks, useless air-guns, fireworks, improperly carried umbrellas, etc.

Blows from blunt objects on the eye or its surroundings may cause ecchymosis and swelling of the lids, fracture of the orbit, ecchymosis and hematoma of the conjunctiva or orbit, rupture, concussion or dislocation of the eyeball, rupture or paralysis of the muscles, rupture of or pressure on the optic nerve by hematomas, aneurysms or fractured bones. In addition the iris may be torn, the lens dislocated and the various structures within the eye injured. The base of the skull may be fractured and traumatic exophthalmos result.

Small particles are likely to become lodged in the cornea of workmen of various trades, especially in the iron and steel trades. This is common in the eyes of grinders, especially dry grinders who do not use a wet stone, small particles of the metal being ground off the stone or emery-wheel used. Close examination, with a magnifying glass or loupe, of such workmen's corneas, often peculiarly insensitive, will usually show large numbers of minute scars, sometimes so numerous as to dull the cornea and affect the vision. Fans making air-currents so as to pull or blow the particles away from the eyes are important in many trades; the fans also prevent the inhalation of foreign particles or noxious gases, thus securing better ventilation and benefiting the general health. Various shield devices, solid and adjustable, are now on the market. They are used generally by the United States Steel Company and are exhibited in the American Museum of Safety in New York of which Dr. Tolman is in charge. These shields are placed on grinding-wheels, circular saws, lathes and many forms of rapidly revolving machinery, helping to prevent particles flying against the workman's face, and are a safeguard against accidents in case the revolving parts should break. Recently much has been done to prevent revolving wheels, etc., from breaking by the use of proper compressible washers, larger than the flanges, making proper application and distribution of pressure to a large space on the side of the straight-sided wheels. The flanges are more than half the diameter of the wheel and bear only at their circumference on a flat surface. The caliper-rest is adjusted as close to the wheel as possible, lessening the danger of the material being caught between the wheel and the rest. Large protecting glasses or the worker's own lenses, if he wears any, are also of much service in preventing particles getting into the eyes, as well as for saving the eyes from more dangerous accidents from large flying particles. Glass protectors are also made surrounded by wire gauze as in goggles. Unfortunately they get dirty and marked with the frequent blows from flying particles, so that the workmen, unwilling to accept such pressing testimony of their use, too often lay them aside.

Injuries from these small flying particles may be slight or serious. Sometimes small particles puncture the coats of the eyeball and unless removed, especially if metal, endanger both eyes by causing sympathetic inflammation, which according to Magnus is the cause of from 4 to 4.5 per cent. of total blindness. In some cases infection results, giving rise to dangerous ulcers which sometimes destroy partially or wholly the eyesight or even the eyeball. Serious accidents to other parts of a workman or even to other workmen sometimes occur, because an operator with a foreign body in his eye cannot see sufficiently to manage machinery. The opportunities for slight or severe eye injuries in iron and steel workers are multitudinous and occur in all branches of the work, light or heavy.

Many of these accidents occur in chipping, fettling or dressing rough edges of castings, ingots and even large armor-plates. These chippings are brittle and sharp and fly about, often bounding from objects which they strike. The accidents are caused by one or two strikers hitting a chisel held against the casting by another man. Particles are likely to fly not only from the metal struck but also from either end of the chisel or from the hammers of the strikers. S. C. Ayers has pointed out that cheap hammers and chisels of poor quality are frequent causes of eye accidents in mechanics. Care is taken in some shops to examine carefully and regularly these tools to prevent accidents. Pneumatic chippers are safer. Passersby and other workers may be protected by chipping against a wall or a screen covered with canvas or burlap which will hold the flying particles and not reflect them. Brick-cleaners should take similar precautions.

Burning sparks and flashes are commonly caused from molten metal running into molds, in great or small

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* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912

forgings, by hand, steam or hydraulic hammers. When there is great heat, glass protectors to the eyes are of little service, but good safe protectors of wire gauze covering both eyes and face, especially those with asbestos over mouth and neck, are useful. Rusting may be provided against by making the frames of galvanized iron or aluminum wire.

Coal-miners are likely to be injured by small particles of coal or splinters from the pick point becoming embedded in the cornea, abrading its surface or cutting it. Such wounds are particularly likely to become septic. Agriculturists often meet with eye accidents in threshing, chaff-cutting, hedging, in distributing artificial fertilizers and by the entrance into the eye of spears of grains and grasses, twigs and leaves, and from insects and their stings. These injuries are usually produced by vegetable substances, straw, beards of wheat, etc., and are likely to become infected. Cow-horns, claws and kicks from animals cause many accidents. In taking care of some plants special forms of affection result, as ophthalmia among hop-pickers due to entrance of fine, thin hair-like processes from the hop leaves. Dusty labor is liable to cause troublesome eye conditions as in sawmills from flying sawdust and knots, at threshings, in handling coal and ashes, in flour-mills and from fine particles of copper off trolley wires; but the eyes can be greatly protected by proper goggles.

Stone-masons, grindstone-makers, quarrymen, bricklayers and stone-breakers can partially protect their own eyes by proper protectors and should be more careful to dress their work against some wall where passersby will not be so likely to be injured. Wire-drawing, in which great tension is placed on the wire, causes accidents from breaking or slipping of the wire which backlashes and may strike some one. In weaving there is great danger of a flying shuttle striking the eye, but many patterns of guards are now on the market to prevent this. Some are known as wing guards, consisting of a wire screen or canvas placed between the looms; others provide means to prevent the shuttle from rising. The military man and sportsman are subjected to the danger of small and large shot and bullets, shell explosions, sword and bayonet injuries and explosions of various kinds.

There are various processes involving exposure to irritating dusts, as to the dust of graphite in the manufacture of stove polish, bronze powder, while bronzing in lithographing, in all processes of grinding, glazing or polishing, and while talc (soapstone) dusting in rubber manufacturing. In sorting, dusting, cutting or grinding rags, and in cutting, boring, turning, planing, facing, doming, grinding or polishing pearls or buttons, shell dust is also likely to get into the eyes. Everywhere in the air volcanic and meteoric dust is present, the latter consisting of tiny spherical shot-like pellets, from 1/200 to 1/500 of an inch in diameter. The flinty shells of diatoms, tiny plants, and dust from sandstones and deserts often get into the eyes. The pollen of plants as from pine-trees, scales from the wings of butterflies and other insects, and hairs as from caterpillars, also get into the eyes.

ACCIDENTS FROM EXPLOSIVES

Accidents occur while high explosives are being handled, as in clay manufacturing, quarrying, mining and railroad construction.

Blasting in mining, quarrying, etc., causes a large number of accidental injuries. These accidents are particularly liable to destroy both eyes, removing the earning capacity of the individual and possibly throwing him on the community for support. Powder-grains are often embedded in the eyeballs, lids or face. Most high explosives, unlike gunpowder, are not exploded by simple ignition but require an exploder. Poor fuse or explosives, possibly frozen, with improper loading, cause premature blasts or misfires. Accidents usually occur from drilling these "missed holes," striking an unexploded piece of explosive, cap packing with a metal instead of a wooden tamping rod, carelessness with cigar ashes, hot candle grease or in handling the explosives. Donovan[1] states that blasting injuries with few exceptions result from want of care on the part of the patient, his associates or his predecessors at work. Large quantities of explosives, whether solids, liquids or gases, should not be stored in any one place, especially in thickly settled communities. Greater care in proper insulation of electric wiring in such regions and the prevention of the possibility of sparks by short-circuiting should be observed. Licensing of "powder men" and better government inspection of the manufacture, storage and sale of explosives would be helpful.

ACCIDENTS FROM FLYING GLASS

Accidents to the eyes occur from the bursting of locomotive oil- and water-gauges, and bottles and siphons in bottling.

Gauges on every description of steam boiler frequently break, injuring by flying pieces of glass, or scalding by the steam or hot water. The slowly soluble gauges are worn by the friction of the moving fluids within and may be protected with wire netting or plate-glass protectors open at the back, so that the direction of an explosion may be controlled. The chief danger comes when putting in a new glass after one is broken. On turning the hot water into the cool glass it suddenly breaks. The United States Steel Company has swinging wire protectors that may be placed in front of these gauges until the glass has been warmed and tried, when the protector is swung out of the way so that it can be more readily seen by the engineer at a distance. These accidents, occurring to engineers, who require a high degree of visual acuity, greatly lessen their earning capacity and at the time of the accident may endanger many lives and much valuable property.

In the manufacture of aerated waters and in bottling beverages of nearly all kinds, the frequent bursting of bottles and siphons is very dangerous to the eyes. The bottles are cleaned, filled, corked and wired by machinery and in all the various processes and inspections which are necessary, there is danger of the bottles bursting. The Dangerous Trades Committee of Great Britain, in 1896, recommended that all bottlers, wirers, sighters and laborers while at work should be provided with face-guards, masks or veils of wire gauze. They also recommended the providing of gauntlets for the arms and the fencing with wire gauze of all machines for bottling, to prevent fragments of bursting bottles striking any workers.

ACCIDENTS FROM SCALDS AND FUMES

Accidents somewhat similar to the preceding are caused by scalds or caustics or exposure to irritating gases and fumes as from hot fluids, molten metals, lime or corrosive acids or alkalies entering the eye-sac.

Scalds or burns usually involve the eyelids; the deeper burns affecting the eye generally result from explosives as in preventable Fourth of July accidents. Powder-burns should be treated with hydrogen peroxid,

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1. Donovan, John A.: THE JOURNAL A. M. A., Aug. 5, 1905, p. 387.

and Würdemann then applies for from six to twelve hours 33⅓ per cent. papain in glycerin to digest the injured tissue, afterward applying 5 per cent. boric or other simple ointment. Powder-grains or other foreign bodies in the cornea require the use of a local anesthetic and spud. Burns in masons, plasterers and bricklayers caused by lime, especially unslaked lime, calcium oxid, sometimes result in destruction of the cornea and frequently in traumatic pterygia and adhesions between the eyelids and globe and, because of chemical combination with substances in the cornea, produce permanent opacities. When unslaked lime gets into the eye it should be wiped out by a dry clean cloth or washed out with liquid petrolatum or castor or olive oil. If this is not done at once the lime will soon be slaked by the tears and then large quantities of water can be used to help remove it. Besides causing actual destruction, lime and cement have irritating qualities, sometimes occasioning conjunctivitis and even ulceration of the cornea with loss of vision in those who work constantly with these substances. There are also various caustics employed, as in the manufacture of chemicals, alkalies and acids.

Proper, clearly worded signs, giving warning of the dangers from careless handling of caustics in shops and schools, would lead to greater care being exercised. In accidents caused by unslaked lime and certain corrosive fumes, workmen should pour olive or even castor oil (quantities of which should be kept handy in certain trades) into the eye. If oil is not quickly obtainable large quantities of water should be used. There are certain advantages in the use of water in that the inexperienced find it very difficult to manipulate the slippery lids after the first drop of oil has been used.

Ammonia burns should be treated immediately by profuse irrigations with water, according to Pichler.[2] For workmen compelled to use certain acids or alkalies proper neutralizing washes should be supplied so that fellow-workmen, properly instructed, may use them at once. After burns of the cornea by acids, Guillery[3] advises bathing the eyes with 0.5 per cent. solution of potassium hydrate, and says that the opacities from lime may be partially cleared by the use of a 10 per cent. solution of ammonium chlorate with 0.1 per cent. tartaric acid. For lime-burns Würdemann advises copious washings with cold water and the use of from 3 to 10 per cent. solution of ammonium chlorid, the calcium being dissolved and carried away. Any mildly acid solution may be used for recent burns with alkalies. Schmidt[4] asserts that corneal burns from acids are likely to cause opacities of the lens. Exposure to irritating gases and fumes takes place chiefly in gassing in textile factories, singeing in print works, bleaching and dyeing works and in dipping metals in acid solutions.

DISEASES FROM INTENSE LIGHT AND HEAT

Diseases resulting from excessive light or heat are not uncommon among electric welders, steel smelters and in those melting or annealing glass.

Metal-polishers and buffers, brightening surfaces which they must closely watch, often suffer with hyperesthesia of the retina. This can be relieved by proper lenses or colored glasses. Excessive heat and light are encountered in iron and steel works. Men can watch a furnace until the temperature reaches 2,000 F., but before it rises to 3,000 F., colored glasses should be worn. In working with cast iron, from 1,800 to 2,000 F., the men take few precautions; with molten metal, 2,700 to 2,800 F., deep blue glasses are necessary. With Bessemer metal, 3,000 to 3,200 F., the process is completed in about twenty minutes and only one man needs to watch the metal, which he does with a spectroscope about 30 feet distant. The Siemons process takes ten hours and all the men, wearing colored lenses, make observations frequently. If some of these hot furnaces are looked into without lenses it is several minutes before the eye can see ordinary objects again. Some men seem to have surprising immunity from bad results in dealing with these white-hot furnaces; others cannot endure them and must change their work. Snell doubts the greater frequency of cataract in glass-blowers and iron-workers than in others, although both are subjected to great heat and consequent loss of moisture. Herbert Parsons and Marcus Gunn in 1908 visited some of the important glass-works in England to gather statistics of industrial diseases for the framing of the workmen's compensation act. They state that bottle-makers have a characteristic form of cataract, typically, a dense, well-defined disk of opacity in the center of the posterior cortex. Often slight opacities surround this posterior cortical disk. Excessive heat and bright light are said to be the causes but the Germans claim that heat is the most important cause. Weyl mentions, besides glass-blowers, fire workers, puddlers, blacksmiths, bakers and cooks.

Great care is required to avoid very strong light flashes before the eyes, as in short circuits and electric welding. In the latter large shields are worn, in the center of which are four alternate layers of blue and red glass. Helmets and screens with four or six layers of red and green glass are often used. The temperature in electric welding goes as high as 7,000 F., but the question of whether it is the heat or the chemical rays that act so harmfully has not been settled. If the eyes catch the light they are affected at once, but chiefly some hours afterward. They feel swollen as if filled with burning sand and the pain is usually very severe; the lids are swollen and there is much lacrimation. Intense light as from electric and vapor lamps, from exposure to snow or after observing an eclipse, frequently causes a superficial ophthalmia and may affect the lens and retina.

Schanz and Stockhausen found that the superficial irritation could be prevented by a screen of euphos glass which absorbs ultraviolet rays. McMullen[5] states that this could be done with plain glass which absorbs rays of wave-length less than 300 microns. He thinks that opacities in the lens result when the wave-lengths are between 300 or 400 microns, but that the rays of greater length, as well as the short waves, cause the retinal changes. Würdemann says that electric light flashes or lightning may cause cataract and by being focused on the macula destroy the central retinal elements.

DISEASES CAUSED BY POISONOUS SUBSTANCES

Diseases result from working in certain poisonous gases and fumes, dusts or substances, bisulphids of carbon, lead, etc.

Dinitrobenzol is largely employed in making explosives. During the various processes of its manufacture fumes are given off which affect vision. These can be lessened by properly covering the mixtures and by the use of fans and exhaust apparatus. Respirators and glasses are used. The general circulatory and nervous effects are described by Snell,[6] who gives many excellent suggestions for preventing deleterious effects in manufacturing this substance. Carbon bisulphid, formerly much used in vulcanizing rubber, caused impaired eyesight, but this process has been so greatly modified that it is now of little importance in causing ocular lesions. Toxic amblyopias caused by tobacco, ethyl alcohol and wood alcohol are too well known to require consideration.

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[2] Pichler: Cauterization of the Eye and Epidermis by Ammonia, Ztschr. f. Augenh., 1910, xxiii, 297.

[3] Guillery, H.: Chemical and Clinical Investigations on Cauterization of the Cornea, Arch. f. Augenh., lxv, 139.

[4] Schmidt, H.: Ztschr. f. Augenh., 1910, xxiii, 241.

[5] McMullen, W. H.: Ophth. Rev., April, 1910.

The eye affections formerly attending the manufacture of iodoform have by care been eliminated. A few cases of eye involvement have been reported in dye factories from handling the various coal-tar preparations. Arsenic from wall-paper, artificial flowers and Paris green, paper hangings and paintings, also when used for medical or cosmetic purposes, according to Casey Wood, has caused various visual disturbances. Painters, plumbers, electrotypers, file-cutters and many others through handling lead are likely to get chronic lead-poisoning causing central peripheral affections of sight, various paralyses, retrobulbar neuritis, etc. Lead-poisoning is also found among those manufacturing white, yellow, orange and red lead, lead pipe, solder and plumbers' supplies and in cutting metal articles composed of lead or lead and tin; in grinding lead paint, making storage batteries, cleaning or handling printing type and in glazing in pottery establishments. Poisonous gases and fumes are found in shoe cement, japanned or patent leather and rubber manufacturing, in which the mixtures containing naphtha are sometimes allowed to remain in uncovered containers and proper ventilation is not insisted on. Poisonous gases are also formed in certain lead processes.

DISEASES DUE TO PECULIAR OR PROLONGED USE OF THE EYE

Nystagmus in miners is an instance of the diseases found in workers following occupations requiring prolonged and peculiar use of the eyes.

Nystagmus in miners, due to their peculiar way of looking at their work, is fully described by Snell, who says that treatment consists in changing the kind of work. After relief the miner can return to his work if the head can be kept straight and the eyes are not often turned upward. Snell mentions several other occupations which he has thought might cause nystagmus because the eyes were turned directly or obliquely upward.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. STEVENSON AND FORDYCE

Dr. Charles F. Stokes, Surgeon General, U. S. Navy, Washington, D. C.: Our activities in the Navy along the line of occupational hygiene are undertaken entirely to add to military efficiency, our humanitarian interest being subordinated and secondary. General sanitation has reached a very satisfactory plane. We have, however, grouped together in a battle-ship a more varied lot of activities, I think, than will be found elsewhere in the same space. There are disabilities attributable to the use of the searchlight, which is illuminated by an arc-light, inducing a coagulation in the retinal cells or changes in optic nerves. We aim to avert these disabilities by the use of electrician's glass to cut down the intensity of the light, and the use of Hallauer glass to diminish the deleterious effect of the actinic rays. In the turrets the gun-pointer adjusts or refines the pointing of his gun by means of a telescopic sight. We are studying the effects of these telescopic sights on the eyes, and are taking steps to avert disability from this cause. There is a menace in the double bottoms of battle-ships which has to be taken into account. I know of an instance in which two men lost their lives while inspecting double bottoms in a foreign navy. A study of the conditions there has led us to believe that they are not due to toxic gases, but rather to a diminished amount of oxygen. During battle practice we find that there are conditions in turrets which will have to be remedied; otherwise our men will not be so effective as they should be. We find that humidity runs rapidly up to saturation; that the normal carbon dioxid content of the air runs up to a dangerous point, and we find as well powder-gas contaminations in these situations. Steps are being taken to avoid these conditions. Our activities in some of these situations have gone so far that they are looked on as a great military asset, and as such are to be regarded as military secrets. We have been studying the atmospheric conditions in submarines with the hope of being able to sustain life beyond the time it is now possible to do so in the case of disabled submarines. The problem here is not so simple as it would appear at first thought. It is something more than the generation of oxygen. It means the destruction of carbon dioxid; the taking up of humidity and the doing away with battery generations, principally hydrogen and sulphuric acid, and carbon monoxid from back-firing of gasoline. We have been making systematic and careful observations in the firerooms of our battle-ships, studying the personnel and the chemical atmospheric conditions before, during and after endurance runs. We believe that some of the cases of heat exhaustion, or heat prostration, are due to some extent to a gaseous contamination, possibly carbon monoxid.

Dr. Walton Forest Dutton, Carnegie, Pa.: An occupational disease not very well known is vanadiumism. There are only about two reduction plants in the United States; and in those plants the frequency of the disease has run very high. The disease will become more prevalent as vanadium products become more generally used. They are being used more and more every day, especially in the manufacture of steel, in photography and in cloth manufacturing plants where mordants are used. The pentoxid is used in photography quite a great deal; vanadium chlorid and peroxid are used as mordants in printing fabrics; the peroxid is used in the manufacture of steel. The greatest number of cases of vanadiumism are found in the reduction plants, especially in the men on the mixing floor and in those that work about the crucibles. This disease is not well known at the present time; but it will become more familiar to physicians as the use of vanadium products increases. An article that appeared in The Journal, June 3, 1911, p. 1648, will probably give a better description of the poison.

SOME TYPES OF URETERAL OBSTRUCTION IN WOMEN *

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The type of ureteral obstruction considered in this paper is that due to lesions in the ureter itself, and while tuberculous conditions fall in this category, they are, for the sake of brevity, omitted.

The interest for such a study was furnished by the discovery of a number of cases, most of which had been unrecognized and treated for other conditions. I feel confident that I have overlooked a number of these, for they presented the same symptoms as those in which I have determined beyond doubt the presence of ureteral obstruction. The discovery of the first case was more or less accidental, and it so impressed me that I have been on the lookout since and have encountered enough others to make me think it a frequent condition in women.

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[6] Snell: Brit. Med. Jour., 1892, i.

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

In reviewing the reported cases I find that most of them give histories of long-standing trouble, and marked kidney and ureteral changes above the obstruction. In other words, they had remained unrecognized and untreated until urgent symptoms demanded operation. In a large number of the patients operated on, the operation was exploratory, for no definite diagnosis had been made.

In explanation of the etiology of this condition, congenital malformation is given as the most frequent cause. Bottomley,[1] who reviews the literature and abstracts the cases reported to date, regards the condition as congenital, but some of the histories read much as if the obstruction were acquired and of inflammatory origin. J. Verhoogen and A. deGraeuwe[2] are of the opinion that most of these strictures are due to congenital defects that become symptom-producing on the addition of a secondary cause, and that infection is the chief one. The number of cases seen in the individuals possessing no other apparent congenital defect leads one to suppose that too much blame has been placed on congenital abnormalities, and that some other cause, or causes, must be at fault.

In a study of the histories of my cases I am led to assume that infection plays the important part in the production of ureteral stricture. Acute hematogenous infections of the kidneys from infections arising from wounds, furuncles, in the course of infectious diseases, especially influenza, tonsillitis[†] and typhoid, intestinal disturbances and operations on the intestinal canal, etc., are rather frequent. They often persist as a pyelitis, ureteritis or a secondary cystitis. The long-continued inflammation then results in an infiltration of the ureter with consequent contraction and the formation of a stricture. This represents obstructions from infections of the descending type. Sugimura[3] studied the lower end of the ureters in the bodies of twenty-five patients who had had cystitis but died of other causes, and in all found changes of an inflammatory type in the submucosa and muscularis; he expressed the opinion that the infection extended through the lymphatics and not along the mucosa.

Of the infecting organisms the colon bacillus has been given first place, and most authorities consider that in this type the infection descends from the kidney. Just how important a rôle is played by the gonococcus is still in dispute, but when this is the causative factor the path is generally ascending. Garceau[4] believes it more frequently to blame than does Kelly, and suspects it strongly in cases of bilateral ureteritis or stricture.

The seats of stricture are, as a rule, at the points of anatomic narrowing, with the ones at the vesical end and just below the pelvis as the most frequent, stricture at the point of crossing of the pelvic brim being rare. Kelly[5] claims to have seen only once stricture of the upper end, but this does not agree with my experience or with the literature. John A. Sampson[6] reports a case of stricture of the lower end of the ureter with a valve-like formation at the pelvic brim that he explains as being due to the giving way of the ureteral sheath at that point with a hernial protrusion of the ureter. I have radiographs of two cases that show much the same picture as that in the diagram illustrating his case.

Necker[7] exhibited before the Deutsche Gesellschaft für Urologie at the congress in Vienna in September, 1911, some pyelograms of cases of pyelitis, all showing some dilatation of the renal pelvis, and in explanation said that they were cases of ureteral obstruction with secondary infected hydronephrosis. I have some similar radiographs, but am inclined to think that the infection existed first and is the cause of the obstruction and the dilated kidney pelvis.

S. Mirabeau[8, 9] has written two excellent articles on ureteral obstruction. He regards many such cases as due to infections of the lower end of the ureter, and strongly emphasizes the fact that in these the first attacks of renal pain are apt to be encountered at the menstrual period, owing to the pelvic congestion causing a swelling of the already inflamed ureteral mucosa and consequent obstruction.

Most of these stricture cases are of long standing and slow progress and the first symptoms may be those of pyelitis, ureteritis or cystitis. Unless the obstruction is great it may be some time before the ureter and the renal pelvis become dilated, and the kidney shows pressure changes. If the narrowing is at the vesical end, there is ureteral dilatation before the renal pelvis is enlarged. If at the upper end the pelvis and the calices become enlarged, and even in the earlier stages, as shown in the pyelograms, it is seen that the dilatation of the pelvis occurs in a downward direction. As the ureter remains fixed, it first appears that it comes from the pelvis at a right angle; later it is seen in the so-called high origin, which has been given as a cause of obstruction instead of its effect. As this becomes more marked there is seen the formation of a spur composed of the outer wall of the ureter and the inner wall of the pelvis, and this later acts as a valve. I have in my possession the radiogram of a case that presented an enormously enlarged ureteral orifice as a result of the increased bladder-pressure from the tenesmus of a severe cystitis; the ureter and the kidney pelvis were likewise dilated, and the relation of the ureter and the kidney pelvis are such as that just described. This is detailed to show that the high insertion of the ureter and the formation of the spur or valve is the result of the pelvic dilatation. According to Kelly,[5] these strictures involve from a few millimeters to one or more centimeters of the length of the ureter, and the rule is that they are apt to be extensive.

SYMPTOMS

Usually there is a history of an antecedent pyelitis, ureteritis or cystitis, which may have occurred long before the symptoms of ureteral obstruction or have continued until the time the stricture symptoms appeared. Garceau[4] has written an extensive article on ureteritis in which he states that besides pain along the course of the ureter, more especially at the pelvic brim, and frequency of urination, the presence of a large number of epithelial cells, singly and in plates, from the ureter is characteristic. To obtain these without traumatism from ureteral catheterization he advises collection of the urine through a Kelly speculum with an oblique end and the patient in the knee-chest posture. The pain of the ureteritis is often confounded with that of appendicitis and adnexal trouble, and many patients have been operated on for these conditions without relief of symptoms.

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[1] Bottomley: Ann. Surg., November, 1910.

[2] Verhoogen, J., and de Graeuwe, A.: Ztschr. f. Urol., 1911, p. 621.

[†] Hunner, Guy L.: The Journal A. M. A., April 1, 1911, p. 937.

[3] Sugimura: Virchows Arch. f. path. Anat., October, 1911.

[4] Garceau: Am. Jour. Med. Sc., February, 1903, p. 284.

[5] Kelly, H. A.: The Journal A. M. A., Aug. 16, 1902, p. 363.

[6] Sampson, John A.: Ann. Surg., December, 1907.

[7] Necker: Ztschr. f. Urol., 1912, No. 3, vi, 464.

[8] Mirabeau, S.: Ztschr. f. Gynäk. Urol., i, No. 1.

[9] Mirabeau, S.: Ztschr. f. Urol., 1912, vi, No. 1.

In fact, it is often only after such operation that a true insight into the condition is found in looking for other causes for the patient's symptoms.

After the definite formation of a stricture the symptoms become those of intermittent hydronephrosis, and are much the same as those caused by the sudden blocking of the ureter by stone, or kinking. I think that the attacks are more severe, show a greater tendency toward periodicity, and that the symptoms are less noticeable between attacks than in cases in which the obstruction occurs from pressure of a tumor mass, the pregnant uterus or the extension of carcinoma.

In most of the cases I have seen the symptoms have persisted for some time, in a few for many years. At first the attacks are slight and far between, but in the course of time the intervals lessen, the attacks become more severe and last longer. Exposure to cold, the drinking of water to excess, and the influence of menstruation have been given as determining factors of attacks, but it is only in regard to the last-named factor that I have noted any relation. This is a point described by Mirabeau.[8] I have had four patients who came to me for renal pain at the menstrual period, and while in only one did I demonstrate an obstruction with consequent dilatation of the ureter, I believe that these are cases of ureteritis that involve the lower end of the ureter and that sometimes they may progress to the formation of strictures.

The pain of an attack is generally in the renal region, or may be referred anteriorly over the gall-bladder or the appendix. It frequently comes without warning, is sudden, severe and often attended with nausea, vomiting and eructation of gas. There may or may not be bladder disturbances. Oliguria during an attack, with polyuria following, is often observed. Chills and temperature depend on the presence of infection.

The urine may show pus, small quantities of blood after an attack, casts from the nephritis that is often associated with marked ureteral obstruction, or as often is the case, the examination may be entirely negative.

Even in moderate grades of hydronephrosis the kidney may show marked changes from pressure atrophy and a great falling off in its functional capacity. In only three cases have we tested the functional capacity and in each of these it has been greatly decreased. One was particularly instructive; it was that of a patient with only one kidney and a stricture of its ureter. Unless the ureter is dilated to No. 14 F. every two weeks she has attacks of intermittent hydronephrosis.

Just previous to an attack her urine will be as low as eight or ten ounces and phenolsulphonephthalein 10 per cent. in one and one-half hours, with marked headaches and blindness. Following dilatation the amount of urine is increased to 25 or 27 ounces and the phenolsulphonepthalein to 35 per cent. in one and one-half hours. This gradually falls as the stricture contracts, and the amount of urine decreases.

While this condition may be suspected from the symptoms and before the appearance of renal tumor, we are dependent on cystoscopy, ureteral catheterization and radiography of the renal pelvis and the ureter after the injection of substances more or less dense than the surrounding structures. With the present methods of examination, especially pyelography, we should be able in practically all cases to make our diagnosis before the destructive kidney changes have become irreparable.

Deficient kidney function may sometimes be determined on the affected side. In attempting to detect strictures with the ureteral catheter we are often disappointed, for a stricture sufficient to cause serious trouble may not be felt with the smaller sizes, and in the early stages the amount of dilatation and the consequent residual urine may not be enough to give a proper appreciation of the nature of the trouble. The more extensive the stricture, the greater the dilatation above, the greater the value of the ureter catheter. In the differential diagnosis of abdominal pains I feel that the pain caused by distending the kidney by injection through a ureteral catheter, if the same as that originally complained of, is most valuable. But it only shows the probability of the lesion being in the urinary tract, and does not determine the location and character of the trouble.

In pyelography, as first suggested by Voelker and popularized in this country by Braasch, I believe that we have a certain means of diagnosing these cases, and in the early stages. With this a graphic picture is obtained not only of the location of the stricture but of its extent, which makes it possible to form an opinion of the damage that is present above the stricture. Without it I would have overlooked most of the cases that I have seen.

Stanton[10] has recently written an article that points out more strongly than anything I have seen the necessity of careful examination of the urinary organs. The stimulus for this was the number of cases seen at autopsy of marked kidney and ureteral lesions that could have been diagnosed during life, but which were not. The records of fifteen general hospitals were then studied, and in those in which cystoscopy was used only when strongly indicated there was a percentage of 1 of operable cases of kidney and ureteral lesions. Where cystoscopy, with ureteral catheterization and pyelography, was frequent, this same percentage was 2.

CASE REPORTS

Case 1.—The patient, Mrs. M., aged 65, was referred by Dr. Madge McGuiness. She had one child and one abortion. The menstrual history was uneventful. Previous history was negative. Twelve years ago the patient began to have attacks of pain in the right renal region, associated with nausea, vomiting and the eructation of much gas. For the first four years they came every six months and lasted twenty-four hours. Since then the attacks have increased in severity and frequency and for the last six weeks have come every six days, are of forty-eight hours' duration, agonizing and are not relieved by half-grain doses of morphin at three-hour intervals. Many examinations of the urine showed no pus, no blood, a few hyaline casts and many epithelial cells. The specific gravity has ranged from 1002 to 1010.

Examination.—Cystoscopy showed nothing abnormal in the bladder. Both ureters were catheterized; urine of low specific gravity with many epithelial cells and few hyaline casts was obtained from the right; that from the left was darker, of higher specific gravity and contained no abnormal structures. Six mg. of phenolsulphonepthalein were injected into the deltoid and appeared in the urine from the left ureter in ten minutes, but there was not a trace from the right after a period of twenty-five minutes. The catheters were both withdrawn and the urine collected from the bladder after two hours and mixed with that from the left kidney; the total amount was 35 per cent.

Operation.—March 23, a week after the examination, Dr. Gertrude Kelly cut down on the right kidney, which she found somewhat prolapsed with many surrounding adhesions. The kidney appeared as a tense cystic mass, with ureter coming off from the upper pole, and adherent to the renal pelvis. An aberrant blood-vessel was found running outward to the lower pole of the kidney, behind the ureter. Nephrectomy was done. Examination of the kidney shows that the renal pelvis had been dilated to the capacity of 45 c.c., that the ureter was attached to the upper pole, was adherent to the pelvis, and that the lumen just allowed the passage of a small silver probe. The renal structure showed pressure atrophy and is only ⅜ inch thick.

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[10] Stanton, Edwin McDonald: The Journal A. M. A., March 16, 1912, p. 755.

Pathologic Report.—By Dr. John E. Welch. "Sections through the cortex of the kidney show extensive degeneration of the tubular epithelium, and atrophy of the tubules. The interstitial connective tissue shows marked hyperplasia, and over large areas completely replaces the tubules. Here and there are areas of round-cell infiltration, indicating an active inflammatory process. The capsules of Bowman are very much thickened. The glomeruli are atrophied and some of them are completely replaced by fibrous tissue. The vessels are congested and the larger ones show marked thickening of all the coats. There are numerous hyaline casts present in the collecting tubules and in places in some of the tubules of the cortex. Sections through the pelvis show hypertrophy of the muscle elements, marked increase in the fibrous tissue, increase in the number of blood-vessels and a slight infiltration of the whole wall by an exudate of leukocytes and more or less lymph. The epithelium shows extensive desquamation. Sections through the ureter show slight desquamation of the epithelial cells only. Diagnosis: Chronic diffuse nephritis and pyelitis."

Recovery was uneventful; the patient has regained her health and has had no more pain.

Case 2.—The patient, Mrs. S. A. K., aged 50, had an uneventful menstrual history with menopause at 47. She has four children, the oldest aged 22, and the youngest 9 years. There was one spontaneous abortion at the third month fifteen years ago, but no subsequent trouble. Twenty years ago she had some vaginal operation, and, following this, for two months, vesical tenesmus at the end of urination. Five years later she had sudden attacks of pain in the right renal region radiating upward to the shoulder and downward along the course of the ureter. These attacks lasted an hour and at first came on every three months; for a time she would have one on each successive day for three. In the succeeding years the attacks became more frequent and the intervals shorter. These attacks were not related to menstruation, nor did there seem to be any cause for them. There were no bladder disturbances or changes in the amount of urine voided. As a rule, the attacks came in the afternoon, though she has a number of times been wakened from a sound sleep by the pain.

Examination.—When first seen by me she was having the attacks every four or five weeks (June, 1911). She had had an operation in November, 1910, for gall-stones and appendicitis with no change in her condition. The urine was normal, and the bladder showed no change. The right kidney pelvis and the ureter were injected with 15 per cent. collargol and radiographs were made that showed moderate dilatation of the renal pelvis, and dilatation of the ureter, with obstruction at the vesical end.

Operation.—A ureterovesical anastomosis was made, but failed. For eight days the urine drained from the ureter through the vagina, which had been opened for safety drainage. The ureter had pulled away from the bladder, but the urine from the right side emptied into the bladder through a fistulous tract extending from the end of the ureter to the bladder. Two months after the operation the patient began to have pain constantly in the right side and the urine contained a large amount of pus. The right ureter could not be catheterized on account of obstruction and tortuosity of the fistula. As the patient would not permit another plastic operation on the ureter, the right kidney was removed on account of the existing suppurative pyelitis.

Course.—After this the patient did well until symptoms similar to those existing before the first operation arose in connection with the left side. Since two months after the nephrectomy she has had very frequent attacks of the intermittent hydronephrosis unless obviated by the frequent dilatation of the left ureter. It has been found necessary to dilate it with elastic bougies to 14 French every two weeks to prevent attacks. Right after a dilatation the output of urine in twenty-four hours will be about 25 ounces, and this becomes less and less and just before an attack will be near 10. I have made several phenolphthalein estimations at different times, and find that just after an attack about 38 per cent. is eliminated in one and a half hours, and when an attack is imminent the output for the same time will be 10 per cent., this corresponding with the patient's elimination of urine and her general condition. This ureter shows no tendency to remain dilated, and it is possible that a ureterovesical anastomosis will have to be done, or the ureter implanted on the skin if the collargol radiograph should show that such an operation as the first-mentioned is impracticable.

Case 3.—D. H., aged 29, was referred by Dr. M. L. Chard. Her previous and menstrual histories were negative. She had been married nine years and had one child 7 years old. She was in good health until one year ago when she began to have attacks of pain in the right side, with nausea, but no vomiting. She was operated on for appendicitis, but was not relieved, and in five months was again admitted to hospital with a history of frequent attacks of agonizing pain in the right upper quadrant of abdomen. During the attacks she would fall to the floor and roll in pain. Exploratory laparotomy showed stomach, gall-bladder and cecal region free of any abnormalities. Condition continued unimproved and now attacks come nearly every night.

The kidney pelvis and ureter were filled with 40 per cent. argyrol and radiographed. There was seen a dilatation of the renal pelvis and of the ureter, with the point of obstruction at the vesical end. The pain produced by the injection was the same as that complained of in her attacks. There was no resistance felt to the passage of the No. 6 ureteral catheter. Patient refused to have anything done and went abroad.

Case 4.—Sister F., aged 32, had a negative menstrual and other previous history. The present trouble started one and a half years ago with pain in the right renal region radiating down the course of the ureter, associated with nausea, vomiting and eructation of gas. The attacks came in the beginning at intervals of two or three months, and lasted two or three hours. In the course of time, the intervals lessened and the attacks became more severe; at the time of examination they came every ten days, and lasted two or three days. There was no urinary disturbance, though the patient had some increase in the amount of urine following an attack.

Examination.—The urine was negative. Patient had lost much in weight and strength in the past few months. Radiography of the argyrol injected into the renal pelvis and ureter showed some dilatation of the renal pelvis and an annular stricture of the ureter ¾ inch below the renal pelvis, opposite the tip of the transverse process of the third lumbar vertebra. The injection gave the patient much pain of the same character as that complained of in her attacks, which lasted three days and was associated with moderate temperature.

Operation.—A plastic operation on the stricture was planned, but could not be carried out, so the kidney was removed. The specimen showed the condition as diagnosed from the radiograph. Two weeks after the nephrectomy the patient had an acute attack of appendicitis, in which the symptoms were not the same as those complained of in her previous attacks of pain, and the appendix, showing chronic catarrhal thickening, was removed. Since these operations the patient has been relieved of her trouble and has gained much in general health and strength.

Case 5.—Mrs. W. T., aged 40, was referred by Dr. C. C. Guion, of New Rochelle. Menstrual history was negative. She has been married eighteen years and has one child 17 years old. There were two spontaneous abortions at three months, the last twelve years ago. Then she flowed for two weeks and was curetted, no trouble resulting. After childbirth the patient got up early, and complained of pain in the left side of the back—lumbar region. This did not trouble her much until five years ago, when she began to have attacks of pain in the left renal region, associated with chills and fever. These would last two ays to a week. During this time she noticed that the urine as cloudy, and often bloody. She has had to get up five or ix times at night to urinate, but for the past two or three onths only twice. Two weeks ago (history taken March 2, 912) the patient passed some gravel. She has been in bed or the past week on account of pain, chills, fever and sweats.

Examination.—The voided urine shows many red bloodells, few pus-cells. 0.2 per cent. albumin (Esbach) and no asts. Cystoscopy shows mild catarrhal cystitis, with marked dness around left ureteral orifice. Both ureters were catherized. Urine from the left kidney showed moderate amount f pus and 0.2 per cent. albumin; that from the right, umerous red blood-cells and 0.1 per cent. albumin. Phenolulphonephthalein, 0.6 mg., was injected; 25 per cent. was liminated in one hour from the right kidney; none from the ft in the same time. Radiograms of entire urinary tract howed two large stones in the pelvis of the right kidney.

March 7 the left ureter was catheterized to the kidney pelis, this second examination being done on account of the bsence of the phenolsulphonepthalein, and 300 c.c. of urine ollected in steady stream. This relieved the patient of her ain and she felt better.

An attempt was made later to pass a catheter into the nal (left) pelvis, inject argyrol, and make a radiograph, ut an obstruction was encountered just below the renal pelvis at could not be overcome.

Operation.—March 22, through oblique lumbar incision, two rge stones were removed from the right kidney through cision into posterior surface of pelvis. The kidney was bout two and a half times normal size, and white. No ttempt was made to close the incision in the pelvis. A garette drain and layer closure were employed. There was rainage through the lumbar wound for eighty hours, the rain being removed at the end of seventy-two. During the me the right kidney drained on the skin the daily amount bladder urine was 12 ounces; after that 70 to 90. On the ird day the patient became much nauseated; the next day stless and irrational, the next comatose and died uremic on e sixth. No autopsy was allowed. Had we been able to ake a pyelograph more of the nature of the obstruction in e left ureter could have been determined.

Case 6.—Miss B., aged 50, was referred by Dr. Arthur ooth. Eighteen years ago after an attack of tonsillitis the tient had acute appendicitis, was sick two weeks and was eated radically. After this she was much troubled with flatuney and obscure pains in the right upper portion of abdomen d right shoulder-blade. The patient was seen in 1900 by e late Dr. Tilden Brown, who thought that she had a left nal tumor; the kidney could, under anesthesia, be disaced downward as low as the umbilicus. In 1906, the ronically thickened appendix was removed, but nothing was ne to the kidney as the patient took the anesthetic badly. e was relieved of the flatulency and the pains in the upper ght abdomen.

A year previous to her operation for appendicitis she began have frequency of urination, and, at times, bladder tenesus, with occasional attacks of pain in both renal regions. nce the operation, the right-sided pain has almost entirely sappeared, but she is much troubled with almost constant in over the course of the left ureter, lower half and freent attacks of renal pain. The patient voids urine every o hours during the day and gets up five or six times at ght. The examination of the urine has usually been negae, though on some occasions a small amount of pus and a w epithelial cells have been found.

Examination.—When first seen by me, April 2, 1912, the t kidney, not enlarged, could be displaced downward so at the upper pole was two fingers' breadth below the costal rgin in the anterior axillary line; it could not be replaced tirely. Cystoscopy showed slight general vesical hyperemia, st marked around left ureteral orifice. The bladder urine owed few pus cells and few epithelial cells. Collargol radiom showed some dilatation of the left renal pelvis, the left eter and an obstruction for a short distance above the vesl orifice. The pain caused by the distention is similar to t she has during her attacks.

On account of the reaction to instrumentation no attempt has been made to dilate this obstruction, but efforts have been made to better the bladder condition by the use of argyrol and nitrate of silver bladder washings. On two occasions 1-7,500 solutions have caused her renal pain; this has been noted in two other similar cases. A nephropexy and a uretrovesical anastomosis above the stricture are contemplated.

Case 7.—M. L., aged 30, a native of the West Indies, was referred by Dr. Edward Quintard. The patient has had malaria for a number of summers until the past two years. She has three children; the oldest weighed 11½ pounds, difficult instrumental delivery. There were two spontaneous abortions at three months but no subsequent trouble. Wassermann and von Pirquet were positive.

Examination.—There had been no previous attacks of the present trouble. Three weeks prior to admission to Post-Graduate Hospital the patient began to have pain in the right upper quadrant of the abdomen, which was almost constant in character. A tender mass was to be felt just below the free border of the ribs in the mammary line, which was slightly movable with respiration. There was tympany in front of this mass after gaseous inflation of the colon. Temperature was 100 to 101 F. Few pus-cells were found in the urine from the right kidney. No tubercle bacilli were found and there was no bladder disturbance.

Treatment.—The right ureter was catheterized and 40 per cent. argyrol injected. Radiograph showed some dilatation of the renal pelvis and a narrowing of the ureter at the level of the transverse process of the second lumbar vertebra. The ureter comes off at nearly a right angle to the renal pelvis. The character of the pain produced by the injection was the same as that complained of. After the immediate discomfort of the examination the patient was better and relieved of her symptoms. This case is considered as one of pyelitis with obstruction; the relief may have been due to the argyrol, the dilatation of the narrowed ureter, or the combined effect.

Case 8.—S. K., single, aged 22, was referred from Dr. Edward Quintard's Medical Service at the Post-Graduate Hospital. Previous and menstrual histories were negative; von Pirquet was positive. Trouble began twelve years ago with pain in the upper right quadrant of the abdomen, the pain being also referred to the right shoulder and scapula. There was no icterus at any time. The pain had no relation to eating. Attacks at first came every few months, but of late had been every week. Duration was one to ten hours. There was no hematuria. The urine showed many pus-cells, but no tubercle bacilli could be found. The right renal pelvis was injected with argyrol and radiographs were made, which showed some slight dilatation of the renal pelvis with a narrowing of the ureter just as it leaves the pelvis. The ureter came off at nearly a right angle. The injection caused pain similar to that complained of in her attacks. Following this there was relief of symptoms, which we attempt to explain as in Case 7.

CONCLUSIONS

Stricture of the ureter is more frequent than generally supposed, and is often diagnosticated as other trouble, especially when on the right side. It is slow, progressive and leads to serious renal trouble. The most frequent causes are of inflammatory origin, and the infection may be descending or ascending.

In pyelography we have our most sure and accurate method of diagnosis, even in the early stages.

393 West End Avenue.

ABSTRACT OF DISCUSSION

Dr. Guy L. Hunner, Baltimore: It is very important in dealing with such an important organ as the ureter that we should know the original cause of the disease. It may do little good to treat the local condition in the ureter itself without treating its cause and for this reason we should be especially interested in the etiology. The Dutch authors mentioned by Dr. Furniss say that the condition is a congenital narrowing with an infection of the urinary tract with the result of a stricture at one of these congenitally narrow places. That can be granted if all ureters are congenitally malformed, but we are not ready to grant this. If, however, there is an inflammatory tract or stone in the ureter or anything to cause trauma at one of the points of narrowing the result is stricture at that point.

Dr. Furniss has drawn attention to the relative frequency with which we see acute kidney infection following disease elsewhere—following operation, furunculosis, typhoid fever or acute infectious diseases, tonsillitis, etc.—and as I understand him, he says that most of the ureteral strictures are secondary to these infectious diseases elsewhere in the body. I agree with him. I wish to go further and state that some of these ureteral conditions occur without any infection, that is to say, they are lymphatic toxemias. They come from some distant focus in the body. In December, 1910, I showed before the Southern Gynecological and Obstetrical Association a series of cases of urethritis and ureteritis due to tonsillitis and I asked the members to bear the matter in mind and either disprove or prove my position. Since then I have had a sufficient number of these cases of chronic ureteritis to feel thoroughly convinced that my standpoint in that matter is right, and that a large number of these cases of stricture of the ureter come from toxins of the tonsils. Another thing rather pointing to the truth of that is the fact that a large percentage of cases are infected by the *Staphylococcus aureus* rather than by the colon bacillus, although the colon bacillus causes more than one-half of the infections of the urinary tract.

We do not know much about the treatment. No one has had enough experience yet to be able to state anything positive about it. Cases of stricture near the lower end of the ureter seem to have a tendency to have a long section of the ureter strictured, whereas, near the pelvic brim and nearer the kidney, the strictures are likely to be annular. This I think we shall be able to control by using bulb catheters and overstretching the strictures. I am getting some positive cures of these annular strictures simply by that treatment. With those having the long section involved near the bladder wall I believe it is necessary to go in extraperitoneally, cut them off above the seat of stricture and implant in the bladder. I have not had much success in dealing with them. Some can be dilated, but not all. I had one just last week and the only thing I could get in was a little probe-like searcher. After getting by the stricture, to get out again I had to bend the handle of my probe and push the Kelly clamp off over the probe and with one finger in the vagina pull as hard as I could. The stricture was so dense that it had grasped the end of the probe. Dilatation gives little hope. We shall have to cut the ureter off and place it either in the bladder or in the kidney.

Dr. H. D. Furniss, New York: In my cases of stricture of the lower end of the ureter there has been little if any obstruction to the passage of small catheters, and most of them were diagnosticated by radiography after the injection of collargol or argyrol. Otherwise we would have overlooked them except in the cases in which there was marked dilatation of the ureter above the stricture and retention of an appreciable amount of urine. Cases of renal pain with purulent urine following a few days after operation, I explain as being due to infection of the renal pelvis and ureter, with consequent swelling of the ureteral mucosa and obstruction thereby to the ureter. In these, pelvic lavage with silver nitrate has been successfully used. As Dr. Hunner states, obstruction of the lower end of the ureter does occur with pus-free urine. I think that the majority of these cases are in all probability due to lymphatic involvement of the vesical end of the ureter from a cystitis. Dilatation of the lower end of the ureter is easy, but as Dr. Hunner says, the results are unsatisfactory as the ureter will not remain dilated. I have a patient whose ureter requires dilatation every two weeks. When I return I shall inject argyrol, and make a radiogram to determine the exact site of the stricture and the amount of dilatation above. In this case I contemplate making a ureterovesical anastomosis on account of the unsatisfactory results from dilatation. The pain of the dilatation itself is not severe, but that following three hours afterward and lasting three or four hours is; this is, I think, due to the obstruction of the ureter following the trauma. During the very painful period there is oliguria, which is followed later by a relative polyuria. Ureteral obstruction in women is common, and pyelography is the most accurate method of diagnosis.

A CASE OF SUSPECTED PULMONARY BLASTOMYCOSIS

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Sio-Khe, China

A Chinese woman, aged 36, came to the dispensary of the Neerbosch Hospital in March. She was so weak and short of breath that she was unable to walk alone. Our first impression was that this was a far-advanced case of tuberculosis. The patient was emaciated, anemic and very short of breath; she coughed almost constantly and raised large quantities of mucopurulent sputum. Both apices and the left lung were normal. There was an area of dulness about 5 cm. in diameter just above the right mammary region in the nipple line. Over this area were heard râles of nearly every description. Patient complained of no pain, but of weakness and an inability to sleep on the affected side on account of coughing. We examined the sputum as many as twenty times for tubercle bacilli but with constant negative results. We noticed, however, the constancy of certain spore-like bodies with double refractile capsules and granules. This led us to suspect blastomycosis. Up to this time, a period of about ten days, she had been taking emulsion of cod-liver oil and hypophosphites with guaiacol. Her fever ran from 101 to 103 and was more or less constant, except that there were evening remissions instead of the usual morning remissions. The pulse was 112 and rather weak. Under the cod-liver oil and guaiacol treatment there was no change. After we had decided that we were not dealing with tuberculosis but possibly with blastomycosis, we used copper sulphate as directed by Bevan[1] (quarter-grain doses, three times a day) and the result was marvelous. After twenty-four hours the temperature had dropped to 99, and in three days it was normal in the evening, with a fraction of a rise in the morning; but within a week both pulse and temperature were normal, the constant cough was much relieved, and the quantity of sputum greatly reduced. Its character, however, remained much the same. The patient was soon able to sleep on the affected side and gained in weight and strength very rapidly. We are sorry we have to report that some cough still continues and that we still find the blastomycetes in the sputum. Nevertheless the patient has gained so much in the three months of treatment that she is able to walk four miles to and from the dispensary.

Castellani[2] reports several cases which he calls bronchomycosis, the description of which answers quite closely to our own, but not entirely. He claims cures by the use of potassium iodid in large doses three times a day.

We have had ten cases of what seemed at first sight like tuberculosis, in the last three months, but the microscope showed tuberculosis in four cases, blastomycosis in five and one negative. It would seem therefore that blastomycosis is not rare in China.

The chief remedial agent employed successfully, says Ormsby,[1] is potassium iodid, first advised by Bevan. The drug nearly always produces marked results and in some cases entirely cures the disease. Doses as large as 600 grains a day are often required. It should be given in large dilution and should be continued for a long time or until no renewed activity occurs after its withdrawal. More recently Bevan has advised copper sulphate. In our opinion these drugs are only palliative, and as yet we have no cure.

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1. Ormsby, Oliver: Blastomycosis, in Lexer and Bevan's General Surgery, 1908, p. 376. We refer those interested in the subject to an account of the pathology and history of the disease and a very complete bibliography appearing at the end of that article.
2. Castellani: Philippine Jour. of Sci., July, 1910.

THE RELATIVE VALUE OF THE "NATURAL" AND THE SYNTHETIC SALICYLATES

A STUDY OF THE LITERATURE*

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There is at present a fairly wide-spread belief that the salicylic acid which is derived from the natural oil of wintergreen or sweet birch, and the sodium salt of this acid are to be preferred to the corresponding synthetic preparations. This preference seems to be founded mainly on two claims. The first is that the "natural" or "true" salicylates are less toxic than the artificial; the second, that they are more active as antirheumatic agents. The adherents of these views are very firm in their convictions, and, what is more, certain manufacturers make very positive statements regarding the relative superiority of the former compounds. On the other side of the question there are many who are equally certain that no such difference exists. A third class of physicians, those who are either neutral or who do not take a positive stand with either side, is probably greater than the two partisan groups combined.

If there is no difference in the toxicity or in the activity of the two classes of salicylates it is of considerable importance to know it, for the "natural" variety is about sixteen times as costly as the artificial. On the other hand, if the artificial is really more toxic or less active, or both, as is strongly urged, we would be unjustified in depriving our patients of the advantages of the superior drug or in subjecting them to unnecessary risk of unfavorable effects from the more toxic, merely on the ground of economic difference. It therefore becomes an important matter to determine the validity of the several conflicting claims, if such be possible. The Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association has undertaken the solution of this question and will approach it from several points of view. The results of biologic investigation have already been published.[1] The results of chemical examinations and of therapeutic tests are forthcoming, and in this paper I shall attempt to review all of the evidence bearing on the question which can be found in the literature.

In the presentation of the results of my searches I shall endeavor to follow, as nearly as possible, a chronoogic order, and for the most part I shall make use of iteral quotations from the several papers, thus letting heir authors speak for themselves and avoiding the danger of misconstruing their statements.

In 1874 Kolbe first described a means of manufacturng salicylic acid artificially from phenol. In 1876 Macagan[2] suggested the use of salicin in the treatment of rheumatism, based on the conception that rheumatism was, as malaria was then supposed to be, miasmatic in origin, and that salicin, like cinchona, was a natural remedy, found growing in the regions in which rheumaism was most prevalent. From about 1875 on, the literature on the beneficial action of one or another of the alicyl preparations in rheumatism grew apace, and along with the favorable reports came the records of untoward symptoms resulting from the new therapy; but it is not until 1877 that one finds any definite comparison of the artificial acid with the acid derived from the oil of wintergreen or from salicin.

In that year Williams[3] read a paper on the impurities of the artificial acid, which he ascribed to the presence of impurities in the parent phenol. He described a method by which he was able to purify the artificial acid so completely as to obtain an acid identical in every way with the natural product. He thought that the impurity was probably a derivative of cresol (cresylic acid) and of this he remarked:

> Respecting the medicinal properties of this acid I can say nothing as yet; it may be, like paroxybenzoic acid, inert, and would then be simply a diluent of the salicylic acid, or it may be active as an antiseptic, or it may be mischievous; whatever it be there can, I think, be no doubt that the artificial salicylic acid at present used for medical purposes is not so pure or so uniform as is desirable, and that it should be more highly purified and freed from this second acid I have described before it or its salts are used in medicine.

In the discussion[4] of Williams' paper Professor Redwood is cited as saying:

> Mr. Williams has done a great deal toward affording the explanation of a fact which many had been aware of, namely, that the artificial salicylic acid sometimes failed in producing the effects anticipated, such as would be produced by the natural acid.

Mr. Plowman confirmed fully the statement that artificial salicylic acid frequently caused considerable derangement to the system. It had been given in St. Thomas' Hospital in doses of 20 grains every two hours and the results had frequently been to cause delirium. He was uncertain, however, whether the acid used was artificial or not, but from the price paid for it he thought that it was probably artificial.

In 1879, 1880, 1882 and 1888, the *Lancet* contained papers by Maclagan defending his stand with regard to the superior antirheumatic action of the natural salicylates as exemplified by salicin. His contentions were strengthened by occasional reports of the unfavorable effects of the impure artificial acid and its salts and it would seem that his views which referred the action of salicin to its presumed "natural relation" to rheumatism gained wide support and are, perhaps, to-day at the bottom of a similar idea regarding the difference between the actions of the "natural" salicylates and those of the artificial.

Following Williams, the next paper to appear bearing on the question was one by Fowler[5] in 1881 from which I will quote:

> In thirty-nine cases treated with pure salicylic acid [natural] toxic symptoms were present in ten only. In five there was deafness, in two deafness and tinnitus, in three deafness, tinnitus and vomiting. . . . As regards the relief from pain, subsidence of fever, and liability to relapse, the pure acid does not appear to act with greater benefit than the ordinary [artificial] acid. . . . The advantages claimed for the pure acid are that it rarely produces vomiting and never delirium. . . .

He also remarks that investigations which are going on show an impurity in the artificial acid, not, as yet, identified.

Fowler's observations are too few to permit of very definite deductions but it is to be noticed that his short series showed vomiting in 7.5 per cent. of the cases.

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* This investigation was undertaken at the suggestion of the Committee on Therapeutic Research of the Council on Pharmacy nd Chemistry of the American Medical Association.

* From the Department of Pharmacology of Cornell University Medical College.

[1] Waddell: Comparative Investigation of the Effects and Toxicity of Sodium Salicylates of Natural and Synthetic Origin, Arch. nt. Med., December, 1911, p. 784.

[2] Maclagan: Brit. Med. Jour., 1876, i, 627.

[3] Williams: Pharm. Jour. and Tr., 1877-78, Series 3, viii, 785.

[4] Pharm. Jour. and Tr., 1877-78, viii, 796.

[5] Fowler: Lancet, London, 1881, ii, 1118.

This does not agree altogether with his further statement that one of the advantages claimed is that the "true" acid, "rarely produces vomiting." This percentage may have been a "rare occurrence" of the symptom as compared with what was seen after the use of the artificial acid which was then on the market. His evidence in favor of the "true" acid is, then, not very strong, for he finds no difference in the antirheumatic powers of the "true" and the artificial acids, and his incidence of vomiting from the "natural" is by no means low.

Broadbent[6] expresses the belief that when toxic symptoms arise they are due to an impurity in the artificial drug. He says:

> A question which we have not been able to resolve—indeed, I do not know that the material exists for its determination —is the relative advantages of the different salicyl compounds. It seems to me that the "natural" salicylic acid, as being less liable to contamination than the samples made from coal-tar compounds, is preferable to the latter; and it is a matter for inquiry which no doubt will be submitted to the test of experience, and which certainly I, for one, shall endeavor to elucidate. . .

Broadbent was a man of very wide experience as an internist and therapeutist, and yet he was able to offer no *evidence* regarding the relative merits of these two acids. But his suggestion that it would be better in all probability to employ the "natural" must have had some weight in influencing many of those who looked up to him for guidance. So far as I have been able to discover he did not publish anything further on the subject.

Latham,[7] who was probably looked on as the greatest English authority on rheumatism in his day, laid down the following rules to ensure success in the treatment of that disease:

> First, the true salicylic acid obtained from the vegetable kingdom must alone be employed. If you have to give large doses avoid giving the artificial product obtained from carbolic acid, however much it may have been dialyzed and purified. An impure acid will very quickly produce symptoms closely resembling delirium tremens. . . . Secondly, give the acid without any alkali or base. . . . Thirdly, place the patient fully under the influence of the drug—that is, let him have sufficient to produce cerebral disturbance—that is, buzzing in the ears or headache, or slight deafness. . . .

These statements are dogmatic and made without reservation, and are presumably based on the results of his clinical observations. Unfortunately, however, he cites no single case in substantiation of his statements. The reference to dialyzation and purification of the acid relates to the attempts by Dr. E. R. Squibb and others to remove the impurities from the artificial acid by dialysis. They claimed thus to produce a perfectly pure product, but it was subsequently shown that the impurities were not colloidal and that they dialyzed readily, so that the resulting product still contained much of the original impurity. Latham mentions no disadvantage of the artificial acid other than the production of delirium, and his subsequent remarks calling for the use of enough of the "true" acid to cause cerebral symptoms such as tinnitus, deafness and headache strongly suggest that if the "true" acid were carried farther in its use, it, too, might have given rise to dilirium. He does not compare the efficacy of the two acids nor does he speak of the effects of the two on man in similar doses. His views must have been of great weight at the time, but his failure to present the evidence on which he based his remarks detracts materially from the scientific value which can now be attached to them. We do not know from him that the "true" acid did not also produce unfavorable symptoms at times. We do not know that he ever used the artificial acid as a control. All that we do know from him is that he strongly advocated the choice of the "natural" acid; why, he does not tell us, save for the mention of the delirium. The first experimental work done on the determination of the relative advantages of the "natural" and artificial salicylates was that by Charteris and Maclennan.[8]

It is not within the scope of the present communication to discuss the details of these experiments or to challenge their conduct; I shall deal only with the conclusions that have been drawn from the results they obtained and will refer the reader to an article by J. A. Waddell[1] for detailed consideration of the individual experiments.

From their experiments they make the following deductions:

> These experiments prove . . . that salicylic acid obtained naturally by oxidation of salicin, or from the oil of wintergreen, in 10-grain doses, has . . . no deleterious effect; that salicylate of soda obtained from the natural salicylic acid, in 32 grains, is not lethal, but that it causes prostration and lowers the temperature.
>
> On the other hand, it is conclusively demonstrated that salicylic acid, artificial, in a 10-grain dose, causes first, paralysis of flexors; secondly, death by violent convulsions. Sodium salicylate, artificial, in 18-grain doses, is lethal. . . .
>
> The deductions from these experiments indicate that artificial salicylic acid and its salt of sodium are dangerous and in large doses fatal to animals, while . . . natural salicylic acid and its salts of sodium are not.

They believe that this difference depends doubtless on some impurity in the artificial acid. This conclusion is strengthened by a letter which they received from G. G. Henderson of the chemical laboratory of the University of Glasgow, giving the results of his examination of samples of the two acids used by the authors. He found that the artificial was impure, containing "a small quantity of another acid which I have no doubt is the cause of the appearances observed after the use of artificial salicylic acid." Further, he says, "I should add that no trace of this substance is to be found in natural salicylic acid."

Subsequently Henderson isolated this impurity and Charteris and Maclennan tested it, finding that "the action of this impurity seems to be of the nature of a slow but certain poison, and the lethal dose is relatively much less than that of salicylic acid."

They close their paper with the following:

> The obvious conclusions from these experiments are that artificial salicylic acid contains an impurity or impurities, and until this or these can be extracted by the aid of chemistry the internal administration of it or its salt of sodium should be discountenanced. Large and repeated doses of the sodium salt are necessary in the treatment of acute rheumatism, and hence we may account for the restlessness, the confusion, and the delirium sometimes attendant on its use, which have been testified by clinical experience. It is more than probable, too, that the retarded convalescence occurring in some cases of acute rheumatism after the salicylate treatment is due to the great and protracted prostration which the impurity or impurities give rise to. It is to be remembered in connection with these symptoms that prescriptions of the salicylate of sodium are invariably made up, unless

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[6] Broadbent: Lancet, London, 1882, i, 138.

[7] Latham: Brit. Med. Jour., 1886, i, 735 (Croonian Lectures).

[8] Charteris and Maclennan: Brit. Med. Jour., 1889, ii, 1208.

therwise indicated, from the artificial and not the natural alt.[9]

The first criticism of the work of Charteris and Macennan is that they have drawn far-reaching conclusions rom decidedly insufficient evidence. They made only hree experiments with sodium salicylate, one with the rtificial and two with the "natural"; and only two tests f the salicylic acid, one with each variety. Further, as emarked by Waddell,[1] all of these tests seem to have een made on but two animals, one for the "natural," he other for the artificial. In addition, it is obvious hat they tested the action of only one specimen of each f the preparations. They therefore made no controls of he reactions of the animals they used, and established lethal dose as the result of a single test. The specinens of the preparations which they employed may or nay not have been representative of what was to be ound on the market at that time. And yet from these xperiments on but two animals they offer without hesiation the explanation of many of the untoward sympoms seen at times during the therapeutic administraion of the drug to man.

If their statement is correct regarding the dispensing f the artificial preparations, then how many of those vho have reported favorably on the beneficial effects of he salicylates, without any specification as to which lass of preparation they were using, have been, in fact, eporting the salutary action of the condemned artificial roducts? On the other hand, if Martindale and Squire re correct, how many of the unfavorable impressions elating to the action of the salicylates have been ounded on the action of the "natural" preparations? he numbers were legion of these two groups of reports vhich appeared at about this time and in which there no mention made of the source of the preparation.

Thus far Charteris and Maclennan's case in favor of he "true" salicylates is none too strong; we shall hear nore of their work later.

The discussion[10] of the paper by Charteris and Macennan contains some points worthy of our attention. r. Shaw remarked that "all the evil effects generally ttributed to the action of salicylate of soda were not ue to extraneous causes. It was not only on account f price that it was preferred to salicin, as it was a more fficacious drug. He had seen delirium and hemorhages following the use of salicin as well as after saliclate of sodium."

Haig said that he thought that the toxic effects of dium salicylate had been exaggerated, but that there as a great difference in the different specimens. Tayor said that he gave 20 grains of sodium salicylate [articial] every two hours and found delirium by no means ncommon. Myers "could not agree with the great anger of producing toxic effects with that drug" [i. e., rtificial sodium salicylate]. Bruce said that he could ot agree with Taylor, for he had rarely seen delirium, ough he gave 15 grains or more every three hours. He ought the drug then in use finer than formerly, for xic effects were rarely seen.

Shaw's remarks indicate that he considered many of e unfavorable effects of salicylate administration as ue to the action of the salicylate itself and not to the resence of impurities derived from the phenol in the rocess of synthesis. He certainly implies this construction when he further adds that he has "seen delirium and hemorrhages following the use of salicin as well as after salicylate of sodium."

Haig's statement to the effect that there was a great difference between different specimens of the artificial salicylate of soda serves to strengthen the similar suggestion, which I made in discussing Charteris and Maclennan's results, that the specimens which they used may or may not have been representative of what was to be found on the market at that time.

Taylor's dose of the drug is rather high and it is not impossible that a similar amount of the "natural" salt would have produced a like result, for in the paper by Latham,[7] he advises that sufficient of the "true" acid be given, "to produce cerebral disturbance," and subsequently says, "In the majority of cases 80 to 100 grains are enough." It takes approximately 115 grains of sodium salicylate to yield 100 grains of salicylic acid so that, given in doses of 20 grains every two hours, only six doses would more than correspond to 100 grains of the acid. In addition Haig, Myers and Bruce could not agree with the experiences of Taylor.

The experiences, then, of those who discussed the paper of Charteris and Maclennan tend, if anything, to oppose the idea of greater toxicity of the artificial salicylate of sodium, and to refer such unfavorable effects as are seen to the action of an excessive amount of salicylate, regardless of its source.

We now return to Charteris[11] and quote from a second paper of his in which he says that "there has been a steadily growing conviction that artificial salicylate of soda . . . is depressing, and further that in certain cases there is cerebral excitement culminating in delirium. . . ." He cites the experiments which he had described in the preceding communications. He then relates having tested two samples of supposedly "pure" artificial acid on rabbits, and 15 grains per 2½ pounds were found to be fatal.

Next, he cites Williams, whom I have already quoted.[3] He followed Williams' directions for the purification of the artificial acid, preparing a pure salicylic acid which had the appearance of the "natural" and a similar melting-point. He made three tests on rabbits with this purified acid and found that "the result was most satisfactory"; "that there was no paralysis and no depression, but that, on the contrary, the animals were neither up nor down, but were able to run about with ease after the last injection."

As a result of these experiments he remarks that "these facts show that the process of purification, even on a small scale, is not tedious or difficult, and in all probability it could be done easily and thoroughly on a large scale with less loss of time, and at only a slightly increased cost, as compared with the present method [1890]."

Up to 1890, he says:

> So far we had found none [i. e.: no specimens of artificial salicylic acid] able to stand the physiologic test. . . . But on Jan. 1, 1890, unsolicited, a Berlin firm communicated with me through their agents in London. This firm sent specimens supposed to be chemically pure, but when tested they were found to be not quite so, though relatively so. Since then specimens of acid have come from the same firm which give the same physiologic action as that from the natural salicylates.

He concludes by saying, "For internal use in medicine they [pharmaceutical chemists] should demand the large crystalline form of the artificial acid, and from this alone should the salicylate of soda be prepared." Charteris had previously described the chemical and physical characters of the "natural" acid and of the completely purified artificial product. The two were the same.

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[9] In the same volume (Brit. Med. Jour., 1889, ii, 1315) Mr. artindale writes in regard to this statement regarding the filling prescriptions: "The reverse is the rule with all good dispensing tablishments in London." Messrs. Squire & Sons confirm Marndale's statement.

[10] Brit. Med. Jour., 1890, i, 359.

[11] Charteris: Med. Chir. Tr., 1890, lxxiii, 141.

The results of this second set of observations by Charteris tend to show that the deleterious actions of the artificial acid were not inherent in the acid but were wholly dependent on the presence of an impurity, a view suggested by most of the preceding authors, but, until now, not definitely established. They further show that it is quite possible so to purify this acid as to obtain a product having the physical, chemical and pharmacologic characteristics of the "natural" product. That this process of purification is neither complicated nor unduly costly seems to have been demonstrated by his work. Lastly the commercial purification of the artificial salicylate seems to have been accomplished to the extent of yielding a product in no way different from the "true" acid. These results, coming from one who formerly was so powerful an advocate of the use of none but the pure "natural" product, are the more convincing, for there can be no contention of blind adherence to a preconceived notion.

Charteris must certainly have convinced himself most firmly of the similarity between the completely purified artificial acid and the "natural"; of the equal efficacy of this purified product and the "natural"; and of the purity and efficacy of the sample of the commercially purified product, before expressing conclusions so diametrically opposed to those which he had previously expressed.

The objection may be raised here that his methods were not checked up by control experiments in this latter work any more than they were in the former. This objection has lost much of its validity, for at the time of this report he had made tests similar to the earlier ones on a much larger number of animals and with a considerable number of specimens of salicylic acid. Each test thus made served, in a measure, as a control for the succeeding. Nevertheless, it is regrettable that he still contented himself with a few tests when he might have made his evidence vastly more valuable had he but doubled or trebled their number.

In the same year that this last communication of Charteris' appeared, Dunstan and Bloch[12] published a paper in which they entered into a consideration of the chemical side of the relative purity of the two acids and discussed means of purification. They say:

> Therapeutic observation has, however, disclosed the fact that both the commercial salicylic acid and that purified by dialysis produce effects when administered to the human subject which are not observed to result from the administration of the pure salicylic acid, prepared from the methyl salicylate contained in the natural oil of wintergreen.

They cite several observers who found from 6.5 per cent. to 30 or 40 per cent. of impurity in the commercial acid of that time.

They further remark, "It will be seen . . . that the toxic action of the artificial salicylic acid of commerce has been definitely traced to an impurity. . . ."

They found ortho- , meta- and paracreosotic acids in the specimens which they examined.

In the same volume[13] there is a report from Charteris on the results of biologic tests of these creosotic acids on rabbits. He found the ortho- and para-acids highly toxic to these animals [two animals, one for each of the acids]. Metacreosotic acid was non-toxic. He further made two tests on rabbits of purified artificial salicylic acid and found it to give satisfactory results; i. e. that it was not toxic.

To quote:

> The ortho- and paracreosotic acids by their physiologic action show that they are slow but certain poisons, causing prostration and paralysis affecting first the hind limbs and gradually extending over the body.
>
> The well-defined crystalline form of the acid [artificial salicylic] with a melting-point of almost 157 C., should be the official form of the artificial salicylic acid, and from this alone should the salicylate of sodium be prepared.
>
> I may add that if salicylic acid be prepared from synthetic carbolic acid, having a melting-point of 42 C., it then contains no impurity. Its melting-point is 157 C., and, its physiologic action is in every way satisfactory.

There is a fuller presentation of the same paper by Charteris in the *British Medical Journal*[14] from which I quote his closing remarks:

> . . . sufficient evidence has been adduced to show that in cases where poisonous symptoms have been evoked by the administration of large and repeated doses of the artificial salicylate of soda in rheumatism, they are dependent on its containing the impurities mentioned [that is, o- and p-creosotic acids]. Further experiments may be necessary to determine whether the amount of paracreosotic acid contained in some samples of commercial salicylic acid is sufficient to produce poisonous effects on a human subject. My experiments show that when injected into small animals it is poisonous, though in a less degree than the ortho- acid, and that its poisonous effects are intensified when combined with the ortho- acid, and still more so when incorporated with this acid and salicylic acid.

Regarding the sodium salt of paracreosotic acid he says that " . . . judiciously given, [it] may be of benefit in certain diseases."

These three communications, the one by Dunstan and Bloch, and the two by Charteris, serve further to establish the fact that the unfavorable actions of salicylic acid and its sodium salt, derived synthetically, are not inherent in these preparations but are due solely to the presence of impurities which it is quite possible to remove completely. They further confirm the previous work which showed that the artificial salicylates when efficiently purified are physiologically identical with the corresponding "natural" salicylates.

In spite of the work done by Charteris it is difficult to accept his contention that paracreosotic acid is so much to blame for the production of the toxic effects as he says it is, for he himself admits that its sodium salt has been used in therapeutics. In Germany at about this time sodium paracreosotate [paracreosotinate] was in use in medicine and did not cause any severe toxic symptoms when given in doses of 5 grains each. Further, in the light of the work of Waddell,[1] we are almost forced to reject this idea. Waddell has also shown that "mixtures of paracreosotinate of sodium with natural sodium salicylate do not exhibit greater toxicity than the components. . . ." This contradicts the previous statement made by Charteris regarding their combined action. Further, in a letter to the *British Medical Journal*[15] Professor Stockman takes exception to the contention that the toxic impurity of artificial salicylic acid is creosotic [creosotinic] acid. In this letter he says:

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[12] Dunstan and Bloch: Pharm. Jour. and Tr., 1890-91, Series 3, xxi, 429.

[13] Charteris: Pharm. Jour. and Tr., 1890-91, Series 3, xxi, 436.

[14] Charteris: Brit. Med. Jour., 1891, i, 695.

[15] Stockman: Brit. Med. Jour., 1890, ii, 1271.

That this substance is not creosotic acid seems to me to be proved by the following considerations:

1. The results of clinical experience with creosotate of sodium; it was used by Buss (1876) in doses up to 4.0 gm., by Gatti (1879) in 5.0 to 8.0 gm. doses, and by Demme (1889) in children up to 1.5 gm. None of these authors observed that it had any particular poisonous effects, and they agree in concluding that its action is practically identical with the action of salicylate of soda. It will be observed that Demme used paracreosotic acid, which is stated by Professor Charteris to be so poisonous that 2 grains of it killed a rabbit weighing 1½ pounds.

2. The chemical constitution of creosotic acid. . . . Chemically it is very closely allied to salicylic acid, and from what we already know of the relationship in physiologic action among the members of this series, one could predicate with certainty that in action it would closely resemble salicylic acid.

Stockman is of the opinion that the specimens of creosotic acid which Charteris tested also contained the same unknown impurity as did the salicylic acid he had previously tested.

May[16] cites the same observers as have just been mentioned in the quotation from Stockman. He notes that Demme gave 90 to 120 grains of paracreosotinic acid to men without the production of toxic symptoms. May conducted some experiments on man and animals with the several creosotinic acids [creosotic] and concludes by saying:

> The creosotinic acids resemble salicylic acid in their action as antifermentatives, as bactericides, as antipyretics, and as specifics in acute rheumatism. Their toxic effect in animals is about the same, but orthocreosotinic acid is more depressing to the circulation.

These remarks by May and Stockman merely throw doubt on the accuracy of the determination of the precise chemical nature of the body which was the cause of the deleterious action of the salicylic acid which Charteris used, and the truth of the remarks of Stockman were, in turn, challenged by Dunstan. It would carry us too far afield to consider this phase of the problem. All that concerns us at the present moment is the question of the purification of salicylic acid and the action of the purified product.

Taking cognizance of these differences of opinion and the objections to Charteris' conclusions, we have not impaired the validity of his work with regard to the lack of toxicity of the purified artificial salicylates. And the number of experiments which he had by this time done with the purified products is sufficient to remove the objections on the ground of possible idiosyncrasies on the part of his animals.

I might here make brief mention of Henderson's[17] observations on the question of the purification of salicylic acid. He tried many methods and found that the very simple one devised by Williams[3] was the most satisfactory. He found as impurities creosotic acid, parahydroxybenzoic acid, and hydroxyisophthalic acid. He remarks, "It is therefore a comparatively simple matter to manufacture a pure salicylic acid—indeed, I understand that this is now being done." (1890.)

Stockvis[18] seems to have been about the only man outside of Great Britain to make any studies on the relative advantages of the artificial and the "natural" salicylates. He cites the paper of, "Chartens and Machyon," which is obviously intended as a reference to that of Charteris and Maclennan. Stockvis used the sodium salt of each of these acids.

His findings were, in brief: that the "natural" was much milder in its actions than the artificial; that the "natural" acid was excreted the more rapidly in the rabbit and man; that with the more rapid excretion of the "natural" there was a marked diuresis in addition (this was not true of the artificial), and that, in the same doses, the actions of the "natural" were less marked on the rabbit than those of the artificial, but that the lethal doses were quite the same. On frogs' hearts the salicylates caused depression, smaller doses of the artificial being required than of the "natural." He cites the experience of Moerel, who took the drug daily for fourteen days in doses of 0.2 gm. every four hours [about 3 grains four times a day]. On the first day he observed headache, which soon passed off; there was no effect on sleep, appetite or other function. The temperature was little altered. These symptoms were less marked in the case of the "natural" product. The pulse-rate was somewhat increased by the artificial and less by the "natural." Respiration was raised in rate by the artificial, and practically not at all by the "natural."

Taking all of the results together, Stockvis remarks that there is hardly to be noted any qualitative difference in action between the artificial and natural. He says that one must agree unconditionally with "Chartens and Machyon" that the difference is merely quantitative, and that the natural is the less toxic. That in the explanation of this difference the more rapid elimination of the natural plays a great part; this he attributes to "osmotic peculiarities" of this acid. He found that the electrical conductivities of the two acids were not identical, and that the "natural" was impure chemically, being mixed with an extremely small amount of oil of wintergreen. He said that our next task would be to free the natural acid completely from the methyl-salicylester, and make comparisons of this with the pure artificial acid.

He concludes with the remark that "so much is evident; that the chemically impure 'natural' acid is better therapeutically than the chemically pure artificial."

In view of all of the previous work, one cannot be but struck by Stockvis' conclusion that the *milder* actions of the "natural" salicylates are due to their *impurity*, while the artificial compounds are pure. Such a view must be taken with considerable reserve, for it is opposed to all of the chemical and pharmacologic studies which we have thus far reported. In his work there is a further rather anomalous statement to the effect that, though the "natural" salicylates were found to be "less marked" in their actions than the artificial, the fatal dose was the same for the two forms. When we recall that he also said that "there is hardly to be noted any qualitative difference" between the two, and that "the difference is merely quantitative" we are at a loss to know how to reconcile two contentions so completely antagonistic.

It may be true that the "natural" gives a greater diuresis than the artificial, but just how this explains the "milder actions" of this product is by no means clear, particularly in the experiments in which the drugs were applied to the frogs' hearts. Why this diuretic effect of the "true" reduces its actions to a less marked grade, and does not similarly effect its lethal action is also difficult of comprehension.

The evidence brought forth by the self-made observations of Moerel is not convincing, for the differences he experienced in the effects of the two salicylates are so slight as to be accounted for as being the results of the psychic influences of a preconceived idea. Finally Stockvis' failure to look further into the literature of the subject than the earliest work by Charteris accords with the general superficial character of his observations.

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[16] May: Brit. Med. Jour., 1909, ii, 791.
[17] Henderson: Jour. Soc. Chem. Indust., 1890, ix, 591.
[18] Stockvis: Wien. med. Presse, 1894, xxxv, 1209.

Lewin[19] adds nothing to what has already been discussed, but he repeats that the impurities of the artificial salicylic preparations are responsible for their side actions, such as delirium and cerebral excitement. While this is true regarding the difference between the actions of the two classes of salicylates, he remarks that it must be borne in mind that pure preparations are not devoid of side actions. These impurities are probably the ortho- or paracreosotic acids. His work is not original. It is merely his summary of the literature, with the stamp of his interpretation of the value of the several ideas suggested. I introduce this merely on account of the fact that what appeared in Lewin's book must have had some influence in molding medical opinion on account of the reputation of the author.

Along with the preceding it may be well to cite the monograph by Pribram,[20] in which he reviews at length the greater part of the literature relating to the salicylate therapy of rheumatism. He details a very formidable array of unfavorable effects of the salicylates, without mentioning whether they resulted from the "natural" or the artificial, and then remarks that it is obvious that many of these phenomena, including death, were probably in no way attributable to the action of the salicylate, on which the blame was thrown.

The first of the American papers to deal with the question of the relative merits of the two forms of salicylate seems to be that by a pharmacist, Cone.[21] His evidence is composed of citations from some of the authors whose work I have already discussed, and from some whose papers I have been unable to find, as Cone gives no references. Among the latter is one from Dr. H. M. Lyman, who said, in an address, that he had had the following early experiences with the use of salicylic acid and sodium salicylate: he "found that the results were not so good from preparations made in this country as from the original German article, due to impurities in the former." He reports a case of delirium tremens-like symptoms from its use.

Dr. Simon Baruch is cited as saying that to get the effect from the salicylates without their inconveniences, pure salicylic acid should be used; only that derived from the oil of gaultheria should be employed.

Dr. Abraham Meyer is reported as saying that only the salicylic acid from genuine oil of wintergreen should be used; that the others [i. e., the synthetic and the salicylic acid derived from the synthetic oil] cause disturbance of the stomach, and delirium.

After citing the work of Charteris and Maclennan, of Dunstan, and Charteris' second paper, Cone goes on to discuss the tests for purity and their ability to detect adulteration. He concludes as follows:

> At present a very large percentage of the oil of wintergreen on the market is adulterated, mostly with the synthetic methyl salicylate, and this adulteration has been the most difficult to detect, possessing, as it does, about the same chemical composition and with physical characteristics nearly identical.

Pancoast and Pearson[22] also have entered into the study of the purity of the salicylic acid sold as "natural," and, though it breaks the chronologic order, I shall bring in their findings at this point and discuss the two papers together.

They say:

> Since the so-called natural salicylates have met with such wide-spread favor as therapeutic agents, there has been a tendency on the part of a few unscrupulous distillers, dealers and drug merchants, to substitute the low-priced synthetic products. This tendency has more rapidly grown as there has been no accurate means of detecting the sophistication.
>
> For some years chemists have endeavored to detect the presence of synthetic methyl salicylate when added to oil of birch or gaultheria, but, owing to the great similarity of these products, the task has been very laborious. All three of these products contain at least 99 per cent. of absolute methyl salicylate.

While these two papers from pharmacists add very little of value from the clinical or experimental aspects of the question, they are of interest because they serve to show how slight the chemical differences between the "natural" and artificial salicylates are—not over 1 per cent. according to one—and how difficult it is to be certain that one really has the "natural" product, and not, in fact, a combination of the two. This suggests a little doubt as to whether all of those who have praised the "natural" salicylates so highly have in reality been using the drugs they lauded, or only mixtures of "natural" with the artificial. This applies particularly to the clinical reports, for in most of these the question of purity of the product was not investigated. The vast difference in the price of the two classes of salicylates makes adulteration far more probable than not in many instances. It is not improbable, then, that many have unwittingly sung the praises of the artificial in the belief that it was the pure "natural" salicylate.

The last three papers which I shall present are from American authors and are purely clinical in character; hence they are subject to the criticisms which I have just made regarding the possible impurity of the products used. It is certain that the authors were sincere in their beliefs that what they used was only the "natural" salicylate; but who is to check the purity of the salicylate that the local pharmacist uses in preparing the prescription? Even if he be acting in good faith, it is not probable that he can be any more certain of the purity of the preparation that is sold to him than is the physician of that he receives from the druggist.

The first of these papers is by Dr. Winters;[23] in it he speaks of the salicylates only in the course of the discussion of the treatment of rheumatism. He says that there is a positive chemical antidote to rheumatism and that "this antidote is an *organic* chemical compound. Synthetic salicylic acid has no effect." He gives no data on which he bases these statements. This is the strongest support of the "natural" salicylic acid and the most severe condemnation of the synthetic that I have found.

The second is based on the observations of Rosenzweig and Ronginsky.[24] As the result of some clinical observations on the artificial and "natural" salicylic acids they reported, "The 'natural' product does not depress the heart as much as the artificial product; it does not upset the stomach so much; it acts more rapidly." Like the preceding author, they do not give the data on which they base their statements; the statement quoted above was, in fact, reported as coming from them by a third person, Dr. Kahn, who had asked them to make the observations. This kind of evidence is certainly far from convincing and has no scientific value.

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[19] Lewin: Nebenwirkungen der Arzneimittel, 1899, Ed. 3, p. 436.

[20] Pribram: Nothnagel's Specielle Pathologie und Therapie, v, Part 2, 449.

[21] Cone: Am. Jour. Pharm., 1903, lxxv, 401.

[22] Pancoast and Pearson: Am. Jour. Pharm., 1908, lxxx, 407.

[23] Winters, J. E.: Etiology of Rheumatism, etc., pamphlet published by author.

[24] Rosenzweig and Ronginsky: Quoted by Kahn in Druggists Circular, 1908, lii, 345.

The third of these papers is by Dr. Lambert,[25] in which he strongly advocates the use of the oil of sweet birch in preference to the synthetic salicylates, and in fact in preference to any other of the salicylates. He bases this on clinical experience and while he thus advocates the use of the "natural" salicylates, he does not by any means exclude the usefulness of the artificial, for he specifically says that if one of the common forms of salicylate does not agree with the patient we should try others until we find one that does: " . . . if the patient is resistant to that [true oil of birch], it should be changed to . . . some other form of salicylate."

It does not seem necessary to enter into a separate discussion of the last three papers, for such of the previous criticisms as apply would only have to be repeated.

Before summarizing it may be of interest to cite from two personal communications from Professor Stockman of the University of Glasgow to one of the members of the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry. From the first, written in October, 1911, I shall quote:

> Some years ago I examined five samples of artificial sodium salicylate from different manufacturers. I found that four of them were *practically chemically pure*, and *differed in no way as regards clinical action*, and *chemical tests from the "natural"* sodium salicylate.[26] So far therefore as my own experience goes I regard the matter as settled.

He further says that "gross differences certainly do not exist between the actions of pure artificial sodium salicylate and the so-called 'natural' product." In a second communication he says that he has gone into the question of the "natural" and synthetic salicylates and he has "found that the pure synthetic acid is not more poisonous than the other ('natural')." He also finds, as a result of therapeutic examinations, that creosotic (creosotinic) acids "can be given in doses similar to those of the salicylates."

Before drawing any conclusions from the material which I have been able to collect as bearing in any way on the question of the relative value of the artificial and "natural" salicylates, I shall briefly summarize the evidence brought forth in the papers and discussions which are here presented.

There is first the clinical evidence. I have been able to find only fourteen expressions of opinion from the clinical point of view favoring the "natural" salicylates over the artificial. One of this group (Maclagan)[2] speaks only in favor of salicin, and his reasons for his views go far to invalidate his contentions. A second (Charteris) favored the "natural" in his first paper only, and subsequently specifically advocated the use of the pure artificial salicylates. A third (Lambert) favors the "natural" but does not condemn the artificial, using it when the "natural" is ineffective. The rest of those who favor the "natural" salicylates in general give no evidence in support of their contentions, merely stating their views more or less firmly. Two do give clinical evidence for their contentions (Fowler and Stockvis), but in neither case is the evidence at all convincing. Only two (Maclagan, Winters) have challenged the therapeutic value of the artificial salicylates.

Second, there is the chemical evidence. This is of a positive nature and the findings are, in all probability, quite correct. It is to be remarked, however, that such findings apply only to preparations on the market prior to 1900, and there is no evidence to show that the synthetic preparations of the present day are not chemically pure. There is, in fact, evidence to support the view that they are pure (Waddell[1]). On this point we must remember that there is reason to believe that sodium paracreosotinate in small amounts is not toxic to man,[1, 15, 16] and this is the chief impurity blamed for the alleged inferior worth of the artificial salicylate.

There is experimental evidence from three sources only. First is that from Charteris, and Charteris and Maclennan. This ultimately showed that it is commercially possible to purify the artificial salicylic acid so completely as to yield a product, physically, chemically and pharmacologically identical with the "natural." And the author of this work advises the use of the artificial salicylic acid thus purified. The second experimental work is that of Stockvis. This, we have seen, means, if it means anything, that the artificial and "natural" salicylates have the same qualitative actions, but that the "natural" is *milder*, though no less fatal. The last experimental work, that of Waddell, gives very strong evidence that the *cheapest procurable artificial salicylates* of the present day are in no way different pharmacologically from the costly "natural."

In the period of thirty-eight years during which time the artificial salicylates have been in use in medicine, there are to be found, in the entire realm of accessible literature, less than twenty-five communications dealing, even casually, with the relative advantages of the artificial and the "natural" salicylates. In all these years many thousands of patients have been treated with large doses of the artificial salicylates and many of the ablest clinicians and the most acute observers in England, America and on the Continent have watched the results of such treatment. Yet there are a scant fifteen who have been led to report these preparations as being more harmful than any other form of salicylate administered under similar conditions, and in similar amounts. The rest have probably rightly attributed such ill effects as mental excitement, delirium, nausea, vomiting, tinnitus and the like to an excessive amount of the drug or to an idiosyncrasy on the part of the patient, or perhaps to both.

We have to remember, also, that nearly all of the reports of the deleterious actions of the synthetic salicylates were made well over ten years ago, and that it is possible that at that time certain samples of these products were badly contaminated.

At the present time the idea of the superiority of the "natural" salicylates is sedulously fostered by certain manufacturers, rather than by the experiences of the medical profession. In the "literature" and advertisements of one of these, Charteris is quoted as one of the powerful advocates of the "natural" salicylates. I would suggest that, in the future, mention should be made of his second and third papers, rather than of the first only.

In conclusion, let me say that I have presented all of the evidence from the literature which I can unearth. I have tried to make the excerpts and quotations in such a way as to present the opinions of the several authors with neither omissions nor alterations, such as might in the least alter the meaning that each wished to convey. Lastly, I have brought out such objections to the evidence on either side of the question as have occurred to me in the reading of these papers and in the writing of this one.

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[25] Lambert: The Use of Salicylates in Rheumatism, THE JOURNAL A. M. A., Sept. 9, 1911, p. 898.

[26] Italics mine.

From the material at hand there seem to be but two logical conclusions:

1. The evidence in favor of the "natural" salicylates rather than the artificial is extremely slight, or what amounts to the same thing, the evidence against the artificial salicylates is even less.

2. In nearly forty years of use by physicians all over the world, the artificial salicylates have been found quite as effective as the "natural" and no more liable to produce unfavorable actions under similar conditions than are these vastly more expensive "natural" products.

414 East Twenty-Sixth Street.

A METHOD OF CONTINUOUS DILATATION OF EXTENSIVE URETHRAL STRICTURE

JOSEPH RILUS EASTMAN, M.D.
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INDIANAPOLIS

Three decades ago the followers of Otis, who were very numerous, cut every stricture of the anterior urethra. To-day strictures of the pars anterior are rarely cut. This is owing to the teachings of Oberlaender, Wossidlo, Valentine and Kohlmann, and to the consequent increase of knowledge and more careful study of the dilatation treatment. It took years to establish the principle that sounds and dilators are not used to stretch strictures. Such an instrument in the urethra exerts a dynamic influence. According to Oberlaender, it induces retrograde metamorphosis, a reconversion of the fibrillary tissues into the original small-celled deposit, permitting absorption. It has been intimated that the cells of the infiltrate are rendered soluble or diffusible or absorbable by peptonization; and again that absorption is favored by a teasing apart of cells, as in the Bier method of inducing artificial hyperemia. Whatever theory may finally explain the phenomenon, it may be fairly stated that pressure absorption of urethral inflammatory infiltrations, soft and hard, is an accredited and authentic observation.

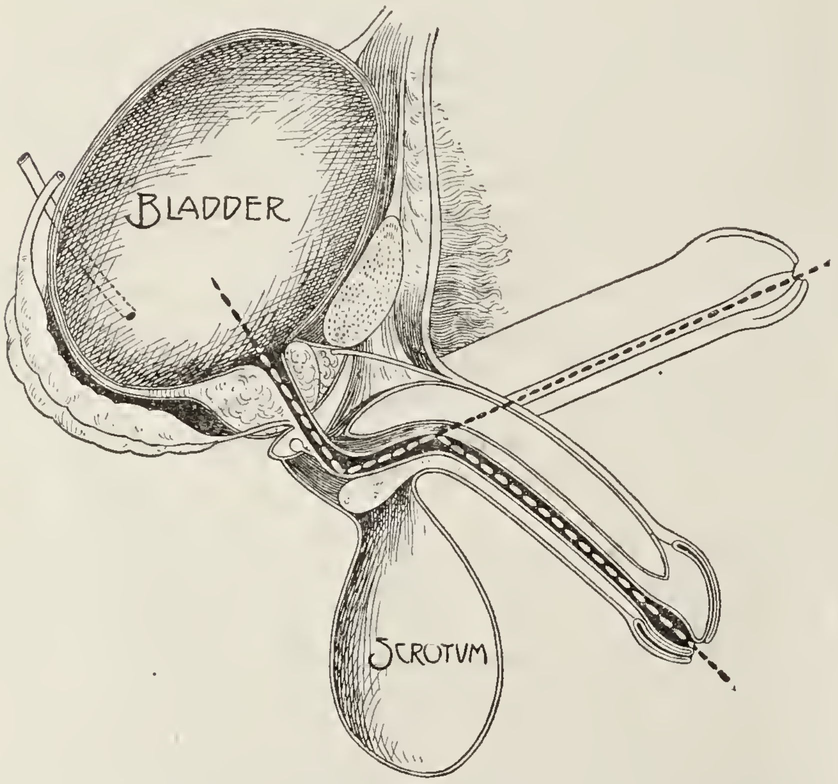

Fig. 1.—Curves at membranous portion of urethra and penoscrotal junction (after Gray). In erection only one decided curve is present.

After perineal section for strictures that narrow both the anterior and posterior divisions of the urethral canal, it has been my practice to drain the bladder by the natural route, leaving a large soft rubber catheter in the urethra. This plan has some advantages. The period of convalescence is shortened, since the perineal wound closes more promptly if the urine be drained through the catheter. The urinary salts which irritate the mucosa and favor stricture formation (Keyes) are not permitted to touch the urethra. The caliber of the urethra is maintained or even increased, and the subsequent passage of instruments is rendered easy. Much of the tedious work of after-treatment, such as sounding, becomes unnecessary or is decidedly lessened. Soft and hard infiltrations of the pars anterior are removed by the pressure absorption induced by the presence of the catheter.

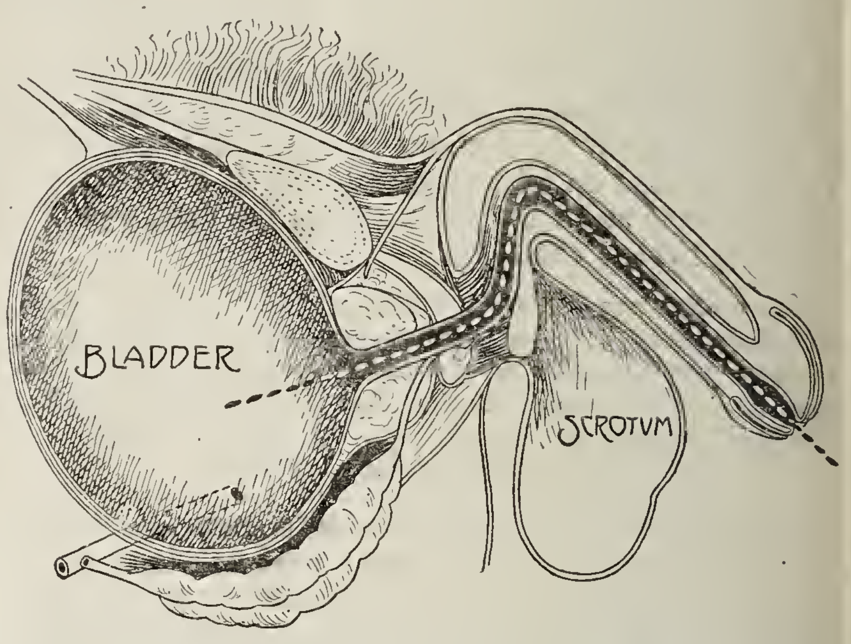

Fig. 2.—Sharp penoscrotal angle. The normal angle is shown as it is exaggerated by depression of the outer end of the catheter into urinal.

If a perineal drain alone be used, there is, of course, no continuous dilatation of the anterior urethra.

There is, however, one defensible objection to the use of the dilating catheter if employed as described above. Lying in the urethra and extending from the bladder to the external meatus it usually becomes sharply curved or angulated in the pars membranacea and at the penoscrotal juncture. The pressure induced by the sharply flexed catheter at the penoscrotal angle has led to abscess formation or extensive inflammatory reaction often enough to suggest the need of a departure from the plan of using the same catheter for drainage and dilatation, and of employing instead two large elastic soft rubber catheters, one as a perineal drain, the other for dilatation of the pars anterior.

It has been observed by those who are accustomed to drain the bladder through the urethra for certain conditions that a small soft thin-walled rubber catheter has less tendency to cause abscess than a large rubber tube with thicker walls. The former, however, is of much less value as a dilator, and is more difficult to retain in position. If the outer end of the catheter be drawn up over the abdomen and connected with a urinal at the side of the bed, one curve is made of the urethral canal, and the danger of abscess lessened. It is not easy, however, thus to hold a catheter in place because of unavoidable traction.

From Figure 1, it will be seen that if the external meatus be not depressed as it usually is in catheter drainage through the urethra, there need be no sharp angulation at the penoscrotal juncture. If the penile portion of the urethra be elevated the entire pars anterior becomes quite straight.

In order to provide simultaneous dilatation of the pars anterior and at the same time prevent angulation at the penoscrotal attachment, or bulbomembranous junction, one catheter is employed as a dilator of the posterior urethra and as a perineal drain. The other short rubber tube is placed in the anterior canal. The short catheter is passed from the meatus along the anterior urethra, which under anesthesia has been fully dilated, and is secured to the draining catheter by a chromic catgut loop at the opening in the membranous urethra. If the danger of abscess be thus removed, the catheters may lie in the relative position indicated for two or three weeks, or longer if required, until the normal urethral caliber is permanently reestablished. Ordinarily, catheters of 26 French are large enough, for the reason that after such an instrument has exerted its influence in the canal for two or three weeks the urethral caliber will be found to be several sizes larger (Charrières scale) than that of the catheter.

The mechanical urethritis produced by a rubber catheter is, as a rule, unattended by symptoms other than discharge of mucopus from the meatus, which discharge subsides almost immediately on withdrawal of the catheter. Such inflammations may be minimized by irrigation of the urethra before introduction of the catheter and subsequent irrigation, if practicable (it usually is practicable), between the urethral mucosa and the catheter. Perhaps one patient in fifty cannot bear the retention catheter, owing to vesical spasm or chill, but even in these cases an opiate on the one hand or quinin on the other may make protracted retention possible.

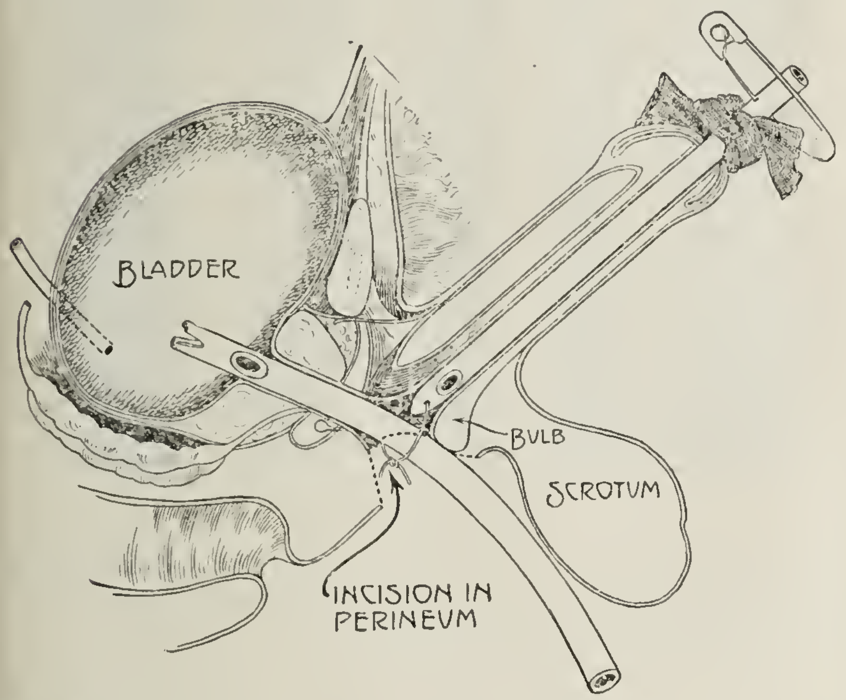

Fig. 3.—Author's method of draining bladder by large rubber catheter and passing second dilating catheter through anterior urethra to opening in membranous urethra, where it is secured to first by a catgut loop. The anterior urethra conforms itself to the catheter without angulation. The penoscrotal urethral angle is temporarily obliterated. Pressure here is relieved and inflammatory induration or abscess does not appear.

In my cases there has been very little complaint of urethral pain, and the discharge was never annoying, usually just enough secretion of tough fibrinomucopurulent character accumulating during twenty-four hours to form a ring on the catheter at the meatus. The decidedly benign urethritis became less active after the catheter had been in position for a few days. In two cases the catheter was retained without changing for two months, and in these, during the latter weeks, the discharge became practically *nil*.

The urethral mucosa develops a tolerance for the instrument after a few days.

In a few of my cases, during the first few days potassium permanganate in hot, weak solution was injected between the catheter and the mucosa, but even when this measure was omitted the urethritis was slight.

The catheters used were of soft rubber, with two eyes. Large sizes were chosen for the reason that such catheters as completely fill the lumen of the urethra occasion less frictional irritation than smaller ones, which readily bend sharply, or angulate, or slide and twist in the canal. The presence of the large catheter in the bladder neck relieves irritability in this region. Severe muscle spasm or tenesmus rarely occurs during its use.

In order that during erection the outer end of the short catheter may not be drawn in through the meatus, it is secured by a safety-pin with a gauze ring to serve as a buffer.

331 North Delaware Street.

FAT EMBOLISM FROM A CHRONIC OSTEOMYELITIS

MERTON FIELD, M.D.
CANBY, MINN.

The literature on "fat embolism" is remarkable because of its brevity and lack of detail. Keen[1] gives a brief historical sketch of the subject, as do also LaConte and Stewart.[2] In my study of the literature, however, I find no mention of fat embolism coming from a chronic bone disease with no apparent trauma. Having had a case of the kind I feel it of sufficient importance to be reported.

History.—Miss H., aged 19, had typhoid fever at the age of 10. Since then the distal end of the femur had been the seat of a chronic inflammation with a discharging sinus. In the fall of 1910 she was operated on. The sinus healed and gave no further trouble until March, 1911.

Present Illness.—March 12, 1911, on her way to Rochester, Minn., the patient stopped off at Canby, Minn., apparently as well as when she left her home. It should be noted that in addition to her railroad journey of 100 miles she had ridden fourteen miles over rough roads to the railroad station. I was consulted regarding an embarrassment in her breathing. Her condition was in no way serious, and my impression was that it was a simple bronchitis caused perhaps, by a slight cold, although there was no evidence of such a condition. The pulse was 90, the temperature normal and the respirations were slightly rough and bronchial.

March 13 the patient was more comfortable. The bowels and kidneys were active. The urine was free from albumin and microscopically was free from casts or other matter. For the next four days her condition was practically unchanged except for returning paroxysms of dyspnea. March 18 the patient had a hard night. Breathing was difficult and cyanosis marked, but temperature was normal. The bowels and kidneys were active.

Treatment and Course.—March 19 the patient had another hard night. Some relief was obtained by the use of atropin, morphin and strychnin hypodermically. The pulse range for the day was from 93 to 140; the temperature was normal while the respirations were from twenty-four to twenty-eight. At 1 p. m. the chart read: "cyanotic, heart action weak, respirations short, wheezy, painless." There was retention of urine, of which 14 ounces were taken by catheter during the day. The patient was in great distress and was vomiting. Epinephrin (adrenalin chlorid, P., D. & Co.) hypodermically gave some relief. At 8:45 p. m. there was a "terrible struggle for breath." At 11:25 p. m. the chart graphically described the patient's condition as "rigid, cyanotic, pulseless, and comatose for forty minutes." Dr. Henrik Tillish was called in consultation. To him the case appeared as one of the extreme types of asthma.

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[1] Keen's Surgery, i, 462.

[2] LaConte and Stewart: American Practice of Surgery, vii, 198.

Examination of Urine.—On further study of the case I was impressed by the similarity of her condition to that which I once saw in an embolism from a compound fracture of the tibia. Thinking that I might now be dealing with such a condition I took a sample of urine and examined it for the presence of fat. This urine was taken by catheter while the patient was still in a semicoma, but no fat was found even after a long search with the microscope. March 20 the patient's condition was improved over that of the previous day. She was vomiting, and had a severe headache and nervous twitchings of the extremities. She was also very weak and had retention of urine. A sample taken at 7:30 p. m. was examined chemically and microscopically. Sugar and albumin were not found, but fat globules of all sizes were abundant. The characteristic globules of fat were unmistakable. March 21 the patient was nervous but passed urine voluntarily. Fat was still present microscopically.

March 22 the patient's condition was again critical. There were cyanosis, vomiting, violent headache and nervous twitching of the extremities. Breathing was very difficult; the heart was weak and the pulse irregular, varying from 78 to 148, with a variation in temperature from 98.6 to 100 F., and respiration from eighteen to forty-six. Dr. C. J. Holman of Mankato was called in consultation. It was agreed that the diagnosis could be made only by the presence or absence of fat in the urine. Urine taken March 22, during the attack, was fat-free. This was examined by Dr. H. D. Valin, pathologist of the Immanuel Hospital laboratory, Mankato, and by myself. I cannot give Dr. Valin's method of examination, but have reason to believe that it can be relied on. March 23 the patient was easier. I again made a microscopic examination of the urine and found fat globules in abundance. Wishing for further evidence I again sent a sample of the urine to Dr. Valin for examination. He confirmed my report. March 24 to 30, improvement continued but with repeated mild attacks of dyspnea. The mental condition was improved and the convalescence, though slow, was encouraging.

I have been unable to follow closely the recent history of the patient. She went west thinking that a change of climate would be of benefit. In this she has been disappointed and has been in failing health since. The last I heard of her was to the effect that she was again in the hospital in very poor health.

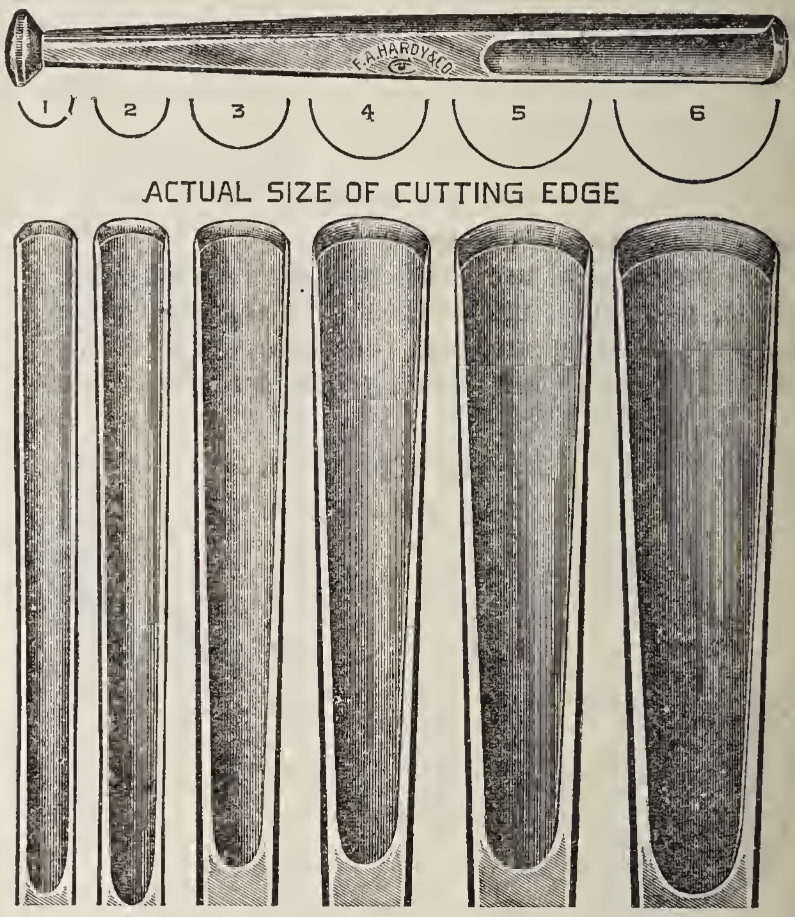
The diagnosis of this case depended on the presence of fat in the urine, and its intermittency. Keen[3] tells us that in "every suspected case of fat embolism the urine should be examined for fat. While in exceptional cases oil drops may not be detected in the urine, their presence confirms the diagnosis." LaConte and Stewart[4] say that "lipuria may, of course, be encountered in any condition mentioned above in which excessive lipemia is found. Scriba was able to demonstrate the presence of fat in the urine of all his patients with fracture. He found, however, that in fat embolism the lipuria was intermittent."

It is also to be noted that in the case which I have reported, fat was found only after the severe attack of dyspnea and cerebral disturbance. Extreme care was taken that the samples of urine were not contaminated with fat from outside sources and the results as given cannot be questioned.

NEW MASTOID CHISELS

Frank Allport, M.D., Chicago

There are various mastoid chisels in use, some being acutely rounded at the end, some being square, others having concave-convex bodies and still others being flat. All have their advantages and their disadvantages. Those with markedly rounded cutting edges allow the apex to sink into the bone before the sides, and thus necessitate uncertain chiseling, while the square-edged chisels, with pointed corners, are dangerous, as injury to the nerves, sinus, brain, etc., is liable to be caused by the sharp angles of the lateral edges. To avoid such difficulties and to possess a chisel combining the good and none of the bad qualities of the instruments in general use, I have had made, in six different sizes, a set of chisels which are concave-convex, bevel-sharpened on the front, very gently rounded on the back and slightly rounded on the edge with the corners turned forward so as to inflict no injury. For safety, sureness, accuracy and ease of manipulation, I have found them more satisfactory than any other chisels I have used.



New mastoid chisels.

7 West Madison Street.

New and Nonofficial Remedies

The following additional articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Their acceptance has been based largely on evidence supplied by the manufacturer or his agent and in part on investigation made by or under the direction of the Council. Criticisms and corrections are asked for to aid in the revision of the matter before publication in the book "New and Nonofficial Remedies."

The Council desires physicians to understand that the acceptance of an article does not necessarily mean a recommendation, but that, so far as known, it complies with the rules adopted by the Council.

W. A. Puckner, Secretary.

GLYCOTAURO.—Bile Salts, H. W. & Co.—Glycotauro is concentrated ox bile, freed from bile pigments, each 1 Gm. representing approximately 10 Cc. of fresh ox bile.

Glycotauro is prepared by evaporating ox bile in presence of animal charcoal, extracting the residue with purified methyl alcohol, filtering, evaporating the filtrate and mixing the residue with glycerin.

Glycotauro is a soft, semi-solid mass of light brown color, bile-like odor and slightly bitterish taste. It is easily soluble in water and alcohol. Its specific gravity is about 1.22.

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[3] Keen's Surgery, i, 466.

[4] LaConte and Stewart: American Practice of Surgery, vii, 201.

Actions and Uses.—See Bile Salts (N. N. R., 1912, p. 44).

Manufactured by Hynson, Westcott & Co., Baltimore, Md. No U. S. patent or trademark.

Glycotauro Capsules, 5 grains.—Each capsule contains glycotauro 0.3 Gm. (5 grains).

Glycotauro Pills, 1 grain.—Each pill contains glycotauro 0.06 Gm. (1 grain).

MERCURIAL OINTMENT, IMPROVED, Mulford.—An ointment containing 50 per cent. of metallic mercury in an ointment base consisting of anhydrous wool-fat, petrolatum and suet, aromatized.

Mercurial ointment, improved, is a slate colored, semi-solid mass having a pleasant, aromatic odor.

Actions and Uses.—The same as Mercurial Ointment, U. S. P. Mercurial ointment, improved, is devoid of the unpleasant odor of Mercurial Ointment, U. S. P., and is claimed to be more readily absorbed.

Dosage.—The same as Mercurial Ointment, U. S. P.

Manufactured by the H. K. Mulford Co., Philadelphia. Not patented or trademarked.

Capsules Mercurial Ointment, Improved, Mulford, 30 grains.—Each capsule contains mercurial ointment, improved, Mulford, 2 Gms. (30 grains).

Capsules Mercurial Ointment, Improved, Mulford, 60 grains.—Each capsule contains mercurial ointment, improved, Mulford, 4 Gms. (60 grains).

Therapeutics

DISTURBANCES OF THE HEART

(Continued from page 1973)

CHRONIC DISEASE OF THE VALVES

The development of permanent injury to one or more valves of the heart may have been watched by the physician who cares for a patient with acute endocarditis. Or it may have been noted early during the progress of arteriosclerosis or other conditions of hypertension. On the other hand, many instances of valvular lesions may be happened on in a life-insurance examination, or are discovered by the physician making a general physical examination for an indefinable general disturbance or for local symptoms, without the patient ever having known that he had a damaged heart. The previous history of such a patient will generally disclose the pathologic cause or the physical excuse.

As soon as a valve has become injured, the heart muscle hypertrophies to force the blood through a narrowed orifice or to evacuate the blood coming into a compartment of the heart from two directions instead of one, as occurs in regurgitation or insufficiency of a valve. The heart muscle becomes hypertrophied, like any other muscle which is compelled to do extra work. Which part or parts of the heart will become most enlarged depends on the particular valvular lesion. In some instances this enlargement is enormous, increasing a heart which normally weighs from 10 to 12 ounces to a weight of 20 or even 25 ounces, and extreme weights of from 40 to 50 ounces and even more are recorded.

As long as the heart remains in this hypertrophied condition, which may be called normal hypertrophy since it is needed for the work that has to be done in overcoming the defect in the valve, there are no symptoms, the pulmonary and systemic circulation is sufficient, and the patient does not know that he is incapacitated. Sooner or later, however, the nutrition of the heart, especially in atheromatous conditions, becomes impaired, and the lack of a proper blood-supply to the heart muscle causes myocardial disturbance, either a chronic myocarditis or fatty degeneration. If there is no atheromatous condition of the coronary arteries, and arterial disease is not a cause of the valvular lesion, compensation may be broken by some sudden extra strain put on the heart, either muscular or by some acute sickness or a necessary anesthetic and operation. From any of these causes the muscle again becomes impaired and the heart, especially the part which is the weakest and has the most work to do relatively to its strength, becomes dilated, compensation is broken and all of the various circulatory disturbances resulting from an insufficient heart strength develop.

As long as compensation is complete, there is no medication and no physical treatment necessary for the damaged heart. The patient, however, should be told of his disability, and restrictions in his habits and life should be urged on him. The most important are that all strenuous physical exercise should be interdicted; competitive athletic work should be absolutely prohibited; prolonged muscular effort must never be attempted, whether running, rowing, wrestling, bicycle riding, carrying a heavy weight upstairs or overlifting in any form. The patient should be taught that he should never rush upstairs, and that he should never run rapidly for a car or a train or for any other reason; he should not pump up a tire, or repeatedly attempt to crank a refractory engine; even the prolonged tension of steering a car for a long distance is inadvisable. He should be told that after a large meal he is less capacitated for exertion than a man who has not a damaged heart. It is better if he drinks no tea or coffee; it is much better if he absolutely refrains from tobacco and alcohol. Prolonged mental worry, business frets and mental depression are all injurious to his heart. Anything that seriously excites him, whether anger or a stimulating drug, is harmful. Any disease that he may acquire, especially lung disturbances, as pneumonia or even a serious cough, requires that he take better care of himself and be more carefully treated and take more rest in bed than a patient who has not a damaged heart. Anything that raises the blood-pressure is of course more serious for his heart than for a perfect heart; therefore the drinking of large amounts of liquid, even water, is inadvisable. It simply means so much more work for the heart to do. Such patients should rarely be given any drug that causes cardiac debility, and should never take one without advice. This applies to all the coal-tar drugs.

One other fact should be impressed on the individual with a valvular lesion and compensation, and that is that he has but little, if any, reserve circulatory power. In other words, while he is in apparently perfect health, it takes little circulatory strain to push his heart to the point of danger or insufficiency. As nothing keeps this reserve so good or increases it more than rest, he should expect to have a restful day at least once a week, and a good rest of at least two or three weeks once or twice a year.

A patient with these restrictions may live for years with a serious valvular defect and may die of some intercurrent disease that has nothing to do with the circulatory system.

It is easily recognizable that as the majority of acute lesions of the valves occur in children, it is impossible to prevent them from taking more or less strenuous exercise, and this is probably the reason that we have so many serious broken compensations during youth or early adolescence.

As referred to under the subject of myocarditis, many symptoms for which a patient consults his physician are indefinite and intangible, though due to cardiac weakness. If a patient with a damaged heart has a sudden dilatation, of course his symptoms are so serious that the physician is immediately summoned. If, however, he has a slowly developing insufficiency of the heart muscle, his first symptoms are more or less indefinite cardiac pains, slight shortness of breath, slight attacks of palpitation, a dry, tickling, short cough occurring after the least exertion, some digestive disturbances, often sluggishness of the bowels, gastric flatulence, possibly nosebleeds, and sooner or later some edema of the lower extremities at the end of the day.

To understand the physiology, pathology and the best treatment for broken compensation, it is necessary to study the physics of the circulation under the different conditions. With the mitral valve insufficient, a greater or less amount of blood is regurgitated into the left auricle, which soon becomes dilated. Distention of any hollow muscular organ, if the distention is not to the point of paralysis, means a greater inherent or reflex attempt of that organ to evacuate itself; the muscular tissue begins to grow and a hypertrophy of the left auricle with the above-named lesion develops. The muscular tissue of the auricle, however, is not sufficient to allow any great hypertrophy. The blood flowing from the pulmonary veins into the left auricle finds this cavity already partly filled with blood regurgitated from the left ventricle. The pulmonary blood, being impeded, tends to flow more slowly, and therefore dams back into the lungs, causing a passive congestion of the lungs. The pulmonary artery thus finds the pressure ahead unusually great, and the right ventricle reflexly learns that it requires a greater force to empty itself than before; in fact, it may not succeed in completely accomplishing this until its distention, by an incomplete evacuation of its contained blood plus the blood coming from the right auricle, has caused the right ventricle also to become hypertrophied. This increased muscular action of the right ventricle relieves the pulmonary congestion and an increased amount of blood is forced into the left auricle. On account of its hypertrophy the left auricle is able to send an increased amount of blood into the left ventricle, which in turn becomes hypertrophied and sends enough blood into the aorta to satisfy the requirements of the systemic circulation in spite of the leakage through the mitral valve.

As long as this compensation continues there are no symptoms. If any dilatation occurs from disease, degeneration or from increased work put on the heart (and it is readily seen how delicate this equilibrium is), signs of broken compensation begin to occur. The left ventricle with its enormous strain is perhaps the first part to dilate, thus enlarging the opening of the defective mitral valve. The left auricle is then unable to cope with the increased amount of regurgitant blood, and there is in consequence congestion in the lungs, and the right ventricle finds the pressure ahead in the lungs greater than it can well overcome. The right ventricle, in its turn being overworked, becomes dilated, and as a result of the right ventricle's inability to evacuate its contents perfectly, the right auricle is unable to force its venous blood into the right ventricle, and there is then a damming back and sluggish circulation in the superior and inferior venae cavae. The results of these circulatory deficiencies are, in the first place, congestion of the lungs and dyspnea; in the second place, with the impaired force of the left ventricle making the arterial circulation imperfect, and with the impaired return of venous blood to the right auricle making the venous circulation sluggish, passive congestions of various organs occur and are evidenced in headache and venous congestion of the eyes and throat, with perhaps cerebral irritability, sleeplessness and inability to do good mental work. The sluggish return of the blood in the inferior vena cava causes primarily a sluggish portal circulation with a passive congestion and enlargement of the liver. This causes imperfect bile secretion and an imperfect antidotal action to the various toxins of the body or to any alkaloidal drugs or poisons ingested. This congestion of the liver causes a damming back of the blood in the various abdominal veins, which causes congestion of the stomach and of the mucous membrane of the bowels, and an imperfect secretion of the digestive fluids of these structures. There is also congestion of the spleen. The imperfect return of the blood through the inferior vena cava also interferes with the return of the blood through the renal veins, and more or less renal congestion occurs, with a concentrated urine and perhaps an albuminuria as the result. The same sluggish flow of the inferior vena cava blood plus the imperfect tone of the systemic arterial system means that the circulation at the distal portions of the body — the feet and the legs — is imperfect when the patient is up and about, with the result of causing pendent edemas, which disappear at night when the patient is at rest and the heart more easily accomplishes its work.

The physical signs of such a heart, the increased valvular murmur or murmurs, its irregular action, possibly intermittency or irregular contractions of different parts of the heart, causing dicrotic or intermittent pulse with a lowered blood-pressure, are all signs readily found. The quickened respiration is Nature's method of aiding the return circulation in the veins by increasing the negative pressure in the chest. The increased number of pillows the patient requires at night is to aid Nature's need to have a better venous return circulation in the vital centers at the base of the brain.

The dry, troublesome, tickling cough is generally due to a congestion of the blood-vessels at the base of the tongue, in the lingual tonsil region or possibly in the larynx. Later the passive congestion of the lungs may be sufficient to cause a bronchitis, with expectoration.

Sometimes these patients have, as indicative of primary cardiac distress, sharp pains through the heart. Such pains are the exception rather than the rule, and are more likely to occur in chronic myocarditis or in coronary disease; in other words, in true angina pectoris.

If there is considerable venous congestion there may be more or less frequent recurrent venous hemorrhages. This frequently is an epistaxis, or a bleeding from hemorrhoids, or in women profuse menstruation or a metrorrhagia.

It is perfectly understandable from the physics of the condition of broken compensation that anything that improves the tone of the heart and makes it again compensatory removes all of these many disabilities, congestions and subacute inflammations. If, however, these passive congestions are long continued, some organs soon become chronically degenerated. This is especially true of the liver and kidneys.

Mitral stenosis, though less common than mitral regurgitation, is a frequent form of disease of the valves, especially in women. Often this condition is associated with regurgitation, but in a simple mitral stenosis the greatest hypertrophy is of necessity in the right ventricle. The left auricle finds it difficult to empty all of its blood into the left ventricle during the ordinary diastole of the heart. This auricle then somewhat hypertrophies, but is unable to prevent more or less damming back of the blood into the lungs through the pulmonary veins. This causes passive congestion of the lungs, and the right ventricle finds that it must labor to overcome the increased resistance in the pulmonary artery, and hypertrophies to overcome this increased amount of work. When this condition has become perfected, compensation is established and the circulation is apparently normal. Nature causes these hearts, when they are disturbed or excited, to pulsate slowly, causing the diastole to be longer than in a heart with mitral regurgitation. This allows more blood to enter the left ventricle, and the left ventricle, acting perfectly on the blood that it receives, causes a good systolic pressure in the aorta and the systemic arteries. The left ventricle in this condition does not become hypertrophied. If the heart does act rapidly and the left ventricle contracts on an insufficient amount of blood, the peripheral pulse is necessarily small and the arterial tension is diminished. Very constant in this condition, and of course noticeable whenever there is pulmonary congestion, is the sharp, accentuated closure of the pulmonary valve. The lungs on the least exertion are always a little overfilled with blood. The pulmonary circulation is always working at a little disadvantage.

The first symptoms of lack of compensation with the lesion of mitral stenosis are lung symptoms — dyspnea, cough, bronchitis, slight cyanosis, sometimes blood-streaks in the expectorated mucus and froth, and if the congestion is considerable some edema of the posterior part of the lungs, if the patient is in bed. Sooner or later during this failing compensation the right ventricle becomes dilated, and the symptoms of cardiac insufficiency and venous congestion occur, as above described with mitral insufficiency.

Again, as in mitral insufficiency, if compensation is restored in mitral stenosis, these symptoms are improved. These patients, however, are never quite free from dyspnea on exertion. Any inflammation of the lungs, even a severe bronchitis, is more or less serious for the patients and their hearts. The mucous membrane of their bronchial tubes and air vesicles is always hyperemic, and it takes little more congestion to all but close up some of the passages, and dyspnea or asthma or suffocating, difficult cough is the consequence.

Next in frequency to mitral insufficiency is *aortic insufficiency,* which occurs most frequently in men. The cavity of the heart that is most affected by this lesion is the left ventricle, which receives blood both from the left auricle, and regurgitantly from the aorta. This part of the heart being the strongest muscular portion is the part most adapted to hypertrophy, and the hypertrophy with this lesion is often enormous. For a long time this large muscular section of the heart can overcome all difficulties of the aortic insufficiency. The pulse, however, will always show the quickly lost arterial pressure of every beat on account of the aorta losing its pressure through the regurgitant flow of blood. Sooner or later, from the impaired aortic tension causing a diminished or imperfect flow of blood through the coronary arteries, impaired nutrition of the heart muscle occurs. In other words, an interstitial or chronic myocarditis or fibrosis develops, with perhaps later a fatty degeneration. When this condition occurs of course the repair of the heart is impossible.

This form of valvular lesion is the one that is most likely to cause sudden death. In aortic regurgitation Nature causes the heart to beat rapidly. Such a heart must never beat slowly, as the longer the diastole prevails the more blood will regurgitate into the left ventricle, and death may occur from sudden anemia of the base of the brain. Such a heart may of course receive a sudden strain, or the left ventricle may dilate, and yet serious myocarditis or fatty degeneration may not have occurred.

The signs of lack of compensation are generally cardiac distress, rapid heart, insufficiency of the systolic force of the left ventricle, and therefore impaired peripheral circulation, a sluggish return circulation, pendent edemas, and soon, with the left auricle finding the left ventricle insufficiency emptied, the damming back of the blood as in broken compensation with the mitral lesions.

Aortic narrowing or *stenosis* is a frequent occurrence in the aged and in arteriosclerosis when the aorta is involved. It is not a frequent single lesion in the young. If it occurs in children or young adults, it is likely to be combined with aortic regurgitation, meaning that the valve has been seriously injured by an endocarditis.

The first effect of this narrowing is to cause hypertrophy of the left ventricle, and as long as this ventricle is able to force the blood through the narrowed opening at the aortic valve, the general circulation is perfect. Nature again steps in to cause such a heart to beat deliberately, allowing time for the contracting ventricle to force the blood through the narrowed orifice. The blood-pressure may be sufficient, or even increased if arteriosclerosis is present, although the rise of the sphygmograph tracing is not so high as normal. If the pressure in the aorta is sufficient from the amount of blood forced into it, the coronary arteries receive enough blood to keep up the nutrition of the heart muscle. Sooner or later, however, the left ventricle will become weakened, especially when there is arteriosclerosis or other hypertension, and chronic endocarditis and fatty degeneration result.. If the left ventricle becomes sufficiently weakened or dilated the same damming back of the blood through the lungs and right heart occurs, and more or less serious signs of broken compensation develop. The main danger, however, with a heart with this lesion, occurring coincidently with arteriosclerosis, is a progressive chronic myocarditis.

Tricuspid insufficiency, except as rarely found in the fetus, is generally due to a relative insufficiency rather than to an actual disease of the tricuspid valve. In other words, if the right ventricle dilates the valve may be insufficient. *Tricuspid stenosis, pulmonary stenosis* and *pulmonary insufficiency* are rare, and are probably nearly always congenital.

The diagnosis as to whether the murmurs heard in the heart are hemic, functional, accidental, or indicative of valvular lesions would be without the scope of these articles. It is always presumed that a correct diagnosis has been made, or at least a presumptively correct diagnosis. Frequently more than one murmur and more than one lesion in a heart is present. Often one murmur denotes a permanent lesion and another may be one that will become corrected when compensation is improved.

(To be continued)

Newer Methods of Diagnosis vs. the Older.—I have often asked students at examination, "If a policeman were to bring a piece of garment with a stain on it, and he asked you whether it was blood, what would you do?" The answer in many cases has been, "Oh, I would use the spectroscope." I ask, "Have you a spectroscope?" Answer, "No, sir." "Then you would not use it." There is a tendency very often to run after the last new thing, and to run after the most out-of-the-way thing and to forget the common things.—G. V. Poore in *Clin. Jour.*

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METABOLISM IN FEVER

The construction of a rational dietary for patients suffering from fever depends ultimately on an adequate knowledge of metabolism in this disease. It is a familiar fact that fever is commonly attended with increased metabolism. Part of this augmentation, in many cases at least, is associated with the destruction of protein. If the loss of protein is the inevitable result of some toxic agent acting on the body cells, it becomes obvious at once that protein must be furnished in abundance to permit the regeneration of the decimated organism. If, however, the increased catabolism of protein is merely an incidental expression of the lack of carbohydrate or fat — if it is a sort of last resource for the supply of energy when the other nutrients are not available in sufficient abundance or are drawn on beyond the usual measure — less emphasis will be put on the replacement of protein and more on the inclusion in the diet of other suitable energy-yielding components. Underfeeding may bring on undernutrition independently of any specific effect of the fever on the nutritive processes proper. The important point is to ascertain the real facts; for our theoretical considerations must, after all, hinge on the actual results of nutrition investigations. If deficient calorific value and lack of carbohydrates in the usual fever dietaries are accountable for the increased tissue waste on the common lower protein diets, or if large protein ingestion alone can prevent tissue loss, a practical solution of the food problem for the patients is at hand.

Aside from a special toxic action of the fever-producing agent and aside from inanition or undernutrition as an incidental accompaniment of the disease, it is also possible that the high temperature may of itself have a deleterious effect expressed in an increased protein destruction. This temperature factor can be investigated apart from the other possibilities referred to. Indeed, it must be remembered that high temperature or hyperthermia may also be induced in the body by other means than infection with bacteria or protozoa. A neurogenic fever can be brought about by direct stimulation of nerve cells in the midbrain; and physiologic fever results when the body is maintained in an environment of 40 C. (104 F.) under conditions that prevent the normal loss of body heat through radiation and conduction. This happens during prolonged immersion in a hot bath or in the steam bath in which the sweat is unable to evaporate, so that the physical method of temperature regulation is abolished. By adjusting the amount of steam the heat loss can be increased or diminished and a high body temperature kept fairly constant for any length of time. A close resemblance to real fever is thus produced; for while the production of heat is increased, the loss of heat from the surface of the body is diminished and the skin temperature still remains several degrees lower than the body temperature.

The failure of many of the attempts to solve the physiologic puzzles in febrile disturbances lies in the large number of variables which the disease manifestations encompass. Accordingly, it is difficult to unravel each contributory element and evaluate its relative importance. The effect of the temperature factor on the metabolic processes in fever has been subjected to renewed investigation in the clinic of Friedrich von Müller at the University of Munich.[1] The experiments were designed to test the two hypotheses, one of which maintains that the high temperature itself causes a destruction of body proteins;[2] the other, that the high temperature causes an increased energy production, to which, in the absence of sufficient non-nitrogenous substances the proteins are called on to contribute. The steam bath was used to produce hyperthermia. When there was a great excess of carbohydrate food administered in order to spare protein as much as possible, no increase in the nitrogenous output occurred. Temperatures about 39 C. (102.2 F.), such as were maintained in the Munich experiments, do not of themselves have any destructive effect on the tissue proteins. The increased energy exchange here initiated by the high temperature must have been associated with nitrogen-free substances, probably for the most part carbohydrates. If a diet of ample calorific value is taken which contains a minimum of carbohydrate and a large excess of protein, the fat metabolism is increased; and the same participation of the stored fat is found when the diet is of insufficient calorific value but still contains a fair amount of protein.

The conclusion from these observations is that, in fever, high temperature by itself produces no destruction of the proteins of the body. The rôle which the toxic factor may play needs to be investigated apart from the considerations adduced above. The work of Shaffer and Coleman[3] has shown that it is possible to maintain typhoid patients in nitrogenous equilibrium if the possibility of febrile inanition is averted by liberal ingestion of excess of carbohydrate with an adequate supply of protein. Finally, Grafe has lately suggested that the high protein metabolism found in fevers may be entirely accounted for ordinarily by deficiency in available carbohydrates, so that there is apparently no occasion to call on a hypothetical toxic action of the infective agent to explain the nutritive phenomena observed.

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[1] Graham, George, and Poulton, E. P.: The Influence of High Temperatures on Protein Metabolism with Reference to Fever, Quart. Jour. Med., 1912, vi, 82.

[2] Compare Linser and Schmid: Deutsch. Arch. f. klin. Med., 1904, lxxix, 514.

[3] Shaffer, P. A., and Coleman, W.: Arch. Int. Med., December, 1909, p. 538.

SCHRANK ADJUDGED INSANE ON REAL EXPERT TESTIMONY

Wisconsin can, with good reason, feel proud of the record she has established in trying and disposing of John Schrank, who on October 14 attempted to assassinate Colonel Roosevelt, and on November 25, exactly six weeks later, was committed to the insane asylum. Those who have complained of the law's delays, the endless technicalities, the jarring "expert witnesses," the motions for new trials and the appeals on flimsy pretexts that have characterized most criminal prosecutions of late years, will read with relief and new hope the record of the simple, sane and thoroughly dignified procedure followed by the trial judge. The court appointed a commission of five well-known alienists to examine the accused and report to the court as to his sanity. As noted last week in our news columns, the commission, after careful investigation, reported unanimously that Schrank was suffering from insane delusions, that he was insane at the time of examination and that he was unable to conduct his defense intelligently. As a part of the report, they submitted a statement prepared by Schrank to be read to the jury, which statement alone contained sufficient internal evidence of Schrank's mental irresponsibility. According to the newspapers, Schrank showed keen disappointment in not being allowed to pose as a martyr, to the satisfaction of his paranoiac delusions and the inspiration of other insane cranks. The entire procedure is in gratifying contrast to some of our "celebrated" murder trials and is an unanswerable reply to the argument that such spectacles are necessary to protect individual rights or are unavoidable under our laws. Judge A. C. Backus, the trial judge, deserves the approbation of all good citizens, and especially of all practitioners of medicine and law, since it is on these two professions that the scandal and disgrace of the abuses of expert testimony have fallen most heavily.

On account of the interest shown in this case, some information regarding the Wisconsin law would not be amiss. Judge Backus' action was taken under Section 4700 of the revised statutes of Wisconsin. This law was enacted in 1898, and in view of its satisfactory provisions, it is surprising that it has not been used heretofore by Wisconsin judges. Apparently, Judge Backus is the first to apply it. This section reads: "When any person is indicted or informed against . . . if the court shall be informed in any manner that there is a probability that such accused person is at the time of his trial insane, and thereby incapacitated to act for himself, the court shall in a summary manner make inquisition thereof by a jury or otherwise, as it deems most proper, and if it shall be thereby determined that such accused person is so insane, his trial for such offense shall be postponed indefinitely and the court shall thereupon order that he be confined in one of the state hospitals for the insane."

A law was also enacted in 1911 (Chapter 221, Session Laws), providing that, even in case the accused is found insane at the time of trial and sent to an asylum, if he subsequently recovers and is returned for trial on the original charge, the presumption of sanity at the time the offense was committed shall prevail, unless a reasonable doubt of his sanity is raised in the minds of the jury. In the Schrank case the proof of guilt was absolute, and the only possible defense was insanity.

It should be noted that the inquiry regarding Schrank's sanity was not a part of his trial for attempt to kill, or in any way a substitute therefor. Schrank has been declared insane by the court, and ordered confined in an asylum. He is still in the custody of the court and cannot be released except by order of the court, and then only if he is found sane, in which case he will be brought back to the court for trial for his offense, for which he is still amenable to punishment. This plan avoids putting lunatics on trial on criminal charges, as the inquiry precedes the criminal trial. It also prevents the possibility of a short confinement in an asylum being substituted for a severer punishment, as has too often occurred. If Harry Thaw were adjudged sane, he would be a free man. If Schrank is at any time declared sane, he will still have to answer for his crime. We repeat, Wisconsin is to be congratulated on having such a law and such a judge.

FALSE FOOD STANDARDS AND THE HIGH COST OF LIVING

The current discussion regarding the high cost of living raises the question as to the various ways in which the situation can be met and ameliorated. Legislative enactments can accomplish no permanent gain when they are based on false principles; for economic adjustments are bound to follow in counteracting ways along directions that are often totally unsuspected. Propaganda is likewise rarely productive of helpful and permanent reforms unless it relies on indisputable scientific facts and makes a rational appeal to the masses. On the other hand, there are popular prejudices so deeply rooted that it frequently seems almost hopeless to attempt to correct them, especially in these days when almost every legitimate effort at scientific reform is popularly charged with elements of suspicion. It is easy enough to secure attention for some new food product by a well-worded advertisement, or to win favor for some ridiculous impossibility such as soap made from buttermilk or oatmeal; but pages of argument are unavailing to convince the average American that real butter is rarely of a deep yellow color. Too often the pure product awakens in him the suggestion of grease, so thoroughly has he become falsely trained to demand artificial color in butter.

Meats are among the most expensive factors in the dietary of man, making up about one-third of the average expenditure for food; and the butcher shop is the center around which many mistaken notions revolve. Certain "cuts" of meat are regarded as exceptionally choice and are much in demand, leaving a large portion of the carcass far less desired. This situation has at length reached the point where the loins and ribs forming only about one-fourth of the weight of the salable parts represent nearly one-half of the retail cost.[1] We may well ask whether such discrepancies in cost are justifiable on any rational grounds other than those of prejudice.

It must be frankly admitted that few purchasers and fewer consumers of meat have any accurate basis for a sound judgment in buying cuts of meat. Palatability of course plays a prominent part in the selections made; but there is an added undercurrent of belief that the more expensive cuts are somehow more wholesome and "strengthening." Now nutritive value, in the case of meats, is essentially determined by their content of protein and fats. There is a wide difference between different cuts in respect to the fat content; but since the latter can advantageously be supplied in other relatively inexpensive ways, the chief emphasis must be laid on the protein value of meats. A comparison of the cost of one pound of protein (not of meat) furnished by different parts of the carcass has been made from data compiled at the University of Illinois. These show clearly that the cheaper cuts of beef are by far the most economical sources of both lean and total edible meat, including fat and lean. Some actual figures are highly elucidating. The cheaper cuts, such as the neck, shank and clod, furnish protein for from 46 to 63 cents per pound; the flank, plate and chuck cuts, for about 85 cents; the loin, for $1.88. In terms of calorie cost the facts are equally striking, the wholesale price of 1,000 calories varying from 5 cents for the flank, plate and neck, to 15 cents for the loin and round.

Certain obvious criticisms of such a comparison may be answered at once. It must be freely admitted that some of the cheaper cuts are less tender and therefore more difficult to prepare for use than choice steaks and roasts. This is, however, in no small degree a problem which ought to be solved by expert culinary skill, just as it has been in the wholesale production of ready-to-eat cereals. There is little difference between the various cuts as to their content of those components, namely the extractives, which lend flavor and palatability to cooked meat. Cooking tests indicate that the proportion of waste and shrinkage is not necessarily greater in the cheaper than in the more expensive cuts. Furthermore, there is satisfactory evidence[2] that the digestibility is to a large extent independent of the kind or cut of meat and of the method of cooking.

The facts cited indicate how the retail prices of beef cuts are determined chiefly by considerations other than their food value, notably by tenderness, color, grain, general appearance and convenience in cooking. It is high time that those purchasers to whom matters of justifiable economy make an appeal should be educated to appreciate the irrational standards that characterize the demand for beef, to realize that the low-priced cuts are by far the most economical sources of nutriment from flesh, and accordingly to profit by the prevailing discrepancies in market prices. This advice applies in equal measure to public institutions, including hospitals, where a misapplied sense of duty often leads to well-meant but ill-judged dietary extravagance.

CLASSIFICATION OF STREPTOCOCCI

It will be recalled that in early days the streptococci causing erysipelas and suppurative septic processes were regarded as distinct and well-defined forms with definite and constant pathogenic effects. Gradually, however, it became apparent that the same streptococcus strain might cause widely different clinical reactions, as different as a mild, local infection and a fulminant streptococcemia. This great variability in pathogenic effect has been interpreted as the result of the operation of several variable factors, notably virulence on the part of the streptococcus, local and general resistance on the part of the patient, and mode and place of infection. The readiness with which streptococci gain and lose in virulence is a striking and unexplained phenomenon.

While differences do exist in streptococcal cultures from human sources in morphologic as well as physiologic respects, none has been found that is of such importance and permanence as to be the means of establishing fixed and specific varieties among the streptococci pathogenic for man. This is shown, for instance, by the failure to establish a distinct variety of streptococcus as the cause of articular rheumatism; it has been demonstrated conclusively that the peculiar power attributed to the rheumatism coccus of causing multiple arthritis in rabbits is shared by streptococci from a variety of sources. The elaborate attempt by Gordon and others to separate streptococci into definite groups according to their ability to ferment certain carbohydrates, glucosids and polyatomic alcohols, as well as by means of other tests, is threatened with failure on account of lack of stability of the functions considered. By retesting various strains after cultivation in various mediums and after animal passage, Walker[1] finds that the original reactions on Gordon's mediums present material modifications; strains at one time giving different reactions later give identical ones, and vice versa. It remains to be determined whether the improvement on Gordon's method introduced by Winslow, namely, quantitative titration of the amount of the acids produced, will yield more definite results. It is probably true, however, that these fermentative reactions do afford some evidence of the natural habitat or previous environment of the streptococci tested; consequently they may prove to have some practical sanitary significance in the determination, for example, of the source of streptococcal infection of milk and water.

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[1] These and other details are taken from Hall, L. D., and Emmett, A. D.: Relative Economy, Composition and Nutritive Value of the Various Cuts of Beef, Univ. of Illinois Agr. Expt. Sta., Bull. 158, July, 1912.

[2] Compare Grindley and Emmett: Office of Experiment Stations, Bull. 162, 1905. Grindley, Mojonnier and Porter: ibid., Bull. 193, 1907.

[1] Walker: Proc. Roy. Soc., B., 1912, lxxxv, 400.

The unitary conception of pathogenic streptococci is supported also by the failure to distinguish between streptococci from various processes by means of agglutination and other immunity reactions, the immunity reactions in streptococcal infections all pointing to the existence in the various strains of streptococci of protein substances with closely similar if not identical structure.

For the present, then, there seems to be no escape from the conclusion that we have no evidence of the existence of more than one species of streptococci pathogenic for man, although within this one species are encountered inconstant varieties, owing to the readiness with which they are influenced by the changes in the surrounding conditions. If a simple method could be found of distinguishing definite varieties among pathogenic streptococci, if varieties exist, it no doubt would prove of value not only in the determination of the source of streptococci in milk and water, but also and especially in the diagnosis, prognosis and treatment of the multifarious forms of streptococcus infection.

THE BLOOD TEST FOR PREGNANCY

When a foreign protein finds its way into the organism it provokes a protective response much as do many other types of foreign substances or organisms; a biologic change ensues whereby enzymes ordinarily missing in the body are called into play. They are frequently specific for the foreign product which is introduced; and their presumable significance is to be sought in the effort of the organism to destroy or utilize something for which it is ordinarily not equipped. Such enzymes suddenly called into existence may therefore be looked on as protective ferments. Foreign albumin in the blood-stream is soon accompanied by proteolytic enzymes which can digest it; foreign carbohydrates seem to meet a similar response.[1] The blood has acquired new digestive properties.

This phenomenon of reaction to the presence of foreign substances in the blood-stream is not limited solely to compounds which are introduced into the organism from without and which are foreign in this sense. Biologic changes taking place within the body itself may give rise to products not regularly found there. If they escape into the circulation the response developed may be fully as marked as that due to the direct introduction of something foreign derived from the external world. In this sense many neoplasms are foreign to the body; and the comparison is also true for the tissues and structures of the embryo, which develops, anatomically considered, in an environment of its own, isolated in some ways from the somatic tissues. The circulation of the fetus is, of course, independent from that of the body in which it is growing.

Some time ago we called attention[2] to the fact that during pregnancy the presumable escape of placental product into the general circulation provokes the presence of protective enzymes in the blood-plasma which are specifically capable of digesting placental protein. On the basis of this Abderhalden devised a specific biologic test for the existence of pregnancy in an individual by examination of the proteolytic power of the blood. Continued study has served only to confirm the evidence of the reliability of the reaction. Lately Abderhalden[3] has succeeded in simplifying the test so that it falls within the range of simple color reactions. Specially prepared and easily preserved placenta is digested in small quantities with two or three cubic centimeters of fresh serum of the individual female to be tested. The reaction is conducted in a small dialyzing tube. If the new protective enzyme has been developed in the body it will be present in the serum, will digest the placental protein (but not other proteins), and the products of proteolysis will diffuse through the dialyzer so that they can be identified by a simple protein test in the outside diffusion products. In its totality such a test is easier to carry out than many of the complicated and now commonly performed "blood tests" of immunochemistry. It has been found to apply to lower animals as well as man. One can easily conceive of circumstances in which the information thus gained would be most helpful, and the reputation of Professor Abderhalden gives a degree of assurance that the new "test" has a substantial and reliable experience behind it.

CHINA SUPPRESSING THE OPIUM HABIT

The establishment of the Chinese Republic has led many occidentals to change their settled opinion as to the deadly lethargy of spirit and the absolute inertia which they supposed characteristic of the inhabitants of the Celestial Empire. There is another story of accomplishment in China, however, during the past five years, which makes it even clearer than the recent revolution that there are undreamed of springs of energy in the character of the Chinese people. About five years ago the Chinese government decided that opium-smoking, which had become the national vice of China even to a greater extent than alcoholism is of the Western nations, must stop, and that within ten years. It is scarcely to be wondered at that when this government edict was issued it was greeted with smiles everywhere; ten years seemed entirely too short a period to set for any such reformation, at least two or three generations appearing more reasonable. Scarcely any one dared to hope for success and it seemed beyond all doubt that China had entered on an impossible task. Five years have passed of the ten-year period, and now the world knows that China has already achieved great things and that success in the great national crusade seems almost assured.

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[1] Compare Abderhalden, E.: Schutzfermente des tierischen Organismus, J. Springer, Berlin, 1912; commented on in our editorial, The Protective Ferments of the Blood and a New Test for Pregnancy, The Journal A. M. A., Sept. 14, 1912, p. 881.

[2] A Biologic Diagnosis of Pregnancy, editorial, The Journal A. M. A., May 25, 1912, p. 1604.

[3] Abderhalden, E.: Weiterer Beitrag zur biologischen Feststellung der Schwangerschaft, Ztschr. f. physiol. Chem., 1912, lxxxi, 90.

The method that China is pursuing will interest particularly those who are concerned with similar problems of the abuse of stimulants and narcotics and who are thinking of the possibility of eradicating even national vices. Five years ago China and Great Britain made what is known as "the ten years' agreement," by which the British government undertook to reduce the amount of opium sold in Calcutta on government account for export to China by 10 per cent. every year until the traffic had ceased. On her part China agreed to diminish her own production in a corresponding way. Measures were to be taken to reduce the growth of opium in China 10 per cent. each year until at the end of ten years no more would be raised. With supplies from India cut off and the home crop reduced and eventually suppressed altogether, the opium habit must necessarily disappear. The results accomplished thus far are promising, which is all the more remarkable because nearly every one prophesied failure, and the very missionaries who had carried on the crusade against opium for years sadly shook their heads, feeling that the great problem could not be solved in this simple way.

Travelers report that it is no longer common, as it was formerly, to see men smoking opium at their own doors. Even two years after the edict, those who smoked did so in secret. Dr. Cantlie quotes Lord William Gascoyne-Cecil in his fascinating book "Changing China," who tells of the extraordinary difference that even two years made in the aspect of the land. On his first visit the country between Hankow and Harbin, as seen from the railway, was exquisite with the pink and white crops of poppy. On his next journey, nearly two years later, every poppy had disappeared. The edict is being enforced. The agricultural map of China shows after five years that there has been an actual reduction of 50 per cent. in the production of opium. There has been as great a reduction in its use. This has been accomplished in spite of the fact that there were serious economic difficulties in the way. The small farmer nearly everywhere throughout China took up the cultivation of the poppy as a valuable "side line." Many grew only as much rice and as many vegetables as they used themselves; opium was the only product raised for the market. Opium is easily transported. A farmer could put the whole product of several fields on his back and sell it readily and profitably. The government deprived him of this source of income and the result has been a most favorable development in agriculture. In Yunnan, the province which formerly had the largest proportion of poppy growth, opium has given way to silk and cotton cultivation. In other districts the production of cereals has increased enormously. Particularly rice cultivation has grown in amount. Rice used to be imported, but enough is now raised in Chinese provinces to reduce the importation by several millions of dollars' worth.

All the world will watch with interest this other awakening of China, and the Oriental method of solving a great social question. In the West we have our social problems of a similar nature and China's example may prove illuminating and helpful.

Current Comment

THE NEWER SUBSTITUTES FOR GALENICAL PREPARATIONS OF DIGITALIS

Although every one interested in scientific medicine must welcome the introduction of definite chemical compounds in place of uncertain mixtures and extracts as a step in the direction of therapeutic progress, there is an ever-present danger of overhasty confidence in the newer acquisitions to our pharmacy, especially when they are heralded by the lips of interested producers. Digitalis and its pharmacologic relatives occupy a place of increasing prominence in drug therapy. Accordingly efforts to furnish the active principles in a form more specific, less subject to changes and dosage variation, and more permanent in measurable potency, commend themselves to those interested in rational therapeutics. The numerous attempts to solve the pharmaceutical problems here concerned have often been discussed in these columns. Lately three of the more recent substitutes for digitalis preparations have been investigated by biologic methods in respect to their relative stimulating powers and toxicities as well as their irritant properties and their relative rates of absorption from the gastro-intestinal canal, in the Pharmacological Laboratory at Cambridge, England.[1] The products investigated have become familiar through the medium of advertisements and represent the endeavors of well-known pharmaceutical manufacturers to meet a legitimate want. Dr. Cow compared "digalen," "digipuratum" and "digitalone" with a physiologically standardized tincture of digitalis. The recommendations for the newer products are often ambitious and include such claims as lessened toxicity, increased rapidity of action, diminished irritant effects permitting intramuscular or subcutaneous medication, and absence of disagreeable manifestations on the alimentary tract in comparison with the older galenical preparations. The hitherto published reports on the clinical value of the newer substitutes are variable and conflicting; hence the need of numerous unbiased and carefully controlled trials by methods which permit of some accuracy of judgment instead of the vague conjecture which attends so many of the bedside observations and conclusions. There is no occasion to rehearse here the details of the findings of the Cambridge pharmacologists or to make invidious distinctions, for the results are summed up in the general statement that, all things considered, it appears that not one of these new preparations has made a successful bid for superiority over an active tincture of digitalis, though it must be admitted that one of these, digipuratum, has repeatedly been found to be a uniformly potent digitalis extract. Therefore, until the long-hoped-for pharmaceutical success shall have been convincingly achieved, it becomes the more necessary to have the excellence of the widely used galenical preparations carefully and consistently maintained by experimental control and standardization.[2]

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[1] Cow, Douglass: Notes on Some New Substitutes for the Galenical Preparations of Digitalis, Biochem. Jour., 1912, vi, 219.

JAILS VERSUS SCHOOLS

A recent issue of *Public Health,* the bulletin of the Michigan State Board of Health, contains a striking example of the ridiculous limitations often placed on public health work. The board condemned the Ingham county jail because some cells were below the ground-level and not in sanitary condition. The county was compelled to provide a place for its prisoners that was sanitary. In District 6, Lansing Township, Ingham County, there is a schoolhouse which has a basement room lighted and ventilated by five small windows. Into this room were crowded fifty-five small children. The conditions as to light and ventilation were as bad in the schoolroom as in the jail cell. Yet the State Board of Health has no power to order the school board to provide sanitary schoolrooms, nor, apparently, has any other body. These facts are shown on the front page of the bulletin in an impressive cartoon bearing the suggestive question, "If the state can protect criminals, why can't it protect schoolchildren?" Why, indeed? It is gratifying to know that the local school board is doing everything in its power to improve the situation. But the fact remains that under the present law in Michigan, all plans for jails are subject to the approval of the State Board of Health, while schoolhouses may be built and are built without any sanitary supervision whatever. Similar conditions are all too common in other states.

SACRIFICING SELF FOR THE GENERAL GOOD

Perhaps the most surprising feature of the British controversy over the insurance act[1] is the splendid and unanimous support given the British Medical Association and its council, which have represented the profession in this struggle. Without regard to class or location, income or social standing, the entire British profession has rallied to the support of its representatives and has shown a most laudable unselfishness as well as a high degree of self-control and discipline. If the fight for fair terms and conditions for those who must care for the nation's sick is won, it will be due to the steadfastness and courage of the British physicians united in the British Medical Association. This stand has involved considerable self-sacrifice, especially on the part of those physicians who have derived the bulk of their income from the friendly societies. That these men, after years of professional connections of this sort, are willing to give up their own living for the general good speaks highly for the altruism of British physicians. It has long been known that the true physician in all lands stands ready to sacrifice himself for the public good. Our British brethren have shown that they are equally ready to suffer for the sake of their profession.

THE SWEAT-GLANDS OF DIFFERENT RACES

Inasmuch as the regulation of body temperature is greatly facilitated by the evaporation of perspiration from the skin, the development of an efficient system of sweat-glands is a distinct advantage to those races which have to live in the warmer climates. It is often asserted that negro races are particularly adapted to residence in the tropics; and the question of the relative development of their sweat-glands is at once raised. Mr. Elbert Clark of the department of anatomy in the University of the Philippines at Manila has accordingly investigated the relative number of these in different peoples.[1] After measurements on American soldiers, Philippine scouts and persons of both colors in civil life, he has come to the conclusion that the Malay possesses from 12 to 15 per cent. more sweat-glands than the white. Negroes have an excess of perhaps 7 per cent. Counts thus far made on Negritos give an excess of 27 per cent. for adults and 67 per cent. for youths. If these data are substantiated and the relative capacities of the individual glands in the races are proportional to their number, the dark-skinned dwellers of the tropics disclose an advantage over the white man which the latter can offset only by seeking greater shade.

THE CASE OF METHYL ALCOHOL

How real and immediate are the dangers which beset us in connection with the unsuspected use of methyl alcohol, to which we referred last week,[2] is made apparent by a notice of judgment lately published by the office of the U. S. Secretary of Agriculture.[3] Several individuals, acting under the name of the Lucca Produce Wine Co., had marketed a product with the distinctly pretentious label: "Gran Liquore Della Stella Elixir Tonico Stomatico." Analysis of a sample of this promising elixir by the Bureau of Chemistry indicated it to contain: methyl alcohol, 20.46 per cent. by volume; ethyl alcohol, 8.08 per cent. by volume; and the coal-tar dye Acid Yellow G to furnish an attractive color. The case was reported for prosecution as a violation of the Food and Drugs Act, but fortunately an indictment was found under a section of the New York Criminal Code. One defendant, Alberto Milanesi, after having spent two months in jail awaiting trial, was sentenced, on pleading guilty, to serve a term of seven months in the New York County penitentiary. Another defendant, Carlo Giradi, had sentence suspended on a plea of guilty. We trust that a more vigorous management of such flagrant violations of the law will have a wholesome effect, for there are few deterrents like a jail sentence.

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[2] Compare also Hale, Worth: Digitalis Standardization and the Variability of Crude and Medicinal Preparations, Bull. 74, Hyg. Lab., U. S. P. H. S., 1911.

[1] For a discussion of this controversy see Economics Department, THE JOURNAL A. M. A., Nov. 30, 1912, p. 1994; editorial, Nov. 23, 1912, p. 1890, and our London Letter regularly during the past few months.

[1] The facts cited are quoted from Freer, Paul C.: The Results of the Past Two Years' Work in the Study of Tropical Sunlight, Philippine Jour. Sc., Philippine Jour. Trop. Med., 1912, vii, 22.

[2] Wood, Casey A.: Death and Blindness from Methyl- or Wood-Alcohol Poisoning, with Means of Prevention, THE JOURNAL A. M. A., Nov. 30, 1912, p. 1962. Methyl Alcohol as a Poison, editorial, ibid., p. 1974.

[3] U. S. Dept. Agric., Notice of Judgment No. 1754, F. and D. No. 3640, Oct. 26, 1912.

THE HUXLEY LECTURE FOR 1912

It cannot fail to be a source of pride to those who are interested in the success of the scientific study of medicine in the United States to note that for the second time in the past few years an American physician has been invited to deliver the Huxley lecture at the Charing Cross Hospital School of Medicine in London. The latest lecturer, Dr. Simon Flexner, chose for his theme "Some Problems in Infection and Its Control."[1] He devoted considerable attention to the history of the experimental investigation of poliomyelitis to which his own researches have added material contributions that have in part been published in The Journal.[2] Flexner calls attention to the fact that although the first filterable parasite was discovered by Loeffler only fourteen years ago, in the fluid lymph obtained from the vesicles of cattle suffering from foot-and-mouth disease, at present eighteen diseases are known that are believed on good ground to be caused by this class of minute living organisms. The almost fabulous infectivity of certain of these viruses is exemplified in the blood of fowl suffering from chicken plague which is still active after being diluted 1,000 million times with water. Three affections of human beings — yellow fever, dengue and poliomyelitis — are contained among the eighteen diseases now assumed to be caused by filterable viruses. Professor Flexner has skilfully directed attention to the new problems that have been raised by our increased knowledge of the life history and manifestations of infectious organisms. He encourages the belief that the field of the specific chemical therapeutics of infection, which has already furnished some brilliant successes, can be still further developed in the future.

AN UNREPRESENTATIVE WEEKLY

Leslie's Weekly is the high priest of dyed-in-the-wool mossbackism. As a typical reactionary it has few equals and no superiors. Its editorial attitude on political and social questions is that of an epoch happily nearly past. Thus, in its issue of November 28:

> Stop! We believe in pure food but not in pure fads . . . In Chicago we are told that a clean-food club proposes to allow no more cats in grocery stores. . . . In the same city a train-load of California oranges, shipped by a fruit association of good repute, was seized, not because the fruit was unwholesome, but because the skins had been artificially stained or colored, as alleged. How much are these fads, including the attacks on cold storage, adding to the high cost of living? Do the people ever think of this?

Yes, the people think of it. The people in Chicago, for instance, think that they would prefer groceries uncontaminated with feline excrement — hence the suggestion that cats be kept out of grocery stores. The people think that to palm off on them as ripe fruit green oranges stained a beautiful yellow can scarcely be regarded as a sincere attempt to reduce the high cost of living. And the people think of even more. They think, doubtless, that a weekly magazine that has published as original articles fulsome puffs of a fraudulent "patent medicine" and a swindling quack is one whose editorial opinions are not to be taken seriously. They think, too, that a publication that is so eternally solicitous of the welfare of vested interests and so unconcerned in matters affecting the public health is not the sort of magazine that can truly be said to represent the awakened political and social conscience of a great nation.

Medical News

GEORGIA

Health Commission Appointed.—President Wilmer L. Moore of the Atlanta Chamber of Commerce has appointed a health committee whose work is to be the education of the people. The committee consists of Drs. Claude A. Smith, A. W. Stirling, Michael Hoke and S. A. Visanska.

Personal.—Dr. J. H. Hall, Lumber City, was shot in the foot by an intoxicated man, recently.——Dr. M. F. Matthews, Athens, was shot in the right shoulder by an intoxicated man, October 28.——Dr. P. H. Weeks, Milledgeville, has been appointed assistant physician in the Central Indiana Hospital for the Insane, Indianapolis.——Dr. Guy D. Compton, Milledgeville, has been appointed farm physician and Dr. J. Addison Price, Milledgeville, physician to the State Reformatory, both appointments being made by the State Prison Commission.——Dr. J. R. Statham, Americus, has started for Germany.

ILLINOIS

Small-Pox at La Salle.—It is reported that there are forty cases of small-pox at La Salle.

Medical Society Bulletin.—The first issue of the *Monthly Bulletin*, published by the Vermillion County Medical Society, appeared November 2. Dr. Solomon Jones, Danville, is editor-in-chief of the publication.

Hospital Notes.—Plans have been accepted by the Henry County supervisors for a county hospital to be located on the site of the building recently burned, to cost $90,000 and to accommodate 120 patients.

New Officers.—Fox River Valley Medical Association at Aurora, November 12: president, Dr. William H. Bishop, St. Charles; secretary-treasurer, Dr. Adam E. Diller, Aurora.——Bureau County Medical Society, thirty-eighth annual meeting at Princeton, November 21: president, Dr. C. C. Barrett; secretary-treasurer, Dr. F. B. Schroeder, both of Princeton.

Chicago

Cancer Committee.—The Chicago Medical Society has appointed a committee to further its campaign of publicity in regard to cancer. The committee consists of Dr. Franklin H. Martin, Emil Reis, Camillo Volini, Charles C. O'Byrne and Jacob Frank.

Personal.—Dr. John M. Dodson, who was operated on November 30 for gallstones, is reported to be doing well.——Dr. Charles B. Gibson has returned after six months spent in the Levant.——Dr. E. L. Cornell has moved to 451 West Sixty-Fourth Street on account of a fire in his residence which caused considerable damage.——Dr. J. J. Davis was knocked down by a wagon, November 23, and seriously injured.

New Pavilion for Lying-In Hospital.—Ground was broken on November 26 for the Mothers' Aid Pavilion of the Chicago Lying-In Hospital at 5838 Vincennes Avenue. The new building will cost $55,000, will contain fifty-five single rooms and will be used as a general lying-in hospital until the main building is completed. The building will be started early next spring and will cost more than $250,000. The Mothers' Aid building is to be especially constructed to receive complicated and serious obstetric cases, and the whole institution will be open to the profession.

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[1] Science, Nov. 22, 1912.

[2] Flexner, Simon, and Lewis, Paul A.: The Transmission of Acute Poliomyelitis to Monkeys, The Journal A. M. A., Nov. 13, 1909, p. 1639. Flexner, Simon, and Clark, Paul F.: Epidemic Poliomyelitis, ibid., Nov. 18, 1911, p. 1685.

School for Epileptics.—At the meeting of the Board of Education, October 30, the committee on school management presented a resolution setting forth that there are 290 epileptics among children of school age; that sixty-four of these children have been excluded from the public schools since Jan. 1, 1911; that these cases are neither of the mild nor temporary type, nor of the type requiring hospital care, and that neither the city, county nor state makes any provision for the care of these cases, and requesting that the superintendent of schools report on the feasibility of the establishment by the board of a school where such cases may be segregated, such school to provide dormitory and board facilities.

MARYLAND

Tuberculosis Notes.—An antituberculosis association has been organized in Hagerstown.——The Merchants' and Manufacturers' Association of Cumberland has appointed a committee to take charge of the project for the establishment of a hospital for tuberculosis near that city.

Personal.—The home of Dr. Louis A. Monmonier in the Long Green Valley was burned November 24.——Dr. Thomas B. Johnson has been elected medical director of the Frederick Railroad Company.——Dr. P. B. Housekeeper, Northeast, is reported to be critically ill in the German Hospital, Philadelphia.

Baltimore

Cabot in Baltimore.—Dr. Richard C. Cabot of Harvard Medical School delivered a series of lectures at the University of Maryland, talking on November 25 on "Heart Disease" and "Neurasthenia."

The World in Baltimore.—November 23 was the medical day at the "World in Baltimore." Medical missions were emphasized and the crudity of methods of healing in eastern countries was shown.

Orthopedists Meet in Baltimore.—The Interurban Orthopedic Club held its twenty-sixth session in Baltimore, November 18-19. Clinics were held in various hospitals and the visitors were entertained by Dr. Howard A. Kelly, R. Turnstall Taylor and others.

Gift to Endowment Fund.—At the academic exercises at the University of Maryland, a gift of $5,300 to the endowment fund to go toward the endowment of the chair of physiology was announced by Dr. and Mrs. John C. Hemmeter. This special fund now amounts to about $10,000.

Personal.—Dr. Andrew Watson Sellards, intern at Johns Hopkins Hospital, goes to Turkey to assist in the fight against cholera under the auspices of the American National Red Cross.——Dr. John Turner, Jr., has returned from a trip to Panama and the Pacific Coast.——Dr. Joseph C. Wunder, who has been seriously ill at his home, has been ordered to give up practice for an indefinite period and will go to the mountains of Western Maryland.

MASSACHUSETTS

New Medical Quarterly.—The first issue of the *Boston Dispensary Quarterly*, a publication presenting the progress of medical and social service at the Boston Dispensary, has just appeared.

Tribute Paid to Cabot.—At the annual meeting of the Cambridge Antituberculosis Association, November 13, a tribute was paid to the memory of the late Dr. Arthur T. Cabot by Arthur T. Drinkwater, a member of the board of trustees of the Hospital for Consumptives. Dr. E. A. Darling was elected president.

New Laboratory.—The foundations of the T. Jefferson Coolidge Memorial Laboratory at Harvard University have been completed and it is expected that the building will be fully equipped and ready for occupancy in the fall. The building is to be rectangular in shape, sixty-one by thirty-six feet, three stories in height and will be constructed of dull Harvard brick.

Physicians Object to Stop-Regulation.—The traffic regulation of the Boston street commissioners, that no vehicles shall be left standing on a public street for over twenty minutes, but that no person shall be deemed to have violated the twenty-minute section of this rule who shall satisfy the court that he is a physician visiting the sick at the place he is stopping, has caused a petition to be prepared which has been signed by 655 members of the Suffolk District Medical Society asking for an exception in case of the vehicles of physicians standing in front of their own residences or offices.

Death of Bacteriologist.—Clarence V. Murphy, bacteriologist of the Massachusetts State Sanatorium, Rutland, medical chemist and bacteriologist and research worker of repute; for three years a student in Baltimore Medical College and for five years a member of the staff of the State Sanatorium; died August 24, from tuberculosis, aged 31.

Personal.—Dr. David L. Edsall has the sympathy of his friends in the death of his wife, which occurred on November 19.——Dr. A. J. Treichler, Ludlow, who has been under treatment in the Ludlow Hospital for about three weeks, has recovered and resumed practice.——Dr. Edmund M. Pease, Waverly, has been appointed a member of the staff of the Michigan State Hospital, Kalamazoo.——Dr. John C. Berry, for twenty-one years a medical missionary in Japan, has had conferred on him, by the emperor, the Imperial Order of the Sacred Treasure of the Third Class.——Dr. Henry W. Broughton, Jamaica Plain, Boston, was seriously injured in a collision between a trolley car and his automobile, October 21.——Dr. Horace Chase, Boston, dislocated his shoulder and sustained severe bruises in a fall down stairs, recently.——Dr. Homer Gage, Worcester, has been elected medical director of the State Mutual Life Insurance Company, vice Dr. Albert Wood, deceased. Drs. Charles D. Wheeler and Merrick Lincoln have been elected medical directors.——Dr. Francis G. Curtis, Chestnut Hill, has been elected superintendent of the Newton Board of Health for the twentieth consecutive year.

MICHIGAN

Personal.—Dr. Guy L. Kiefer has been elected vice-president, Dr. Grace Clarke, recording secretary and Dr. Lucy Utter, corresponding secretary of the Detroit Public Health League.——Dr. Ralph G. Cook, Fulton, has moved to Kalamazoo.

Increased Appropriation Asked.—The Board of Trustees of the Kalamazoo State Hospital have asked for an appropriation of $125,000, to be used for improvements and repairs. Dr. Edward M. Aner has been appointed a member of the medical staff.

Small-Pox in Michigan.—The secretary of the State Board of Health announces that the department has received reports of 775 cases of small-pox since the beginning of the year. Of these patients only sixty-eight had been previously vaccinated.——Trenton reports fifty-seven cases of small-pox and Mason thirteen cases, all of mild type.——The public school at Trenton was closed November 20.——At AuGres, Arenac County, twenty cases of small-pox have been reported.——Reed City reports fifteen cases, Vicksburg several cases and Maple Rapids a few cases of small-pox.

MINNESOTA

Small-Pox in Stillwater.—Small-pox of mild form is said to exist in Stillwater where sixteen cases have been reported.

Evening Clinics at Duluth.—Arrangements have been made for evening tuberculosis clinics to be held at the St. Louis County Court House, Duluth, at 7:30 p. m., for the benefit of day workers who otherwise would be unable to be examined or receive treatment.

A Million to Fight Tuberculosis.—Dr. Christopher Easton, secretary of the State Tuberculosis Association, announced at a meeting recently that the legislature would be asked at its next session to appropriate $1,600,000 for the conflict against tuberculosis in the state.

Commission of Specialists.—The Hennepin County Medical Society has placed at the call of the judges of the Municipal Court a commission of five physicians for consultation in cases needing expert attention. The commission consists of Drs. W. A. Jones, C. G. Weston, F. W. Schlutz, H. B. Sweetser and Eleanor J. Hill, all of Minneapolis.

Personal.—Dr. J. H. Selby, Rochester, who has been with the radiographic department of the Mayo clinic for three years, has resigned to take effect January 1, and will probably go abroad to study.——Dr. A. E. Stewart, Bricelyn, has built a $7,000 home and hospital.——Dr. G. W. Andrews has been elected president, and Dr. C. C. Pratt, vice-president of the Mankato Branch of the Minnesota Association for the Prevention and Relief of Tuberculosis.——Dr. William F. Frisbie, Mankato, who has been disabled for several years, has entered the Soldiers' Home at Minnehaha.——Drs. P. M. Hall, Minneapolis, and P. A. Smith, Faribault, have been appointed members of the executive board of the State Antituberculosis Association.

MISSOURI

New Officers.—Kansas City Medical Society (colored): president, Dr. W. J. Tompkins; secretary, Dr. H. M. Smith, both of Kansas City.——Hygienic Society of the Fourth District, Missouri, organized at Cape Girardeau, October 15: president, Dr. J. C. Boone, Charleston; secretary, Dr. W. A. Kendall, Poplar Bluff.——Interns Medical Association of the Kansas City General Hospital, November 7: president, Dr. Max S. Rhode; secretary, Dr. C. E. Wilson.——Howard County Medical Association at Fayette, November 8: president, Dr. L. C. Richards; secretary and reporter, Dr. C. W. Watts, both of Fayette.

Hospital Items.—Dr. R. E. Castelaw, superintendent of the Kansas City General Hospital, has been instructed to purchase equipment for the new isolation hospital at an expense of about $2,000. The new hospital is nearing completion and will accommodate about fifty patients.——The Emergency Hospital, Kansas City, has been moved to the Water Works Building on the same floor with the Board of Health. Special clinic rooms have been furnished for school children, and diseases of the eye, ear, nose, throat and skin will be treated in separate wards. The pure food department has had appropriated to its use one floor of the building.——Work has again been started on the addition to the Springfield Hospital.

NEBRASKA

Small-Pox at Ponca.—Because the condition was believed to be chicken-pox, small-pox has gained considerable headway at Ponca, where there are now thirty families in quarantine.

Clinic Week.—The third annual alumni clinic week of the College of Medicine of the University of Nebraska, Omaha, was held October 14-19. The entire week was spent in clinics, conferences and entertainments.

To Safeguard Health of People.—The health and sanitation committee of the Lincoln Commercial Club has been organized with A. L. Weatherly as chairman. The other members are Dr. J. M. Birkner, O. W. Everett and J. F. Spielman and the city engineer, Abner Dobson.

Personal.—Dr. J. N. Stoops, Mitchell, has been elected secretary of the Scottsbluff County Medical Society, vice Dr. H. P. Sheldon, Scottsbluff, deceased.——Dr. Taliaferro Maxwell, Omaha, has started for Japan on a trip around the world.——Dr. Lorenzo Rounds, Lewiston, is reported to be seriously ill as the result of a cerebral hemorrhage.——Dr. Ralph S. Hart, Schuyler, has been appointed first lieutenant, M. C., Nebraska N. G.——Dr. and Mrs. C. F. Crowley, Omaha, were seriously injured recently, in a collision between a street car and a sightseeing automobile in Chicago.——Dr. Bruno J. F. Getzlaff, Sutton, has started for Europe.——Dr. M. B. McDowell, Hay Springs, has been appointed district surgeon of the Chicago and Western System.——Dr. J. T. Steele has succeeded A. E. Turner as a director of the Hastings Chautauqua Association.

NEW YORK

Hospital News.—The project of the Westchester Board of Supervisors to build a hospital for tuberculosis patients near Yorktown Heights in the vicinity of Croton Reservoir has aroused a great deal of opposition. On November 8 Dr. Eugene H. Porter, State Commissioner of Health, and a party of municipal authorities from New York City visited the locality and made an inspection. The opposition to the proposed hospital was not only on the part of residents of the locality but by many others who believe that it will be a source of pollution to the water supply of New York City. A hearing was held in White Plains and the decision is in the hands of the State Board of Health.——A campaign has been started at Jamaica, L. I., to raise a fund of $50.000 for the Jamaica Hospital.——A permit has been granted Syracuse University to erect a dispensary in connection with the College of Medicine to cost $75,000.——After December 1, the Physicians' Hospital, Schenectady, will be known as the House of Mercy and will be conducted by the Sisters of Mercy as a branch of St. Peter's Hospital, Albany.——The house next to the Warsaw Hospital has been leased and is being fitted up as an addition to the institution.——The Buffalo Day Camp for Tuberculosis was closed November 1 on account of damage done to the kitchen by a wind storm, October 29. During the season 163 patients were treated, and about thirty-five of this number will enter the new J. N. Adam Hospital as soon as it opens.——A committee of 700 men and women of Jamaica started November 8 on a twelve-day campaign to raise $50,000 or more for the Jamaica Hospital.——Drs. Henry C. Buswell and DeLancey Rochester, Buffalo, have been appointed to take charge of the care of tuberculosis patients in the East Ferry Street Municipal Tuberculosis Hospital, and Drs. Harry Mead and Clarence L. Hyde as assistants.——The J. N. Adam Hospital for Incipient Tuberculosis, Perrysburg, was formally opened, November 12. Dr. Horace L. Grasso has been appointed resident physician.

New York City

Surgical Clinics at Lebanon Hospital.—Announcement is made that Dr. Parker Syms will give surgical clinics at the Lebanon Hospital every Wednesday at 3 o'clock until May 1, 1913, to which the members of the profession are invited.

Harvey Society Lecture.—The fifth of the present course of Harvey Society lectures will be given at the New York Academy of Medicine, December 14, by Prof. F. B. Mallory, Harvard University, on "Infectious Lesions of the Blood Vessels."

Convalescent Home to Remain Open.—Plans are being made to keep the Sanitarium for Hebrew Children at Rockaway Park open during the entire year as a convalescent home for invalids from the general hospitals. Hitherto the institution has been kept open only two months of the year.

Will Bring No More Pellagra Cases to New York.—The commission connected with the New York Post-Graduate Hospital, which went South last spring for the purpose of studying pellagra, is planning to erect a hospital in the vicinity of Spartansburg, S. C., to care for cases of pellagra instead of sending them to New York. Captain Siler, of the Naval Medical Corps, who is a member of the commission, expresses the opinion that the disease is not caused by mouldy corn, but more probably by the bite of an insect.

Organizations Apply for Incorporation.—At the meeting of the State Board of Charities on November 7, the Polyclinic Hospital, which recently moved into new quarters on West Fiftieth Street, applied for a new name. It is popularly known as the Polyclinic Hospital while its previous charters variously designate it as the Polyclinic Medical School and Hospital, the New York Polyclinic Medical School and Hospital. It is proposed to add to these legal designations the popular one of Polyclinic Hospital. The Seaside Home for Crippled Children at Averne also applied for incorporation, and the Harlem Reformed Church petitioned for the incorporation of a dispensary to be located at 180 East Twenty-Second Street. Decision in all instances was deferred until the meeting of the board in Syracuse, November 15.

Health Commissioner Makes Plea for Appropriations.—When the question of appropriations for the Department of Health for the coming year came up before the board of aldermen, a determined effort was made to cut down the appropriations for the various activities of the department. Dr. Lederle has responded with a strong plea for appropriations at least as large as those of last year and he has also shown that much larger ones are needed. In support of his argument that the health of the community would be seriously affected by any cut in these appropriations, he states that in 1903 over 57,000 children were excluded from attendance at school because of contagious diseases, while during 1911 only 3,361 were so excluded and that the department had been instrumental in this great reduction in contagious diseases. He states that the death rate among babies cared for by the department in 1911 was 10.2 per 1,000 as against 120 for babies of the same age in the city at large; during 1912, thus far, the death rate among babies cared for by the milk stations of the department has been 4.2 per 1,000 as compared to a death rate of 113 for the city at large. It was even urged at the meeting referred to that milk inspection by the Board of Health be done away with and criticism was freely offered in respect to the work of the department in caring for the consumptive poor in their homes as well as that the quality of food furnished at the Otisville sanitarium was too good.

PENNSYLVANIA

Honors Ex-President.—The Berks County Medical Society gave a smoker at its rooms in Reading, November 21, in honor of Drs. C. G. Loose, William F. Muhlenberg, B. Y. Schearer and Samuel L. Kurtz, Reading, and Dr. William E. Hunsberger, Maidencreek.

Physicians as Lawmakers.—Dr. A. J. Barchfeld, Pittsburgh, has been reelected a member of Congress; Dr. D. P. Gerberich, Lebanon, has been reelected state senator; Drs. Jonathan Currier, Grampian, and Philip C. Newbaker, Danville, have been reelected representatives; and Dr. Frederick S. Kaufman, Lebanon, and Dr. Charles J. Hemminger, Rockwood, Somerset County, have been elected representatives.

Red Cross Stamps on Sale.—On November 29, between 3,000,000 and 3,500,000 Red Cross stamps were issued for Pennsylvania, the share allotted to Philadelphia amounting to 1,500,000. As in former years the sale will be conducted throughout the state under the auspices of the Pennsylvania Society for the Prevention of Tuberculosis. The proceeds of the sale will be shared by the White Haven Sanatorium Association, the Kensington Dispensary for the Treatment of Tuberculosis and the Tuberculosis Day Camp at the Bainbridge Street Pier, Philadelphia.

Contagious Diseases.—Modified quarantine for diphtheria at Lebanon has been abolished and the period lengthened to three weeks, and the public schools at Mount Zion have been closed by the state health authorities.——A sanitary survey will be made of Elizabethville, Dauphin County, by the State Health Department, as twenty-five cases of typhoid were reported last week, and one death. The Board of Health of the town has been reorganized and an investigation of cases was made on November 18.——Following the closing of the schools of Chester, because of diphtheria, a conference was held to formulate plans for stamping out the disease.——Because of an epidemic of measles in Hazleton the State Board of Health has ordered all schools closed.

Personal.—Dr. S. M. Huff, Bellefonte, has been appointed medical inspector of Center County and chief of the tuberculosis dispensary, vice Dr. George F. Harris, deceased.——Dr. W. A. Taylor, Wilkes-Barre, while hunting near that city, was shot in the back by another hunter and is reported to be seriously injured.——Dr. D. W. B. Kupp, Gibraltar, was thrown from his carriage in a runaway accident, November 23, and seriously injured.——Dr. Edward B. Miller, Altoona, who has been seriously ill in Jefferson Hospital, Philadelphia, is reported to be improving.——Dr. H. E. Williams, Coatesville, fractured his leg in a fall, November 18.——Dr. George W. McCafferty, Jr., has been appointed first assistant physician at the State Hospital for the Criminal Insane, Fairview.——Dr. James Longo, resident physician of St. Mary's Hospital, Philadelphia, was operated on for appendicitis in that institution, November 26.

Philadelphia

Mütter Lecture.—The Mütter Lecture on Surgical Pathology for 1912 was delivered at the College of Physicians, December 6, by Dr. Jacob Colt Bloodgood of Johns Hopkins University, on "The Relation of Pathology to Surgical Diagnosis with Special Reference to Border-Line Pathologic Conditions, Illustrated by a Lantern-Slide Demonstration on Border-Line Lesions of the Female Breast."

Diphtheria Increases.—While the percentage of mortality among the contagious disease cases in the city has been small, the number of cases has continued to be large. There were ninety-three new cases of diphtheria reported for the week ended November 30. The buildings at the Municipal Hospital are filled to overflowing and tents have been pitched on the grounds. So urgent is the need of more accommodations that plans are in progress for the erection of a wooden structure for the care of patients.

Personal.—Dr. Randle C. Rosenberger, professor of hygiene and bacteriology in Jefferson Medical College, has been appointed professor of hygiene and preventive medicine of the Women's College of Medicine.——Dr. Sidney Yankauer, rhinologist of the Mount Sinai Hospital, New York, was the guest of the Philadelphia Laryngological Society at the College of Physicians, November 19, and a dinner was given in his honor at the University Club.——Dr. Ross Hall Skillern has been elected clinical professor of laryngology of the Medico-Chirurgical College, vice Dr. Arthur H. Cleveland, resigned.

Insane Wards Overcrowded.—The November grand jury, in its final presentment, November 26, declared that immediate steps should be taken to remedy the overcrowded condition of the insane department at Blockley. The jury's report says that there are 2,685 insane patients, the facilities being adequate for only 2,350. Hundreds of cots fill the halls, which should be unobstructed. Proper ventilation is impossible and in case of fire the exit of many would be impossible. It is recommended by the grand jurors that the construction of buildings on the Byberry farm be hastened so that the inmates of the insane department of Blockley may be removed.

No Typhoid Following Break in Main.—The prompt action on the part of Chief Davis of the Water Bureau, when a break in the main supplying filtered water to the Twenty-First and Twenty-Second wards occurred October 25, has, it is hoped, prevented an outbreak of typhoid. A year ago, just such an accident was followed four weeks later by fifty-seven cases of typhoid, in the fifth week; by 153 new cases and, all told, there were 367 cases and twenty-five deaths. On first indication of trouble with the pipe at this main, Chief Davis began immediately to treat the raw water with hypochlorite of lime, had the police of the district effect the distribution of more than 20,000 "Boil your water" cards to each individual home; by noon of that day, two telephone companies had telephoned to 13,000 subscribers; notices were pasted on telegraph poles and in shop windows; special delivery letters were sent to ministers asking for their cooperation in calling attention of their congregations to the importance of the danger, and superintendents of schools to their pupils.

GENERAL

Cholera Decreasing.—A telegram received December 3 from the U. S. Public Health Service, announces that cholera is decreasing in Constantinople and vicinity and that the disease is quiescent elsewhere.

Clinical Laboratories in Missouri Valley.—The question of establishing clinical laboratories for the benefit of physicians in the Missouri Valley was considered at a meeting in St. Joseph, November 13, of the committee appointed for the purpose by the Medical Society of the Missouri Valley.

Personal.—Surgeon Reid Hunt, U. S. P. H. Service, has been appointed a member of the board created by the Bureau of Mines to study the hygiene and danger conditions in mines.——Dr. H. J. Wright, formerly of Pensacola, Fla., but now of the Canal Zone, was accidentally shot, recently, and is under treatment in the Ancon Hospital.

New Home for Army Medical School.—Surgeon-General George H. Torney, U. S. Army, has submitted an estimate calling for $350,000 with which to erect new buildings for the Army Medical School on the grounds of the Walter Reed General Hospital, near Brightwood, thus giving the students the additional benefits of clinical and laboratory experience. The school now occupies a rented building on Twelfth Street, between G and H streets.

Medical Reserve Corps for Navy.—Surgeon-General Charles F. Stokes, chief of the Bureau of Medicine and Surgery, U. S. Navy, is working on a scheme for the formation of the Naval Medical Reserve Corps, which was authorized under the naval appropriation bill. He believes that this corps will add to the efficiency of the service in the time of war and will also give the Navy the benefit at all times, of the advice of expert physicians, chemists and sanitarians.

The New Saunders' Building.—A member of The Journal staff recently had the privilege of going through the new building of the W. B. Saunders Company, located in the heart of Philadelphia's new publishing center. It is a seven-story building, of reinforced concrete with brick veneer, splendidly finished and equipped. The firm is to be congratulated on its fine home. Physicians are invited to visit the building when in Philadelphia.

Meeting of Medical Experts on Alcohol and Drug-Taking.—The forty-second annual meeting of the American Society for the Study of Alcohol and Other Narcotics will be held in Washington, D. C., December 10 and 11 in the Hotel Raleigh. The central purpose of this meeting is to present and discuss the latest and most authoritative studies of alcoholism, inebriety and drug-taking. The public is invited. The secretary, Dr. T. D. Crothers of Hartford, Conn., will send programs and give further information.

LONDON LETTER

(From Our Regular Correspondent)

London, Nov. 16, 1912.

Pellagra in Britain

In 1909 a strong committee was formed in London for the investigation of pellagra. It was headed by men of eminence, such as Sir Lauder Brunton, Sir Patrick Manson, Sir William Osler and Sir William Leishman. Dr. Sambon, lecturer at the London School of Tropical Medicine, was forthwith sent to Italy, where he has found that pellagra has a peculiar topographic distribution, being limited to the neighborhood of more or less swift-flowing streams, just as malaria is restricted to the neighborhood of more or less stagnant waters. He found about the streams of all pellagrous localities a minute blood-sucking fly, the *Simulium*, which he believes may be the transmitting agent of the infection. His views are receiving the support of investigators in other countries, especially in the United States. Dr. Sambon states that pellagra is endemically prevalent in our own islands. Dr. Sambon and Dr. Chalmers have been investigating the matter and they have found evidence of the disease in England, Scotland and the Shetland Islands. With the exception of the reports of two cases, one by Dr. Howden, superintendent of the Montrose Royal Asylum, in 1866, the other by Dr. Dods Brown and Dr. Cranston Low, in 1906, the disease, Dr. Sambon states, had been entirely overlooked. Dr. Sambon has recently gone to the Shetland Islands to investigate the disease and has seen some suspicious cases. In St. Thomas' Hospital, London, there is now a typical case of pellagra and a brother of the patient died of the disease two years ago at the same hospital.

The Study of Tropical Diseases

The Liverpool School of Tropical Medicine is arranging to send an expedition to Jamaica and the West Indies with the cooperation of the Colonial Office. This will be the twenty-ninth expedition made by the school. The expenses of the various expeditions now amount roughly to $150,000. The school has spent on its work altogether over $500,000, practically all raised by voluntary effort.

The Sale of Nostrums

The committee appointed by the government to inquire into the sale and advertisement of nostrums is continuing its sittings. Dr. Norman Walker, lecturer on skin diseases at the University of Edinburgh, produced a number of wax models showing the effects which unsuitable remedies could produce on the skin. He referred particularly to bromid and iodid eruptions and showed the photograph of a child with the bromid eruption due to a teething-powder. Arsenic was capable of producing very serious effects on the skin; it sometimes caused a thickening of the skin of the palms and soles which might go on to the production of cancer. He put forward the suggestion, which he was glad to say was supported by the County Councils of Scotland, that the name and quantity of the active ingredient of a proprietary medicine should be stated on the label.

Mr. G. S. Paternoster, the assistant editor of *Truth*, placed before the committee some of the information which had come into the possession of that journal during its campaign against quackery. This consisted principally of sketches of the careers of notorious venders of nostrums. The list included men with "degrees" conferred by foundations established by themselves, men with veterinary qualifications and so-called "analysts" who wrote testimonials at $5 each. He said that the present condition of affairs put a premium on fraudulent misrepresentation because an advertiser who was absolutely unscrupulous gained an advantage over one who had some qualms of conscience. The follow-up system in which a series of letters of gradually increasing intensity was sent to an inquirer was the most successful method of proprietary medicine advertising in use to-day. Another method was the wide distribution of free samples followed by a huge advertising campaign. After three months' advertising the vender expected to get his money back with considerable profits. A plan that had been in continuous operation in the country for the last ten years was to engage lady "health lecturers" who were instructed in a book of "patter" and a little elementary hygiene. These women held meetings usually for ladies only in which the nostrum was recommended. It was remarkable how sufferers from a particular disease became known to the quacks. Lists of sufferers were sold at $1 or $1.50 per 1,000, the charge for lists of consumptives being somewhat higher because these were the most profitable patients. Perhaps a man who sold for years a "consumption cure" would turn his attention to rupture. He sold his lists of consumptives to an agency and bought a number of "rupture" names. Perhaps the most prolific advertisers were beauty doctors who advertised "fat cures" and "lean cures." Apparently less money was obtainable by making lean people fat than by making fat people lean. The offers to return the money if cures were not effected were generally evaded on the ground that the directions had not been followed. A number of medical aid societies had been founded by an American who practiced dentistry. Each society bore the name of a lady of title who received an annual payment for the use of her name. He thought most of the testimonials were given in good faith. The public would buy any sufficiently advertised nostrum, no matter what it was. In the interests of the public health a full disclosure of the active ingredients of a medicine should appear on the label and it should be made an offense to publish a misstatement as to the contents, history or effect of any remedy.

Professor Cushny of University College stated that some preparations which had been declared poisonous in the United States could be sold in this country as medicine.

Dr. W. E. Dixon, professor of materia medica at Kings College, supported the suggestion that the active ingredients of every nostrum should be specified. As a rule it would be difficult for a person who suffered from using a nostrum to recover damages. The chairman said that a copy of the amended American Food and Drugs act had just been received by the committee and quoted from it the definition of the term "misbranded." Professor Dixon said he would like to have time to reflect on the law, which seemed an excellent step in the right direction.

PARIS LETTER

(From Our Regular Correspondent)

Paris, Nov. 12, 1912.

The First International Congress of Comparative Pathology

This congress, due to the initiative of the Société de pathologie comparée, was held in Paris, October 17 to 23, under the patronage of the French government. The first session was presided over by M. Guist'hau, minister of public instruction. Among the many questions dealt with by the congress was that of the pathogenesis of tuberculosis. Prof. A. Calmette, director of the Pasteur Institute of Lille, mentioned that avian tuberculosis, for a long time declared harmless for mammals, is in reality capable, though rarely, of infecting the horse, the pig, the mouse, the rat, the monkey, the calf and even man. The danger from this source ought to be combated by a stringent inspection of poultry intended for food, since avian tuberculosis is especially wide-spread among gallinaceous birds. As for tubercle bacilli of the lower mammals in general and particularly of cattle, contrary to what Koch thought, it is to-day established that they may infect man and this justifies sanitary measures to prevent propagation of bovine tuberculosis.

The question of the relation between avian diphtheria and human diphtheria was the subject of a paper by Dr. F. Arloing, *agrégé* professor at the Faculté de médecine de Lyons. While recognizing that human beings are the most frequent source of infection to each other, Dr. Arloing thinks that pseudomembranous diseases of birds, diphtheric or non-diphtheric, ought to be considered contagious for man and prophylactic measures taken accordingly.

Mme. Luzzani-Negri of Pavia maintains that the bodies discovered by her husband (Negri bodies) are the specific parasite of rabies. On the other hand, Professor Babes of Bucharest and Dr. Remlinger, director of the Pasteur Institute of Morocco, believe that rabies is caused by a filterable virus. The Negri bodies, while having great diagnostic value, cannot be considered as protozoan pathogenic agents of the disease but as the result of the sequestration of the microbe of rabies by cells striving against it.

Death of Professor Elie de Cyon

Dr. Elie de Cyon, former professor at the Academy of Sciences of St. Petersburg, has just died, aged 70, at Paris. He was of Russian origin, but long ago left Russia for political reasons and settled in Paris where he became well known as a publicist by his studies of men and affairs in Russia. He had previously, however, acquired a reputation by his works on physiology. He discovered the sensitive nerve of the heart, excitation of which produces, through the medium of the spinal cord and great sympathetic, dilatation of the peripheral vessels; this is known as the depressor nerve of the circulation or nerve of Cyon. He also made experimental researches on the functions of the semicircular canals and their rôle in the formation of the idea of space.

French Families and Children

The minister of labor has just published statistics of families drawn up by the aid of documents based in part on the census of 1906 and in part on investigation of the families of officials carried on at the same time. These statistics permit for the first time the classification of the families of the whole country in accordance with the number of children and by professional categories. There were in 1906, 293 legitimate children born living per hundred families, of which 219 were living at the time of the census. Among the married couples, the average number of children born was 279, but leaving out the marriages in which no more children could be expected the average of 360 children per hundred families is obtained and on this basis professional categories are prepared. First, categories were formed of persons of independent income and without profession, persons in hospitals, under detention, of nomadic life, fishers and sailors; then, in the agricultural, industrial and commercial and liberal professions, the three categories of employers, clerical employees and manual laborers. The marriages in which no more children could be expected are classified according to the categories as follows: first, fishers and sailors in the merchant marine with 486 children per hundred families; then manual laborers with 404; employers with 360; persons in hospitals, under detention, of nomadic life, etc., with 353; persons of independent income and without profession, 332; clerical employees, 310. It is interesting to remark that among employers, as among working people, the productivity of the marriages is generally greater in large than in little industries or even than in agriculture. The investigation of families of office holders complements in certain points the data of the general census of families. In this investigation it was possible to compute the family income and it was found that the sterility of marriages increases in proportion as the income increases. The infant mortality also increases with the birth-rate. It is constantly greater from the first birth in the larger families.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Nov. 8, 1912.

A New Remedy for Tuberculosis

Dr. Friedrich Franz Friedmann delivered an address before the Berlin Medical Society on November 6, on his special method of curative and prophylactic inoculation against human tuberculosis. The specific curative substances (antigens) in tuberculosis, which are included in the tubercle bacilli themselves, are extremely sensitive and easily destroyed, while the tubercle bacilli themselves produce the pathogenic condition and are extremely poisonous. All previous specific remedies for tuberculosis have been prepared with the view of extracting from these poisonous cultures of tubercle bacilli the active substances by chemical, thermic and mechanical processes. These have destroyed the antigens while not annulling the toxic properties of the bacilli. The preparations thus made often induce severe reactions, sometimes very dangerous. Friedmann announced that he had succeeded in cultivating a race of tubercle bacilli which were naturally free from nearly all toxic action and had only a minimal pathogenic power and a minimal toxicity. By his selective cultivation, this strain of living bacilli have lost the last trace of pathogenic activity and pathogenic power, but have retained the curative power. After he had demonstrated in numerous animal experiments the activity of the preparation derived from this "benevolent" strain of tubercle bacilli, he proved the harmlessness of the preparation for human beings by repeatedly injecting himself, and during the last two years he has treated with this remedy in hospitals and policlinics tuberculous patients of every kind, under the constant critical observation of many physicians.

So far 682 patients have been treated, including over 250 with pulmonary tuberculosis, and others with tuberculosis of the glands and skin and "scrofula." According to Friedmann's statements, the result was that when the preparation was completely absorbed (if the body was at first incapable of absorbing it, he succeeded in making it so), almost without exception improvement or cure began and steadily continued. In this way patients with pulmonary tuberculosis lost, as a rule permanently, after a few injections, the pains which some of them had had in the chest for many years, also their night-sweats, hemoptysis, expectoration, fever, etc., and appetite returned. Glands which had suppurated for a long time and fistulas from bones had completely healed. Joint tuberculosis also had been gradually but completely cured. Bladder and renal tuberculosis was markedly improved and also cured. Even lupus foci which had persisted for decades showed a progressive cure, and scrofula eruptions on the skin which had continued for many years in spite of all kinds of treatment healed completely without any other treatment. After the results of the treatment were repeatedly proved and the complete harmlessness of it was shown, children from tuberculous districts, who were constantly exposed to the danger of infection, have been treated, some soon after birth, with prophylactic purposes in view. All the 330 children so far inoculated, whose continuous good development is diagnosed by authoritative specialists, have borne the inoculation, which was performed over a year ago, without the least harm, they are in fine health, free from any indication of scrofula or tuberculosis.

In the discussion that followed in the medical society, several speakers reported the effects which they had observed. Thus Prof. E. Müller had seen good results in children with bone and joint tuberculosis. Professor Schleich and others reported similar observations. On the contrary, the laryngologist Professor Heymann expressed himself with some reserve. In severe cases death could not be prevented, in others he obsrved improvement bordering on cure. Professor Blaschko reported that in case of skin lupus, with the exception of one case, the results were not successful, but that in cases of another kind of skin tuberculosis, which have been treated only recently, the result is so far good. J. Citron and G. Klemperer thought that the use of avirulent bacilli is dangerous inasmuch as for some not yet known reasons they are liable at any time to become virulent. The prophylactic effect persists, they said, only so long as the bacilli remain alive within the body, therefore it is of little importance to infants for their later life. Professor Goldscheider complained that the description of the present conditions in the patients treated, especially of those with pulmonary tuberculosis, was not complete enough, at least the results of the inoculations are doubtful. Professor Orth called attention to the fact that although the guinea-pigs treated lived longer, yet they all finally died of tuberculosis. [Citron challenged Friedmann to tell what his inoculation material actually is, but Friedmamn—so far as we can learn—has not yet done so. His work with turtle bacilli was reviewed in THE JOURNAL, 1904, xlii, p. 136 and xliii, p. 1909.]

Reform in the Advertising of Proprietary Medicinal Articles

As I related a few months ago (May 25, 1912) through the influence of the board of the German Congress for Internal Medicine, a commission was formed including the clinicians and pharmacologists Professor Penzoldt of Erlangen, Professor Gottlieb of Heidelberg, Prof. G. Klemperer of Berlin, Prof. A. Schmidt of Halle, and Professor Heubner of Göttingen, which has taken up the task of combating the abuses in advertising by drug manufacturers in the medical journals.

THE "GERMAN COUNCIL ON PHARMACY AND CHEMISTRY;" TENTATIVE WORK

The commission is analogous to the Council on Pharmacy and Chemistry of the American Medical Association and it adopted a number of rules according to which the individual advertisements shall be judged. In accordance with these rules the commission classified under three headings the advertisements which were found during the past year in the twenty-one German medical journals with the widest circulation: The first was the "positive" list, containing the proprietary articles the advertisements of which conformed to the rules; the second was the "negative" list, the preparations whose advertisements did not conform to the requirements; the third was the "doubtful" list, which required further examination.

PROTESTS: FROM MANUFACTURERS

Vigorous protests soon arose in various quarters against this procedure. The manufacturing drug houses protested chiefly on the ground that no opportunity had been given to the manufacturers whose advertisements were criticized and classified to reform their advertisements. Moreover, there were included in the doubtful and even in the negative list advertisements of remedies against whose value no objection could be raised, which on the contrary enjoyed the best reputation among practicing physicians, and the objection against them was based solely on the merely technical point that the individual statements were not clearly worded. Further the complaint was made that manufacturers who had inquired of the commission as to the reasons for the inclusion of their advertisements in the negative list had received insufficient explanations.

FROM MEDICAL JOURNALS

The medical journals also protested because the criticisms of the commission had gone too far and had been directed at the exaggerations in advertisements, which might have been permitted without objection as inherent in display advertising (*der Reklame eigentümlich.*) It was maintained that the medical journals could not furnish physicians with so large an amount of scientific material without the help of advertisements, because the income from subscriptions was insufficient to cover the great cost of the comprehensive medical weeklies.

GENERAL PROTESTS

On general principles, opposition was manifested to the plan of a "positive" and a "doubtful" list, the objection to the first being rightly taken on the ground that manufacturers may seize the opportunity to advertise the fact that their remedies were inserted in the "positive" list. A doubtful list was regarded as of no use whatever. After all these criticisms, the medical journals did not consider it worth while to pay any attention to the commission's lists, and the objectionable advertisements continued to appear in medical journals as before, except as the editors themselves had reason on good grounds to reject one or the other.

CHANGE OF PLAN

These unfavorable conditions were improved a few weeks ago by the action of the German Medical Press Association at their meeting which is held annually in connection with the German Naturforscher Congress, and by reconsideration of the whole plan by the commission and the board of the German Congress for Internal Medicine in joint session. The final outcome is an improved method of procedure on the part of the commission, thus putting the whole work on a better footing.

The rules for deciding the character of advertisements have been changed so that opportunity is given to the manufacturers before the publication of the lists to express themselves with reference to the objections and to remove the objectionable or ambiguous misstatements; simple advertising exaggerations (*einfache reklamehafte Uebertreibungen*) are not taken into consideration, and the commission has been enlarged by the addition of men who have had more experience in the manufacture of pharmaceuticals or in their advertising and in estimation of the character of advertisements than the members of the commission as first organized. Accordingly, a member of the board of the German Medical Press Association has also been included in the commission.

The requirements for the positive list have been modified as follows: For inclusion in the positive list, medicinal articles cannot be accepted whose advertisement is misleading or secretive; particularly the following: 1. Remedies whose composition or pharmaceutical relationship is kept secret; in this respect the term "composition" shall mean for simple chemical substances the scientific name, the empiric formula, and, so far as known, the structural formula. For mixtures a statement is required which gives the amount of the ingredients in a given quantity of the commercial product. For natural products the pharmacognostic classification is necessary and the systematic classification according to the present state of science. 2. Medicinal articles with reference to whose origin, preparation, composition or tests for identity, misleading statements are made in the advertisements. 3. Articles in which essential differences in composition have been shown to exist in different samples of the commercial product. As essential differences shall be regarded such as show marked variations in appearance, taste and absorbability as well as in the quality or quantity of pharmacologic action. 4. Such mixtures as bear a new name for substances previously used in medicine, provided the idea that it is a new substance is conveyed; mixtures with a recognized therapeutic individuality are excepted. It is not regarded as objectionable to have the name of the originator or manufacturer appended, or some other additional name as a trade-mark. As "mixtures" are recognized combinations of several active substances as well as mixtures, solutions, etc., of one or more active substances with inert substances, whether they are artificially prepared or are derived from natural products. The following temporary provision has been made: Names which have been in use up to Oct. 1, 1912, are not to be objected to provided that they are printed in ordinary type, included in parentheses, and are accompanied by a name indicating the essential composition of the substance. 5. Remedies regarding whose therapeutic value or harmlessness unfounded or misleading claims are made in the advertisements.

Further it is the intention that in the future only a negative list shall be published. If the medical press, in accordance with the resolutions adopted at the annual meeting, shall systematically exclude from their advertising pages the advertisements objected to by the commission, it will not be necessary to publish even the negative list. There is no question but that this condition is the only one worth working for or likely to succeed, for even in this field prevention is better than cure. It is also to be expected that the great weeklies and archives will be able to conform to this standard. The smaller journals, whose existence depends more or less wholly on their advertisements, will scarcely adopt the necessary strictness because their publishers will not agree to curtail the income which is derived from their advertising pages, even if they have to insert objectionable advertisements.

It remains to be seen what success this effort to curb the abuses in advertising will attain. If the results correspond to the expectations, the activity of the commission will be extended to the advertisements in the daily press. This fight will be a much more difficult one than that with medical journals, as the editors of the daily press will be almost unanimously opposed to it. Here success is possible only by medical journals boycotting the advertisements of medicinal articles which are advertised to the public, or by boycotting the remedies or medicinal articles advertised in the lay press, and thus exerting indirect pressure on the advertisers.

BUDAPEST LETTER

(*From Our Occasional Correspondent*)

BUDAPEST, Oct. 24, 1912.

Nervous Troubles of Sexual Origin in Women

Dr. Maurice Porosz, lecturer to the Budapest University, recently emphasized a point which several writers have brought forward, but which has not been sufficiently understood. He frequently noticed that women who came to him for nervous and mental troubles were married to men who found it necessary to consult him for impotence or quick ejaculation; and his large experience in such matters had led him to believe that there existed a close connection between the nervous troubles of the wife and the sexual impotence of the husband. He made it a rule, therefore, when consulted by the former, to question them on the delicate matters of their sexual life; and the results amply justified his action, since the majority of his female patients lost their nervous symptoms as soon as he had cured their husbands. As an instance he mentioned the case of a widow who had married a lawyer, aged 36. During the first year of her second marriage the wife suffered greatly from general nervousness and frequent nervous headaches; during the second year she discovered that these distressing symptoms generally followed nights during which she had had intercourse with her husband; and particularly when her libido had remained unsatisfied because of the rapid ejaculation of her husband. On comparing her present sexual experiences with those of her first marriage, she came to the conclusion that her husband was ill, and, in spite of his indignant denial, persuaded him to consult the family physician. On examination the latter found his patient to be suffering from prostatic atony and defecational spermatorrhea, which had been preceded before his marriage by frequent nocturnal pollutions. During the first month of marriage he frequently cohabited with his wife, but this gradually became more and more difficult, and was always followed by great exhaustion. About the same time his wife developed symptoms of nervousness and restlessness, due to his abstinence from repetitions. She consulted a neurologist, who advised her to try some hydrotherapeutic treatment from which she obtained no apparent benefit; but she grew steadily stronger as her husband's condition improved, and on his complete restoration to health her symptoms disappeared entirely, a state of things which lasted some years.

Another case mentioned by Porosz was that of a married woman, the wife of one of his patients, who developed symptoms of melancholia and complained of the persecution of her neighbors, who, she declared, looked on her as her husband's concubine rather than his legal wife. She refused to see people, and grew so much worse that she was placed in a sanatorium. During her absence her husband consulted Porosz for frequent micturition, quick ejaculation and erectional disturbances. He told the physician that throughout the first year of marriage he had cohabited with his wife almost every day, but latterly his ejaculations had grown rapid and his erections more and more feeble, so that his wife could not reach the orgasm, which had the result of making her very jealous and discontented. This led him to cohabit still less, so that during the previous year as much as one or even two months passed without a single coitus, though he had previously made it a rule to keep a pause of two weeks only. This state of affairs lasted for about two years, and during the last month the wife developed symptoms of insanity. After a stay of several weeks under proper treatment at a sanatorium, she returned home in a normal condition, save for an occasional display of jealousy during the first few weeks after her return. During this period the husband's cure was completed, and his wife is now completely restored to health, sleeps well, wakes refreshed, and is able to attend to her household.

The connection between the interrupted sexual intercourse and the malady of the wife is in this case perfectly obvious, remarked Porosz in his address. The wife had become accustomed to extremely frequent intercourse, and suffered from the lack of it, which she ascribed to unfaithfulness on the part of her husband, a belief which naturally enough gave rise to jealousy. This belief, once firmly rooted, became an obsession, and gradually warped her judgment. Then the central nervous system became disturbed, and hallucinations were the result. The rest and change at the sanatorium combined to readjust the mental balance, but a radical cure was effected only by the commencement of a regular and systematic sexual life. Such cases as the foregoing were by no means scarce, he said, and many unhappy marriages might be avoided if family physicians would take more pains to discover the causes of nervous complaints in women, and would not hesitate to inquire as to the sexual lives of their patients.

Marriages

FLETCHER FRAZER MONROE, M.D., Ancon, C. Z., to Miss Eva Belva Hennigh of Punxsutawney, Pa., at Cristobal, C. Z., November 6.

FREDERICK D. HUNTINGTON COERR, M.D., New York City, to Miss Audrey DeRenne of Savannah, Ga., in New York, November 20.

ANNE MARY SHULER, M.D., to WILLIAM HARRIS RENDLEMAN, M.D., both of Davenport, Ia., November 22.

ARTHUR CAMP STANLEY, M.D., to Miss Alice Willard Boyd, both of Washington, D. C., December 3.

SOLOMON WIENER, M.D., to Miss Caroline L. Wiener, both of New York City, November 18.

GRAMBOW THOMSEN-VON COLDITZ, M.D., to Miss Ruth Ware, both of Chicago, December 3.

ADNA GODFREY WILDE, M.D., to Miss Sallie Griffith of Vicksburg, Miss., November 6.

Deaths

James Woods McLane, M.D. College of Physicians and Surgeons, New York City, 1864; a prominent obstetrician of New York City; died at his home, November 25, aged 73. Dr. McLane became a member of the faculty of his alma mater in 1867 as lecturer on materia medica; the following year he was made professor of materia medica and a year later professor of therapeutics. In 1872 he became adjunct professor of obstetrics and diseases of women, and medical jurisprudence. In 1879 he was made professor of obstetrics and diseases of children and professor emeritus in 1898. He was made dean of the medical faculty in 1891 and was president of the college from 1889 to 1891. He was a member for many years of the New York Academy of Medicine; was president and trustee of the Roosevelt Hospital and a member of the attending staff of the New York Hospital, St. Luke's Hospital, New York Nursery and Child's Hospital and Sloane Maternity. It was largely through the influence of Dr. McLane that the late William H. Vanderbilt donated half a million dollars to the College of Physicians and Surgeons and that Mrs. William B. Sloane, daughter of Mr. Vanderbilt, founded the Sloane Maternity Hospital. He was also largely instrumental in securing the gifts by means of which the Vanderbilt Clinic was established.

Richard Alsop Cleemann, M.D. University of Pennsylvania, Philadelphia, 1862; a member of the American Medical Association, College of Physicians of Philadelphia and American Climatological Society; president of the State Quarantine Board and manager of the hospital of the University of Pennsylvania; assistant surgeon in the federal service during the Civil War; formerly a member of the Philadelphia Board of Health and Director of Charities and Corrections; a member of the Board of Managers of the Pennsylvania Institution for the Instruction of the Blind; died at his home in Philadelphia, November 19, from heart disease, aged 72.

John C. Sundberg, M.D. Northwestern University, Chicago, 1874; a member of the American Medical Association; in 1875 demonstrator and acting professor of anatomy in Texas Medical College; acting editor of the *Medical and Surgical Reporter* of Philadelphia in 1881; of the *Puget Sound Sanatarian* in 1885 and of the *Pacific Medical Journal* in 1886 and 1887; United States Consul to Bagdad from 1892 to 1895; explorer, orientalist and social pathologist; died at his home in Seattle, Wash., November 19, from arteriosclerosis, aged 67.

Caesar August von Ramdohr, M.D. New York University, New York City, 1877; a member of the Medical Society of the State of New York; emeritus professor of obstetrics in the New York Post-Graduate Hospital, and one of the founders of that institution; consulting physician to the Post-Graduate, St. Mark's, People's and German Poliklinik hospitals; for twenty-four years secretary and vice-president of the latter institution; died at his home in New York City, November 17, from nephritis, aged 57.

Arthur Eugene Brainard, M.D. New York University, New York City, 1885; formerly of Lowville and Copenhagen, N. Y.; who went to California six years ago on account of ill health; died at the home of his sister in Los Angeles, about November 18, aged 56.

Markar G. Dadirrian, M.D. New York University, New York City, 1871; a member of the Medical Society of the State of New York and of the Imperial Medical Society, Constantinople, Turkey; formerly a missionary in Turkey, his native country; a practitioner of Constantinople until 1884, and since that time a resident of New York City; died at his country home, Riverview Manor, Hastings, N. Y., November 24, aged 73.

Jaquelin Emil Knight, M.D. Atlanta (Ga.) College of Physicians and Surgeons, 1909; a member of the American Medical Association; a member of the staff of the Atlantic Coast Line Hospital, Waycross, Ga.; died at his home in Waycross, November 18, from pneumonia, aged 26. At the meeting of the Eleventh District Medical Association resolutions of respect and regret were unanimously adopted.

Robert Emmet Eskildson, M.D. Medical College of Ohio, Cincinnati, 1884; formerly a member of the American Medical Association; a member of the Nebraska State Medical Association; a veteran of the Civil War; for many years a practitioner of Omaha; died at the home of his son in Danville, Va., November 20, aged 68.

James M. McCurdy, M.D. Long Island College Hospital, Brooklyn, N. Y., 1872; a veteran of the Civil War; for more than thirty years a practitioner of Dravosburg, Pa.; died at his home in Black Lick, Pa., about November 17, aged 67.

David Surber, M.D. Eclectic Medical Institute, Cincinnati, 1865; a pioneer physician of Kansas and president of the State Board of Health from 1888 to 1890; died at his home in Bonner Springs, November 23, from senile debility, aged 84.

John Stewart, M.D. Jefferson Medical College, 1896; a member of the American Medical Association; a well known practitioner of northwest Philadelphia; died at the Northwest General Hospital in that city, November 17, aged 40.

Ulysses Edward Dornsife, M.D. Jefferson Medical College, 1896; a member of the Medical Society of the State of Pennsylvania; of Tunkhannock; died in the Riverside Hospital, Wilkes-Barre, Pa., November 19, aged 44.

Joseph William Daniel, M.D. Tulane University, New Orleans, 1873; a Confederate veteran; local surgeon for the San Antonio and Aransas Pass Railway; died at his home in Galveston, Tex., November 16, aged 72.

Parks Rex, M.D. Western Reserve University, Cleveland, 1878; for several terms a member of the board of education of Wellsville, O.; died at his home in that city, October 18, from nephritis, aged 64.

Thomas W. Blandford, M.D. University of Louisville, Ky., 1869; one of the oldest practitioners of Daviess County, Ky.; died at his home in West Louisville, November 20, from pneumonia, aged 73.

Leon F. Harvey, M.D. Philadelphia College of Medicine and Surgery, 185. .; for many years a practitioner of Buffalo; died at his home in New Rochelle, N. Y., November 19, from nephritis, aged 75.

Richard Putney Guerant, M.D. Jefferson Medical College, 1866; formerly of Danville, Ky.; died at his home in Umatilla, Fla., September 18, from pyelonephritis, aged 71.

Presley B. Ogden, M.D. Jefferson Medical College, 1867; a practitioner of West Virginia since 1860; died at his home in Shinnston, November 17, from asthma, aged 75.

Casimir Erasmus Grabowski, M.D. University of Crakow, Austria, 1868; died at his home in Trenton, N. J., November 17, from cerebral hemorrhage, aged 68.

James Wilson Williams, M.D. University of Michigan, Ann Arbor, 1865; died at his home in Chesterville, O., November 17, from cerebral hemorrhage, aged 72.

Sidney Edward Smith, M.D. New York Homeopathic Medical College, New York City, 1892; died at his home in Brooklyn, N. Y., October 19, aged 53.

Max Hecht, M.D. Bellevue Hospital Medical College, 1891; of West Hoboken, N. J.; a member of the Medical Society of New Jersey, died in October.

Marc Abrams, M.D. Oakland (Cal.) College of Medicine and Surgery, 1906; died at his home in San Anselmo, Cal., about November 5, aged 29.

Paul Burton Blair, M.D. Rush Medical College, 1897; of Winona, Minn.; died in the Rochester (Minn.) State Hospital, November 10.

Benjamin Griffith Miller (license, Illinois); died at his home in Pontiac, September 24, from senile debility, aged 80.

James T. Turney (license, Tennessee, 1899); died at his home near Auburn, November 10, aged 57.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

PERUNA ONCE MORE

"Dr." Hartman, who, to all intents and purposes, is the Peruna Company, evidently has a desire to "get back" at the American Medical Association in particular and at decent physicians in general for the damaging exposés he has received at their hands. To do this, he has published a large advertisement during the last few weeks headed, "Dr. Hartman Makes Public the Facts As to What Doctors Think of Peruna." In it, the Peruna company declares that it has received letters from "regular practicing physicians" who have offered to write testimonials for Peruna, providing they received pay for them. "But," says Hartman virtuously, "I have always refused to pay for such a service." Then he goes on:

> "I recently received such a letter from Kentucky, from a doctor who says he has been practicing medicine for a quarter of a century and is at present 'medical referee for this county, president of the county medical board, local surgeon of the C. & O. Railroad, member of the state medical society and American Medical Association' and all that. He has used Peruna and offers to give me a very remarkable testimonial, if I would pay him for doing so."

"It was very gratifying," says Hartman, "to receive such a testimonial from a brother physician and quite a temptation to pay him a small sum and allow his letter to be published." But no, Hartman could not bring himself to do such a thing as to pay out money for a testimonial! He publishes most of the letter anyway, however, and it doubtless made just as good bait for "suckers" and was much cheaper. Says Hartman:

> "In referring to the doctor's letter, I do not consider that I am violating the ordinary courtesies and confidences of private correspondence. I have not made use of his name or the town where he resides. But I am perfectly willing to communicate the name and address by private correspondence if any one wishes me to do so."

For the purpose of "calling" Hartman's bluff, letters were written to him asking for the name and address of the Kentucky physician, member of his state society and of the American Medical Association, who had offered to sell a testimonial for Peruna. One of these letters was from a physician in Illinois, another from a minister in Michigan and a third from a stenographer in Kentucky. Each writer received a letter from Hartman, stating that while he was "always glad to show people letters and testimonials" he would want further information regarding the "use you are proposing to make of this name and address" before he would be willing to send it. He continues:

> "The fact that you are a physician ['a Reverend'] ['a woman'] leads me to believe that you are not intending any hostility either toward the doctor or myself."

Presumably if he had received letters from a butcher, a baker or a candlestick-maker, "the fact" that the writer was a butcher, a baker, etc., would "lead" Hartman to believe that he was "not intending any hostility."

The minister wrote back to Hartman that he desired the name so that he might write to the physician in question and find out whether he really did recommend Peruna. This brought another letter from Hartman stating that the Kentucky physician no longer was friendly to him but that he would enclose—and did enclose—a copy of the original letter which he received from the Kentucky doctor. Here is a copy of the letter:

> Frenchburg, Ky., Sept. 23, 1910.
>
> The Peruna Medicine Co., Columbus, Ohio:
>
> *Gentlemen:*—I write to ask you if a testimonial from a grateful patient would be of any particular value to you. I have practiced medicine for a quarter of a century and have been afflicted with a subacute inflammatory condition of the post-nasal space, and of recent years the larynx had been involved in the catarrhal process. Have also been for the last fifteen years addicted to the constant use of morphia. Your medicine has entirely relieved me of both conditions, after only a comparatively short time, and to-day am the happiest man alive. Medical men will hardly believe me when I tell them that your medicine cured me of the opium habit, but it is a fact nevertheless. I had tried for fifteen years every known means and took treatment at several sanitariums, as every one in this part of the country will know. I am willing to make oath to the above statement, and if you wish it, and are willing to make it worth my while, I will write you the testimonial that will be valuable to you as an advertisement. I do this with no mental reservation whatever, believing, as I firmly do, that it cured me of the most damnable habit, or disease, to which humanity is liable.
>
> My action in this matter may have a tendency to stagger my medical friends, lauding an irregular medicine, but I have considered the matter carefully and prayerfully, and I propose to stand by my honest conviction. I am the medical referee for this county, president of the county medical board, local surgeon of the C. & O. R. R., Rothwell to Mt. Sterling, member state medical society and American Medical Association. My action may, and I have no doubt will, cause some criticism.
>
> I am also preparing an article to be read at our next meeting of our county society on catarrhal diseases of the pharynx. My treatment for these troubles is the free and regular exhibition of your "Peruna." Will send you a copy of the article if you wish it. If you wish to use it for the benefit of suffering humanity I will send you the testimonial with my photo. There is no gallery here, but I can get one by going to Mt. Sterling, Ky., thirty miles from here. I am satisfied this will redound to your benefit in a financial way, but the best of all if it will be the means of saving even one poor soul from a living hell I will be satisfied. I am treating now seven cases of opium habit, and my principal treatment is your preparation.
>
> I am a graduate of the University of Louisville, Ky., class of '85, and have taken the postgraduate courses at New York the last five years.
>
> Yours very truly and gratefully,
>
> John L. Brown, M.D.

In the Peruna advertisement, which appeared in October, 1912, Hartman states, regarding the letter just given,

> "I recently received such a letter . . ."

In each of his letters to those that wrote him asking for the name and address of the physician, Hartman said:

> "I have the doctor's letter in my office, recently received."

Now note the date of the letter "recently received" from John L. Brown—September, 1910! In other words, the letter had been in cold storage for more than two years! So much for Hartman's accuracy. Now just a word regarding John L. Brown. Brown declares in his letter that he is, among other things: (1) medical referee for his county, (2) a member of the Kentucky State Medical Association, and (3) a member of the American Medical Association. The secretary of the Kentucky State Medical Association declares that Brown was never medical referee for his county, nor was he a member of the Kentucky State Medical Association. For the rest, we may say that Dr. John L. Brown, self-admitted morphin addict, who was willing, after he had "considered the matter carefully and prayerfully," to give a testimonial for Peruna—providing Hartman "came across"—is not, and never has been, a member of the American Medical Association.

Correspondence

The Value of Tetanus Antitoxin

To the Editor:—While the value of tetanus antitoxin in the prophylaxis of tetanus is generally accepted, its efficacy in combating the disease after symptoms have appeared is not so clearly demonstrated. Some men are firmly convinced that tetanus antitoxin in large doses has been the means of saving patients suffering from tetanus; others are as certain that it does no good. Most of the texts on medicine and surgery suggest antitoxin in the curative treatment of tetanus, but add that little benefit is to be expected from its use.

It is scarcely necessary to refer to the importance in the prognosis of tetanus of the site and extent of the initial wound, of the incubation period, of the adequacy of local surgical treatment, and of the various symptomatic remedies employed. In those cases in which serum has been administered, the method of introducing the antitoxin, whether subcutaneous, intramuscular, intravenous, intraneural, subdural, etc., must be considered.

Since the outcome of this disease depends on so many variable factors quite independent of specific treatment, the study of the individual case or of a small group of cases affords practically no safe data for generalization. Similarly, conclusions drawn from a collection of case-reports from the literature will be misleading, for favorable cases are more often reported than unfavorable cases.

The current view of the curative value of tetanus antitoxin is derived, of course, in part from animal experiment and in part from the larger collections of case-reports. One of the most extensive and frequently quoted of these reports is that of Anders and Morgan,[1] which included 949 cases from the literature (1850-1904) and 252 original cases obtained by correspondence with clinicians in this country. From their study Anders and Morgan concluded that "the present status of the serum question leaves no room for doubting that when given during well-developed cases of tetanus, antitoxin has no appreciable beneficial effect, neither reduction of mortality nor hastening of recovery resulting therefrom."

Thus out of 140 patients treated without serum, 77 per cent. died; of 112 patients treated with serum 63.4 per cent. died. A somewhat more detailed study of these statistics shows, however, that of the patients who were treated with serum, but who died, many received only small doses of serum (for instance, 20 or 40 c.c.). In the accompanying tabulation the cases are classified with respect to the amount of serum used.

	Number of Cases	Mortality, Per Cent.
Total cases	252	71
Without serum	140	77
With serum—all cases	112	63.4
Serum in small amounts	71	70.4
Serum in large amounts (100 c.c. or more)	41	51

The incubation periods of the fatal and non-fatal cases showed practically the same relation in this classification. Conclusions drawn from such tabulations are of course open to criticism from several points, but these figures suggest that large doses may have a demonstrable beneficial action. Moreover, most of the American statistics, including those of Anders and Morgan just quoted, were based on cases treated prior to 1905. In 1907 an American standard unit for tetanus antitoxin was promulgated by the Public Health Service[2] and since 1907 commercial tetanus antitoxin has been much more uniform in quality and of higher antitoxic value. Thus in seven American serums examined by Rosenau and Anderson[3] prior to 1907, the antitoxic content varied from 77 to 769 units per cubic centimeter. In five foreign serums the antitoxic content varied from 40 to 83.3 units per cubic centimeter.

During the past five years, therefore, tetanus in the United States has been treated with serum of a more uniform value, and it would seem desirable to ascertain by a compilation of results what may be hoped for in the treatment of tetanus with antitoxin of uniform grade.

We recognize of course that much of the experimental evidence indicates that after tetanus toxin is fixed in nervous tissue, antitoxin is of little service in saving the life of an animal. On the other hand, in a case of tetanus in man, it often is not possible to determine how far this intoxication of nervous tissue has progressed, by reference either to the incubation period, or to clinical symptoms. Nor is it always possible to be certain that local surgical treatment has completely eradicated the source of the toxin. That a limited intoxication is not necessarily fatal is proved by recovery in apparently hopeless cases.

As the matter now stands, the general practitioner, when called on to treat a case of tetanus, refers to his texts, finds but scant encouragement for vigorous serum treatment and at best is likely to give but two or three doses of serum. If the accumulated clinical results show that antitoxin adds nothing to the chances of recovery of the patient, the present pessimistic view is justified, and we must continue to depend on symptomatic and local treatment, but if serum in large doses will save an occasional patient, it should be used as a routine with the other approved symptomatic remedies.

A consideration of the facts given above suggests the reopening of the discussion of a rather old subject, regarded by many as settled, in the hope that the collected experience of the past five years may help to determine from clinical results the value of antitoxin to tetanus sufferers.

Those who have treated cases of tetanus since 1906, either with serum or by other methods, are requested to communicate with me in care of the Memorial Institute for Infectious Diseases. Blanks will be forwarded for recording the necessary data, and due credit will be given in the compilation to be made later.

Ernest E. Irons,
1743 West Harrison Street, Chicago.

The Tariff on Surgical Instruments

To the Editor:—At this time, when tariff revision promises to be the order of the day, would it not be a good idea for the American Medical Association to endeavor to secure the abolition, or at least reduction, of the heavy duty paid by the medical profession of the United States on surgical instruments? It is currently believed that this duty benefits merely two or three importing firms, and perhaps a similar number of instrument manufacturers in America, and this at the expense of the entire medical profession of this country. I have understood, although I cannot speak authoritatively in this matter, that there are one or two instrument importing houses in New York which import German surgical instruments in the rough—that is, not nickel-plated—on which a duty of 5 per cent. is charged, nickel-plate these instruments and then stick on the 40 per cent. duty. Furthermore, the manufacture of surgical instruments in America seems never to have attained to large proportions, and promises not to so do for many years, yet the medical profession must continue to pay this 40 per cent. duty on instruments which half the time they use in performing charity operations. Pertinent to this matter of American instrument manufacture, I recall that a year or so ago I wrote to a Chicago instrument house inquiring why they charged me $2 more for a certain kind of tonsil snare than did a New York instrument house. The reply came that their instruments were hand-forged, and not the cheap German imported instruments; but they had overlooked the important fact that both instruments bore the well-known trademark of Fischer of Jena! So much for the home-grown product. Why should the medical profession of America, with all its political strength, submit to this tariff imposition?

Richmond McKinney, Memphis, Tenn.

Immunity in Pneumococcus Infections

To the Editor:—In The Journal, Oct. 12, 1912, there appeared an article by Dr. J. O. Hirschfelder, of San Francisco, on active and passive pneumococcus immunity. This article is a valuable communication and Dr. Hirschfelder is to be congratulated on the resourcefulness and ingenuity of his experiments and deductions. His work is of unusual interest to me, since it parallels certain observations of my own, which have been in progress since November, 1910. My own work has been concerned chiefly with studies of a group of organisms which has the common characters of autolysis and enzyme production, namely, the pneumococcus, the gonococcus and the meningococcus, and to a lesser degree the staphylococcus. Of these organisms, the pneumococcus alone lends itself to animal experimentation, and the work of Rosenow and others has done much to clear up the nature of the autolytic processes and the chemical and biologic characters of the autolysates.

The enzymes of this group of organisms, of which the pneumococcus may be regarded as the type, are proteolytic and appear to operate like enzymes of the tryptic variety, i. e., best in slightly alkaline mediums. It has been shown by Dick that at the time of crisis in pneumonia the blood shows the presence of a proteolytic enzyme, especially in those cases which go on to recovery, and the inference is drawn that this enzyme is the product of pneumococcus activity.

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[1] Anders, James M., and Morgan, Arthur C.: Tetanus, The Journal A. M. A., July 29, 1905, p. 314.

[2] Treasury Department Circular 61, October, 1907.

[3] Bull. 43, Hyg. Lab., U. S. Pub. Health Service, p. 11.

My own observation has led me to believe that this contention is true. Using the highly susceptible rabbit, I have been studying the effects of immunity conferred by inoculations of infected animals with pancreatin solutions alone, with pancreatic extracts of pneumococci, and with like extracts of pneumococci and staphylococci. So far as these experiments have gone, the indications point to the following conclusions: first, that pancreatin solutions alone are capable of producing immunity in infected and non-infected rabbits; second, that filtered pancreatic extracts of pneumococci, and of pneumococci and staphylococci also, show immunizing and curative powers; third, that all three of these agents are capable of modifying favorably the course of pneumococcus infections in man.

It is my intention shortly to report the experiments and data leading to the above conclusions concerning pneumococcus infection, and the no less important data and conclusions in regard to the nature and therapeutics of gonococcus infection.

Carl C. Warden, Los Angeles, Cal.

Queries and Minor Notes

Anonymous Communications will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

IRID. FLORENT. AND PULV. MAYORANAE

To the Editor:—In an abstract of an article by A. Lorand on "The Relief of Headaches by Inducing Copious Secretion from the Nose" (The Journal, Nov. 16, 1912, p. 1834), two suggestions as to prescriptions are made. I am unable to find two of the articles required in my local druggist's stock, nor can I find them described in Dorland's dictionary or any materia medica at hand. I refer to the "pulv. mayoranae" and the "irid. florent.," both of which occur in the second prescription. Please tell me what these items are and where they can be obtained. I do not recognize them under this name.

P. T. F.

Answer.—"Irid. florent." is evidently the genitive of "iris florentina"—Florentine iris, or orris root. "Pulv. mayoranac" evidently refers to powdered marjoram leaves, which are obtained from *Majorana hortensis*, a plant somewhat similar to sage and used largely for culinary purposes. The German names for marjoram are *Wurstkraut* (sausage-herb), *Majoran* and *Mairan*. Marjoram leaves are found in many drug-stores as well as in some groceries that cater to German trade. If marjoram is not available, sage or some similar herb would probably answer the purpose.

MEANING OF THE WASSERMANN REACTION

To the Editor:—Please inform me just what a positive Wassermann test of the blood signifies, when performed by a competent laboratory worker. Does it mean that the patient is at the time of the test suffering from active syphilis and that he is in need of further treatment—treatment until the test becomes negative; or does it merely mean that the patient has at some near or remote period in his past life had syphilis? Is a positive Wassermann test of the blood, with no other discoverable evidence of syphilis, an indication for active treatment? My understanding has been that a positive Wassermann test of the blood merely signifies syphilitic infection, and that it is only temporarily influenced by treatment; that it frequently becomes negative during the course of active treatment, but invariably becomes positive again soon after treatment is discontinued. I would be glad to have an authoritative statement of the significance of a positive Wassermann test of the blood-serum.

Heber Butts, Canacao, P. I.

Answer.—According to the present consensus of opinion a Wassermann reaction found positive on repeated examinations by competent laboratory workers signifies that the individual has been infected at one period of his life with the *Spirochaeta pallida* and that he still harbors active foci of the syphilitic agent. If this infection, as in the great majority of cases, has led to the clinical manifestations which we call syphilis, or if these manifestations have been absent (latent syphilis), the positive Wassermann test means that there are still syphilitic products and producers present and that immediate specific treatment is therefore called for. It is of course erroneous to conclude that cases which show only slight clinical symptoms may be treated lightly. The history of tabetics and paralytics shows only too often "light" cases of syphilis, in which there are only slight secondary symptoms. The treatment of patients who give a positive Wassermann reaction but who show no clinical manifestations of syphilis should be thorough and should include one course of inunctions each year and potassium iodid for several months each year until the Wassermann test, taken at intervals of six months, has remained negative for two years.

As in other conditions antibodies may be present at a time when a disease has been cured, it is possible that a Wassermann test may be positive after treatment, though the patient is actually cured of his syphilis. This positive Wassermann must after a certain time become negative spontaneously. There is no evidence that antibodies may be present in high concentration years after an infection unless the infective agent is still harbored by the host. The fact that the Wassermann test becomes positive after it has been negative for some time proves only that the treatment has been insufficient in its mode, in its duration, or in both.

PREPARATION OF AUTOGENOUS VACCINES

To the Editor:—Please tell me of a publication on the preparation of autogenous vaccines.

E. C. Stevenson, M.D., Dixon, Ill.

Answer.—We find no book devoted to the preparation of autogenous vaccines, though chapters on this subject are found in several works. The directions usually given for the preparation of autogenous vaccines are, in substance, as follows:

Autogenous vaccines are mixtures of the organism, derived from the individual patient, which appears to have an etiologic relation to the disease. The first step is therefore to determine the bacterial cause of the disease and obtain the organism in pure culture. The organism must be as virulent as possible, and for this reason the isolation of the bacterium from the morbid material must be effected as rapidly as possible in as few generations as is consistent with obtaining it in a state of purity. The culture of the vaccines to be used must be prepared under the most favorable conditions. When the organism responsible for the given infection has been isolated from the lesion existing in the patient, it is planted on a suitable medium in a Roux or similar bottle to form mass cultures, and is incubated under optimum conditions for such a period of time as experience shows is calculated to yield the maximum number of vigorous living bacteria. Salt solution is then added to the growth, a few cubic centimeters being usually sufficient, and the culture scraped off into the salt solution with a sterile glass rod or platinum loop. The number of bacteria per cubic centimeter is then estimated by mixing equal volumes of defibrinated blood and bacterial suspension and then diluting about five times and smearing on a slide. This is stained with a Romanowski stain and the number of red corpuscles and also that of the bacteria ascertained.

Since the number of corpuscles in normal human blood is about 5,000,000 per cubic millimeter, by a comparison of the number of bacteria with the number of corpuscles in the field examined, the number of bacteria per cubic centimeter can readily be estimated. Having determined the numerical strength of the vaccine, a sufficient quantity of salt solution is added to the emulsion to reduce the numbers in each cubic centimeter to 1,000 or 100,000,000, or to whatever quantity is selected as the standard, and the mixture is well shaken. The tube is then suspended for a period of thirty minutes in a water-bath kept at a temperature corresponding with the thermal death-point of the bacterium employed for the vaccine, for example, from 59 to 60 C. (138.2 to 140 F.) for *Staphylococcus aureus*. After removal from the water-bath, loopfuls of the emulsion are sown on suitable mediums and incubated in order to determine the sterility of the vaccine. Finally a small quantity of some antiseptic, such as 0.5 per cent. phenol, or 0.25 per cent. trikresol, is added to the vaccine, which is then put up in small bulbs or rubber-capped bottles for use.

THE INCOMPATIBILITIES OF HEXAMETHYLENAMIN

To the Editor:—I have been an interested reader of the various discussions on hexamethylenamin that have appeared in The Journal during the last few years. No one of the articles that I have read, however, has touched on the subject of its compatibility with other drugs. Please give me some light on this subject.

W. H. Conner, M.D., Gilbert, Minn.

Answer.—The incompatibility of hexamethylenamin with sodium acid phosphate, due to the acidity of this salt, was discussed in The Journal, Nov. 2, 1912, p. 1640. The fact that its solutions are decomposed by acids was discussed in The Journal, Nov. 30, 1912, p. 1989. Other incompatibles are tannic acid and mercuric chlorid, which precipitate hexamethylenamin.

LITERATURE ON PELLAGRA

To the Editor:—Please refer me to articles and books on the signs and symptoms of pellagra which have been published since June, 1911.
H. C., ————, Miss.

Answer.—In this department, Sept. 28, 1912, p. 1205, appeared a list of Journal articles on the etiology, symptoms and treatment of pellagra. The following list includes later Journal articles and books and articles that have appeared elsewhere:

Wood, Edward Jenner: A Treatise on Pellagra. Price, $4. D. Appleton & Co., New York, 1912.
Roberts, Stewart R.: Pellagra: History, Distribution, Diagnosis, Prognosis, Treatment, Etiology. Price, $2.50. C. V. Mosby, St. Louis, 1912.
Threlkeld, A. E.: Pellagra, *Kentucky Med. Jour.*, June, 1912.
Pennington, M.: Pellagra, *Kentucky Med. Jour.*, July, 1912.
Ravitch, M. L.: Plea for Earlier Diagnosis of Pellagra, The Journal, July 6, 1912, p. 33.
Dean, C. H.: Three Cases of Pellagra, *Boston Med. and Surg. Jour.*, July 18, 1912.
Ravogli, A.: Case of Pellagra, *Lancet-Clinic*, August, 1912.
Lavinder, C. H.: Clinical Aspects of the Pellagra Question, *South. Med. Jour.*, August, 1912.
Niles, G. M.: Rôle of Psychotherapy in Pellagra, *Virginia Med. Semi-Month.*, Aug. 23, 1912.
Snyder, J. R.: Pellagra in Children, *Am. Jour. Dis. Child.*, September, 1912.
Rush, D. J.: Pellagra, *Mississippi Med. Month.*, September, 1912.
Tretbar, J. J.: Pellagra, *Jour. Kansas Med. Soc.*, September, 1912.
Pellagra in Illinois, Condensed Report of Illinois Pellagra Commission, *Arch. Int. Med.*, September, 1912.
Dyer, I.: Treatment of Pellagra, *New Orleans Med. and Surg. Jour.*, October, 1912.
Ormsby, O. S.: Pellagra, *Jour. Cutan. Dis.*, October, 1912.
Hoag, D. E.: Nervous Manifestations in Pellagra, The Journal, Oct. 19, 1912, p. 1445.
Phenomena of Anaphylaxis in Pellagra Patients Inoculated with the Watery Extract of Spoiled Maize, The Journal, Oct. 19, 1912, p. 1480.

DIFFERENTIATION OF MEASLES AND GERMAN MEASLES

To the Editor:—Considerable discussion has arisen here as to the etiologic differentiation of measles and German measles. Please give me any information or literature. Can a person with German measles infect a second person with measles?
J. W. Warren, M.D., Plymouth, Mich.

Answer.—So far as is at present known, German measles (rubella or rötheln) and measles (rubeola or morbilli) are distinct diseases. Recent investigations have shown that it is possible to communicate measles to apes and monkeys and some important facts have been learned regarding the character of the virus, but we do not know that any similar experiments have been made with the virus of German measles. According to the prevailing opinion a person sick with German measles would not communicate any other disease than German measles. He would not infect a second person so that the second person would develop genuine measles.

DATE OF INTERNATIONAL MEDICAL CONGRESS

To the Editor:—Some time ago I read in The Journal of the medical meeting to be held in London next August. Since then I have seen nothing in regard to it. I should like to attend this meeting. We are but twelve days now from London, nearer than the physician in San Francisco.
M. S. Stewart, M.D., East Gate, Seoul, Korea.

Answer.—The Seventeenth International Medical Congress vill be held in London, Aug. 6-12, 1913. Information concerning the congress was given in The Journal, Feb. 3, 1912, p. 56, and July 27, 1912, p. 285.

PROLONGED ALKALINE TREATMENT OF HYPERCHLORHYDRIA

To the Editor:—In The Journal (Nov. 23, 1912, p. 1910) I. T. R. shows that he believes in sodium bicarbonate for hyperhlorhydria. Please, in your query column, draw his attention to he following:

℞. Magnesia, calcined ....gr. v
Bismuth subnitrate ....gr. x

This was prescribed for me three years ago and its continued aily use has wrought no harm but unqualified happiness.
T. R. C.

INFORMATION DESIRED ON HABITUAL SUBNORMAL TEMPERATURE

To the Editor:—I am interested in habitual subnormal temperaure. I have a few patients under observation who show a daily inge of temperature from 95 to 98 degrees. All these patients, hile in a state of low vitality, are attending to their usual mployment. I wish to tabulate and compare the symptoms conected with this condition, and therefore ask for information with egard to such cases.
N. R. Gordon, M.D., Springfield, Ill.

PREGNANCY AFTER OOPHORECTOMY

To the Editor:—I am interested in the subject of pregnancy after oophorectomy and would appreciate certain information from those who have had cases of this kind. The information desired involves the question of the relief of sterility following this operation, the character of the labor where pregnancy has occurred, the indications for removal of the ovary, the pathologic condition, any other operations done at the same time, the character of the menstrual periods subsequent to the operation and the date of birth and sex of subsequent children. A blank form will be forwarded in reply to a post-card request.
George W. Kosmak, M.D.,
23 East Ninety-Third Street, New York City.

Medical Economics

This Department Embodies the Subjects of Post-graduate Work, Contract Practice, Legislation, Medical Defense, and Other Medicolegal and Economic Questions of Interest to Physicians

GOOD HEALTH A BUSINESS PROPOSITION

Reference has previously been made to the excellent work being done in the education of the public by some of our large life-insurance companies. One of the most conspicuous examples is the Equitable Life Assurance Society, which has established a department of conservation, devoted to the prevention of disease and the prolongation of life among its policy-holders. It also issues a magazine entitled *The Human Factor* to its policy-holders. In a recent issue of this magazine appear some striking statements from an address by Mr. E. E. Rittenhouse,[1] the conservation commissioner of the society, before the International Conservation Congress, held at Indianapolis, Oct. 2, 1912, which are worth quoting not only for the facts themselves, but for the impressive way in which they are put. Mr. Rittenhouse said:

"Our birth-rate is declining. Over 200,000 infants under age 5 die annually from preventable disease.

"Of the 20,000,000 school children in this country not less than 75 per cent. need attention for physical defects which are prejudicial to health.

"The alcohol and drug habits are constantly adding to the degenerate list and the death-roll.

"The diseases of vice are spreading, and we lack the moral courage to openly war against them.

"Insanity and idiocy are increasing at an alarming rate.

"Suicides now reach the enormous total of 15,000 annually.

"Over 9,000 murders are committed every year in the United States. Only about 116 murderers are executed for these crimes. Our homicide rate is appalling—about 100 per million population, against 13 in Canada, 9 in Great Britain, 15 in Italy.

"The diseases of old age are reaching down into middle life and below. Our vital organs are wearing out too soon. We have had an increase of over 100 per cent. in thirty years in the death-rate from diseases of the heart, blood-vessels and kidneys, including apoplexy. These diseases claim over 350,000 Americans annually. Sixty per cent. of them are preventable or postponable if detected in time.

"Cancer destroys nearly 75,000 lives annually. The loss from external cancer alone has increased 52 per cent. in ten years.

"Pellagra, a deadly plague, is increasing in the South, but it excites little or no public concern.

"Over 135,000 lives are taken by pneumonia, chiefly as a result of weakened resistance from degenerative disease.

"Over 150,000 die annually from the preventable plague, tuberculosis. Nearly a million tuberculous victims are constantly spreading the malady to the well, with virtually no official supervision or restraint.

"Over 25,000 are killed and 300,000 attacked annually by the preventable filth disease, typhoid fever. Other germ diseases carry off more people than tuberculosis and typhoid combined.

"Over 90,000 Americans are killed annually by accidents and other violence, and the loss is steadily increasing.

"Over 1,500,000 people are constantly ill from preventable disease. Over 6,000,000 people will die from preventable cause during the next ten years at the present loss rate.

"The sum of $1,500,000,000 is a low estimate of the annual economic loss from preventable deaths.

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[1] Rittenhouse, E. E.: Human Life as a National Asset, abstr., The Journal A. M. A., Oct. 12, 1912, p. 1393.

"Our cities spend six and a half times as much to prevent fire-waste as they do to prevent life-waste, although the money loss from life-waste is six times greater.

"These are the conditions we are asking our people to correct. Is there anything unreasonable in this request?"

By way of contrast to the somber picture given of conditions in this country, are the striking statements made in the first article in the number, under the title, "Our Life-Saving Triumph of Panama," in which the work of the Sanitary Department of the Canal Zone for the last seven years is summarized:

"Col. William C. Gorgas and his sanitary corps were charged with an extraordinary task. They undertook to drive from the pest-ridden seaports, jungles and marshes of the Canal Zone the deadly fevers and other diseases which have scourged the Isthmus for 400 years. Their success has challenged the admiration of the world.

"They have transformed the world's greatest plague-spot into a zone of salubrity and health. They have given civilization most convincing proof that sanitarians can conserve human life even under the most appalling difficulties, *when they are given money and the authority to do it.*

"Every American should know the story of what has been done. From the statements and reports of Colonel Gorgas we learn the following:

"Yellow fever has been banished—no case has occurred for six years.

"The annual deaths per ten thousand employees from principal diseases has been reduced under American control (since 1904) as follows: From dysentery 25.8 to 2.6. From tuberculosis 15.3 to 4.7. From malarial fevers 87.9 to 9.6. The annual malarial sick-list has been reduced from 821 to 187 per thousand employees.

"During the first nine years of French control the general death-rate was 241 per thousand employees annually. (That mosquitoes spread fevers was not then known.)

"Under American control it has come down from 41.7 in 1906 to 11.0 in 1911.

"The average number of employees under French control was 10,200, and the deaths were 22,189. During nearly the same length of time under American control, the average employed was 33,000 and the deaths were less than 5,000.

"The general death-rate in Panama, Colon and the Canal Zone has been reduced from 48.3 per thousand population in 1906 to 21.4 in 1911.

"Could the American people ask any more convincing evidence that public health is purchasable?

"It is simply a matter of dollars and authority. The cost of accomplishing these wonderful results on the Isthmus has been about $2.43 per person annually in the zone affected. This is less than Key West spends annually for its fire department, where the death-rate (22.5) is higher than it is in Panama.

"Are the lives of the white and black people of the Isthmus of any more value than the lives of the white and black people of the states?

"If Colonel Gorgas, under the most extraordinary difficulties, can conquer the diseases due chiefly to the mosquito and fly pest, why can it not be done in American cities where the obstacles to overcome are relatively trifling and the cost much less?

"If we know how to change the deadly swamps and jungles of Panama into healthful abodes for man, what excuse have we for not applying the same knowledge to its full extent to American communities?

"It is difficult to realize that Panama, the former pest-hole of the tropics, is now more healthful than a number of American seaport and river cities.

"Compare the Panama death-rate of 21.4 with that of Charleston, S. C. (1910 census) 29.7, Savannah 26.9, Mobile 23.0, Richmond 22.6, Key West 22.5, Memphis 21.4, New Orleans 21.3, Washington, D. C., 19.6, and with the many other wealthy and prosperous American cities where the death-rate is from 15 to 20. And there are scores of towns and cities in the United States with virtually no public health service.

"Colonel Gorgas has emphasized the fact and placed it squarely before the American people, that the excessive death-rate from preventable disease in our communities is nothing short of a communal crime."

One could hardly ask for a better demonstration of the fact, now being recognized, that good health is a purchasable commodity, and that sickness can be insured against and prevented if the public is willing to pay enough for safeguards.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Delaware: State Society and Homeopathic Examining Boards, Dover and Wilmington, December 10-12. Secretary of the Medical Council, Dr. Henry W. Briggs, 1026 Jackson St., Wilmington.

Kentucky: The Armory, Louisville, December 12. Sec., Dr. J. N. McCormack, Bowling Green.

Maryland: Regular, 1211 Cathedral St., Baltimore, December 10. Sec., Dr. J. McPherson Scott, Hagerstown; Homeopathic, St. Luke's Hospital, Baltimore, December 13-14. Sec., Dr. O. N. Duvall, 1326 N. Mount Street.

Ohio: Columbus, December 10-12. Sec., Dr. George H. Matson, State House.

Virginia: Richmond, December 17-20. Sec., Dr. Herbert Old, Norfolk.

Georgia Board Upheld in Right to Refuse to Examine Graduates of Certain Colleges

The mandamus case brought by the Southern College of Medicine and Surgery against the Board of Medical Examiners of Georgia was called for trial in the superior court recently, but as no one was present for the college except the local attorneys, and as they refused to try the case, it was dismissed. This case was brought several months ago to compel the board to examine the graduates of this college. The case was first heard by Judge Morris, was then taken to the supreme court by the college and later came back for trial before a jury, but, as stated above, the case was dismissed. The board had refused to examine the graduates of the college on the ground that the college was not equipped properly, and was graduating its students before they had completed the course required by law. It is supposed that the dismissal of the case will end the litigation over the matter.

Louisiana Homeopathic November Report

Dr. Edward Harper, secretary of the Homeopathic State Board of Medical Examiners of Louisiana, reports the written examination held at New Orleans, Nov. 4-5, 1912. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. Only one candidate, a graduate of the University of Michigan Homeopathic College, 1912, was examined and he passed with a grade of 82.5 per cent.

New Jersey October Report

Dr. H. G. Norton, secretary of the New Jersey State Board of Medical Examiners, reports the written examination held at Trenton, Oct. 15-16, 1912. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 34, of whom 25 passed and 8 failed. For one candidate the results are not published because of failure to furnish proper preliminary credentials. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Howard University, Washington, D. C.	(1912)	88
University of Louisville	(1910)	80.5
University of Maryland	(1906)	76
University and Bellevue Hospital Medical College	(1912)	81, 84, 84.2, 85.1, 86.
Cornell University Medical College	(1910)	85.5
Columbia University, College of Phys. and Surg.	(1912)	80.9
New York Homeopathic Medical College and Flower Hospital	(1911) (1912)	82, 86; 77.
Eclectic Medical College of the City of New York	(1912)	77.5
Univ. of Pennsylvania	(1880) (1911) (1912)	82; 80.1; 79.6
Jefferson Medical College	(1911) (1912)	81.5; 78, 80.1, 86.4
Medico-Chirurgical College, Philadelphia	(1912)	80.4
Women's Medical College of Pennsylvania	(1912)	79
McGill University, Quebec	(1903)	80.5
University of Naples, Italy	(1905)	78
FAILED		
University of Louisville	(1911)	73
University of Maryland	(1910)	72.5
Harvard Medical School	(1912)	73.4
Eclectic Medical College of the City of New York	(1912)	70
University of Naples, Italy	(1893) (1895) (1903) (1908)	54.8; 67.4; 68.2; 69.

Book Notices

Mind-Cure and Other Essays. By Philip Zenner, A.M., M.D. Cloth. Price, $1.25 net. Pp. 160. Cincinnati: Stewart & Kidd Company, 1912.

The subjects of mind-cure, alcoholism, social diseases, the medical inspection of schools, the training of children, defectives and delinquents, and the betterment of the race through the science of eugenics are much in the minds of thoughtful men and women at present, and constitute problems in preventive medicine to which leading members of the profession are devoting their attention. In this little volume Dr. Zenner has treated these subjects in a sane, clear and forceful manner. In the essay on mind-cure he vigorously arraigns the quack and the nostrum-vender with their vast and fraudulent pretensions, and calls attention to the shortcomings of osteopathy and the inadequacy and danger of the Christian Science cult and its pretensions in the cure of disease. In the essays on the training of the child, the prevention of alcoholism and the social diseases he speaks clearly and practically on the need for education in these matters and the building of character in the young, in which lies the best hope of progress. Eugenics and the problems of the defective and the delinquent are treated in the same enlightened, sensible manner, and for the handling of the latter he offers a practical method in the school of truancy which he was instrumental in establishing in his home city. This is a sensible book on vital subjects and should interest every thoughtful person.

The Medical Directory of New York, New Jersey and Connecticut. Volume XIV. Cloth. Price. $2.50. Pp. 821. New York: Medical Society of the State of New York, 17 W. Forty-Third Street, 1912.

The fourteenth volume of this directory is similar in style to those already issued and contains the names of 17,764 physicians, of whom 13.696 are in the state of New York, 2,674 in New Jersey and 1.394 in Connecticut. Of the 13,696 physicians credited to New York state, 5.159 are in Manhattan and the Bronx, 1,927 in Brooklyn, 213 in Queens and 66 in Richmond, making a total for Greater New York of 7,365, leaving a balance of 6.331 as the medical population of the remainder of the state. The directory contains only the names of registered physicians.

The Vanishing Man. A Detective Romance. By R. Austin Freeman. Cloth. Price, $1.25 net. Pp. 351. New York: Dodd, Mead & Co., 1912.

An excellent detective story of medicolegal character, the plot being based on the identification of bones. The character-sketching is good and the plot ingenious, while the love-making between the physician narrator and the heroine suspected of murder is altogether satisfactory. The story will be found not horrible or thrilling, but absorbing and entertaining.

The Medical Record Visiting-List, or Physician's Diary for 1913. Leather. Price, $1.50. New York: William Wood & Co.

This admirable visiting-list possesses the advantages of neatness and compactness. It fits easily into the pocket and con-ains the tabloid information found ordinarily in publications of this character. The blanks are in various forms for making onveniently the necessary records of visits and charges and or other data such as births, vaccinations, etc.

Medicolegal

noculation With Venereal Disease Cruel Treatment of Wife

(Carbajal vs. Fernandez (La.), 58 So. R. 581)

The Supreme Court of Louisiana affirms here a judgment or the plaintiff in what it says was the suit of a young wife, haste and pure, for a separation from bed and board on the round of cruel treatment, consisting in having been inoculated with both gonorrhea and syphilis by her husband. The defense was that the infection might have been communicated in other ways than by sexual commerce. Possibly so, but the defendant (barely 20 or 21) suffered from these diseases before his marriage, and was treated for them some six months before his marriage, and no later than three days before his marriage he consulted a physician to be informed whether in the opinion of the physician he had been cured, and marriage was safe. The expert testimony showed that if contracted from commerce the diseases would first appear where they did, in fact, manifest themselves. As to whether the communication of a venereal disease constitutes cruel treatment, the brief of the defendant said: "The evidence unquestionably shows that plaintiff is afflicted with syphilis, that disgusting and terrible disease that carries in its wake untold physical and mental pain and anguish. . . . Defendant's earnest sympathy is extended to the plaintiff, whose suffering and humiliation have, unquestionably, been great." Indeed, all the courts agree on that point. The only difference of opinion is as to whether it is necessary that the husband should have been aware of his condition. In the present case the defendant had this knowledge; or, which is the same thing, should, under the circumstances, have had it. Wherefore, the judgment for the plaintiff is affirmed.

Letting Drain Get Lost in Wound

(Evans vs. Munro (R. I.), 83 Atl. R. 82)

The Supreme Court of Rhode Island approves of an allowance of $1.250 damages to the plaintiff on account of the defendant having permitted a drain to get lost and remain in the wound after he had performed an operation for the removal of a tumor from her breast. The court says that there was no merit in any of the exceptions of the defendant. There was no question but that the plaintiff was in the exercise of due care during the operation performed on her by the defendant, and thereafterward while under his care, and that it was through no fault of hers that the drain disappeared and was lost within the incision made by the defendant, and remained within the wound in her breast, which healed by first intention. As such drains are not ordinarily permitted, in the exercise of good surgery, to remain within the body of a patient after a wound has so healed, proof of the fact that the drain in question was left by the defendant in the breast of the plaintiff imposed on him the burden of explaining that its presence there was not due to his negligence in the premises. The damages awarded were not so large as to shock the conscience of the court, or to indicate that the verdict of the jury was actuated by passion, prejudice, or other improper motive. Therefore, the defendant's exceptions are overruled and the case remitted to the superior court, with direction to enter judgment on the verdict for the amount above stated.

Prohibition Against Disclosures Is Absolute

(Weil vs. Weil (N. Y.), 136 N. Y. Supp. 190)

The First Appellate Division of the Supreme Court of New York affirms an order dismissing an uncontested action for the annulment of a marriage because, it says, there was no legal evidence of the existence of the disability of which the plaintiff complained. There was evidence given by a physician, but that was clearly incompetent, and should not have been received. Section 834 of the New York Code of Civil Procedure provides that a physician "shall not be allowed to disclose any information which he acquired in attending a patient in a professional capacity, and which was necessary to enable him to act in that capacity." That was precisely what the physician was allowed to do in this case. It was of no consequence that the defendant was not present to object to the evidence. The Code does not provide that such evidence may be received, if not objected to. The prohibition is absolute, that the physician shall not be allowed to testify, and it remains effective, unless the provisions are expressly waived on the trial by the patient. The court should have refused to receive the evidence, and, if it was received inadvertently, should have disregarded it.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, Cleveland, Dec. 31-Jan. 2.
American Physiological Society, Cleveland, Dec. 26-28.
Southern Surg. and Gynec. Assn., Old Point Comfort, Va., Dec. 17-19.
Western Surgical and Gynec. Assn., Cincinnati, Dec. 20-21.

SOUTHERN MEDICAL ASSOCIATION

Sixth Annual Meeting, held at Jacksonville, Fla., Nov. 12-14, 1912

(Continued from page 2000)

Empiricism in Medicine

Dr. H. H. Martin, Savannah, Ga.: If we must use drugs in our practice, we have the U. S. Pharmacopeia, the National Formulary, and the list of new and nonofficial remedies which have been examined and approved by the Council on Pharmacy and Chemistry of the American Medical Association. We should withdraw our support from the so-called remedies and cures which are manufactured or compounded for the sole purpose of making money and not for the purpose of healing the sick. Let us, as medical men, entrusted with the health and lives of our fellow men, come to a fuller realization of our duties and responsibilities. Let us shake off the superstitions and absurdities of empiricism; let us draw a sharper line between scientific and empiric medicine with "no compromise" as our slogan. Let us exclude from our offices the voluble "detail man" and his wares, and the medical journals which are allied with the proprietary interests. Let us also endeavor to have established, if necessary, one or more drugstores in every city and town in this country where drugs are dispensed on prescription only. Let us endeavor to secure the enactment of a law in each state that will make the newspaper proprietor just as responsible civilly and criminally for the advertisements that go into his paper as he is for any article in the news columns.

The Thyroid and Hyperthyroidism

Dr. Stuart McGuire, Richmond, Va.: A patient with exophthalmic goiter ought to be kept under observation and carefully studied for some days before the surgeon decides on the character of the operation best suited to the individual and the safest time to perform it. In the hands of experts, the mortality of operations for hyperthyroidism is now from 2 to 5 per cent., and 85 per cent. of those who recover may be said to be symptomatic cures. It is neither honest nor expedient to make light of the operation or to belittle its difficulties and dangers. After a successful operation for hyperthyroidism the improvement in the patient is immediate and marked. No operation in surgery produces such quick and brilliant results. Tremor disappears, the pulse falls to normal, the eyes become less and less wild, and restlessness and irritability are replaced by quiet and composure. The wound, as a rule, heals rapidly, and the patient is able to leave the hospital in from ten to fourteen days. Though the patient is well from the operation, and though the acute symptoms are relieved, the patient should not return immediately to the ordinary activities of life. It requires approximately the same time to recover from exophthalmic goiter as from a nervous breakdown from other causes. A successful operation should be followed by an adequate period of rest.

Vaccine Therapy

Dr. Irvin E. Colgin, Waco, Texas: The most uniform results obtained from the use of vaccines are in cases of pyogenic infection, especially those caused by staphylococci, such as furuncles and carbuncles. This is due to two factors, the chronicity of the infection and the uniformity of the causative organism. Success has also been the rule in treating cases of acne vulgaris. In vaccine therapy success depends on: (1) choice of cases applicable to the use of bacterial vaccines; (2) determination of the causative factor (do not depend on mixed vaccines, as usually if you eliminate the main factor Nature can take care of the balance of infection); (3) selection of the dose according to individual patients (do not follow set rules); (4) the interval between injections (make it long enough to let the body respond to the stimulation).

DISCUSSION

Dr. J. B. Elliott, Jr., New Orleans: My results in the treatment of typhoid fever by the use of typhoid vaccines have been uniformly successful. The cases have all terminated about the twentieth or twenty-second day, and after three doses of vaccine have been given the temperature has generally fallen to normal. I have failed to see any harm done in any case by the use of typhoid vaccines.

Hydrothorax in Its Relation to Cardiorenal Lesions

Dr. Frank A. Jones, Memphis, Tenn.: Hydrothorax is often an acute condition instead of part of a general dropsy. Acute nephritis is often ushered in by an attack of acute edema of the lungs, followed rapidly by acute fulminating hydrothorax. In all probability, the edema of the lung followed rapidly by hydrothorax is due to the same toxic agencies which, at the same time, produce the renal changes. In these cases passive congestion, venous stasis, etc., have nothing to do with the production of the edema; the large black lung is analogous to the large red kidney. When dyspnea is marked, either in cardiac or renal lesions, the patient should be examined for hydrothorax just as critically. Hydrothorax, massive in nature, is often latent. Saline cathartics and digitalis, when hydrothorax is present to any appreciable degree, are dangerous. They invite edema of the lungs and paralysis of the heart.

Relation of Gas Embolism to the Production of Artificial Pneumothorax

Dr. Stevens T. Harris, Highlands, N. C.: The results of no other method ever employed can compare with the wonderful results obtained by this procedure. It is the only real curative treatment for phthisis ever devised. Artificial pneumothorax, like other surgical methods, has its dangers, of which the chief is gas embolism. Nearly all the deaths due to the treatment have been caused by this condition. The chances for gas embolism are remote after you have definitely proved that the pleura is free and that more or less of a cavity has been formed. We have never seen it occur when this is the case, except when there were a thickened pleura and some adhesions, and when too high a pressure was suddenly produced.

Some Economic Questions Related to Syphilis

Dr. Isadore Dyer, New Orleans: Hospitals for syphilis should be established in every state, not as an incentive to vice, but as a deterrent. If syphilitics were required to be hospitalized for the treatment of their disease, it would reduce the occurrence of syphilis and would encourage proper treatment. While treatment may be of great importance, of more importance is the study of the ways and means to educate the profession and the public in the care and in the prevention of syphilis and its consequences.

Hygiene of Syphilis

Dr. Oscar Dowling, New Orleans: As a preventive measure, segregation of the prostitute class, while unsatisfactory and undoubtedly a legalization of vice, affords opportunity for medical supervision and treatment. Stringent, practical regulations, humane, adapted to local conditions, and rigidly enforced, would give results worth the effort involved. But to be effective, there should be no favor, no laxity, no escape. Certainty and justice should be the keynotes. The best means of getting rid of syphilis or any similar disease is to educate the people by energetic, practical work. Vigilance in the control of bad practices, activity in the practical things pertaining to home life, enforcement of every health ordinance and regulation are means which spread the gospel of cleanliness and health. The hygiene of syphilis is the same as the hygiene of other contagious diseases. From its nature, specific work should be done to enlighten every one as to its origin and to correct the false notion that it is contracted in one way.

Treatment of Chronic Laryngeal Stenosis

DR. HOMER DUPUY, New Orleans: When a laryngeal stenosis is the result of hyperplastic changes, some form of dilatation is the most logical method of overcoming it. Gradual, systematic dilatation by intubation offers favorable prospects of success. The tube with a low retaining swell and a wide head would seem to meet a want in the treatment of this form of stenosis. In children, hypertrophic laryngitis is largely responsible for a chronic laryngeal stenosis. In this particular affection tracheotomy is more apt to induce connective-tissue changes than to effect a final cure.

(To be concluded)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Insanity, Baltimore

July, LXIX, No. 1, pp. 1-265

1 Sociologic Aspect of Insanity and Allied Defects. H. Work, Pueblo, Colo.
2 Alzheimer's Disease. S. C. Fuller and H. I. Klopp, Westborough, Mass.
3 *Some Problems in Heredity in Mental Diseases. H. A. Cotton, Trenton, N. J
4 Unilateral Hypertropay Involving Entire Left Side of Body. P. Bassoe, Chicago.
5 Plan for Indexing Cases in Hospitals for Insane. W. A. White and F. M. Barnes, Washington, D. C.
6 Biography of Patient with Paranoid Dementia Praecox. C. W. Burr, Philadelphia.
7 *Prognostic Value of Hallucinations in Manic-Depressive Psychoses. E. M. Pease, Waverley, Mass.
8 *Association in Feeble-Minded and Delinquent Children. F. C. Eastman and A. J. Rosanoff, Kings Park, N. Y.
9 *Clinical Interpretations of Serologic Content of Blood and Cerebrospinal Fluid, with Reference to Cytology and Chemistry of Latter, in Mental Diseases. M. J. Karpas, New York.
10 Introductory Histopathologic Study of Paraplexus in Psychoses. J. A. F. Pfeiffer, Washington, D. C.
11 How Long Has Pellagra Existed in South Carolina? J. W. Babcock, Columbia, S. C.

3. **Heredity in Mental Diseases.**—No attempt is made by 'otton to give any definite conclusions regarding the hereditary actors in the various psychoses. He reviews some of the most mportant work done so far and outlines the methods to be ursued to obtain the best results in future work. He also peaks of some of the difficulties to be met with, especially vhen analyzing the material as it comes from the field workrs, and emphasizes the necessity of maintaining an open nind regarding these problems. and not to be too biased in ttempting to make the facts fit the Mendelian laws. At the ame time, he recognizes that a comprehensive knowledge of he laws will assist materially in analyzing data and in arriving at practical conclusions. He also feels that much valuable naterial will be obtained which will aid in solving the problems of prophylaxis and prevention of mental diseases. An xcellent bibliography is appended to Cotton's paper.

7. **Hallucinations in Manic-Depressive Psychoses.**—In 800 ases in which the histories were studied by Pease, 219 or 27.3 er cent. had hallucinations. Of the 219 hallucinating cases 122 r 55.7 per cent. recovered. Of the 581 non-hallucinating cases 98 or 53.4 per cent. recovered. It was found that these 800 ases represent only 609 persons. Of the 609 persons, 182 or 9.9 per cent. had hallucinations. Of the 182 hallucinating perons 99 or 54.3 per cent. recovered. Of the 427 non-hallucinatg persons, 192 or 44.9 per cent. recovered. So far as hallucinations have any prognostic value at all, Pease says they indiate (1) a slightly better prognosis for the attack, and (2) a omewhat greater liability to recurrence of attacks. But (3) e differences in percentage between the hallucinating and the on-hallucinating cases is so slight as to suggest that if data rom a much larger number of cases could be obtained these ifferences might disappear; in which case hallucinations ould have no prognostic value.

8. **Association in Feeble-Minded and Delinquent Children.**—The material of this study consists mainly of test records which have been obtained from 253 subjects. All subjects were selected on the basis of backwardness in studies as rated by the teachers; the majority are also delinquents, having been committed on charges of truancy, disobedience, running away from home, theft, burglary, assault, etc. In their ages 233 of the subjects range from 11 to 17 years, almost all the remaining twenty being one or two years below or above this range. The conclusions arrived at are (1) that states of arrested mental development present certain fairly characteristic associational tendencies. (2) These tendencies are characterized mainly by failures of reaction, non-specific reactions, and certain types of individual reactions. (3) The association test, as employed in the authors' study, is an aid in the diagnosis of feeble-mindedness.

9. **Cytology and Chemistry of Cerebrospinal Fluid.**—In order to make a complete laboratory report of neurologic or psychiatric validity, Karpas says it is essential to examine the blood and fluid for complement deviation, and, in addition to this, cytologic and chemical tests of the cerebrospinal fluid should be made. An examination of the blood alone will throw no light on the psychiatric or neurologic diagnosis. It must be also emphasized that in suspicious cases, several examinations of the blood and fluid should be performed. The 100 cases of general paralysis studied by Karpas gave in 63 per cent. a positive Wassermann in the fluid and blood; 7 per cent. revealed a positive Wassermann only in the blood; in 16 per cent. the Wassermann reaction was present only in the fluid; in 4 per cent. of the cases, the Wassermann test in the blood and fluid was negative. He has had no experience with incipient cases of general paralysis; forty-nine out of seventy-two cases were fully developed and only seven of twenty-two general paralytics were in the last stage. Some of the cases gave a negative Wassermann test in the blood; also there are other instances in which the Wassermann test was negative in the fluid, and again there are cases which show a negative Wassermann reaction both in the blood and fluid; and these findings bore no relation to the course and progress of the disease process. In all cases, except two, lymphocytosis was demonstrated with varying intensity; but no distinct parallel with the course of the disease could be established. In the majority of cases the four reactions were, as a rule, present. Karpas is convinced that the cytologic reaction plus the globulin content are of profound significance and are always indicative of an organic process in the central nervous system. In two cases of cerebral syphilis, which were confirmed by postmortem examination, the Wassermann reaction was present in the blood but not in the fluid, and globulin increase and lymphocytosis were manifested. In chronic syphilitic endarteritis of a non-active process and apparently healed gummata, the blood gave a complement deviation, the fluid was negative for Wassermann test, globulin was not increased and the cell-count was very low, only three lymphocytes per cubic millimeter. In other cases, in which the syphilitic process was relatively young or active, the results were the same as those obtained by Plant. The four reactions were not present in the two cases of tabes. The alcoholic psychoses present no pathologic phenomena in the fluid; however, in some of the cases Wassermann reaction was present in the blood and in some instances a history of syphilitic infection was obtained. Likewise arteriosclerotic and senile mental diseases and functional psychoses (such as dementia praecox, manic-depressive insanity, etc.) gave similar results. In epileptic psychoses, as a rule, neither the blood nor the fluid reveals abnormal constituents. Three of twenty-two cases of epileptic psychoses on the first examination showed some abnormal phenomena in the blood and fluid. Under anti-syphilitic treatment these pathologic manifestations disappeared. The clinical laboratory cannot be considered as the ultimate court of appeals for deciding disputed diagnosis of border-line cases. The clinical observations cannot be undermined; the development of disease cannot be ignored; and the progress and course of the clinical phenomena should be carefully considered. The laboratory results can only be utilized together with the clinical data.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

November, LXVI, No. 419, pp. 709-908

12 End-Results with Various Operative Procedures for Procidentia and Extensive Cystoceles Prior and Subsequent to Menopause. H. N. Vineberg, New York.
13 Interposition Operation for Prolapse of Uterus. "Kolpohysterorrhaphia." I. S. Stone, Washington, D. C.
14 Dystocia in Case of Uterus Didelphys. M. L. Edward, New York.
15 Aneurysm of Uterine Artery. H. W. Lawson, Washington, D. C.
16 Heart Disease in Pregnancy. O. Tuszkai, Marienbad, Austria.
17 Additional Cases of Nephro-Ureterectomy; Removal of Large Suppurating Kidneys. G. H. Noble, Atlanta, Ga.
18 Nature and Treatment of Vasomotor and Trophoneuroses. L. P. Clark, New York.
19 *Maternal Feeding. J. P. Sedgwick, Minneapolis.
20 Ophthalmia in New-Born. A. W. Tallant, Philadelphia.
21 Care of Nose and Throat in Children. H. Hays, New York.
22 Marantic Infant. G. F. Little, Brooklyn.
23 Case of Streptococcus Empyema Complicated by Erysipelas. A. Hymanson, New York.
24 Short Spica in Treatment of Hip-Joint Disease. C. R. Keppler, Elizabeth, N. J.

19. Abstracted in The Journal, November 9, p. 1737.

Bulletin of Johns Hopkins Hospital, Baltimore

November, XXIII, No. 261, pp. 322-352

25 *Aid for Diagnosis of Conditions Associated with Obstruction to Outflow of Blood from Brain, with Special Reference to Sinus Thrombosis of Otitic Origin. S. J. Crowe, Baltimore.
26 Chloroform Poisoning. R. E. Mosiman and G. H. Whipple, Baltimore.
27 *Clinical and Bacteriologic Studies on Endocarditis Lenta. R. H. Major, Baltimore.
28 *Effect of Scarlet Red on Defects in Mucous Membrane of Stomach. J. S. Davis and C. D. Deming, Baltimore.
29 Subluxation of Major Cornu of Hyoid Bone (Dysphagia Valsalviana). F. Hazlehurst, Baltimore.

25. **Diagnosis of Conditions Associated with Obstruction to Outflow of Blood from Brain.**—Experience has led Crowe to conclude that any acute obstruction to the outflow of blood through the sigmoid sinus, jugular bulb or internal jugular vein on one side may be diagnosed by means of the following test: 1. No appreciable evidence of stasis is seen in the retinal or supra-orbital veins when one internal jugular is compressed with the finger. 2. Pressure on both internal jugular veins at the same time produces a marked dilatation of the veins of the fundi and of the anastomotic vessels connecting the intracranial with the extracranial venous circulation. 3. When the pressure is suddenly released on one side, while it is maintained on the other, the engorged veins of the anastomotic system and the fundi will immediately empty. If the results in any individual case differ markedly from those above, Crowe says, it must be concluded that there is either an anomaly of the intracranial venous circulation, or some pathologic condition, which is obstructing the outflow of blood from the brain. Crowe emphasizes that it is very important while making this examination that the patient should breathe freely and normally; that the collar should be loosened so as to expose the neck and upper part of the chest; and that the fundi should be examined by the direct method, or with an electric ophthalmoscope, while an assistant compresses the internal jugular veins with the tips of the fingers. The compression, however, should not be maintained longer than absolutely necessary, for it may be possible in this way to rupture a diseased vein or dislodge a portion of a thrombus.

During the past two years Crowe has had an opportunity of making this examination in six cases in which there was an acute obstruction, on one side, to the outflow of blood from the cranial chamber. In five of these cases the obstruction was due to a thrombosis, secondary to a chronic infection of the middle ear, and the test described above was employed in making the diagnosis. In three instances the first symptoms of the thrombosis appeared several days after the radical mastoid operation, and offered an excellent opportunity to determine the value of this sign.

It is Crowe's custom to make this test before operation on all cases in which a sinus thrombosis is a possible or threatened complication. The examination of each of these three cases, before operation, indicated that the blood was passing freely into the internal jugular vein on both sides. This was also the opinion of the surgeon at the time of the operation, although in each case there was a cholesteatoma which extended backward to the dura of the posterior fossa. The wall of the sigmoid sinus and surrounding dura was thickened and covered with granulations. Before the operation, however, there had been no elevation of temperature, and the test had indicated that the blood was flowing freely into the internal jugular vein on both sides; therefore, it was deemed advisable to leave the sinus untouched and await developments. After a postoperative period of several days, free from discomfort or fever, the patient in each case began to complain of pain in the back of the head; there was a sudden elevation of temperature; a positive Kernig's sign; a low grade of choked disc; and some stiffness of the neck. After excluding angina, pneumonia and disturbances of the digestive tract it was necessary in each case to decide whether these symptoms were due to: 1. Serous meningitis with retention of pus in the operative wound. 2. Localized basilar meningitis. 3. Temporal lobe abscess. 4. Cerebellar abscess. 5. Sinus thrombosis. On making the vascular test a second time it was found to be decidedly positive, i. e., the stasis in the retinal and supra-orbital veins was markedly increased by very slight pressure on the internal jugular vein on the healthy side, whereas at the previous examination the test had been decidedly negative.

The only conclusion from this result was that whatever other complications might be present, it was sure that the blood was no longer flowing freely into the internal jugular vein on the side of the operation. The sinus was immediately exposed and opened, and in each case found to be thrombosed. In one of the cases, however, even at the second operation the sigmoid sinus was fairly normal in appearance, and on incising it there was a gush of blood. The cerebral end of the sinus was packed with gauze and the incision in the sinus wall enlarged downward. By pressure on the upper part of the internal jugular vein in the neck pus was forced upward into the wound. Further investigation disclosed a thrombus in the bulb which, however, was not purulent.

27. **Endocarditis Lenta.**—The results of Major's studies lead him to conclude that endocarditis lenta, caused by the *S. viridans*, has a sufficiently distinctive picture to deserve recognition as a separate clinical entity. That cases of chronic endocarditis may also be due to the *B. Influenzae*, *S. pyogenes*, or pneumococcus, is, of course, well known, but such cases should be distinguished from those due to *S. viridans*, just as epidemic cerebrospinal meningitis, for example, is distinguished from meningitis due to the *B. tuberculosis*, *B. influenzae* or *S. pyogenes*. The coccus present in the cases cited by Major corresponds culturally to the organism described by Schottmuller as the *S. viridans*. No essential cultural differences have been noted between the *S. viridans* and *M. rheumaticus*. Complement fixation tests in one case of endocarditis lenta showed the presence in the patient's blood of specific "antibodies."

28. **Defects in Mucous Membrane of Stomach.**—Proceeding on the premises that all that is necessary for the healing of a gastric ulcer is for healthy mucous membrane to grow across its floor and remain intact, and as it seemed possible that the mucous membrane of the ulcer edges might be stimulated by scarlet red and thus accomplish the desired result, the authors fed dogs, in whom an artificial ulcer had been produced surgically, with a 1 per cent. scarlet red in olive oil. They found that the dyestuff is not toxic and apparently has no deleterious effect on either dogs or rabbits. When given by mouth it is a fat selecting vital stain. In the course of months the stain is gradually eliminated. Subcutaneous and intraperitoneal injections stain only the fat in actual contact with the scarlet red oil solution. The authors are unable to say whether the scarlet red has, or has not, a definite stimulating action on the epithelium of defects in the gastric mucosa. However, the scarlet red oil solution caused a more rapid and better developed growth of epithelium in the group in which it was used, than occurred in the duplicate group in which plain olive oil was used. The results with dry powder were not so favorable experimentally, but this may have been due to the fact that the material was not continuously in con-

tact with the denuded area. They were unable to determine the relative effect of the scarlet red on chronic gastric ulcers, as it was impossible to produce chronic ulcers in dogs with controls of exactly the same size.

Bulletin of Medical and Chirurgical Faculty of Maryland, Baltimore

November, V, No. 5, pp. 69-80

30 Cambridge of Yesterday and To-Day. N. C. Carroll, Cambridge, Mass.
31 *Some Results of Treatment of Drinking-Water of Baltimore by Means of Calcium Hypochlorite. W. R. Stokes, Baltimore.

31. **Treatment of Drinking-Water with Hypochlorite.**—From the evidence at hand, Stokes says, it would seem that the use of the hypochlorite treatment of water has caused a general reduction in the intestinal and water bacteria, and that there has been a coincident decrease of the typhoid morbidity and fatality in Baltimore. He advises that the figures should be studied for five year periods at least, however, before coming to any final conclusions concerning this effect of the hypochlorite on the constituents of the drinking-water and on the number of cases of typhoid in the city. The hypochlorite treatment was begun about the first of June, 1911, and from then on the number of typhoid cases reported monthly during 1911 is much smaller than the corresponding months for 1910, and it also shows a considerable drop as compared to the average cases for 1906 to 1910 inclusive. In August, 1910, there were 473 cases; in August, 1911, only 280 cases. The total number of cases of typhoid for 1910 was 1,891, and although the hypochlorite treatment was not begun until June, 1911, the number of reported cases was only 1,201 for this year. The total number of deaths for 1910 was 235. During 1911 the number of deaths from typhoid was only 154, although the hypochlorite treatment as mentioned above was only begun about the first of June.

Canadian Medical Association Journal, Toronto

November, II, No. 11, pp. 963-1066

32 "Unto the Third and Fourth Generation:" Study in Eugenics. J. G. Adami, Montreal.
33 Displaced and Movable Kidney in Women; Its Symptomatology, Diagnosis and Treatment. W. Cuthbertson, Chicago.
34 *New Reagent (Tolidin) for Detecting Occult Blood. R. F. Ruttan and R. H. M. Hardisty, Montreal.
35 Factors Frequently Overlooked in Early Diagnosis of Pulmonary Tuberculosis. W. E. Ogden, Gravenhurst, Ontario.
36 Scoliosis. A. M. Forbes, Montreal.

34. **New Reagent for Detecting Occult Blood.**—The substance used by Ruttan and Hardisty for detecting occult blood is tolidin or orthotolidin, a crystalline basic body of the aromatic series, with melting point 129-130 C., very slightly soluble in water, easily soluble in alcohol and ether and closely allied to toluidin and benzidin. It is said to be a reagent of very great delicacy for detecting blood in watery solution, and, in addition to this, it is superior to the reagents in general use for clinical work. It is greatly superior to all the reagents for detecting blood in urine, and while benzidin, which is easily the best of the well-known reagents for clinical work, is quoted here as being equal to tolidin for the detection of blood in feces and stomach contents, this is true only for freshly prepared solutions of benzidin, older solutions losing 50 per cent. of their delicacy in twenty-four hours, whereas tolidin will remain unchanged for from three to four weeks, an important fact, adding to the ease with which the test can be carried out. Another point in favor of tolidin is that when the blood is in small quantity, the reaction increases gradually in intensity and persists longer than with the other reagents, so being more easily read.

It was found that guaiacum detected blood in dilutions of 1 to 50,000; benzidin, 1 to 700,000; tolidin, of 1 to 7,000,000; phenolphthalein, of 1 to 10,000,000 and even more. As an agent for detecting blood in watery solution phenolphthalein was found to be much the most delicate; in fact the test had to be carefully controlled to be sure the positive reaction was due to blood, for it was found that the ordinary distilled water of the laboratory gave a pinkish color, positive reaction, due to some infinitesimal trace of iron or copper salt, and so all the distilled water had to be redistilled in glass before being used. Guaiacum and benzidin, when positive, give a prompt reaction which, however, depending on the dilution, does not last very long. With tolidin, the color, a green to a blue black, depending on dilution, does not develop quite so rapidly appearing more gradually and increasing in intensity, the colors lasting a much longer time, even several hours.

Colorado Medicine, Denver

November, IX, No. 11, pp. 321-360

37 Tumors of Larynx. R. Levy, Denver.
38 Treatment of Uterine Displacements. C. S. Elder, Denver.
39 Historical Notes of Colorado State Medical Society. W. A. Jayne, Denver.
40 Salvarsan in Therapy of Syphilis. A. J. Markley, Denver.
41 Denver Clinical and Pathologic Society. F. W. Kenney, Denver.

Journal-Lancet, Minneapolis, Minn.

November 15, XXXII, No. 22, pp. 587-620

42 Diseases and Surgery of Prostate. G. G. Eitel, Minneapolis.
43 Technic of Operation of Suprapubic Prostatectomy. E. S. Judd, Rochester, Minn.
44 Some More Important Factors in Intestinal Physiology and Bacteriology. E. P. Quain, Bismarck, N. Dak.
45 Use of Salvarsan. F. R. Wright, Minneapolis.
46 Cerebrospinal Fluid as Diagnostic Agent. E. M. Hammes, St. Paul.
47 New Public Health: Public Health Laboratory. H. W. Hill, Minneapolis.

Journal of Experimental Medicine, Lancaster, Pa.

November, XVI, No. 5, pp. 583-718

48 *Chemo-Immunologic Studies on Localized Infections. R. V. Lamar, New York.
49 *Pigment Formation in Liver During Autolysis and Its Relation to Pigmentation of Hemochromatosis. T. P. Sprunt, H. S. Colwell and H. J. Hagan, Baltimore.
50 *Nerve Fibrils in Sino-Auricular Node. B. S. Oppenheimer and A. Oppenheimer, New York.
51 Cultivation of *Spirochaeta Gallinarum*. H. Noguchi, New York.
52 Duration and Extent of Induced Resistance Toward Tumor Transplantation in Mice. W. H. Woglom, London.
53 *Toxic Substances Produced by Pneumococcus. R. Cole, New York.
54 *Presence of Protective Substances in Human Serum During Lobar Pneumonia. A. R. Dochez, New York.
55 *Occurrence and Virulence of Pneumococci in Circulating Blood During Lobar Pneumonia and Susceptibility of Pneumococcus Strains to Univalent Antipneumococcus Serum. A. R. Douchez, New York.
56 *Coagulation Time of Blood in Lobar Pneumonia. A. R. Dochez, New York.
57 *Carbon Dioxid Content of Blood in Pneumonia. F. W. Peabody, New York.

48. **Chemo-Immunologic Studies on Localized Infections.**—It was found by Lamar that virulent pneumococci injected into the cranial or spinal cavities of monkeys produce constantly a meningitis closely resembling pneumococcus meningitis in man, except that the experimental disease pursues a more rapid course to the invariable death of the untreated animal. An homologous immune pneumococcus serum injected into the spinal canal exerts a restraining influence on the disease to the extent that when employed early it prevented, exceptionally, the occurrence of infection and thus saved the life of the animal, and when given later it at first retarded the disease but subsequently exerted no beneficial action and was powerless to save life. A mixture of sodium oleate, immune serum, and boric acid exerted regularly a more powerful action than immune serum alone, and not only prevented the occurrence of infection but also, when administered repeatedly, arrested the progress of an actually established infection and led, often, to the enduring and perfect recovery of the inoculated animal. It is proposed to employ a similar mixture in the direct treatment of pneumococcic meningitis and possibly of still other accessible local pneumococcic infections in man.

49. **Pigment Formation in Liver During Autolysis.**—Without claiming any close analogy between the autolytic changes and pigmentation in pathologic processes, the authors believe it has been shown that iron-containing, as well as other kinds of pigments, may be formed during the autolytic degeneration of parenchymatous cells independently of the hemoglobin in the blood-stream, and hence may be derived from the proteid constituents of the cell itself.

50. **Nerve Fibrils in Sino-Auricular Node.**—Aside from the nerve fibers which enter the pace-making node from the subepicardium, the authors observed within the limits of the node a few ganglionic cells and a plexus of moniliform nerve

fibrils in very close relation to its muscle fibers, hence, they claim that the sino-auricular node, like the auriculo-ventricular, may be considered from a histologic standpoint a neuromuscular organ.

53. **Toxic Substances Produced by Pneumococcus.**—Cole is convinced that the filtered blood-serum of rabbits infected with pneumococci is not toxic. Extracts of pneumococci prepared by keeping emulsions of the bacteria in salt solution at 37 C. for varying periods of time may be toxic, and when injected intravenously into guinea-pigs, may produce a train of symptoms followed by acute death resembling that seen in acute anaphylaxis. Such extracts, however, are not uniformly toxic and it has been impossible to discover the exact conditions under which such extracts become toxic. When the centrifugalized peritoneal washings of guinea-pigs infected with pneumococci are injected into the circulation of normal guinea-pigs, these animals very frequently exhibit symptoms like those seen in acute anaphylaxis, and a considerable proportion of the animals die acutely. When pneumococci are dissolved in dilute solutions of bile salts and the solution resulting is injected intravenously into rabbits and guinea-pigs, these animals show with great constancy the same symptoms that are seen in acute anaphylaxis. The solution of pneumococci in bile may occur in ten minutes at 37 C. or in half an hour on ice. This is considered evidence that the toxicity of the solution does not result from digestion of the bacterial protein, but is due to substances preformed in the bacterial cells and set free on their solution. The toxicity of the solution is diminished or destroyed by heating to 55 C. or over.

54. **Protective Substances in Human Serum.**—Dochez's experiments demonstrate that protective substances are usually present in the blood of patients recovering from lobar pneumonia. As a rule, the appearance of protective bodies in the blood, when demonstrable, coincides rather sharply with the period of critical fall in temperature and the disappearance of symptoms. These substances are not present in the blood in any measurable degree before the crisis, but afterward they may reach a considerable concentration. In certain instances, protective substances either become evident some time after the occurrence of the crisis, or cannot be demonstrated at any period of the disease. Experiments in which it is possible to test serum against an homologous strain of pneumococcus yield, in the majority of cases, evidence of the presence of protective bodies; whereas in those in which stock cultures are used, the serum, as a rule shows no protection. The development of specific protective substances in the serum of patients with lobar pneumonia suggests that these bodies may play a part in the mechanism of recovery.

55. **Pneumococci in Circulating Blood.**—Studies of the bacteriology of the blood were made by Dochez in thirty-seven cases of lobar pneumonia. The pneumococcus was isolated from the blood in approximately 50 per cent. of the cases studied. The course of infection in individuals with pneumococcus in the blood was more severe than in those in which no organism could be cultivated from the blood. Seventy-seven per cent. of the patients with positive blood cultures died, and 79 per cent. of patients with negative blood cultures recovered. In fatal instances of pneumonia, in which the pneumococcus was found in the blood, the number of organisms per cubic centimeter of blood was very high in the last stage of the disease. In individuals dying of pneumonia without blood infection, the disease was characterized by a rapid spread of the local process in the lungs. It is not unlikely that the symptoms of collapse, developing on the fifth or sixth day of lobar pneumonia, are often the expression of serious invasion of the blood by the pneumococcus. In other instances, they mark an extension of the local process in the lungs. Strains of pneumococcus isolated from the blood of patients with lobar pneumonia were usually of high animal virulence. In a few instances in which the organism isolated from the blood was of low virulence for animals, the patients recovered. The protective power of a univalent antipneumococcus serum was tested against nineteen strains of typical pneumococcus and against four strains of closely allied organisms. The serum manifested some degree of protection against twelve out of nineteen strains of typical pneumococci. No protection was observed against the atypical organisms. In eight instances the degree of protection obtained was high, in three low, and in one there occurred only a prolongation of the period of life of the inoculated animal.

56. **Coagulation Time of Blood in Lobar Pneumonia.**—The coagulation time of the blood was found by Dochez to be generally prolonged during the acute stage of lobar pneumonia, returning to normal during the period of convalescence. There seems to be a simultaneous increase in the quantity of circulating fibrinogen. The lengthening of the coagulation time is probably due to an increased formation of antithrombin. The source of the increased antithrombin and fibrinogen is probably the liver, and the stimulus to increased production of these two substances is due to the nature of the infecting organism.

57. **Carbon Dioxid Content of Blood in Pneumonia.**—A diminution in the carbon dioxid content of the blood is held by Peabody to be a constant feature in pneumonia. Occasional cases, however, may fail to show low carbon dioxid. The carbon dioxid in the blood bears little definite relation to the severity of the disease, except that it tends to be lowest in severe cases and in the terminal stages of the disease. There is less deviation from the normal in short or mild cases. The diminution in the carbon dioxid in the blood bears no immediate relation to temperature, as it may persist for some days after the patient is afebrile. The diminution in carbon dioxid corresponds to the other evidences of metabolic changes in infection and, like them, may be even greater after than during the febrile period. The changes in the carbon dioxid content of the blood run parallel to the output of ammonia in the urine. The carbon dioxid appears to bear no relation to chlorin excretion. In two unusual cases the carbon dioxid content of the blood was normal or above normal. This was associated with a very low oxygen content of the venous blood.

Journal of Medical Association of Georgia, Augusta

November, II, No. 7, pp. 209-240

58 Prevention of Diseases. W. D. Travis, Covington.
59 After-Care of Simple Mastoid Wounds. A. B. Mason, Atlanta.
60 Woman and Her Physician. R. H. Jenkins, Hogansville.
61 Roentgen Therapy of Skin Lesions. C. Swanson, Atlanta.
62 Eclampsia. M. M. Johnson, Waycross.
63 Three Cases of Intestinal Obstruction, with Operation. T. J. Carswell, Waycross.
64 Treatment of Pellagra, with Report of Twelve Cases. J. E. Knight, Waycross.
65 Relations of Eye to Diseases of Other Parts of Body. B. H. Minchew, Waycross.
66 The Fly. A. Fleming, Waycross.

Journal of Nervous and Mental Disease, Lancaster, Pa.

November, XXXIX, No. 11, pp. 721-792

67 *Myasthenia Gravis. M. A. Starr, New York.
68 Relations of Fifth Nerve. M. A. Bliss, St. Louis.
69 Terminal States in Pellagra Resembling General Paralysis, with Report of Five Cases. E. D. Bondurant, Mobile, Ala.
70 Race Hygiene Study and Its Importance to Modern Culture. H. Lundborg, Upsala, Sweden.
71 Acute Infectious Transverse Myelitis Due to Virus of Poliomyelitis; Complete Recovery. B. Sachs, New York.
72 State Psychopathic Hospital in Boston. W. Channing, Boston.

67. **Myasthenia Gravis.**—Two hundred and fifty cases collected from the literature are analyzed by Starr. Of the 250 patients, 142 were females, 108 were males. The youngest patient on record is a child 2 years 9 months old. The age of greatest frequency is between 20 and 30, but no age is exempt, the oldest patient recorded having been 72 years old. Ptosis or double vision has been recorded as the first symptom in 40 per cent. of the cases. Some difficulty in the action of the lips and of the face leading to a difficulty of movement and unnatural facial expression and a peculiar appearance described by Gowers as the "nasal smile or snarl," due to a weakness of the orbicularis oris have been the first symptoms in 4 per cent. of the cases. Difficulty in speech has been recorded as the first symptom in 16.5 per cent. of the patients, and a paralysis of the vocal cords has been the first symptom in eight patients, forming 3 per cent. Difficulty in swallowing has been recorded as the first symptom in 8.5 per cent. of the cases. It is therefore evident that some affection of the cranial nerves has been

the first symptom in 69 per cent. of the patients recorded, and hence the constant tendency to confound this disease with true bulbar palsy.

In 31 per cent. of the patients the records show that the first weakness was felt in the arms or in the legs, most commonly in the legs, and that for several days, weeks, or even months before any cranial nerve symptoms developed, a very decided weakness of the limbs, leading to an almost complete paralysis, had occurred. In very many cases this weakness, being of a functional nature not attended by atrophy or fibrillary twitchings or reaction of degeneration, and not attended by any uniform disturbances in the reflexes either of the nature of the loss of reflex or in the exaggeration of reflex, has led to the diagnosis of general neurasthenic weakness or of hysteria. Starr calls particular attention to the form of myasthenia in which weakness of the limbs without any cranial nerve involvement constitutes the predominant symptom, because he believes that many cases of this character have escaped recognition, and this is the mode of onset in one-third of the cases.

A symptom to which very little attention has been given, but which has been recorded in an astonishingly large number of cases, both as an early sign and as a constant symptom, is headache. This is generalized and is increased by mental effort or by physical exertion. While an enlargement of the thymus gland has been observed in about 28 per cent. of the patients examined, its absence in 72 per cent. of the patients seems to afford positive evidence that it is not essential to the development of the disease. In almost all recent autopsies the infiltration of the muscles and all of the internal organs of the body by small cells clustered about the lymphatic system and infiltrating the tissues widely, which have been termed lymphorrhages, has been observed. The pathology of the disease is still obscure. Many forms of treatment have been employed in myasthenia. The use of the organic extracts, especially of thyroid, of pituitary and of parathyroid, seems to have been universal in the past ten years. But so far as the results are recorded this treatment has not been successful. Strychnin has been employed by almost every observer and the reports of the effects are conflicting. Calcium lactate has been employed in a few cases with apparent benefit. All authorities agree that rest in bed without use of the eyes and without talking is essential to any improvement.

Lancet-Clinic, Cincinnati

November 9, CVIII, No. 19, pp. 501-526

73 Sanitation, Surgery and Hygiene in French Army. K. L. Stoll, Cincinnati.
74 United Effort and Necessity for It. C. T. Cutting, Seattle, Wash.
75 German Democracy and American Aristocracy in Medicine. M. L. Heidingsfeld, Cincinnati.
76 Comparative Study of Appendices and Ceca of Vertebrates, with Addition of Small Birds' Appendices to Literature. D. D. De Neen, Cincinnati.

November 16, No. 20, pp. 527-552

77 Buried Animal Suture. H. O. Marcy, Boston.
78 Retro-Cecal Hernia; Report of Case. J. L. Ransohoff, Cincinnati.
79 Blood Stains and Blood Examinations. A. E. Osmond, Cincinnati.

Military Surgeon, Washington, D. C.

November, XXXI, No. 5, pp. 491-624

80 *Sanitary Awakening of a Nation. C. P. Wertenbaker, U. S. Public Health Service.
81 Expansive Bullets; Their Use in Modern Warfare Should Be Condemned. E. R. Garcia, Mexican Army.
82 Hints of Health and Individual Sanitation on Active Service. S. H. Chang, Peking, China.
83 *Influence of Certain Camp Epidemics on Geographic Expansion, Political History and Military Policy of United States. E. L. Munson, U. S Army.
84 *Master Key in Sanitation. W. C. Rucker, U. S. Public Health Service.
85 Tour of Duty with a Battalion of Marines on Isthmus of Panama. J. G. Ziegler, U. S. Navy.
86 *Use of Tincture of Iodin in Treatment of Blistered and Abraded Feet. G. H. Richardson, Washington, D. C.

80, 83 and 84. Abstracted in The Journal, October 26, pp. 1563 and 1564.

86. **Tincture of Iodin for Blistered and Abraded Feet.**—In order to ascertain whether tincture of iodin would be beneficial in the treatment of "sore feet," preventing simple abrasions of the skin from becoming ulcerated and hastening the cure where considerable inflammation existed, Richardson gave the abraded surface a preliminary scrubbing with soap and warm water; but later, in order to see results under conditions simulating those of actual service, he simply applied thoroughly over the affected areas, with a camel's-hair brush or cotton swab, the official 7 per cent. tincture of iodin, and allowed it to dry. In cases in which the blisters had not ruptured, they were first painted and then incised by a sharp-pointed sterilized bistoury, care being taken to enter the blister under and beyond its raised surface. After expressing the serum, the incision was given a second coating. In cases of simple abrasions of the superficial layers of the skin, no dressings, ointments or powders were applied and the stockings were replaced, the men being told to report the following day. Those who reported were invariably well and needed no further treatment.

Where blisters had broken or ulcers had formed, some sort of protective dressing was found necessary, and for this purpose nothing seemed to surpass zinc oxid adhesive plaster, properly cut and fitted to the part. The method employed consisted of placing two or three small squares or layers of plaster together, folding on the non-adhesive surface, and cutting with scissors a circular opening slightly larger than the inflamed area it was desired to protect. Care should be taken that the pad is not too large or too thick and that it is applied without wrinkles. Where there was considerable exudate, Richardson applied a few layers of gauze over the ulcer, being particular that they were not wide enough to prevent the plaster from adhering to the healthy skin. In this way all pressure from the shoe was overcome, thus preventing any direct, constant irritation which could interfere with the healing process. For inflamed callosities or bunions, adhesive plaster applied in the manner described gives immediate relief and renders a man capable of walking with comparative comfort.

Mississippi Medical Monthly, Vicksburg

November, XVII, No. 7, pp. 131-150

87 Case of Penetrating Gunshot Wound of Chest. M. J. Alexander, Tunica.
88 Periostitis Albuminosa. C. D. Davis, McCondy.
89 Twenty-Five Administrations of Salvarsan and Neosalvarsan. T. B. Lewis, Greenville.
90 *Case of Diabetes in Child Eight Years of Age. J. W. Thompson, Independence.
91 Pneumonia. S. T. Wells, Alligator.
92 Whooping-Cough. H. C. Buck, Friars Point.

90. **Diabetes in Child.**—Thompson's patient received an injury about six weeks before he died. He fell on the ice and frozen ground and received a cut about half an inch long in the skin of the forehead. After a few days, three or four, the wound showed signs of infection, some suppuration, and there was an inflammatory zone around the wound, but there was no fever. Thompson lifted the scab, evacuated what little pus was there and applied a little iodin. The wound was soon well and he heard no more from the child for nearly six weeks. One night, about 10 o'clock, he was called to see him and found his breathing rapid and shallow, about seventy to the minute, pulse 130, and temperature subnormal. Since receiving the injury he had, as they said "been going down hill," had lost fifteen pounds or more in six weeks, had a voracious appetite and intense thirst, and, from what the family said, must have voided at least a gallon of urine in the twenty-four hours. Thompson gave one one-hundred-and-twentieth strychnin and one three-hundredth atropin every four hours, but was called the next morning at 5 o'clock and found him comatose. He made an examination of the urine and found specific gravity 1.035 and sugar present; no quantitative analysis was made. Stimulation and elimination were continued, but the child died in about twenty-four hours in what Thompson thought to be diabetic coma.

Ohio State Medical Journal, Columbus

November 15, VIII, No. 11, pp. 555-604

93 Diagnosis and Treatment of Acute Intestinal Obstruction. C. E. Briggs, Cleveland.
94 Boards of Health and Conservation. J. H. Landis, Cincinnati.
95 Surgery of Kidney Based on Case Records of Ten Years. H. A. Baldwin, Columbus.

96 *Vaccine Therapy of Tuberculous Adenitis. W. Gardner, Toledo.
97 Some Phases of Nervous Ill Health and Their Psychologic Control. H. H. Drysdale, Cleveland.
98 *Chronic Infectious Endocarditis. O. Berghausen, Cincinnati.
99 Layman's Debt to Medical Profession. W. F. Dickins-Lewis, Findlay.

96. Abstracted in THE JOURNAL, June 1, p. 1534.

98. Abstracted in THE JOURNAL, May 25, p. 1630.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Australasian Medical Gazette, Sydney

September 28, XXXII, No. 13, pp. 321-348

1 *Hydatid Cysts of Lung. F. G. Griffith.
8 Radiographic Notes on Hydatid Disease of Lungs. H. Harris.
3 Biochemistry of Symbiotic Growth of Aerogene and Anaerogene Coliform Organism. B. Bradley.

October 5, XXXII, No. 14, pp. 349-372

4 Value of Laboratory-Worker to Profession. J. S. C. Elkington
5 Case of Lumbar Hernia. E. M. Sweet.
6 Fecal Fistulae of Small Intestine Needing Operation. G. H. Abbott.
7 Cystic Kidneys in Infant. W. A. Fraser.

October 12, XXXII, No. 15, pp. 373-396

8 Mental Defectives. E. Sinclair.
9 Idem. A. Davidson.
10 Need for Educating Public Opinion on Problem of Feeble-Minded. M. Booth.
11 Mentally Defective Prisoner. A. Palmer.
12 Backward and Feeble-Minded Children. R. Roth.

October 19, XXXII, No. 16, pp. 397-426

13 Public Health Problems. J. W. Hope.
14 Is Any Illness in Infants Due to Teething? F. S. Hone.
15 Fracture Dislocation of Ensiform. C. MacLaurin.

1. **Hydatid Cysts of Lung.**—Of all cases of hydatids, Griffith says, about 10 to 15 per cent. occur in the lung. In the lung the cyst wall is thin and poorly supported by the surrounding tissue. This thin adventitious cyst has special relations to arteries, veins and bronchi, the last often opening directly into it. The lung is vulnerable, and a further peculiarity results from changes liable to occur in it, i. e., pericystic pulmonary congestion, which may sometimes give rise to hemoptysis, and even pneumonia, and to pericystic sclerosis. The hydatid cachexia (weakness, wasting, anorexia, etc.), is considered by some authors to appear earlier in lung than in liver cases. Degenerative changes sometimes occur, death of the parasite with inspissation of the contents which become colloid, caseous or even calcareous, the cyst shriveling up.

In its early stage pulmonary hydatid is compatible with perfect health. Any of the following phenomena may occur: Cough.—At first usually dry and jerky; later it may be very distressing. Ill-defined uneasiness or actual pain. Hemoptysis.—(a) In an early stage, even when the cyst is less than a pea in size, hemoptysis may result from congestion of the surrounding lung; (b) with rupture of the cyst occurring either naturally or as a result of an operation, violent, even fatal, bleeding may occur; (c) occasionally repeated hemorrhage may persist for months, or years, after rupture. Pleurisy in the serosa over the cyst with or without effusion. If the cyst grows outward toward the wall of the chest, it may simulate pleural effusion or may cause erosion of bone and arching of the thorax, and rarely may point and burst externally. Dyspnea.—If the cyst be very large or near the hilus. If the parasite dies the cyst shrinks and its contents become colloid or calcareous. Pneumonic Attacks.—Diffuse or massive pneumonia, sometimes resembling frank lobar pneumonia. Rupture.—Rupture of the cyst may occur, (a) into the adventitious cyst; (b) into a bronchus, generally the result of (a); this may result in spontaneous cure; (c) into the pleura, often with fatal result; or (d) into both bronchus and pleura leading to pneumothorax or pyopneumothorax. As a rare complication rupture into other organs may occur. Urticaria.—Probably due to absorption of fluid. Changes in the blood.—(a) Eosinophilia, (b) antibodies in the serum. Secondary infection, with hectic fever (usually the result of fissured rupture). Tuberculosis may occur as a secondary infection either in the neighborhood of the cyst or at a distance. Hydatid cachexia is said to develop earlier, and to be more marked in the case of the lung than of other organs; often, however, the patient appears in robust health.

In many cases, even when the cyst has attained quite a large size, there may be practically no signs. This is especially the case when the cyst is deep-seated. At other times the following may be observed: Dulness.—Sometimes typically circular in outline over the circular area in which the spherical cyst meets the chest wall. Hydatid thrill or fremitus.—Over the dull region vocal fremitus and breath sounds may be feeble or absent, and, in some cases, there may be exquisite pectoriloquy. Nearby pleuritic friction may be heard or fine crackles in the compressed lung. If the cyst be large the heart and other organs may be displaced. If the unruptured cyst be very large the intercostal spaces may be obliterated, and the chest wall may bulge; more rarely we may find such signs as dysphagia, difference in the pulses, etc. Other special signs may be associated with complications, e. g., fetid expectoration, pleural effusion, urticaria. After rupture, we get the signs of a cavity, and if sepsis occur, râles and rhonchi. In far advanced cases as in other forms of lung disease, clubbing of the fingers is seen. In making the diagnosis we have the following aids: (1) Diagnostic tuberculin test; (2) Roentgen-ray examination; (3) blood examination.

British Medical Journal, London

November 9, II, No. 2706, pp. 1261-1348

16 *Some Problems in Infection and Its Control. S. Flexner.
17 Bright's Disease. J. L. Smith.
18 Some Fallacies in Routine Testing of Urine. H. Maclean.
19 Excretory Function of Intestine and Its Relation to Disease. O. T. Williams.
20 Investigation of Puncture Fluids as Aid to Diagnosis and Treatment. T. J. Horder.
21 Association of Chronic Duodenal Ulcer with Morbid Conditions of Ileum, Appendix and Colon. D. P. D. Wilkie.
22 Etiology of Dissecting Aneurysm. T. Shennan and J. H. H. Pirie.
23 Gastric Juice in Pathology of Gastric Ulcer. C. Bolton.
24 Vaccine-Therapy: Preparation and Standardization of Vaccine. J. Eyre, L. C. P. Ritchie, D. W. Carmalt-Jones and W. J. Wilson.
25 Idem: Laboratory Tests as Guide to Inoculation Treatment. J. Freeman.
26 Direct Cultivation of Tubercle Bacilli from Tuberculous Tissues. J. Cruickshank.
27 Pyrogenetic Properties of Bacillus Typhosus. E. C. Hort and W. J. Penfold.
28 Pyemic Actinomycosis with an Actinomycotic Endocarditis. G. Dean.
29 Variations in Morphologic Characters of Bacteria and Their Reaction with Sugars Under Different Conditions. J. M. Beattie and A. G. Yates.
30 Observations on Brownian Movement, with Special Reference to Anthrax Spore. E. Embys-Roberts and S. B. Walsh.
31 Bacteriology of Infective Disease in Rangoon. A. Whitmore.

16. Also in *The Lancet*, November 9.

Lancet, London

November 9, II, No. 4654, pp. 1271-1342

32 *Some Problems in Infection and Its Control. S. Flexner.
33 Diagnosis and Treatment of Incipient Pulmonary Tuberculosis. D. B. Lees.
34 Treatment of Unilateral Cataract. J. H. Parsons.
35 Case of Hemi-Hypertrophy of Body with Nevus and Varicose Veins. E. D. Telford.
36 *Case of Meningitis. E. A. Ross.
37 Case of Pneumococcal Cerebrospinal Meningitis. J. H. Cumming.
38 Pancreatitis with Jaundice in Infectious Diseases. W. L. Goldie.
39 Fracture of Carpal Scaphoid Bone Associated with Median Nerve Involvement. W. A. Campbell.

32. **Problems in Infection.**—The address by Flexner is devoted almost entirely to a discussion of present day knowledge of anterior poliomyelitis.

36. **Meningitis.**—In Ross' case the only organism that could be cultivated from the cerebrospinal fluid during life was a bacillus of the proteus group.

Quarterly Journal of Medicine, London

January, V, No. 18, pp. 157-307

40 *Adrenal Cortex, Its Rests and Tumors; Its Relation to Other Ductless Glands, and Specially to Sex. E. E. Glynn.
41 *Antigen (Vaccine) Treatment of Enteric Fever. F. J. Sadler.
42 *Myotonia (Thomsen's Disease). T. W. Griffith.

43 Distribution and Excretion of Radium and Emanation After Internal Administration. E. B. Smith.
44 *Two Cases of Paroxysmal Bradycardia (Total). E. E. Laslett.
45 Cardiorespiratory Murmurs. C. Coombs.
46 Primary Occlusion of Ostia of Hepatic Veins. T. Thompson and H. M. Turnbull.
47 *Digitalis Preparations Employed in Medicine. W. E. Dixon.

40. **Adrenal Cortex, Its Rests and Tumors.**—Glynn summarizes his paper as follows: The adrenal cortex and medulla have a different development and different functions; the former is especially connected with growth and sex characters, the latter with blood-pressure. Tumors are rare, primary malignant tumors especially so, the most usual being (a) round-celled sarcoma; (b) adrenal hypernephroma; an epithelial-like growth of cortical origin. Sarcomata are the commoner; they are more frequent in children, especially in male children. Adrenal hypernephromata are five times more frequent in female children, though in adults they are slightly commoner in males. Sarcomata and adrenal hypernephromata differ histologically, and in children, at any rate, differ clinically. Adrenal hypernephromata are associated with sex abnormalities, almost invariably in children, usually in adult females before the menopause, but apparently never in adult females after the menopause, or in adult males. Adrenal rests or bilateral hyperplasia of the adrenal gland is found in at least 15 per cent. of female, but only 0.70 per cent. of male pseudohermaphrodites. Hyperplasia and hypernephromata of the adrenal cortex in females are usually associated with a diminution of certain female and the development of certain male sex characters. The converse rarely occurs. The only conditions in which some female sex characters are constantly acquired in males, or male sex characters fail to develop, are after castration performed before puberty, and occasionally in acromegaly. Premature development of female sex characters in females may occur with certain ovarian tumors, and of male sex characters in males with certain tumors of the pineal gland, adrenal cortex and testicle. In children and young adult females where the sex abnormalities are acquired there is usually unilateral malignant cortical neoplasia.

The neoplasia probably directly or indirectly causes the abnormalities. In pseudohermaphroditism the sex abnormalities are mainly congenital and the adrenal lesions, if any, are bilateral cortical hyperplasia or cortical rests. The hyperplasia possibly directly or indirectly causes the abnormalities, or some of them. Rests from the adrenal cortex are common in certain localities, especially in infancy, except in the kidney. They are usually of minute size, and are not associated with sex abnormalities unless there is much enlargement, when such may sometimes occur in pseudohermaphrodites. The enlargement of the adrenal cortex during breeding, pregnancy and after castration and the small size in deficient sexual development are additional evidences of the connection of the cortex with sex characters. The functional association of the adrenal with the pituitary and other ductless glands, and the appearance of certain sex abnormalities in acromegaly, indicate that a true solution of the connection between the adrenal cortex and sex will only be found when the interrelationships of the various ductless glands are better understood. Certain facts are opposed to the hypothesis that renal hypernephromata arise from the remnants of adrenal cortex, viz.—(a) The great dissimilarity in microscopic structure between hypernephromata of the renal and adrenal glands. (b) Renal hypernephromata apparently never influence growth or sex characters. (c) The difficulty of explaining why adrenal rests, though comparatively rare in the kidney, should produce such a common tumor as the hypernephroma, by far the commonest renal tumor, while adrenal rests in other localities, though comparatively common, especially in early life, should, like the adrenal gland itself, so rarely produce tumors either benign or malignant. These considerations support the statements of Stoerk, Zehbe and Wilson and Willis, who maintain that renal hypernephromata rarely if ever arise from adrenal rests. Adrenal rests in the ovary are exceedingly uncommon. The ovarian hypernephroma does not produce the characteristic sex abnormalities; it probably arises from the lutein cells of the ovary itself.

41. **Antigen Treatment of Enteric Fever.**—Sadler takes exception to the name of vaccine treatment in typhoid. He prefers the term "antigen treatment," for the object of the treatment is to produce such antibodies in the patient's system as will help him to deal with the infection from which he is suffering, a use to which vaccine proper is never put. If the case appears to be a severe one, and especially if it be of the cerebral type with muttering delirium, he gives half the ordinary initial dose, that is to say, 1,000,000 bacilli to an adult and proportionately less to children. If, on the other hand, the patient seems not unduly ill, and especially if he is admitted within the first fourteen days, he gives 2,000,000 bacilli on admission to an adult, and proportionately less to children. In the less severe cases the initial dose of 2,000,000 is the largest which is given throughout the disease, and the second and subsequent injections are of 1,000,000 bacilli only. Sadler thinks one of his cases, in which there was a relapse, makes it advisable, even if the temperature has fallen to normal within five days after the first injection, or has assumed a convalescent type, to give at least one reinjection with a view to preventing relapse. So none of his patients now get less than two injections unless the case is of such a serious nature as to terminate fatally before the fifth day after admission. One of the difficulties of the treatment in the cases beneficially affected by vaccine is that the patient begins to be hungry before his tongue justifies any material increase in his diet, and in hemorrhage cases long before the bowel is likely to be strong enough to bear the diet which the patient desires. Of this Sadler feels sure, that he would now not be justified in withholding the vaccine treatment from any case of typhoid he came across, for it is impossible to foretell how severe an individual case is going to be; and even with the severe cases, by administering smaller initial doses of vaccine, there is reasonable prospect of safety, and the patient is none the worse for having received the vaccine.

42. **Myotonia.**—Griffith reports a case which presented symptoms of myotonia in a pronounced form, along with marked atrophy of some groups of muscles and an enlargement of those of the calves. In this case there was much from the clinical side to make him suspect that the symptoms of myotonia were associated with those of pseudohypertrophic palsy; but the increase in the knee-jerks, the age of onset, the distribution of the atrophy and especially the absence of wasting of the lower part of the pectoralis major made him hesitate to conclude that this was the case. The histologic examination appears definitely to exclude this affection and to show that there was a real enlargement of the muscular fibers, and that any increase in the general mass of the muscle was not due to a fatty or fibrous infiltration. Following Rossolimo and modifying his title to the special conditions met with in his patients, Griffith calls the case one of myotonia atrophica et hypertrophica.

44. **Paroxysmal Bradycardia.**—The first case described by Laslett exhibited sinus arhythmia of a grade which is unusual at any age and very rare beyond middle life. During the long auricular pauses multiple ventricular extra-systoles occurred. The patient suffered from attacks of giddiness which it is suggested were due to cerebral anemia induced by the long intermissions of the pulse. The longest intermission so far observed was two and a half seconds in duration. The arhythmia temporarily disappeared after the administration of atropin, and was therefore in all probability vagal in origin. In the second case a true bradycardia of almost regular rhythm was found shortly after one of the cerebral attacks from which the patient suffered. It is suggested, though not proved, that the infrequent rate of the heart was due to increased inhibition.

47. **Digitalis Preparations Employed in Medicine.**—Pharmacologic and clinical investigations, Dixon says, have not made a clear case for the substitution of "active principles" for Galenical preparations of digitalis in the treatment of patients. These active principles are for the most part just as irritant as the infusion or tincture; they are neither more reliable and constant in action than a properly standardized tincture nor

are they absorbed more rapidly; they have the same tendency to accumulate and are much more expensive. The one advantage that certain of them may possess over the pharmacopeial preparations is that they may be given intravenously without ill effects.

Journal of Tropical Medicine and Hygiene, London

November 1, XV, No. 21, pp. 321-336

48 Porocephaliasis in Man. L. W. Sambon.
49 Some Experimental Facts re Kala-Azar (Indian). R. Row.

Archives Générales de Médecine, Paris

October, XCI, No. 10, pp. 869-960

50 *The Tuberculin Reactions. J. Castaigne and Gouraud.
51 *Compulsory Declaration of Tuberculosis; Its Objects and Limitations. G. Kuss.
52 *Arrest of Acute Tuberculosis by Artificial Pneumothorax. L. Rénon.

50. **Tuberculin Reactions.**—This article explains the principles on which the various reactions to tuberculin are based and the different technics and indications in different cases for the subcutaneous, ocular, nasal, cutaneous or intradermal methods.

51. **Compulsory Declaration of Tuberculosis.**—Kuss' address was presented at the Tuberculosis Congress at Rome last April. He insists on the necessity for compulsory declaration of every death from tuberculosis and disinfection of the premises. The head of the family and the patient should be informed when tuberculosis is diagnosed but compulsory declaration is of little use. Special advantages should result for the patient when the head of the family informs the proper authorities, but this should not be made compulsory. The patient and family should be instructed in means to prevent infection of others, and health officials should be provided who will disinfect the premises in a discreet manner, without complicated apparatus, especially when a tuberculous person changes his residence. Kuss thinks it would be an excellent plan if once a year physicians filled out a general question blank stating the number of cases of pulmonary and laryngeal tuberculosis they have encountered, not naming their patients, these data to be preserved in the bureau of vital statistics and bureau of sanitary house inspection.

52. **Artificial Pneumothorax in Galloping Tuberculosis.**—Rénon says that he has seen over 120 articles on therapeutic artificial pneumothorax in the current literature of the last five months, and he quotes arguments that have been presented against this method of creating a new morbid condition in order to cure another: the danger of whipping up a process in the other lung or bringing on heart trouble, the tediousness of the treatment and its expense—but against all these arguments there is the record of great benefit realized. This is particularly striking, he declares, in the cases of acute tuberculosis which have proved rebellious to all other measures. In cases of galloping pulmonary tuberculosis in which the process continued a progressive course in spite of all treatment and a fatal outcome in four or five weeks seemed certain, he has witnessed the immediate arrest of the progressive course under the artificial pneumothorax. Even if there are a few pleural adhesions preventing the total collapse of the lung, the partial collapse answers the purpose, and it may become total as the adhesions stretch or break. It may thus permit the gaining of precious time which will allow other measures a chance to display their efficiency. It is possible, Rénon adds, that these acute forms with rapid softening of lung tissue and tendency to severe hemoptysis may prove to be the special indication for the therapeutic pneumothorax, while we are waiting for the specific remedy that will cure tuberculosis.

Bulletin de l'Académie de Médecine, Paris

October 22, LXXVI, No. 35, pp. 277-324

53 *Blood-Borne Origin of Appendicitis. (Origine hématogène de certaines appendicites aigues.) F. Widal and others.
54 *Epilepsy. (Genèse et traitement de l'épilepsie commune.) M. de Fleury.

October 29, No. 36, pp. 325-354

55 *Transfusion of Blood After Excessive Uterine Hemorrhage. (Transfusion directe du sang après hémorragie par décollement du placenta normalement inséré.) Oui.

53. **Blood-Borne Infection as Cause of Appendicitis.**—Widal reports a case in which the blood-borne origin was unmistakable as paratyphoid B bacilli had been found in the blood two weeks before the onset of the appendicitis. There had been two weeks of apparently typical typhoid fever before the appendicitis developed. It proved fatal in two days and necropsy disclosed extensive lesions in the cecum and appendix with pure cultures of the above bacilli while the rest of the intestines were apparently sound. (See Paris Letter, p. 1986.)

54. **Treatment of Epilepsy.**—De Fleury ascribes epilepsy to a meningo-encephalitis which may have developed before birth. The seizures are brought on by auto-intoxication, generally of intestinal origin. We are powerless against the organic irritability of the motor zone, except with bromids and other sedative measures, but we have a number of weapons at our disposal to combat the digestive intoxication and thus effectually eliminate one extremely important factor in the manifestations of epilepsy. He reports excellent results from treatment on these principles in thirty-seven cases. The main reliance is on a diet to avoid generation of intestinal poisons, thus discarding all foods of animal origin, including milk, eggs, fish and meat. Milk and eggs are peculiarly liable, he says, to generate the poisons and thus bring on the seizures, so he prohibits them entirely until the patient has outgrown the seizure habit. The diet should consist of vegetables, salads, fruits, raw and cooked, starches, honey and preserves, with sweet and diuretic drinks to a total of a liter a day. More fluid than this might have an injurious influence by raising the blood-pressure. The vegetable diet is supplemented by lactic ferments to transform the intestinal flora. None of his patients seemed to lose weight or suffer on this diet. He thinks it might prove effectual also in warding off eclampsia; his experiments with a fox terrier inclined to "fits" gave very encouraging results.

55. **Transfusion of Blood for Puerperal Hemorrhage.**—The healthy young woman in question was in labor with her sixth child when the normally implanted placenta separated prematurely and excessive hemorrhage followed. The pulse was 140 and the patient too exsanguinated to rally. The right radial artery of the husband was then sutured to the woman's right median cephalic vein, according to Carrel's technic except that two stitches instead of three were taken. The anastomosis was done under local anesthesia for the husband and no anesthesia for the woman. After five or six minutes her lips turned pink, her eyes opened and the pulse became perceptible once more. The donor's radial artery was rather small and seemed to contract occasionally, and the transfusion was kept up for an hour. The parts of the vein and artery utilized for the anastomosis were resected and found apparently normal. The woman's convalescence proceeded undisturbed thereafter. An important point in the technic of the anastomosis is to strip both artery and vein of adventitia.

Journal de Médecine de Bordeaux

October 13, XLII, No. 41, pp. 645-660

56 *Diphtheric Pseudotabetic Paralysis in Adult; Recovery Under Antitoxin. B. Auché and Dantin.

October 20, No. 42, pp. 661-676

57 Chronic Addison's Disease; Three Cases. (3 cas de syndrome d'insuffisance capsulaire chronique.) C. Mongour.

56. **Antitoxin Treatment of Diphtheria Paralysis in Adult.**—The patient was a man of 34 who developed diphtheria after the death of a child from the disease. He was given three injections of antitoxin and seemed to have quite recovered by the end of a week. But a few days later paralysis of the velum, eyes and limbs became evident, closely resembling the motor disturbances of tabes. He was given 140 c.c. of antitoxin in the course of a month by subcutaneous injections and seemed entirely cured by the end of the second month. To avoid danger of anaphylaxis, the first injection of 20 c.c. of the antitoxin after the paralysis had developed was preceded by injection of 1 c.c. The intervals at first were from three to five days. The paralytic phenomena continued to progress the first week, but then were arrested and soon began to retrogress. Several other cases in Auché's experience have confirmed the benefit from systematic antitoxin treatment in diphtheric

paralysis. He adds that a prophylactic injection when the first case developed in the family might have warded off the father's entire sickness.

Lyon Chirurgical, Lyons

November, VIII, No. 5, pp. 461-552

58 *Lesions of the Vagus Nerve in the Neck. (Les lésions traumatiques et opératoires du pneumogastrique au cou.) L. Bérard and A. Chalier.
59 *Amputation of the Leg. (Procédé d'amputation ostéoplastique de cuisse.) L. Imbert. (Amputations ostéoplastiques diaphysaires et greffes osseuses.) G. Cotte.
60 *Tuberculosis of the Nasal Accessory Sinuses. (Tuberculose des sinus de la face.) M. Collet.

58. **Injury of the Vagus Nerve.**—Bérard and Chalier had their attention called to this subject by eight experiences in their own service; in two the tenth nerve had to be resected and in six the nerve was injured more or less during an operation in the region. They have found on record seventeen cases of traumatic injury of the vagus in the neck and fifty of operative resection. The details of this material are tabulated for comparison. They have also found a number of cases in which the vagus nerve was irritated. The outcome of the traumatic or operative lesions of the cervical vagus was surprisingly favorable in nearly every instance, except the gunshot wounds; only six of the seventeen patients in this group survived, one being left with paralysis of the left vocal cord. Section or resection of the cervical vagus does not seem to cause any immediate trouble on the part of the respiration. In seven cases pneumonia developed which was ascribed to this cause but analysis of the cases shows other conditions ample to explain the pneumonia in all but two cases, in which this was not so evident. Unilateral vagotomy has even less of an immediate effect on the digestive apparatus than on the heart and respiration. Section of the nerve thus is shown to be free from gravity, whether the nerve is sound or degenerated. The absence of complications renders it unnecessary to suture the nerve after it has been severed, but this has been done in several cases, and is a legitimate measure when conditions render it possible. Reich declares that irritation of the vagus has more serious effects than section, but sifting the cases on record shows that the nature of the irritation determines the severity of the resulting injury; ligating or pulling on the nerve or crushing are more liable to cause trouble. Exposing the nerve and mild traction on it does not seem to have any effect on the organs innervated by it. By avoiding severe irritation there is comparatively little danger. At the same time it is better to sever or resect the nerve in operations in this region rather than to risk irritating it by exposing and pulling on it. In any event it should never be ligated or seized except under direct visual inspection as otherwise there may be danger of seizing the nerve too roughly and thus producing a reflex syncope which may be very grave. As a rule slight irritation of the vagus modifies the respiration rhythm and causes a spasmodic cough which should be a warning to the surgeon. If syncope develops from the reflex irritation it may be wise, besides the usual measures for resuscitation, to sever the nerve. In certain cases immediate section of the nerve arrested all the phenomena from the irritation, but this is scarcely necessary. Tracheotomy is never needed for the purpose as the trouble is not a mechanical interference with respiration.

59. **Osteoplastic Amputation.**—Imbert gives an illustrated description of the technic for osteoplastic amputation of the leg above the knee, and Cotte reports two cases in which he grafted a thin plate of bone from the tibia on the stump, or the epiphysis from the tibia, permitting weight-bearing. He regards this free epiphyseal osteoplastic operation as an excellent means to close the marrow canal and supply a bone stump the architecture of which seems to be especially designed for weight-bearing.

60. **Tuberculosis of the Nasal Accessory Sinuses.**—Collet says that he knows of only thirty cases of this kind and recovery is reported in only five. Treatment must consist in ample exposure and removal of all the diseased tissue. He reviews the various cases on record but seems to have no personal experience to report.

Lyon Médical, Lyons

October 20, XLIV, No. 42, pp. 637-676

61 *Pathogenesis of Exophthalmos in Exophthalmic Goiter. Maurice.

October 27, No. 43, pp. 677-716

62 Laryngeal Tuberculosis in Children. Collet.

61. **The Exophthalmos in Exophthalmic Goiter.**—Maurice maintains that the late symptoms of Basedow's disease, exophthalmos, high blood-pressure and signs of visceral arteriosclerosis, are due not to the diseased thyroid, but to excessive adrenal secretion. Epinephrin is present in the blood of these patients. The combined hypersecretion of the thyroid and of the adrenals stimulates the sympathetic nerve system and depresses the central nervous system. At this stage of the disease, medical treatment is to be preferred to surgical, as the condition of the heart renders anesthesia dangerous.

Presse Médicale, Paris

October 30, XX, No. 89, pp. 901-908

63 Improved Technic for Wassermann Test. (L'emploi des hématies stabilisées par le formol dans la réaction de Wassermann.) P. F. Armand-Delille and L. Launoy.
64 Muscular Sporotrichosis. P. Moure and P. Baufle.

November 2, No. 90, pp. 909-920

65 Agglutination Test for Malta Fever. (Comment peut-on rendre moins incertaine la valeur diagnostique de la séro-réaction d'agglutinement du micrococcus melitensis?) M. Carrieu and J. Anglada.
66 Palpation of Large Intestine. A. Cawadias.
67 Dialysis of Normal Urine. (L'indialysable urinaire à l'etat normal.) H. Labbé and G. Vitry.

Revue Mens. de Gynécologie, d'Obst. et de Pédiatrie, Paris

October, VII, No. 10, pp. 553-616

68 Responsibility of the Physician Before the Operation. P. Delmas.
69 Inflammation of the Mastoid Region in Infants: Five Cases. M. Zæpffel.

Semaine Médicale, Paris

November 6, XXXII, No. 45, pp. 529-540

70 Fat in the Blood with Chronic Nephritis. (La lipémie des brightiques; rapports de la rétinite des brightiques avec l'azotémie et la cholestérinémie.) F. Widal, A. Weill and M. Laudat.

Archiv für Kinderheilkunde, Stuttgart

LIX, Nos. 1-2, pp. 1-160. Last indexed Oct. 12, p. 1410

71 *Acute Rheumatism with Subcutaneous Nodules in Children. (Rheumatismus nodosus im Kindesalter.) R. Berkowitz.
72 *Breast-Milk Nursing Premiums. (Stillprämien und ihre Erfolge.) H. Risel and F. Schmidt.
73 *Serotherapy of Epidemic Meningitis. (Behandlung der epidemischen Genickstarre durch Seruminjectionen in die Seitenventrikel. Bericht über einen geheilten Fall.) E. Levy.
74 Appendicitis in Inguinal Hernia in Infant. J. Becker.
75 Housing Conditions as Factor in Infant Mortality in Heated Term. (Ursachen der Säuglingssommersterblichkeit mit statistischem Beitrag über die Wohnung als ätiologischen Factor.) S. Eichelberg.
76 Stagnation of Heat as Factor in Infant Mortality. (Die Rolle der Wärmestauung und Exsiccation bei der Intoxication der Säuglinge.) P. Heim.
77 Importance of Artificial Feeding on Biologic Properties of Young Organism. (Einfluss von künstlicher Ernährung auf biologische Eigenschaften des Organismus in dessen frühem Alter.) T. A. Ossinin

71. **Acute Rheumatism with Subcutaneous Nodules in Children.**—Berkowitz reports five cases and compares them with seventy-three in the literature in which small nodules developed symmetrically beneath the skin on or around the smaller joints in children who had had acute articular rheumatism in a severe form. Endocarditis or pericarditis was evident in 88 per cent. of the total seventy-eight cases, plus chorea in twenty-four cases, with chorea alone in three, and complications on the part of the heart alone in forty-one. The children were between 8 and 14 in most of the cases. The nodules cause no pain or other disturbance and generally retrogress entirely after a few days or months. Berkowitz cites from Dunn's article, "Rheumatic Fever in Children," in THE JOURNAL, Feb. 9, 1907, p. 493.

72. **Nursing Allowances.**—Risel and Schmitz report the results of the workings of the pension fund for nursing mothers which has been available at Leipsic since 1907. A small allowance is given to women whose incomes are below a certain amount as long as they nurse their infant. They have to bring the infant back for inspection each time the

allowance is given them, and this medical oversight is by no means the least useful factor in the nursing premiums. The women are given 25 or 50 cents a day and an additional 10 cents for the first child and about 8 cents for each later child. The annual number of infants ranged from 761 to 824, and the total expended was over $6,000 in 1910. The "consultations" are held at four different points in the city once or twice a week, in the afternoon. The educational effect is regarded as of great value, and the children now 2 or 3 years old that had the advantages of the supervision during their early infancy seem to be much above the average in health and alertness over other children in their class. The total material is tabulated from various standpoints.

73. **Serotherapy of Epidemic Meningitis.**—In the case reported by Levy an infant three and a half months old developed severe meningitis with paralysis of one side. Meningococci were found in the spinal fluid on lumbar puncture, and no benefit was derived from the usual measures, hexamethylenamin, etc. As the condition was growing rapidly worse, Levy introduced the needle into the lateral ventricle and injected 8 c.c. of antimeningococcus serum. This was done the sixteenth and seventeenth days of the disease. At one stroke the clinical picture became transformed. The fever dropped, the paresis improved, and all the symptoms disappeared so rapidly that the child seemed to have entirely recovered by the sixth day thereafter. Levy gives an illustration of the route for puncture of the lateral ventricle through the fontanel, the child lying on the side of his head. He has done this operation on four children with a total of thirty punctures and fourteen injections, without ever experiencing any untoward by-effects, except that in this case at the second puncture, as the fluid did not flow promptly he thought he was not in deep enough, and pushed the needle in a little farther, bringing blood. He had evidently injured the choroid plexus, but it did not seem to do any harm in this instance. Netter has reported ten cases without by-effects. Fischer has reported a case of erythema, sweating and foam at the mouth after an injection of the kind, preceded by rinsing out the ventricle with salt solution, and he had left a large amount of the antiserum in the ventricle. Levy warns expressly against any such procedures and against injecting any more fluid than is withdrawn. The destruction of the cocci by the antiserum may flood the organism with their endotoxins and thus induce a temporary aggravation of the condition. He reiterates in conclusion that the experience he relates confirms the tolerance of infants for injections into the lateral ventricles, and that it may have life-saving value in otherwise hopeless cases. The technic is not always easy; he failed in his first attempt in this case.

Beiträge zur Klinik der Tuberkulose, Würzburg

XXV, No. 1, pp. 1-183. Last indexed Nov. 9, p. 1752

78 *Tuberculin Treatment of Surgical Tuberculosis in Children. C. Förster.
79 The Suction Mask. (Bemerkungen zu der Arbeit Berlins in Heft 3, Band XXIII, über Erfahrungen mit der Saugmaske.) E. Kuhn.
80 *Blood-Borne Dissemination of Tuberculosis. (Die hämatogene Verbreitung der Tuberkulose und die Disposition bei Tuberkulose.) Wolff.
81 Tuberculosis of Biliary Ducts. (Sind die Gallengangstuberkel in der Leber das Resultat einer Ausscheidungstuberkulose?) M. Lichtenstein.
82 Sanatoriums for Tuberculosis Not a Source of Danger for the Environment. (Die Tuberkulose-Sterblichkeit unter der einheimischen Bevölkerung von Davos.) J. Gwerder.
83 *Analogy Between the Blotting-Paper Test for Diluted Acids and the Tuberculin Skin Reaction. (Die Uebereinstimmung zwischen dem Verhalten verdünnter Säuren in Löschpapier und der Tuberkulinreaktion in der Haut.) I. Holmgren.
84 *Bronchiectasia. (Heilstättenerfahrungen über Bronchiektasien.) F. A. Bauer.

78. **Tuberculin Treatment in Surgical Tuberculosis in Children.**—Förster regards the ideal technic as that with which a mild puncture-hole and local reaction is induced without a distinct general reaction. He reports the details of twenty-one cases of tuberculous processes in bones or joints in children given a course of tuberculin treatment by this method. No benefit was apparent in three cases but in all the others marked improvement resulted which he ascribes in large part to the tuberculin rounding out the ordinary general course of treatment. He thinks that surgical tuberculosis in children is an especially fine field for tuberculin therapy. With symptoms of "scrofula," the dosage should be guarded with particular care not to permit a harmful reaction; Sahli's method is the safest in these cases. As children with surgical tuberculosis are exceptionally susceptible to tuberculin, the average dose at first should not be over one or half a millionth of a milligram. With this dose the puncture-hole and local reaction is mild and just what is needed while the minimal general reaction does no harm. The children were kept in bed and the anal temperature taken every two hours. The dose was not increased until there ceased to be any reaction at the point where the needle had been introduced. In case of a reaction, another dose was not injected until all signs of the reaction had disappeared, and then half the preceding dose was given. When no further reaction was noticed, the dose was increased. The blood findings under treatment are tabulated from seven cases. Förster uses much smaller doses than others, and he thinks that this is one secret of his success. The best results were invariably attained in the cases in which there had been the liveliest reaction to the Pirquet cutaneous tuberculin test.

80. **Blood-Borne Distribution of Tuberculosis.**—Wolff reviews experiences which confirm the fact that tuberculosis is disseminated within the body by means of the blood. The bacilli in the blood stream settle where an organ offers lessened resistance by some predisposing elements or defective functioning. These anatomic and functional deviations from the normal may be inherited or acquired. The apices of the lungs offer a peculiarly favorable point for the settling of the bacilli.

83. **Blotting-Paper Test for Acids and the Tuberculin Reactions.**—Holmgren's test for gastric acidity by the way the fluid spreads when it is dropped on blotting paper was described in The Journal, March 18, 1911, p. 857. He here calls attention to the resemblance between the aspect of the Pirquet skin tuberculin test and the phenomena of adsorption on blotting paper, especially the separation into two concentric zones. He describes the formulas to express the conditions, and tabulates the findings in large numbers of cases in which the Ellermann-Erlandsen titration tuberculin test was applied. The formula used to express the acidity in the blotting-paper test applies likewise to the skin tuberculin reaction. For titration test see The Journal, 1909, lii, 1634, and 1912, lix, 1326.

84. **Bronchiectasia.**—Bauer gives a detailed description of ten cases of bronchiectasia. In each case the diagnosis had been pulmonary tuberculosis and the patients had been admitted to the sanatorium on this account. No benefit was derived in any instance from the sanatorium treatment. Two of the patients were given operative treatment. The reclining chair aggravated the cough and expectoration in two cases; the best results were obtained by lowering the head (Quincke's *Hängelage*) and a course of pills of digitalis leaves and extract of belladonna, 0.3 gm. each, divided into thirty pills, one or two a day being taken. The treatment was thus such as can be carried on anywhere. In all his cases the apices showed about the same findings and were free from autochthonous by-sounds. Conditions thus approximating normal in cases with such severe cough and difficulty in expectoration in young people should suggest the possibility of bronchiectasia. Another differential point is the contrast between the slight percussion findings and the extremely irregular auscultation phenomena. With scoliosis the convexity is on the most diseased side, probably from cicatricial shriveling. He discusses the connection between bronchiectasia and pulmonary tuberculosis. Circumscribed bronchiectasia is particularly important on account of its connection with trauma and tendency to hemorrhage. In one of his cases the bronchiectasia had persisted in a latent stage for twenty-five years, in another for over ten. The bronchiectasia often dates from childhood and prophylaxis and early treatment are of great importance.

Berliner klinische Wochenschrift

November 4, XLIX, No. 45, pp. 2113-2160

85 *Tabes and Trauma. E. Schultze.
86 Trauma and Infection in Origin of Leukemia. (Fall von akuter Leukämie mit zahlreichen Tuberkelbacillen.) H. Hirschfeld.

87 *Poisoning from Arsenic in Wall Paper. (Ueber Vergiftungen durch arsenhaltige Tapeten.) L. Kuttner.
88 Cell Inclusions Not Pathognomonic for Scarlet Fever. (Sind die Einschlüsse in den polynucleären Leukocyten bei Scharlach als pathognomonisch zu betrachten?) H. Bongartz.
89 Predisposition of Lungs for Tuberculosis. C. Serog.
90 Methyl-Alcohol Poisoning. (Zur Frage der Methylalkoholvergiftung.) A. Rühle.
91 An Albino Negro. A. Blaschko.
92 Local Spray Medication of Small Intestine. (Zur Technik meiner Behandlungsmethode des Dünndarms mit vernebelten Medikamenten.) M. Skaller.
93 Vaginal Operative Treatment for Uterine Hemorrhage Would Reduce Infant Mortality. (Wie können jährlich 50,000 Kinder in Deutschland gerettet werden?) A. Dührssen.

85. **Trauma and Tabes.**—Schultze gives the details of three cases in which tabes had developed apparently immediately after a trauma but his investigations showed that it must have existed before the accident. The latter did not have even an aggravating effect on the tabes in two cases; in the third case the new symptoms of tabes that developed after the trauma were localized in the part that had been specially injured. This case was further complicated by a traumatic neurosis. There was no history of syphilis in any of the cases and the Wassermann test of the blood gave negative findings. It is possible that the cerebrospinal fluid might have reacted positively, but Schultze always shrinks from applying lumbar puncture to persons after a trauma. Nonne has also recently warned against puncturing "traumatikers." Schultze has witnessed disturbances develop in such cases after lumbar puncture which, in one instance, were more serious than the alleged consequences of the trauma. The history of the cases illustrates anew the extreme readiness with which physicians as a rule are inclined to certify to a connection between an accident and a nervous affection. The custom of waiting before summoning the medical specialist to ascertain whether the victim has a legal right to an indemnity in any event is very prejudicial to the ultimate welfare of the patient. In one of the above cases a specialist in nervous affections was not called in until five years after the accident. In a fourth case hemiplegia developed a few days after a fall into icy water, the symptoms suggesting a thrombotic obstruction in a cerebral vessel. Gradual improvement followed during the next year but then symptoms of tabes became superposed on the hemiplegia. The tabes was evidently an independent affection although all the disturbances probably had a common syphilitic basis.

87. **Poisoning from Arsenic in Wall Paper.**—The wall paper in question was in the sleeping-room, and the symptoms of arsenic poisoning were abdominal pain and diarrhea with secondary anemia. As soon as the patients left home the symptoms improved, even without treatment, but recurred after an interval on their return home each time, and the assumption of poisoning from the wall paper was confirmed by tests of the paper. In two of the six cases reported arsenic was found in the urine; no examination was made in the other cases. The patients were two men and four women, all but two in the thirties. The manifestations were of the intestinal catarrhal type in all; the possible persistence of such an intestinal trouble after removal of the wall paper need not invalidate the diagnosis, as complete recovery after chronic arsenic poisoning is rare. In two of the cases the anemia was of the pernicious type. One patient had not apparently suffered from the arsenic poisoning although occupying the same room two years before; she slept with the windows open then. The intestinal catarrh did not develop until after she had been confined to the room for five weeks by a childbirth, the windows mostly closed. Kuttner has found arsenic in cheap linoleums, and calls attention to arsenic poisoning from the floor coverings as possible explanation for certain puzzling cases of sickness.

Deutsches Archiv für klinische Medizin, Leipsic

CVIII, Nos. 3-4, pp. 187-404. Last indexed Nov. 16, p. 1832

94 Alimentary Galactosuria as Test of Liver Functioning. E. Reiss and W. Jehn.
95 Alimentary Galactosuria with Experimental Phosphorus Poisoning. R. Roubitschek.
96 Blood-Pressure in Cholera and Modification by Saline Infusion. (Ueber den arteriellen Druck bei der Cholera asiatica und seine Veränderungen unter dem Einflusse grosser Kochsalzinfusionen.) G La.
97 Disturbances in Secretion of Hydrochloric Acid with Gall-Bladder Disease. (Störungen der Salzsäureabscheidung des Magens bei Erkrankungen und nach Exstirpation der Gallenblase.) H. Hohlweg.
98 Pentosuria. (Zur Lehre von der Pentosurie auf Grundlage von Untersuchungen an 2 Fällen.) K. O. af Klercker.
99 Dicrotic Pulse. A. Weber.
100 The Eosinophil Leukocytes in Croupous Pneumonia. J. Arneth.
101 *Tests for Localizing Kidney Functioning. (Ueber Nierenfunktionsprüfung.) F. Conzen.
102 *Action of Radium Emanation on the Blood. R. von den Velden.

101. **Testing the Kidney Function.**—Schlayer and Takayasu have devised means of determining the anatomical location of the trouble in nephritis. If 10 gm. of a milk sugar solution is injected intravenously and takes more than five hours for elimination, it indicates diseased glomeruli. When 0.5 gm. potassium iodid is given by mouth and is not fully eliminated by the end of sixty hours, the tubules are involved. Conzen in an examination of thirty-seven patients found this method of great aid in diagnosing nephritis and the necropsy findings confirmed his diagnosis as to the seat of the lesion. Intake of 10 gm. of salt increases the albuminuria and leads to water retention and general malaise only in true nephritis and in severe congestion of the kidney. In recent kidney affections, particularly when the lesion is focal, the acidity and the amount of albumin run parallel, and the albumin decreases or disappears on the administration of sodium bicarbonate. In other forms of nephritis there is no relation between the acidity and the amount of albumin in the urine.

102. **Effect of Radium Emanation on the Blood.**—Von den Velden states that the radium emanations were administered by inhalation, subcutaneous injection and by drinking water containing emanations. In every instance it was found to decrease the coagulation time of the blood. One of the patients was a hemophiliac, and in this case the decrease was particularly noticeable.

Deutsche medizinische Wochenschrift, Berlin

October 31, XXXVIII, No. 44, pp. 2057-2104

103 Development of a Thrombus. (Ueber den Aufbau des Thrombus.) L. Aschoff.
104 Human Tubercle Bacilli in Parinaud's Tuberculous Conjunctivitis; Two Cases. B. Möllers.
105 *Improved Technic for Determination of Occult Blood in Stools. (Ueber die Ausschaltung exogenen Blutes beim Nachweis okkulter Magen- und Darmblutungen.) I. Boas.
106 Functional Differences of Brain Hemispheres. (Die funktionellen Differenzen der Hirnhälften und ihre Beziehungen zur geistigen Weiterentwicklung der Menschheit.) E. Stier.
107 Reflex Anomalies from Medicolegal Standpoint. (Zur Bewertung von Reflexanomalien.) K. Singer.
108 Improved Technic for Blood-Count. (Einige Modifikationen und Verbesserungen am Intrumentarium für Hämocytometrie des praktischen Arztes.) A. Pappenheim.
109 Amputation of the Leg; 217 Cases. (Amputation im Bereiche der unteren Extremität.) K. Braeunig.
110 Technic for Low Tracheotomy. (Die stumpfe untere Tracheotomie mittels Schielhäkchen.) R. Dobbertin.
111 Acute Subchordal Laryngitis. W. Brandenburg.
112 *Blood-Test for Industrial Poisoning. (Ueber gewerbliche Vergiftungen mit Bezug auf die Liebermannsche Blutprobe.) R. Orban.
113 Spray Method of Sterilizing Milk. (Neues Verfahren zur Herstellung einwandfreier Trinkmilch.) O. Lobeck.

105. **Improved Technic for Test for Occult Blood in the Stools.**—Boas removes the blood from the meat given the patients for two or three days before applying the test for invisible blood in the stools. He accomplishes this by pouring 100 gm. of 3 per cent. hydrogen dioxid over 100 or 125 gm. of scraped or chopped veal or chicken, stirring the whole up well as the foaming goes on. The meat turns white and it is then rinsed on a fine sieve under running water for five or ten minutes until all the hydrogen dioxid is washed away. The meat is then made up into hash balls. Meat thus prepared will not interfere with the most sensitive tests for occult bleeding in the stomach or intestines. This method is, of course, intended mostly for institutions, but intelligent patients can apply the procedure in their homes as a preliminary to the test. It excludes all blood of foreign origin from the feces and thus does away with the necessity for refraining from meat and fish before the test. In some cases the use of this meat or fish free from blood pigment may prove a useful index for the benefit of therapeutic measures.

112. **Industrial Poisoning.**—Orban has found Liebermann's blood test very useful in the differential diagnosis in poisoning

from lead, mercury, phosphorus, benzine and benzol. In his experimental work, lead, mercury and phosphorus increase the resistance of the red corpuscles while benzine and benzol reduce it. The Liebermann test is based on the laking of the reds in distilled water and the absence of laking in physiologic salt solution. The unit is two minutes for the laking of one drop of undefibrinated blood, that is, 0.05 c.c. The blood is generally used for the test with a salt solution between 0.4 and 0.7. After two minutes salt solution is added of a concentration which brings the new solution to 1 per cent. For example, to 5 c.c. of a 0.5 per cent. solution is added 5 c.c. of a 1.5 per cent. solution, thus bringing the concentration to 1 per cent. The resistance quotient is the number of reds which fail to lake under these conditions in proportion to those which are dissolved.

Jahrbuch für Kinderheilkunde, Berlin

October, LXXVI, No. 4, pp. 369-506

114 Rachitis in the Newly-Born. (Ueber Rachitis. III.) M. Kassowitz.
115 Toxic Paralysis of the Heart in Diphtheria. (Diptherieherztod.) R. Rohmer.
116 Valve Stenosis After Tracheotomy. (Erschwertes Dekanülement infolge von Verbiegung der vorderen Trachealwand nach Tracheotomie superior und Einfluss des Diphtherieserums auf die Zeit der Vornahme des Dekanülements.) M. Massini.
117 *Bacteria Involved in Diseases of the Respiratory Apparatus in Children. II. G. Brückner, W. Gaehtgens and H. Vogt.

117. **Bacteriology of Respiration Diseases in Children.**—In addition to eighty cases of lung affections reported by Brückner and his coworkers from the Strasburg children's clinic, the results of Holt's examination of over 500 patients are cited. Influenza bacilli were present in the majority of cases and are undoubtedly of pathogenic significance. Attention is called to the fact that in the years of influenza epidemics the mortality from pneumonia was correspondingly increased. Though there is no absolute way of distinguishing influenza infections from infections with other bacilli, they seem to display a tendency to greater variations in temperature, a long course with remissions and exacerbations, and consecutive chronic conditions. Recurrent bronchopneumonia and chronic bronchiectasia are a characteristic form of influenza bacillus infection. Otitis media is also a frequent complication.

Medizinische Klinik, Berlin

November 3, VIII, No. 44, pp. 1769-1814

118 *Diagnosis of Miliary Tuberculosis. M. Matthes.
119 *Pharmacology of the Sympathetic Nerve System. H. H. Meyer.
120 *Tuberculosis of the Eye. (Erfahrungen und Gedanken über Tuberkulose und Tuberkulin.) Heine. Concluded in next number.
121 Juvenile Paralysis. M. Rosenfeld.
122 Percussion of the Apices of the Lungs in Tuberculosis. T. G. Janowski.
123 Vegetation and Civilization. (Das mitteleuropäische Landschaftbild in seiner pflanzengeographischen Entwicklung.) W. Wangerin.
124 Medical Department of the Turkish Army. (Organisation des türkischen Kriegs-Sanitätsdienstes.) E. Franck.

118. **Diagnosis of Miliary Tuberculosis.**—Matthes remarks that the three types described in the text-books, the typhoid, pulmonary and meningeal types, are frequently combined and blend into each other. The meningeal symptoms develop tardily in contrast to those accompanying ordinary infections. The diagnosis of miliary tuberculosis is facilitated by discovery of some old tuberculous process or history of such. Febrile urogenital or non-tuberculous ear processes may simulate miliary tuberculosis as in some recent cases of colon bacillus cystitis or prostatic abscess. In one case a woman with incipient miliary tuberculosis aborted and the fever was ascribed to puerperal infection. The fever may be low, and sometimes miliary tuberculosis develops without fever or without sweats. Great irregularity of the fever is evidence in favor of miliary tuberculosis. The heart findings are usually negative although there may be occasional accidental murmurs. The pulse is never so soft and small as with sepsis. Typhoid bacilli may be found in the blood when miliary tuberculosis attacks a bacillus carrier, and the agglutination test may be positive. Matthes noticed in some of his cases great relative reduction of lymphocytes in the blood with a corresponding increase in the polynuclear cells. If these findings are confirmed by others this polynucleosis may aid in differentiation. On account of the fever, only the Pirquet tuberculin test is of any value, and this is unreliable in adults. The livid, dusky face with the negative heart findings is instructive, as also dyspnea and a dry cough without expectoration. There may be acute emphysema of the lung and the signs of bronchitis may be most pronounced above the upper lobes. Instantaneous skiagrams may show bright pinhead spots, soft and sometimes confluent, very early in the disease. The fluid obtained by lumbar puncture contains lymphocytes and more albumin than normal and, on standing, a fine network develops in it, in which tubercle bacilli may be found. The pressure is generally above normal or may be subnormal. He thinks it would be a good plan to examine the spinal fluid early in every case of febrile disease of obscure origin, even before meningeal symptoms develop. The manifestations in the skin may be characteristic by the sloughing in the center of the punctate nodules, but tubercles on the choroid coat of the eye are the one unmistakable sign of the disease.

119. **Action of Drugs on Vegetative Nervous System.**—Meyer reports the results of his interesting research on the sympathetic system with epinephrin, nicotin, cholin, atropin, etc., adding to the store of knowledge in regard to the different functions of these nerves and the localization of the functions.

120. **Tuberculosis from the Ophthalmologic Standpoint.**—Heine thinks that valuable information might be obtained from specialist examination of the eye under the influence of the tuberculin test. He gives a colored plate showing the findings in twenty cases of tuberculosis or syphilis. Examination of the eye with specialist equipment, he says, affords a better oversight of the progress of the case than examination of the lungs. He has noticed a great difference in the prevalence of positive eye findings in different parts of Germany.

Münchener medizinische Wochenschrift

October 29, LIX, No. 44, pp. 2377-2432

125 *Formaldehyd Compounds with Uric Acid. (Ueber die Formaldehydverbindungen der Harnsäure und der Purinbasen, ihre Verwendung im Stoffwechselversuch und zum diagnostischen Nachweis der Harnsäure im Blute.) A. Schittenhelm.
126 Cultivation of Diplococcus of Venereal Granuloma. E. Martini.
127 *Chemotherapy of Cancer. (Ueber Strahlenwirkung auf Zellen, speziell auf Krebsgeschwulstzellen und die Frage der chemischen Imitation derselben.) S. Tschachotin.
128 *Simple Color Test for Fat in Stools. (Eine einfache Methode das Fett im Stuhl färberischmikroskopisch nachzuweisen und quantitativ abzuschätzen.) L. Saathoff.
129 *Mental Disease Cured by Gynecologic Measures; Seven Cases. (7 Fälle von psychischer Erkrankung nach gynäkologischer Behandlung geheilt.) G. Ortenau.
130 *Diphtheria Bacilli in the Lungs. E. Reye.
131 *Polycythemia; Two Cases. (2 weitere Beiträge zur primären Polyhämie und deren Genese.) C. Jacobs.
132 *Local Anesthesia for Operations on Pharynx and Esophagus. G. Hirschel.
133 *Fatal Embolism After Injection of Bismuth Paste (Beck) Into an Empyema Fistula in Man of 30. M. Brandes.
134 *Prophylaxis of Gangrene. (Beitrag zur Noesskeschen Behandlung der venösen Stase.) G. Fehsenfeld.
135 *Medicinal Treatment of Cancer. (Die Krebsbehandlung mit medikamentösen Mitteln.) O. Staudenmayer.
136 Auto-Anaphylaxis. (Die Auslösung von Ueberempfindlichkeitserscheinungen durch körpereigene Eiweissubstanz und ihre klinische Bedeutung.) A. Wolff-Eisner.
137 Roentgen-Ray Technic. (Vergleichsversuche mit Röntgeninstrumentarien.) Hergenhahn and R. Bosselmann.
138 *Destruction of Bile Ducts by Gall-Stones. (Partielle oder totale Zerstörung von Ductus cysticus und choledochus durch Stein.) B. Riedel. Commenced in No. 43.

125. **Formaldehyd Test for Uric Acid and Purin Bases.**—Schittenhelm gives the details for a technic which he says is a simple and reliable means to determine the proportion of uric acid in the urine. It is based on the fact that the formaldehyd combinations of uric acid readily dissolve in water, while the uric acid and purin bases are very slightly soluble in water.

127. **Chemotherapy of Cancer.**—The research reported confirms the assumption that the action of the Roentgen rays and of radium depends mainly on the formation of cholin out of the elements of the lecithin, and consequently that cholin may have an elective action on cancer, alone or as an adjuvant to radiotherapy.

128. **Color Test for Fat in Stool.**—Saathoff uses a stain in addition to the heat method of distinguishing between the neutral fats, fat acids and soaps. The best formula for the stain is 90 c.c. glacial acetic acid and 10 c.c. of 96 per cent.

alcohol, into which is stirred a knife point of Sudan III. He discusses the importance of the findings in cases suggesting liver and pancreas disease, in metabolic disturbances and bowel trouble in infants, etc. He found an abnormally large proportion of fat in the stools in patients with exophthalmic goiter and other thyroid derangement, and the course of the cases could be followed by the increase or decrease of the fat in the stools.

129. **Mental Disease Cured by Gynecologic Operations.**—Ortenau was amazed at Bossi's reports of the cure of chorea and hysteric paralysis by operative treatment of some lesion in the ovary or uterus (mentioned in The Journal, Jan. 6, 1912, p. 73 and elsewhere). He went to Genoa to Bossi's clinic to investigate the subject and reports what he saw there, giving the details of seven typical cases of mental disease entirely subsiding under needed gynecologic operative measures. The large proportion of patients with mental disease in the gynecologic clinic was his first surprise, and then the rapid improvement under local measures. This is particularly noticeable as the neurologists have long taught that the attention should not be attracted to the genital sphere in mental derangement. In each case there was amenorrhea or dysmenorrhea connected with stenosis of the internal os or cervix, entailing infectious endometritis and dilatation of the uterus. When these conditions were corrected the psychic disturbances subsided, even severe mania which had required isolation of the patient. Bossi's plea is that restoration of normal conditions in regard to secretion and a proper outlet is liable to cure in many cases in which neurologic and psychiatric treatment alone is futile. One patient presented the typical picture of dementia praecox, others severe melancholia and stupor. The ages ranged from 22 to 41. The cases teach the necessity for gynecologic examination in every case of mental disease, especially before committing any woman to an asylum. Bossi insists that gynecologic examination should be a routine measure in every crime committed by a woman in the period just preceding or during the menses. This would certainly, he declares, prevent many errors in justice which are now committed.

130. **Diphtheria Bacilli in the Lungs.**—Reye examined the lungs from sixty-seven cadavers including forty-three with recent diphtheria and twenty-four after recovery from the diphtheria. He found diphtheria bacilli in 85 per cent.; in many cases the lungs were apparently entirely sound but the bacilli could be found up to the twentieth day after the onset of the diphtheria.

131. **Polycythemia.**—Jacobs adds two more to the thirty-five cases of polycythemia on record with necropsy. The essence of the disease is an increase in all the figured elements of the blood without apparent cause. The data related suggest that the disease must be regarded as an abnormal proliferation of the blood elements and serum analogous to the proliferation of tissues in cancer. The latter is a neoplasm of the solid tissue and the polycythemia is a neoplasm of the blood with consequent functional hypertrophy of the bone marrow.

132. **Local Anesthesia in Operations on the Pharynx and Esophagus.**—Hirschel describes the technic with which he blocked the glossopharyngeal nerve for removal of a cancer in the region in three cases, and the vagus for removal of a cancer in the upper part of the esophagus in another case.

133. **Embolism After Injection of Bismuth Paste.**—Brandes calls attention to the danger of embolism, reporting a fatality immediately following injection of bismuth paste into a fistula connected with an empyema left from pneumonia on the right side. The catheter introduced into the fistula seems to have injured the wall at a bend, and the paste injected was thus forced into an adjoining vein whence it was carried into the venous circulation of the lung and, passing through the heart, the particles were scattered through the brain vessels and elsewhere through the body. Alapy has reported a similar case but his patient recovered.

134. **Prophylaxis of Gangrene of the Finger.**—Felsenfeld reports a case which confirms anew the great value of stimulating the capillary circulation by Noesske's method of cutting down to the bone at the tip of the finger parallel with the nail.

135. **Local Treatment of Cancer.**—Staudenmayer was quoted by Zeller as having had extensive experience with a 20 per cent. arsenic mercuric paste in local treatment of cancer. (See the Berlin Letter, Sept. 7, 1912, p 815.) He has had no recurrences in the cases in which a systematic course of this local treatment was given, and he never observed symptoms of poisoning. Time will show whether Zeller's addition of silicic acid is an improvement. He applied this local treatment only when an operation was refused or the patients were too advanced in years. The paste does not pass through sound skin, so the vicinity of the cancer or lupus patch must be freshened.

138. **Destruction of Biliary Duct by a Gall-Stone.**—Riedel states that eighteen of his 695 gall-stone patients had total or circular destruction of the cystic duct and two a partial side destructive process. The common bile duct is more resistant; he has only had two cases of perforation of the common bile duct among his 128 cases of stone in this duct. The walls of the cystic duct are thin but it is very rare that a stone perforates into the open abdominal cavity; an abscess generally forms around the perforation or bulging duct and the common duct is thus secondarily involved. The great danger from the opening in the cystic duct walls is that the flow of bile is less direct and consequently stones are not washed along in either the cystic or common duct.

St. Petersburger medizinische Zeitschrift

October 28, XXXVII, No. 20, pp. 293-310

139 Indications for Operative Treatment of Gastric Ulcer. P. Klemm.
140 Alcohol and the Human Organism. K. Dehio.
141 Toxicity of Certain Berries. (Zur Frage der Giftigkeit einzelner Beeren.) Kanngiesser.

Therapie der Gegenwart, Berlin

November, LIII, No. 11, pp. 481-528

142 Present Status of Salvarsan Treatment of Syphilis. (Ueber den gegenwärtigen Stand der Salvarsantherapie der Syphilis.) W. Wechselmann.
143 *Acute Exophthalmic Goiter. (Meine Erfahrungen über den akuten Morbus Basedowii.) H. Schlesinger.
144 Serotherapy. (Ueber die Nutzanwendung der neueren Forschungsergebnisse auf dem Gebiete der Serumtherapie in der Praxis.) F. Rolly. Commenced in No. 9.
145 *Continuous Draining of Ascites. (Zur Dauerdrainage bei Ascites.) Osten.
146 Shoulder Pain with Appendicitis. (Schulterschmerz bei Appendicitis.) Lochmann.

143. **Acute Exophthalmic Goiter.**—Schlesinger comments on the deceptive clinical picture sometimes presented by acute Basedow's disease, simulating cancer, lymph-node tuberculosis or typhoid. In his experience, the patients came to the hospital with the diagnosis of hidden cancer. The leading symptoms of exophthalmic goiter may be missing and the more uncommon symptoms predominant. The most striking symptom is the rapid loss of weight, this is more rapidly extreme than even with cancer. One such patient lost forty-four pounds in a month, another sixty-six pounds in ten weeks, and in a recent case the patient's weight dropped from 189 to 61 pounds—a loss of two-thirds of her weight in eleven weeks. Acute exophthalmic goiter should be suspected in every case of rapid loss of weight. Another frequent symptom is enlargement of the spleen. Fever is more common with the acute than with chronic Basedow. In the acute cases the thyroid may be normal in appearance or even smaller than usual, but auscultation reveals the vascular murmurs of true Basedow, soft, continuous, with rhythmic systolic accentuation or an arterial sibilant sound during the systole. This rare type of systolic vascular murmur he has encountered only in elderly patients with Basedow. A persistent retraction of the upper lid—Stellwag's sign—was observed very often and early, and tachycardia was constant. The pulse is that characteristic of Basedow but the arteries are generally relatively small, with thin walls. The blood changes are the same as those noted in chronic exophthalmic goiter as also the irregular diarrhea without cause or after emotions. There may be an excessive appetite or none. In three cases considerable jaundice with emaciation were the only symptoms at first of what proved to be

acute exophthalmic goiter. Glycosuria is often observed also; the emaciation is sometimes ascribed to this alone. Alimentary glycosuria could always be elicited in his cases, and the reaction was positive in the one case in which the alimentary galactosuria test was applied. A correct diagnosis is particularly important as persons with acute exophthalmic goiter are exceptionally susceptible to external injurious influences; an insignificant operation, a brief general anesthesia or mild infection may prove fatal. Many such cases have been published, and it is safe to assume that numbers of others have not been reported. One of his patients with acute exophthalmic goiter died suddenly a few hours after the onset of an ordinary follicular tonsillitis. No cause for the sudden death could be discovered in another similar case. He suggests that as hypoplasia seems to be a constant necropsy finding in such cases, the acute Basedow develops only when the injuries resulting from excessive or perverted thyroid secretion affect a hypoplastic individual. In the absence of the tendency to hypoplasia, only the chronic form develops. The more stormy onset of the acute form is the result of the lesser resisting powers of the hypoplastic. The logical conclusion is that it is extremely dangerous to do an operation on persons with acute Basedow; every effort should be made to cure or at least to transform the acute into the chronic form. Schlesinger keeps the patient in bed, preferably in the open air. The food should be extra nourishing and digestible, avoiding sweets and much starch on account of the tendency to glycosuria. Among the adjuvants he mentions Roentgen ray exposures, the advantage from which in these dangerous acute cases far outbalances the possible harm from the development of connective tissue rendering more difficult any operation on the thyroid later. Very mild physical measures may also prove useful, including application of the continuous current to the neck.

145. **Continuous Drainage of Ascites.**—Osten has a patient who taps herself at need as she wears permanently a drain tube, clamped. Except for nausea for a few days, there has been no disturbance from the drain during the three months it has been worn, not even a local inflammatory reaction although the woman of 62 is a diabetic with cirrhosis of the liver. The same technic might prove useful for an ovarian cyst in case operative measures are contra-indicated.

Zeitschrift für Kinderheilkunde, Berlin

V, No. 3, pp. 175-254. Last indexed Nov. 16, p. 1835

147 *Pathogenesis of Fetal Chondrodystrophy. (Zur Pathogenese der Mikromelie.) H. Abels.
148 Chloromatous Bronchitis. H. Lehndorff.
149 *Glass Partitions in Children's Ward. (Die Boxstation der Neuen Wiener Kinderklinik.) C. v. Pirquet.
150 Respiratory Metabolism in Proportion to Surface Area of Infants. (Atrophie und respiratorischer Stoffwechsel.) A. Schlossmann.

147. **Defective Development of Cartilage in the Fetus.**—From a study of a case of his own and those reported in the literature, Abels concludes that the cause of fetal chondrodystrophy is a disturbance of the internal secretions, in some cases of the thyroid, in others of the sexual glands. There is in most cases an enlargement of the genitalia and in many cases an enlarged thyroid in the mother. He cites one case of a woman who took thyroid extract during her pregnancy and gave birth to a chondrodystrophic fetus.

149. **The Box Ward in the Vienna Pediatric Clinic.**—Children are often admitted to general hospitals when already infected with some contagious disease. To avoid the danger of house infection from such cases at the children's clinic in Vienna two series of six small glass-walled rooms (boxes) were erected, each containing one bed. Between the two rows of rooms is a corridor for the use of visitors and students. The glass walls enable them to see the children without the possibility of transmitted infection. Suspicious cases, or those developing sore-throat, coryza or eruptions after admission are placed in these rooms. They are not used for the more dangerous infections, such as cholera or small-pox. They are easily disinfected so that they can be used again as soon as vacated, and there has been no instance of an infection being transmitted to the next occupant. The children although thus scrupulously isolated can see all that is going on in the ward. The article is illustrated.

Zentralblatt für Chirurgie, Leipsic

November 2, XXXIX, No. 44, pp. 1505-1536

151 Pedunculated Flap from Capsule to Reenforce Suture After Pyelolithotomy. E. Payr.

November 9, No. 45, pp. 1537-1568

152 Ear Muscle to Substitute Defect in Nostril. (Ersatz von Nasenflügeldefekten durch freie Transplantation aus der Ohrmuschel nach König.) A. Reich.
153 Solitary Cysts in the Kidneys. (Beiträge zur Nierenchirurgie. 2 Fälle von Nierencyste.) R. Vogel.

Zentralblatt für Gynäkologie, Leipsic

November 2, XXXVI, No. 44, pp. 1457-1488

154 Attempt to Induce Abortion in Absence of Pregnancy. (Tentamen abortis provocandi deficiente graviditate.) H. H. Schmid and A. Mueller.
155 One Hundred Obstetric Operations in the Home. (Puerperalfieber und häusliche Geburtshilfe.) M. Schwab.

November 9, No. 45, pp. 1489-1528

156 Treatment of Eclampsia. (Zur Eklampsiefrage. Die Therapie der mittleren Linie und einige Bemerkungen zur Pathologie der Eklampsie.) F. Engelmann.
157 Theoretical Basis for Stroganoff's Prophylactic Treatment of Eclampsia. W. Stroganoff.
158 Ophthalmia Neonatorum. (Hat die Blennorrhoea neonatorum abgenommen?) C. Credé-Hörder. (Zur Technik der Credé'schen Blennorrhoeprophylaxe.) G. Weidenbaum.
159 Facial Paralysis After Spontaneous Delivery. (Facialislähmungen nach spontaner Geburt.) P. Carlsson.

Gazzetta degli Ospedali e delle Cliniche, Milan

October 29, XXXIII, No. 130, pp. 1361-1368

160 High-Frequency Electric Currents Do Not Influence the Arterial Blood-Pressure. V. Maragliano.

October 31, No. 131, pp. 1369-1376

161 Fever. (La febbre dal punto di vista clinico.) V. Ascoli and G. Boeri. Commenced in No. 130.
162 Experimental Anesthetization by the Rectum. (Per la rettoetero narcosi sperimentale.) D. Giacomo.

Policlinico, Rome

November 3, XIX, No. 45, pp. 1629-1664

163 Differential Diagnosis of Tumors in Pelvis and Abdomen. T. Pontano.
164 Noma Cured by Diphtheria Antitoxin. (Caso di guarigione del noma ottenuta col siero antidifterico.) G. Trotta.
165 Whooping-Cough. (Alcune considerazioni sulla tosse convulsiva.) A. Dellepiane.

November, Medical Section No. 11, pp. 479-526

166 Diagnosis of Hour-Glass Stomach. (Diagnosi clinica e diagnosi radiologica in un caso di stomaco biloculare.) P. Masserini.
167 Respiration with Stenosis of Upper Air Passages. (Lo studio grafico del respiro nelle stenosi delle prime vie aeree.) G. Bilancioni.

Riforma Medica, Naples

October 26, XXVIII, No. 43, pp. 1177-1204

168 *Acute Hemorrhagic Pancreatitis Following Operation for Strangulated Hernia. L. Ferrannini and R. Scalia.

168. **Hemorrhagic Pancreatitis.**—In the case reported the first signs of the pancreatitis came on the third day after an operation for incarcerated left inguinal hernia in a woman of 51. Death followed in a few hours and the necropsy findings indicated that the acute hemorrhagic pancreatitis was due to an embolus formed in the vein of the loop of intestine involved, and released by the reduction of the sac of the loop. The peritoneum, intestine and surgical wound were all in good condition, confirming the assumption of a direct connection by the embolus link between the incarcerated hernia and the hemorrhagic pancreatitis.

Revista de Medicina y Cirugia, Havana

November 10, XVII, No. 21, pp. 589-628

169 The Mycoses in Cuba. (Tricofitosis, exascosis, esporotricosis, etc.) J. Sordo.

Semana Medica, Buenos Aires

October 10, XIX, No. 41, pp. 693-752

170 Acute Anterior Poliomyelitis and Pregnancy. (Poliomielitis anterior aguda del adulto y embarazo.) U. Fernandez.
171 Ileus from Invagination Simulating Appendicitis. (Caso de oclusion intestinal por invaginacion.) G. B. Arana.
172 Alcoholism in the Argentine Republic. V. Delfino.

Hospitalstidende, Copenhagen

October 30, LV, No. 44, pp. 1261-1292

173 Breast Milk in Infant Clinics. (Om Anvendelse af Ammer i Børnekliniken.) C. E. Bloch.
174 Histologic Determination of Acidosis in Inanition. A. Nielsen.

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VISCERAL ORGANISMS *

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NEW YORK

In previous articles[1] it was shown that connective tissue could be kept *in vitro* for several months in a condition of active life, and that a fragment of heart could pulsate normally for more than one hundred days after its extirpation from the animal; but the quantity of connective tissue maintained in permanent life was very small. It would be important, for the study of many problems, to keep entire organs alive outside of the organism. Therefore I attempted to develop a technic by which a system of organs could be caused to live *in vitro*.

The method consisted of removing aseptically, *en masse,* heart, lungs, liver, stomach and part of the intestines, pancreas, adrenals, kidneys and spleen of an animal, a cat generally being used, and preserving these organs in an incubator at the temperature of 38 C. (100.4 F.), while the lungs were being artificially ventilated.

The operation comprised five stages:

1. A cat was etherized. The skin of the anterior part of the neck, thorax and abdomen was sterilized. Then the esophagus was ligated and severed under aseptic technic. The trachea was cut transversely and a glass tube inserted in its lumen. A catheter was introduced into it as far as the bifurcation, according to the Meltzer and Auer method.

2. The abdomen was opened. The aorta and vena cava were tied and cut in the lower part of the abdomen. The small intestine was cut under aseptic technic. The ureters were severed. Then the aorta and vena cava were isolated from the posterior walls of the abdomen and their posterior branches tied. The peritoneum surrounding the kidney was dissected. The splanchnic nerves were cut. Then the abdominal viscera were wrapped in a Japanese silk towel, thus being completely separated from the abdominal wall. They remained united to the animal by the aorta and vena cava.

3. The thoracic cavity was opened and the mammary vessels were clamped. Then the thorax was severed longitudinally, and the diaphragm completely separated from the thoracic wall. Artificial respiration was established. The anonymous arteries were tied, and the animal died. The superior vena cava and the azygos vein were tied and cut. The vagus, sympathetic and phrenic nerves were severed. All the posterior branches of the thoracic aorta were cut. Generally the heart pulsated weakly and the blood-pressure was very low.

4. Then the thoracic and abdominal viscera, united through their blood-vessels, were removed from the cadaver of the animal, and placed in a tray containing Ringer's solution, at about 38 C. Ordinarily the heart still pulsated slowly and regularly. But the blood-pressure was very low, the arterial pulsations weak and the appearance of the organs very anemic. A careful hemostasis of the small vessels was made. After a few minutes the blood-pressure rose and, in a few cases, became almost normal. Generally a blood transfusion was made from the carotid artery of another cat to the inferior vena cava of the visceral organism. Then the lungs became pink, the blood-pressure was higher than normal and the heart was beating strongly from 120 to 150 per minute. The abdominal aorta pulsated violently, and strong pulsations could be seen in the arteries of the stomach, liver and kidneys. Peristaltic contractions of the stomach and of the intestines were observed. If, a few minutes after the transfusion, the pressure was still above normal, a quantity of blood was allowed to flow from the lower part of the abdominal aorta. Then, the appearance of the viscera was the same as the viscera of a normal animal.

5. The visceral organism was placed in a tin box filled with Ringer's solution, covered with thin Japanese silk and protected by a glass cover. The tracheal tube and the esophageal tubes were fastened to proper openings in the anterior wall of the box. Artificial respiration was carried on by a continuous current of air interrupted ten times per minute. Dr. Meltzer kindly examined the respiratory conditions in these experiments, showing me a method for obtaining a proper ventilation of the lungs. He has contributed, in a large measure, to the rapid success of these experiments. Water or food could be injected into the stomach through the esophageal tube. The intestine was pulled through a glass and rubber tube fixed through the posterior wall of the box. The end of the intestine was fixed by a circular suture to the edge of the rubber tube, an artificial anus being made. The box was then put into an incubator at a constant temperature of about 38 C.

It was then observed that the viscera were living in an apparently normal condition. The pulsations of the heart and the circulation of the organs were normal. The intestine emptied itself through the artificial anus by regular peristaltic contractions. When the intestine was empty, bile and intestinal juices were evacuated. In an experiment in which the stomach was full of meat at the time of death, normal digestion occurred. After five or six hours, hyperemia of the peritoneum of the intestine appeared. It seemed as though peritonitis developed progressively and in some cases the intestine was paralyzed. Nevertheless, the circulation remained excellent and a section of a small mesenteric artery produced an abundant hemorrhage.

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* From the Laboratories of the Rockefeller Institute for Medical Research.

[1] Carrel, Alexis: Rejuvenation of Cultures of Tissues, The Journal A. M. A., Nov. 11, 1911, p. 1611; Jour. Exper. Med., 1912, xv, 516. Pozzi, C. R.: Bull. de l'Acad. de méd., Paris, June, 1912.

Some of the visceral organisms died almost suddenly after three or four hours, but most of them were still in normal condition ten hours and even twelve and thirteen hours after the death of the animal to which the organs belonged. The death of the visceral organism was announced by some irregularities in the pulsations of the heart, which were also weaker. Then the heart stopped suddenly.

In the last experiment the death of the visceral organism occurred thirteen hours and fifteen minutes after the death of the cat from which it originated. It is probable that the duration of life will be increased by certain modifications of the technic; but, as it is, a visceral organism can profitably be used for the study of many physiologic and chemical problems.

Sixty-Sixth Street and Avenue A.

A STUDY OF THE CAUSES OF DEATH IN ONE HUNDRED PATIENTS WITH HIGH BLOOD-PRESSURE *

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In a study of the subsequent histories of some 500 persons showing a systolic blood-pressure of 170 or over, seen in my consulting practice or in that of my father during the past eight years, it was found that approximately 150 patients were known to have died. For 100 of these, accurate information as to the date of death, the exact cause of death, and the important later symptoms was obtained. The latter data I owe largely to the prompt and cordial cooperation of the family physicians of these patients in answering my somewhat numerous inquiries, and I desire here to express my appreciation of their assistance. A study of this character, of an essentially chronic group of diseases, is possible only in private practice, among patients of the intelligent classes; it is impossible with any hospital material, however large. Many of the problems regarding the causation and development of the so-called degenerative diseases of later life are to-day a fruitful field for truly scientific investigation by the general practitioner.

From the very nature of the investigation, the exact determination of the primary disease underlying the state of high arterial pressure in each case is impossible, and the clinical diagnosis must be a matter of personal opinion based on a consideration of all the symptoms and signs during life. An ideal study would include a complete autopsy of each case; but for the purposes I had in view, 100 cases of hypertension followed from the first symptom to death, with notes of my personal observations, are of more value than a like number of hospital autopsies. My personal impression, gained in part from such a hospital experience of a one-sided kind, the patients being of the lowest social class, has always been that the most frequent mode of death in chronic nephritis is by gradual cardiac insufficiency. My desire to obtain exact information on this point among the well-to-do, and further to determine, if possible, whether the initial symptom or the prominent early symptoms associated with high blood-pressure are indicative of the probable death to be expected and, therefore, to be guarded against, was my motive in undertaking the analysis. It is clear from the character of the material studied that the less chronic and more progressive types of nephritis associated with marked general edema will be inconspicuous as contrasted with their frequency in a hospital service.

CLASSIFICATION BY CLINICAL DIAGNOSES

My clinical diagnoses of the primary underlying diseases of 100 patients were as follows:

Chronic nephritis (no attempt to differentiate anatomic types)	79
Diabetes	7
General arteriosclerosis	4
Coronary sclerosis	4
Aortic regurgitation (possibly syphilitic aortitis)	2
Aortic aneurysm (probable)	1
Primary myocardial disease	1
Paroxysmal tachycardia (with secondary myocardial insufficiency)	1
Hypertension without nephritis, evident arteriosclerosis, or cardiac disease	1
Total	100

In all the cases of diabetes, chronic nephritis or some manifestation of arterial disease had supervened on a preexisting diabetes. This, of course, is common; and the figure is almost identical with my statistics of four deaths from chronic nephritis among fifty fatal cases of diabetes observed within the same period. Out of 220 diabetics, again, fifty showed high blood-pressure—another evidence of the frequent association of cardiovascular and renal disease with diabetes in elderly individuals. In the younger patients with pure diabetes, terminating so frequently in coma, high blood-pressure is not observed; diabetes, therefore, stands in no direct causal relation to the high blood-pressure, but in individuals past middle life it seems to predispose to the development of those changes which produce hypertension. Elliott has reported similar findings, which contradict the idea of Potain that diabetes is a hypertensive disease.

In the entire series, pericarditis was definitely diagnosticated once and suspected only one other time. Since pericarditis is found at autopsy in such patients distinctly more frequently than this it is highly probable that it was overlooked. Of the four cases of arteriosclerosis without proof of nephritis, in one there was a pressure of 170, and in the other three it was over 200. It is possible that these patients had contracted kidneys, for as a rule general arteriosclerosis is unassociated with increased blood-pressure. On the other hand, many of the younger individuals in this group with evidences of severe chronic nephritis showed the most extensive and extreme peripheral arteriosclerosis. Of the five patients below 40 years of age, however, only two men, respectively 32 and 36 years old, had arterial thickening; but in them it was extreme. In the non-fatal cases of the larger group of 500 are a number of patients in whom high blood-pressure and associated cardiac hypertrophy are the only objective evidences of disease. The latter are largely women. The single similar case in this series of deaths was a woman, aged 74, who had had high blood-pressure for six years, associated only with neuralgic pains and mental depression. Her pressure ranged between 190 and 200. She died of pneumonia, having developed some symptoms of failing heart during the months preceding her death.

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* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

SEX AND AGE INCIDENCE

Among 100 cases, 74 were men, 26 women. Of the women, 22 were or had been married and four were single.

The ages at death were known in 114 cases. They ranged as follows:

Below 20 years,	2 cases, about	2 per cent.
20-29 years,	0 cases, about	0 per cent.
30-39 years,	3 cases, about	3 per cent.
40-49 years,	24 cases, about	21 per cent.
50-59 years,	39 cases, about	34 per cent.
60-69 years,	32 cases, about	28 per cent.
70 and over,	14 cases, about	12 per cent.
	114	

The youngest patient in the group was 16 years old, the disease following two years after a mild scarlet fever. The oldest patient was a man of 80, in whom arteriosclerosis and retention from a hypertrophied prostate seemed to be causative factors.

ETIOLOGY

I have not attempted a study of the etiologic factors, since I propose to do this for the whole group of 500 cases. One fact of interest may, however, be mentioned here. In only one of the twenty-six women did chronic nephritis originate during pregnancy. The group includes another case of great etiologic interest—that of a physician of 44 who, while attending a confinement case in the country, was obliged to spend forty-eight hours in a freshly painted room. He developed lead colic immediately and after two weeks lead neuritis, which was progressive; and he came to me on account of this. His urine had been found normal in a life-insurance examination made just previous to his illness; albumin appeared a month after the wrist-drop, and I saw him at the end of one year. He then showed extensive muscular atrophy, hypertrophied heart with accentuated aortic second sound, a systolic blood-pressure of 180 and very slight arteriosclerosis; the specific gravity of the urine was 1.012, with a large amount of albumin and a few hyaline casts. The lead line was still visible on the gums. His red cells showed marked granular degeneration. One week after my examination he went into sudden coma and died in thirty-six hours.

CLASSIFICATION OF 100 CASES BY CAUSES OF DEATH

Of the 100 cases, the immediate causes of death were as follows:

Gradual cardiac insufficiency	29
Uremic convulsions or sudden coma	15
Chronic uremia	20
Uremic psychosis	1
Cerebral apoplexy	14
Acute edema of the lungs	4
Angina pectoris	3
Sudden death (unclassified)	4
Progressive anemia	2
Acute pneumonia	4
Unrelated diseases	4
	100

In the above classification I have attempted to determine what was the most important cause of the fatal issue. Very frequently, cardiac insufficiency was followed by acute or chronic uremia, or was accompanied by anemia in a few cases; but in all such instances the death was recorded as due to cardiac insufficiency. Similarly, when uremic convulsions supervened on a chronic uremic state, the death was credited to the latter. When, however, cardiac failure developed during a terminal uremic state, death was held to be by chronic uremia. It is quite possible that the fifteen cases of more acute uremic manifestations include a number in which autopsy would have shown apoplexy as the real cause. Under acute edema of the lungs I have classed only cases of those patients who died of sudden suffocative pulmonary edema, without marked symptoms of preceding heart weakness. In addition to the three patients who died of anginal attacks, a fourth was characterized throughout by equally severe attacks which persisted until the day of death, but the fatal issue was brought about by gradual heart failure with anasarca and dropsical effusions. Four patients developed severe anemia; of these, one died of uremic convulsions and one of gradual heart failure.

Of the other two in whom death was due to anemia and exhaustion, one was a girl of 19 who had had acute nephritis during diphtheria at 9. The original attack was characterized by profuse hematuria. There were frequent recurrences of hematuria, with fever, scanty urine, headaches, gastro-intestinal disturbances, edema of nephritic type, and, after menstruation was established, increasingly severe uterine hemorrhages. When seen four months before death she showed a double aortic murmur, with a greatly hypertrophied heart; a blood-pressure of 200 systolic, 125 diastolic; low-gravity urine with a large amount of albumin, and loaded with granular and hyaline casts. The eye-grounds showed old hemorrhages. In this case a hemorrhagic tendency seemed to be manifest throughout. There was no history of a "bleeder" family, so that the tendency must have been associated with the nephritis and endocarditis. There was no evidence of bacterial endocarditis, but no blood-cultures were made.

The other patient dying of anemia is a striking example of a type which I think is frequently overlooked, though unquestionably rare. She was a widow, aged 55, with a strong family history of cardiovascular disease. Six and one-half years before her death she had had a supposed "nervous prostration;" one year later she had an attack of dizziness and aphasia lasting one hour. From then until one year before death her blood-pressure ranged between 210 and 230 systolic, with a moderately hypertrophied heart, an aortic systolic murmur and moderate arteriosclerosis. The urine was always normal in quantity and specific gravity, with an occasional trace of albumin and a few casts until the last two years, when the specific gravity fell. The only symptoms were lassitude and slight dyspnea on exertion. Eight months before death she developed nausea and anorexia, which became extreme, with attacks of sore mouth and of diarrhea after eating. She showed complete achylia and an increasing secondary anemia. She gradually became emaciated, becoming more and more sallow and weak, and her blood-pressure fell to about 170, where it remained until death. She died of anemia and inanition. At no time was the blood morphology that of pernicious anemia, and there was no evidence at all of carcinoma. This type of death, by progressive anemia, occurs from time to time, and at autopsy only unsuspected contracted kidneys are found to account for it.

The uremic psychosis occurred in a man of 60, with a history of recurring gout for many years and evident chronic nephritis with a blood-pressure of 200, hypertrophied heart and moderate arteriosclerosis. He had no symptoms until five months before death, when he began to show loss of control and memory; one month before death, following a fresh attack of gout, he developed active delirium with delusions, constant incoherent talk, and complete disorientation, without much restlessness and no twitching or other usual uremic symptoms. He died in this state. Whether the condition was one of rapid organic dementia or of uremic insanity it is difficult to determine.

RELATION OF LENGTH OF ILLNESS, INITIAL SYMPTOM AND PROMINENT EARLY SYMPTOMS TO CAUSES OF DEATH

A computation of the duration from the earliest recorded symptoms which could be associated with high blood-pressure or chronic nephritis to death, in all those cases in which it was possible, showed no striking differences between the various groups (Table 1).

TABLE 1.—DURATION OF ILLNESS IN RELATION TO CAUSES OF DEATH

Causes of Death	Cases	Duration. Average, Yrs.	Mos.	Longest, Yrs.	Shortest, Yrs.	Mos.
Cardiac insufficiency	26	3	10	10	.	4
Acute uremia	14	3	..	8	.	5
Chronic uremia	21	3	1	7	.	4
Cerebral apoplexy.......	14	4	6	11	.	11
Angina pectoris	3	4	3	6	3	6
Acute edema of lungs...	4	3	..	4	1	8

A careful classification of the cases grouped under each cause of death with reference to the initial symptoms did not show much of importance, as the initial symptom in many cases was not readily related to the time of development of the high blood-pressure or of the evidences of nephritis. A somewhat larger proportion of the patients who died of cardiac insufficiency (twelve out of twenty-nine) began with dyspnea on exertion, as contrasted with the other groups. Two of the patients who died of acute uremia, five of those of chronic uremia, and two of those of apoplexy began with headaches; whereas only one of the much larger group of cardiac insufficiency did so. Paroxysmal dyspnea was the initial symptom in five patients dying of cardiac insufficiency and in one that died of edema of the lungs, but in no others. Polyuria as an initial symptom was noted by three of the patients dying of chronic uremia, two dying of apoplexy, and one dying of heart failure. Neuralgic pains and neurasthenic symptoms, physical or mental, came first in a few cases. Loss of flesh, nose-bleed, hemoptysis, and gastro-intestinal disturbances occurred in a still smaller number.

The entire 100 cases have been tabulated under the prominent early symptoms, and simultaneously subdivided into the groups already given under causes of death (Table 2).

TABLE 2.—THE RELATION OF PROMINENT EARLY SYMPTOMS WITH HIGH BLOOD-PRESSURE TO CAUSES OF DEATH

Symptoms: Dyspnea on Exertion	Paroxysmal Dyspnea	Edema of Lungs	Anginoid Pain	Edema of Legs	Polyuria.	Headache	Visual Disturbances	Hemiplegic Attacks	Loss of Flesh	Neurasthenic Symptoms	Causes of Death	No. of Deaths
24	13	1	5	7	8	1	1	2	2	1	Gradual cardiac insufficiency...........	29
7	2	0	1	0	7	2	1	2	3	3	Uremic convulsions or sudden coma.....	15
5	1	2	3	0	11	8	5	4	5	1	Gradual uremia	20
6	2	0	2	2	2	2	1	4	0	4	Cerebral apoplexy or its results.........	14
1	1	0	2	0	0	0	0	0	0	0	Angina pectoris	3
2	2	1	1	1	1	0	0	0	1	1	Edema of the lungs....................	4
3	3	0	1	1	3	2	0	1	3	6	Other causes	15
48	24	4	15	11	32	15	8	13	14	16		100

Several facts of real significance for prognosis appear from a study of these symptoms which, as I have indicated by the double line in the table, seem to fall roughly into two classes, the first rather definitely cardiac symptoms and the second symptoms which must be interpreted either as toxic or as due to localized vascular disease in the brain. Out of forty-eight patients showing dyspnea on exertion as a prominent early symptom, twenty-four died of cardiac insufficiency; or, from the other standpoint, of twenty-nine patients dying of cardiac insufficiency, twenty-four complained of definite dyspnea on exertion early in their disease. This proportion is higher than that found in any other group. The same relation holds good for paroxysmal dyspnea; thirteen of the twenty-four patients exhibiting this symptom also died a cardiac death. In this group one also sees that two of the four patients who died of edema of the lungs had attacks of sudden dyspnea, and one other had attacks of recurring edema of the lungs. Fifteen patients had early anginoid pain on exertion; only two of these died of angina. Of eleven patients showing edema of the legs in the early stages of illness, seven died of insufficient hearts, none of uremia.

On the other hand, out of thirty-two patients who noted polyuria or nocturnal frequency of urination at the beginning of their illness, eleven died of chronic and seven of acute uremia, while only eight died of insufficient hearts, though this was a much more frequent cause of death for the whole group. The relationship of certain forms of headache and subsequent uremia is equally striking. Eight out of fifteen patients complaining of headache died of chronic uremia, two of acute uremia, two of apoplexy and only one of heart failure. The distinctive early-morning headache of nephritis, passing off toward noon, or intense and persistent headache, seemed to be the types associated with the most serious outlook. Many of these patients suffered from past migraine, which was not considered in making these tabulations. Migraine, of course, has no such prognostic significance. The majority of these patients recognized the change in the character of their headaches.

Early ocular symptoms also appeared preponderantly in those patients who died of chronic uremia (five out of eight in all). Early hemiplegic attacks occurred thirteen times, four times in patients who afterwards succumbed to apoplexy. Of the others, four died of chronic and two of acute uremia, two of insufficient hearts, and one of anemia. An early uremic convulsion was noted once in the cardiac group and once in each uremic group. Marked loss of flesh occurred fourteen times, and five of these patients died of chronic uremia.

So far, then, as conclusions may be justified from a study of a group of one hundred cases so selected, the following seem reasonable:

1. The early occurrence of dyspnea, whether on effort or of the paroxysmal type, in a patient with high blood-pressure indicates marked danger of cardiac insufficiency. In such patients the disease must be treated as a cardiac disease, especially by safeguarding methods.

2. Anginoid pain, even when of marked severity, occurring on exertion in persons with high blood-pressure, does not make the prognosis worse than do other cardiac symptoms. Of course, every precaution must be taken to prevent overexertion. The majority of these patients will not die in an anginal paroxysm.

3. Complaint of polyuria, nocturnal frequency, marked headache, or of visual disturbances by a patient with high blood-pressure, especially if that patient be below 50 years of age, should make the prognosis very guarded, for uremia is a frequent mode of termination in such cases.

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ABSTRACT OF DISCUSSION

Dr. L. F. Barker, Baltimore: I should like to emphasize, and just as strongly as has Dr. Janeway, the relation of many of these cases with high arterial pressure to disease of the arteries themselves. If you will recall the statistics given you will note that 75 per cent. of the patients had chronic renal disease, 7 per cent. had diabetes, 4 per cent. had an evident arteriosclerosis and 4 per cent. had coronary sclerosis. It seems to me probable that many of the renal cases were really atherosclerotic in origin. It is uncommon in these cases to find a high grade of arteriosclerosis of the palpable peripheral blood-vessels. Recent pathologic studies have revealed changes in the small arteries which supply the internal organs, especially the kidneys, brain and heart. These cases we usually refer to as instances of chronic nephritis with high blood-pressure. In all probability most are due to arteriolar disease, not to disease of the larger arteries. Indeed, one might be entirely misled by feeling the larger arteries. Some of the cases were doubtless instances of chronic (diffuse) glomerulonephritis, as was the one referred to by Dr. Janeway which followed scarlet fever.

Streptococcus toxins can cause an acute inflammation of the glomeruli, which may go on to a chronic diffuse glomerulonephritis. In the cases of hypertension that terminate fatally, myocardial insufficiency, with or without uremia, is a common end-phenomenon. Many of us fail in the treatment of these cases of chronic renal disease, cases with high blood-pressure, because of our failure to direct the treatment more toward strengthening the heart muscle. There should be enjoined rest in bed, a limited diet, cardiac tonics and digitalis (even with high blood-pressure) as soon as signs of myocardial insufficiency set in.

What I have just said leads me to sound a note of warning against the indiscriminate use of vasodilators in these conditions, and especially against the excessive use of nitroglycerin, the nitrites and allied drugs. I think that more harm than good comes from the use of vasodilators in the cases we are now discussing. Over and over again I have seen, as the result of reducing the blood-pressure, a sudden collapse, the patient exhibiting anuria, dyspnea and signs of uremia. Some of the patients can be saved, or could have been saved, by stiff doses of digitalis or strophanthus. These patients must have a high blood-pressure in order to give the organs a proper blood-supply. The patient is exposed to two great dangers: that of too low blood-pressure on the one hand and too high blood-pressure on the other. In rare instances with a very high blood-pressure, one may cautiously attempt to reduce this pressure because of the danger of cerebral apoplexy; even here, as a rule, more is accomplished by rest, purgation and diet than by vasodilators.

Dr. Louis Faugeres Bishop, New York: I believe that the treatment of arteriosclerosis and the proper understanding of it, and the advances in its treatment in our endeavors to help these patients, must be founded on pathologic physiology and chemistry and not on pathologic anatomy alone. I believe that there are many cases due to chemical damage produced by amino-acid poisons in particular, an auto-intoxication. Dr. Janeway has dwelt on the terminal cases. What can we do for extreme cases? I do not do any work now in medicine except deal with patients with heart disease and arteriosclerosis. I am sure that in at least three cases I have saved lives and restored the patients to a fair degree of safety by abstracting about 1 quart of blood by phlebotomy, followed by a regimen. There is too much blood in the arteries and veins; an auto-intoxication exists and apoplexy threatens; something must be done quickly in order that life may be saved. In fact, these patients are often so well satisfied that they return and ask to have the operation repeated. These are the very high blood-pressure cases.

I differ from most authorities regarding exercise in the treatment of these cases. I am a firm believer in exercise. The condition of the heart muscle, as Dr. Barker has just said, is the key to the situation and the question arises, especially in cases of advanced arteriosclerosis, how we can improve the condition of the heart muscle and get it in good shape. I do not believe that we can improve the heart muscle by rest in bed. Mackenzie and others tell us that the heart muscle fails in several ways. If there is a failure in contractility, then the muscle should be given a rest; if there is a failure in its tonicity and general toxic condition, improvement follows on properly regulated exercise. As a result of my experience with cardiac cases I believe that exercise is best for almost every heart case! I think that more patients die because of being kept in bed and quiet than from injudicious exercise. The regulation of exercise is an art that is acquired by experience.

It has been my practice for a number of years in attempting to get rid of the intoxication to give castor oil, a proteid diet and outdoor exercise. The patients to whom I am referring are those that I have seen in private practice and not in my hospital work. I always divide the cases into certain stages. The first stage is the diet and castor oil stage. As time goes on another stage is reached which I call the digitalis stage. This is the stage of failing blood-pressure, in which there is a tendency to a secondary low blood-pressure and which means that the blood-pressure which measures high is relatively low; 200 may be the proper blood-pressure for some individuals who have carried 220 or even 250; but less than that is for them low pressure.

Dr. Edward E. Cornwall, Brooklyn, N. Y.: High blood-pressure as a symptom does not ordinarily call for direct treatment, for it is mostly a conservative procedure. The regular treatment of this symptom should consist, as far as possible, in the removal of the cause, and only exceptionally should symptomatic treatment by vasodilators be given. The exceptional cases are those in which accidents to the cardiovascular apparatus are urgently threatened by the high blood-pressure, and cases of coronary sclerosis with symptoms; the latter especially are benefited by nitroglycerin in sufficient doses. In the great mass of cases of arteriosclerosis, toxemia and nephritis, arteriodilators do harm. In these cases we have one means of reducing the blood-pressure which is rational and often exceedingly effective; it is the removal, as far as possible or advisable, by an antiputrefactive diet, of the factor of putrefaction toxemia of intestinal origin which is prominently present in nearly every case with high blood-pressure. This is the primary, even essential, treatment of cases of cardiovascular disease with high blood-pressure, and it is often rewarded by remarkable improvement in the symptoms. That intestinal putrefaction produces substances directly capable of raising the blood-pressure has recently received apparent proof from experiments by Dale, who found that a rise of blood-pressure from 110 mm. to 260 mm. followed intravenous injection of a substance isolated by Beyer from putrid meat which has a chemical composition somewhat similar to that of epinephrin.

Dr. M. Howard Fussell, Philadelphia: I protest against the remarks of Dr. Bishop. He says that cases of heart failure due to high blood-pressure call for exercise and not for rest and I fear some of us will infer that he means that a patient with a failing heart from a high blood-pressure should be placed at once on graduated exercise. I have no doubt that we who treat so many of these cases are united in our opinion with regard to the care of these patients. I do not doubt that Dr. Bishop and I would treat any given case exactly alike. I feel that the best thing to do first is to place these patients at rest; as a result of such rest there results promptly a fall in the blood-pressure. After a time there is instituted, and very necessarily, a graded exercise.

Dr. Nathaniel Bowditch Potter, New York: Some years ago I found that patients with high blood-pressure got better or worse according to what they were told of the figures, and I learned that too frequent blood-pressure estimation, especially in private practice, depressed the patients, just as frequent urine examinations and the knowledge of the increase of albumin and casts.

Dr. Theodore C. Janeway, New York: It seems to me quite probable, as Dr. Barker has stated, that the underlying condition in many of these patients is disease of the small arteries. Are there any others? I do not know. The effect of treatment seems to make it clear that this entire group will be resolved into parts. Two groups at least seem distinct, that consisting of patients who die with failing heart, and that consisting of patients who die of uremic manifestations. Then again there is the patient with an intermittent high blood-pressure. In some cases there is a return to the normal blood-pressure and this may remain for years. In these patients, anatomic lesions of the small arteries are unlikely.

I should like to corroborate what Dr. Barker and Dr. Cornwall have said regarding limitations to the use of nitroglycerin and its applicability only in those cases in which sudden dangerous accidents occur. In cases in which the coronary artery is threatened with complete obstruction, the good results may be from its local effects, opening up the paths that have been narrowed, not from its lowering the general blood-pressure. One must not consider apoplexy in these patients due to rupture of a vessel by the high pressure. From our autopsy experience we know that many who die of apoplexy, of hemiplegias, have thrombotic softening and not hemorrhage. I am in accord with Dr. Fussell as to Dr. Bishop's remarks. It should be remembered that there are many cases of severe myocardial insufficiency which require absolute rest. When later we begin to order for those patients gradual exercise, it requires good judgment. The use of the high-frequency current has usually seemed to me a method of "bleeding" the patient in the metaphorical sense. I have seen patients just after treatment, whose pressures were said to be greatly reduced, and my reading has been about what it was before. There are probably occasional patients who are really benefited, and others in whom it acts as a psychotherapeutic measure. If one lowers the blood-pressure a considerable amount, as Dr. Barker has said, the patient may develop anuria, failure of the capillary circulation through important organs, and become seriously ill. Not lowering the blood-pressure, but safeguarding the circulation, is the aim of treatment.

Importance of a Rectal Examination.—Before you make a diagnosis in any form of rectal trouble, it is absolutely essential that you should make a thorough examination of the part. I note that very often through so-called motives of delicacy—though what that means I confess I do not know—doctors tell us that patients refuse examination, and that therefore the doctor has had to treat the case under very disadvantageous circumstances. But if you will take my advice you will not treat any rectal disease unless you are permitted to make a thorough and complete examination.—Harrison Cripps in *Clin. Jour.*

DUODENAL MEDICATION OF IPECAC IN THE TREATMENT OF AMEBIC DYSENTERY *

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In East India and other oriental countries, ipecac has been regarded for a century or more as the great remedy for dysentery. In Europe and America, treatment by ipecac had fallen into disuse until quite recent times, on account, first, of its emetic action, second, of the deterioration and adulteration of the drug, and third, of improper methods of administration. The revival within the past decade of the use of this drug as a remedy for dysentery was largely due to Patrick Manson, whose extensive experience in the tropics thoroughly convinced him that it was an efficient remedy.

Besides Manson, a number of other authorities attest the value of ipecac. Notably among these are Woodhull, Major Rhoades, Simon, Dock, Freund, Barker and others. Woodhull[1] refers to it as the one remedy which, if properly used, is as conspicuous in dysentery as quinin is in the malarial fevers, and urges medical officers to use large doses of it in all types of amebic dysentery. He further adds that he has not known the treatment to fail. Major Rhoades, U. S. Army, regards ipecacuanha and quinin as the sovereign remedies, the former by the mouth, the later by the rectum, and maintains that, if properly administered, the drug will give brilliant results in the majority of cases. If properly administered, it is considered by S. K. Simon almost a specific for amebic dysentery. He asserts that the amebas vanish almost at once.

It may be interesting to note that our present attitude toward the ipecac treatment of dysentery is very much the same as it was 150 years ago. The following quotation from the United States Dispensatory, 1854, will serve to illustrate.

> John Helvetius, grandfather of the celebrated author of that name, having been associated with a merchant who had imported a large quantity of ipecacuanha, employed it as a secret remedy, and with so much success in dysentery and other bowel affections that general attention was attracted to it, and the fortunate physician received from Louis XIV a large sum of money and public honors, on the sole condition that he should make the remedy public.

Sixty-five years ago the statement was made, in Watson's "Practice of Physic," that "subsequent to bleeding, the remedy from which the greatest benefit is derived is ipecacuanha." It has been repeatedly alleged that ipecac in small doses is a good prophylactic against liver abscess. Indeed Calvert, professor of materia medica in the Calcutta Medical School, goes so far as to state that he believes ipecacuanha will cure hepatitis following dysentery, provided there is no suppuration. In this connection it is interesting to note a statement made by Pilgrim,[2] superintendent of the Calcutta General Hospital.

> In the past four years over 200 cases of dysentery have been treated and eighty-two cases of hepatitis. During the past three years since ipecac has been systematically employed not a single case of dysentery has been complicated by hepatitis, while every case of hepatitis has recovered without suppurating. The average number of operations for liver abscess has fallen from ten or twelve to three or four in the year.

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* Read in the Symposium on Antiseptics and Germicides in the Sections on Pharmacology and Therapeutics and Preventive Medicine and Public Health of the American Medical Association at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] Woodhull: Therap. Gaz., April 5, 1902.

[2] Pilgrim: Brit. Med. Jour., 1910, ii, 2039.

There is a diversity of opinion as to the proper method of administration, and yet, according to the experience of all who have employed ipecac, the proper method is insisted on. Buchanan's[3] experience in Bengal has been very favorable in those cases in which he employed large doses. Small doses, from 3 to 5 grains in pills, are utterly useless. His directions are as follows:[4]

> Castor oil should be given the night before, and, after the bowels have moved in the early morning, tincture of opium, followed in fifteen or twenty minutes by ipecacuanha in a dose of 25 or 30 grains. The patient should lie undisturbed for four or five hours. If vomiting occurs or if the stool has not much changed for the better within twenty-four hours, ipecacuanha is to be repeated in half an hour.

Woodhull employs a somewhat similar method, but uses counter-irritants over the epigastrium, such as iodin or mustard. He says:

> The stomach must be empty and the patient recumbent. About twenty minutes before giving the ipecac, it would be well to paint the epigastrium with tincture of iodin, or apply a mild sinapism, though this may be omitted. Ten or fifteen minims of tincture of opium may be given to be followed in ten or twelve minutes by 15 to 30 grains of ipecac. Nothing should be given by the stomach for at least four hours and the recumbent posture should be strictly maintained. If the first dose is rejected, it should be repeated after a short interval. Ipecac controls capillary hemorrhage and before confirmed inflammation sets in, capillary leakage is the feature of dysentery; hence its favorable effects in this disease.

Major Rhoades' method of treatment is as follows:[5]

> The patient, having received his preliminary purge and all food and water having been proscribed for six hours, is given a hypodermic injection of morphin sulphate, ¼ grain (0.016 gm.) to prevent vomiting. At the same time an ice-bag filled with finely cracked ice and protected with two thicknesses of gauze is placed over the pit of the stomach and another over the anterior surface of the neck. The patient is directed to lie flat on his back, a third ice-bag being substituted for a pillow and placed under the nape of the neck. The patient is cautioned not to speak or move for four hours. One-half hour after the morphin injection, the ipecacuanha is administered in eight to twelve pills of 5 grains each. The patient is encouraged to resist by mental effort the desire to vomit and to try to sleep. When the saliva begins to flow freely, he should be cautioned not to swallow it. Unless this is done, vomiting will almost certainly occur. If vomiting does occur within an hour after administering the dose, it should be repeated when the stomach has become quieted. After six hours a small glassful of iced ginger ale or a cup of tea is given, followed by frequent feedings of beef-tea and albumin-water late into the night. The following morning, the dose of ipecacuanha is repeated and again on succeeding days until copious, pultaceous, brownish-yellow stools appear and rapid amelioration of acute symptoms gives evidence that healing had set in. This being the case, the dosage of the ipecacuanha is reduced to a 5-grain pill or capsule three times daily, and continued for about a week longer; the diet is increased, and at the same time lavage of the colon is begun.

Patrick Manson[6] has still another means of administration:

> The patient must abstain from food and drink for at least three hours. Twenty drops of laudanum are then given, and a mustard poultice applied to the epigastrium. About twenty minutes later, 20 to 30 grains of powdered ipecacuanha root, either in bolus or in a small quantity of water, are administered. The patient must then lie flat on his back without a pillow, and endeavor to avoid vomiting; he may neither eat, drink, speak nor move for three or four hours. If vomiting occurs soon after the powder is given, in an hour or two a second dose may be administered. After three or four hours, small quantities of food may be given during the succeeding six or eight hours, when the drug is to be repeated. Guided by its effects, the use of ipecacuanha is kept up for two or three days. A great drawback to this treatment is the severe vomiting which sometimes ensues; but, notwithstanding this drawback, there can be no question of its value in some cases, although in others it appears to do little or no good. If the ipecacuanha produces a large loose, bright yellow stool, improvement is nearly sure to follow.

The action of ipecac on the ameba has not been definitely determined. Vedder, U. S. Army, made some bacteriologic experiments[7] and showed that the *Bacillus dysenteriæ* was inhibited by a 2 per cent. fluid extract of ipecac. While the amebas in a 5 per cent. bouillon culture were at all times killed by a fluid extract of ipecac in a dilution of 1/50,000, sometimes they were killed by a higher dilution of 1/200,000. Two varieties of amebas were used, but not *Entamœba coli* or *Entamœba dysenteriæ*. He insists that ipecac containing the proper amount of emetin should be used and condemns its use in cases of the bacillary form of dysentery. Dr. H. A. Freund made some experiments with ipecac on the live amebas from the stools in the warm stage. He concluded that it had a direct destructive action on the amebas and besides this effect it acts apparently as a cholagogue and sometimes as a purgative. Under the treatment, the ameboid motion of the parasites ceases in a few hours and disappears completely in two or three days.

From this cursory review of the literature one is forcibly impressed with the fact that ipecac has a definite action on the amebas, and, if properly administered, is undoubtedly the best remedy at our command. What is generally conceded, however, to be the proper method of administration proves such a formidable procedure that the treatment is wholly impracticable.

In an attempt to overcome the many objectionable features of the methods in vogue, a simple, rational and more practical method has suggested itself to me, in the use of the Einhorn duodenal tube. This tube was designed for duodenal aspiration and alimentation and it will be found an ideal instrument for the treatment of dysentery with ipecac. For a complete description of the duodenal tube and the method of its introduction, the reader is referred to the original article by Max Einhorn.[8] As a rule patients have little difficulty in swallowing the tube and comparatively little discomfort afterward. An examination of the stomach contents, to determine the presence of free hydrochloric acid, will help determine whether the tube has passed through the pylorus, which is done by aspirating a little of the fluid and testing with congo paper. After each aspiration the tube is washed out with a little water and clamped. When it has entered the duodenum, the aspiration is slower and more difficult and the fluid is alkaline and bile-stained. Einhorn also recommends a milk test. The patient is given a few swallows of milk and the stomach is then aspirated. If milk is absent, the capsule is in the duodenum. The time required for the capsule to pass into the duodenum varies from one to five or more hours.

Ipecac is especially indicated in acute cases and in the exacerbations of the chronic forms. It is said by some clinicians to have practically no effect in cases in which the symptoms are due to a mixed infection.

In spite of the fact that all my cases were extremely chronic and refractory, three of them being complicated with liver abscesses, the results were fairly striking, but the cases are reported more for the purpose of emphasizing the method than the results of treatment. Powdered ipecac was employed either suspended in mucilage of acacia or macerated in plain warm water. A 2-ounce metallic syringe was used to instil the remedy which represented from 1 to 2 drams of ipecac to the dose in a 6-ounce mixture. Unquestionably much of the success of treatment depended on the quality of the drug. Those cases which required more than three or four doses and in which the amebas reappeared in the stools were treated by a drug of an inferior quality. On the other hand, the cases treated with a physiologically tested powder yielded after the first or second dose.

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[3] Buchanan: Practitioner, December, 1897.
[4] Sajous' Annual, iii, 45.
[5] Modern Treatment, p. 149.
[6] Manson: In Gibson's Practice of Medicine, 1901.
[7] Vedder: Bull. Manila Med. Soc., March, 1911.
[8] Einhorn, Max: Med. Rec., Jan. 15, 1910.

CASE REPORTS

Case 1.—*Patient.*—J. S., male, aged 64, janitor, ten years ago suffered from a liver abscess attributed to a wagon running over his abdomen. He recovered from the operation, but never enjoyed good health. Before the accident he suffered from mild attacks of dysentery and a few years after had an acute attack with bloody mucus in the stools and much tenesmus lasting several months. No history could be obtained of the discovery of amebas in the stools or liver abscess.

Examination.—The patient showed marked pallor and emaciation and suffered from a moderately advanced pulmonary tuberculosis. The abdomen was somewhat distended and coursed with large superficial veins. There was an area of considerable resistance over the upper right rectus and tenderness along the border of the eighth and ninth ribs on the right side. Owing to this tenderness, the liver could not be palpated. He had a leukocytosis of 21,000. For several months he had a number of dysenteric stools each day which contained pus, blood and mucus. A large number of active *Amœbæ coli* and yeast-cells were found on examination of the stools.

Treatment and Course.—Patient was admitted to the Mercy Hospital, Dec. 12, 1910, was ordered a semisolid diet and salines followed by the administration of ipecac. After the introduction of the tube the first dose (1½ drams) suspended in mucilage of acacia was administered. No other discomfort than slight nausea ensued. Examination the next day showed amebas in the stool, but these disappeared after an ipecac enema (℥iv—Oi). Several days later the ipecac enema was repeated with the results negative for amebas. Two weeks later ½ dram of ipecac was administered duodenally followed by vomiting without expelling ipecac. The following day a dram was administered, the results remaining negative for amebas. The stools were examined at intervals of one or two weeks after the patient left the hospital and no amebas were found for six months, when a few, slightly motile, appeared in the stools which averaged from two or three semisolid ones a day. A month later, when amebas were again found, 1½ drams of ipecac was administered duodenally in my office. No vomiting occurred. The next day the patient had six or eight diarrheic stools; since then the stools have been better formed; there has been less abdominal tenderness and no amebas. The patient was readmitted into the hospital in December, 1911, with alcoholic pneumonia, from which he died. Previous to this illness, the stools were formed and free from amebas. The pneumonia was associated with severe diarrhea, but careful examination of the stools failed to find amebas.

Case 2.—*Patient.*—G. S. F., male, aged 32, soldier (referred by Dr. F. J. Snyder, York, Pa.), was admitted to Mercy Hospital, March 28, 1911. He contracted amebic dysentery while serving as a soldier in the Philippine Islands. The disease began as a simple diarrhea, the number of stools varying from six to twelve daily. After three months, the stools were mixed with blood and pus and associated with great tenesmus. At this time he was treated with ipecac and quinin according to the method of Major Rhoades. In spite of the ice-bag applied to the back of the head and the spine, the mustard plaster to the epigastrium, the opiate internally and enforced quietude for hours before and after the administration of ipecac, the patient vomited after each dose. Some improvement was noted after the treatment, but the symptoms soon returned. From this time until 1907 he had been able to do light work, but since then became totally incapacitated.

Examination.—On admission to the hospital he presented an emaciated and anemic appearance with dull expression and sunken eyes. The cervical and inguinal glands were slightly enlarged. The abdomen was somewhat flattened and retracted, the recti muscles were tense and rigid and there was a marked tenderness over the whole abdomen. There was no apparent enlargement of the liver or spleen. The patient had a leukocytosis of 12,500. The stools averaged eight to ten daily, watery or semisolid in character, and contained mucus, pus and blood. Active amebas were found in large numbers, as many as ten and twelve to the field.

Treatment and Course.—Patient was put to bed and on liquid diet. Several high saline enemas were given. Stomach contents showed free hydrochloric acid. March 31, the duodenal tube was introduced at noon; a glass of milk and slice of bread were given at the same time.

At 4:30 p. m. aspirated fluid was alkaline and bile-tinged; then 1½ drams of ipecac in water were administered. Slight nausea followed but no vomiting. At 6:30 p. m. a second dose of 1½ drams was given which caused some nausea and vomiting of mucus but no ipecac.

Two days later the stools were well formed, passed without tenesmus and were free from blood and amebas. A high enema consisting of ½ ounce of powdered ipecac with 10 minims of laudanum in a pint of water was given and retained for fifteen minutes. This was repeated the next day. On April 4, the fifth day of treatment, 1½ drams of ipecac were administered duodenally and retained. This was followed next day by another ipecac enema, which completed the treatment.

The amebas disappeared from the stools after the first duodenal medication and colonic irrigation with ipecac. The patient was in the hospital ten days. A period of fourteen months has elapsed without treatment during which he has averaged one well-formed stool each day, has gained in weight and strength and worked steadily. Repeated examinations of stools have been negative for amebas.

Case 3.—*Patient.*—W. K., male, aged 35, soldier (treated through courtesy of Dr. Craighill), was admitted to the University Hospital April 25, 1911. Patient had contracted amebic dysentery in 1907, while serving in the Philippines. Symptoms were very acute from the beginning, averaging from thirty to forty stools a day, each containing blood and mucus. He lost about 50 pounds during the first month of illness. For the first two years following the attack he averaged from fifteen to twenty stools a day and more recently from seven to eight. Early in the attack, yellowish-brown pigmentation of the skin developed. There was no nausea or vomiting but much pain and soreness in the abdomen. Shortly before admission to the hospital he developed a cough and night-sweats.

Examination.—The patient was extremely septic. He was emaciated, cachectic and slightly jaundiced, with puffiness under the eyes. The liver was enlarged and painful on pressure but there was no fluctuation. The stools were thin, watery, yellow in color and contained mucus, blood and *Amœbæ coli.* Numerous leukocyte-counts showed a fluctuating leukocytosis from 8,000 to 11,200. The hemoglobin was 40 per cent. Gastric analysis revealed the presence of hydrochloric acid with a total acidity of 26.

Treatment and Course.—April 30, 1911, at 8:30 a. m., the patient swallowed the duodenal tube without difficulty. At 11:30 a. m. a dram of ipecac was administered. The tube was left *in situ*, but the patient vomited some mucus containing a little ipecac about half an hour later, which caused the tube to be partly expelled. One-fourth grain of morphin was given hypodermically and at 4:30 p. m. a second dram of ipecac was given. This was also followed by vomiting of mucus and a little ipecac. A slight depression followed as an effect of the drug. The following day an enema containing 2 drams of ipecac with 20 minims of laudanum in a pint of water was given. This was repeated the next day, and the following day at 3:30 p. m. a dram of ipecac was administered duodenally followed in a few hours by another dram, which caused nausea and vomiting. Another ipecac enema was given the next day when, owing to the condition of the patient, it was considered inadvisable to continue treatment.

CASE 4.—*Patient.*—G. L., male, aged 62, soldier, contracted dysentery while serving in the army at Fortress Monroe, in 1888. The disease persisted with great severity until 1893, after which the symptoms abated and the disease ran a milder course until 1901. During this year two liver abscesses developed, both of which were relieved by operation. The following year an acute exacerbation occurred which was temporarily relieved by quinin irrigation. Since then he had suffered more or less continuously until his admission to the hospital Sept. 6, 1911.

Examination.—The patient was sallow, cachectic and much emaciated. He had marked abdominal tenderness but no enlargement of the liver. He averaged twelve loose movements a day. The stools were either liquid or semisolid, composed largely of pus, blood and mucus with numerous motile *Amœbæ coli.*

Treatment and Course.—Two days after his admission, 2 drams of ipecac were administered through the duodenal tube in doses of 1 dram each, one hour apart. No noticeable effects resulted from the first dose but after the second the patient complained of nausea which was followed in an hour by a chill and vomiting of mucus. Two days later and after the third dose of ipecac the stools were examined, but no amebas were found. The third and fourth doses were followed by some discomfort and, in one instance, a small quantity of clear fluid was vomited but no ipecac. After the fourth administration a saline and an ipecac enema was given. The stools remained watery but free from amebas and gradually decreased in number. After the sixth administration of ipecac the treatment was discontinued. The dysenteric symptoms persisted for several weeks without the appearance of amebas in the stools. The stools then became well formed and have averaged one per day up to the time of his last report, eight months after treatment. During this time no amebas have appeared in the stools and his health, twenty-four years after contracting the disease, has been restored.

CASE 5.—*Patient.*—F. C. H., female, aged 34, (referred by Dr. Buxton) had good health until 1906, when dysentery set in, which persisted for five years. During this time she averaged from ten to twelve dysenteric stools daily, usually accompanied with tenesmus. Then followed a period of eight months during which she enjoyed fairly good health and averaged one well-formed stool per day. Four months before admission to Mercy Hospital the dysentery returned, averaging four to five stools daily, each containing blood and mucus and associated with abdominal pain and tenesmus.

Examination.—With the onset of this attack an abscess of the liver developed which ruptured into the lungs. Since then the patient had had profuse "anchovy sauce" expectoration, averaging from half to one pint a day. Repeated examinations failed to show the presence of amebas. Tenderness was quite marked over the sigmoid. On admission the temperature was 101. Blood showed an absolute leukocyte-count of 17,900. Stools were thin and watery containing blood-streaked mucus, many actively motile amebas and large numbers of *Cercomonas intestinalis.*

Treatment and Course.—On December 4, 1 dram of ipecac was administered without causing nausea, vomiting or other discomfort. Three stools were voided the following day unattended by pain. Amebas were found which were sluggishly motile. No stool for the next forty hours. The second dose of 1½ drams of ipecac, given December 7, caused slight nausea. The following day the stool was fairly well formed and one motile ameba and numerous cercomonads were found. The general condition of the patient showed improvement, increased appetite, lowered pulse and temperature almost normal. Stool examined December 10 was free from amebas and cercomonads.

December 12, 2 drams of ipecac were administered. This gave rise to considerable nausea and general abdominal pains which lasted about three hours. Repeated examinations of stools for three weeks following showed an absence of amebas and cercomonads. At the end of this time both amebas and cercomonads appeared in large numbers, but disappeared promptly after several ipecac enemas, 2 drams to the pint.

Patient was discharged with normal temperature and almost complete cessation of expectoration. Stools were normal averaging one in twenty-four hours. The accompanying table shows the effect of treatment on the blood with special reference to leukocytes and differential counts.

CASE 6.—*Patient.*—J. P. L., male, aged 30, traveling salesman (referred by Dr. Bunting), contracted dysentery in 1906, while in New Orleans. The symptoms came on abruptly as an acute attack with profuse dark watery stools. The patient was treated in the hospital for seventeen days when the symptoms abated. Since then he has suffered with frequent exacerbations increasing in severity until his admission to Mercy Hospital, Dec. 27, 1911. For a year he had averaged daily from three to eight watery or semisolid stools, containing blood and mucus associated with marked tenesmus. He had been treated with salol-coated pills of ipecac in 1910, beginning with 50 grains a day the dose being reduced 5 grains daily for two weeks. It was impossible to retain all of the ipecac as it caused vomiting and some of the pills were found in the stools undissolved. Notwithstanding this fact the symptoms were temporarily relieved. In June, 1911, he was again treated with ipecac in keratin-coated pills, 30 grains a day, in addition to opium, bismuth and tannic acid irrigation. The ipecac was vomited either in the form of pills, with the coating dissolved, or disintegrated into a powder. The symptoms were relieved for three or four weeks.

Examination.—Patient appeared slightly anemic, the lymph-nodes of the neck and groin were enlarged and the abdominal wall was soft and relaxed with no rigidity or tenderness on pressure. The liver and spleen were normal. On admission the stools were soft semisolid and revealed microscopically pus cells, active amebas and *Trichomonas intestinalis.*

Treatment and Course.—After nine doses of ipecac the stools gradually became thicker and fewer in number. Administra-

EFFECT OF IPECAC TREATMENT ON THE BLOOD, WITH SPECIAL REFERENCE TO LEUKOCYTES AND DIFFERENTIAL COUNT IN A CASE OF AMEBIC DYSENTERY (CASE 5)

Date.	Red Count.	Hemoglobin, Per Cent.	White Count.	Polynuc.	Large Monos.	Small Monos.	Eosin.	Remarks.
11/27	....	..	......	84	6	10	0	
11/28	....	..	......	84	10	6	0	
12/1	3,024,000	43	17,900	78	9	13	0	
12/4	....	..	......	..	..	..	.	
12/7	....	..	......	..	..	..	.	Ipecac, 1 dr.
12/5	....	..	......	84	4	12	0	
12/6	....	..	12,500	85	5	10	0	
12/8	....	..	25,000	81	4	15	0	
12/9	....	..	17,500	75	5	20	0	Ipecac, 1½ drs.
12/11	....	..	16,000	76	3	21	0	
12/12	3,516,000	..	......	75	4	20	0	
12/20	....	..	11,500	79	7	13	1	Ipecac, 2 drs.

tion of the ipecac was followed by little or no discomfort and a gradual diminution of amebas and trichomonads. Proctoscopic examination showed several healing ulcers in the rectum. In this case treatment was discontinued for a while after three administrations of ipecac, but was resumed on return of symptoms, the results proving more successful. The patient left the hospital two weeks after his readmission in fairly good health. At his last report, he had continued to improve in general health, gaining strength and weight with no return of dysenteric symptoms, averaging one normal stool a day with no amebas.

Case 7.—*Patient.*—F. E. H., male, aged 39, soldier, barber, (referred by Dr. Rosenthal) had unimportant family and previous history. Present condition began in 1900 while in the Philippines. The first attack lasted eighteen days; stools averaged about six per day and contained blood and mucus. The second attack occurred four months later. Since then the patient has suffered with periodical exacerbations and had never enjoyed good health. For the past two years his health was very much impaired. He suffered with abdominal pains, two to six stools a day, frequent chills, fevers and sweats.

Examination.—Patient entered Mercy Hospital Jan. 29, 1912. He was undernourished and anemic. He had marked flattening and relative immobility of lower part of right chest, probably due to an old pleurisy. No râles were heard. There was tenderness over the sigmoid, the liver was slightly enlarged and painful on deep pressure. The lymph-nodes were enlarged. Leukocyte count was 13,150. Stools were watery, semisolid and contained blood and mucus with numerous amebas.

Treatment and Course.—He was given six doses of ipecac, 1 dram each, through the tube at intervals of three or four days, which caused some nausea and several attacks of reflex vomiting, but no ipecac was expelled. The stools which after the first examination were loose and watery gradually became well formed. No amebas were found after the first administration. For ten days prior to his discharge from the hospital, February 24, he averaged one normal movement daily. Proctoscopic examination made during the course of treatment showed rapid healing of several ulcers located in the rectum. Since leaving the hospital he has averaged one well-formed stool a day with no further dysenteric symptoms. Examination May 8, 1912, showed stools free from amebas.

It appears from a study of these few cases that the ipecac treatment by duodenal administration is distinctly more efficacious than by other methods. Many other forms of treatment had been employed without avail. The fact that this series of most intractable cases were either permanently cured or relieved for a considerable period of time bespeaks efficiency of the method.

Large duodenal doses of ipecac seem to have no injurious effects. There are occasionally gastro-intestinal symptoms such as nausea, less frequently, vomiting and, rarely, diarrhea lasting from twenty to forty-eight hours. Slight general depression may appear with a tendency to lowering of blood-pressure which rarely amounts to more than 10 mm. even with doses as large as 2 drams. The effect on the leukocyte count, as shown by the accompanying table, is a fair illustration of what occurred in most all of the cases.

In conclusion I desire to acknowledge the valuable services rendered by Drs. Charles E. Simon and A. W. Skilton who examined the stools of my patients and Drs. S. H. Hutchinson and J. V. O'Connor for their clinical assistance in the study of the cases.

20 East Preston Street.

Harmful Dusts.—Another curious effect of dust has been observed in a form of temporary deafness among the workers in jute, from which twine and bags are made. The fine dust of the jute fiber, mingled with the natural "wax" of the ears, packs into hard cakes against the tympanum.—W. G. Thompson in *Jour. Maine Med. Assn*

RECENT HYGIENIC IMPROVEMENTS IN DAIRYING*

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The production of clean milk has engaged the attention of business men for only about a score of years, and while all recognize the necessity of great reforms in the production and handling of this substance, the means of accomplishing this desideratum on a large scale have hitherto seemed practically impossible, except at a cost to the consumer which has proved excessive to all but the well-to-do. So many factors have had to be taken into account in the solution of this problem, that some of them up to this time either have been overlooked or have proved insurmountable. The main factor has only recently begun to receive its due weight in sizing up the situation, and this factor is, as will be shown later on, the dairyman himself—not the man who sells the milk, but the man who produces it and packs it off to market.

High-grade milk has for some years been brought to market from a relatively few high-grade and expensive dairies. Some of this is called "certified" milk, and is produced under the most favorable possible conditions, and is sold for from 15 to 22 cents a quart; which, of course, is a high price for a poor man to pay. So steps must be taken to produce a clean, safe milk which a poor man can afford to buy. Of all the milk brought to market, not over 5 per cent. can be "certified" while something must be done to make the remaining 95 per cent. at least safe for the millions of poor babies whose main, or sole, food-supply is cow's milk.

Years ago a friend of mine started a dairy farm in which he employed many new and expensive devices to render the milk as nearly perfect as milk can be made. He employed maids, dressed like trained nurses, in clean starched caps and immaculate wash dresses, to do the milking, because he rightly maintained that women are gentler, neater and more dexterous at such work as milking than men, and that inasmuch as the moral treatment of the cow has an enormously important effect on the quality and wholesomeness of her milk, women, with their gentler and neater ways and more correct personal habits, are much better fitted than men of the same walk in life to milk cows and take care of the milk.

He also invented a covered pail with a small opening in the cover and a diaphragm consisting of a cloth stretched over the opening, to be milked through. Everybody was astonished at the great amount of dirt which collected on this sterilized cloth with each milking, no matter how many precautions had been taken in washing the milker's hands and the cow's flanks and teats. Great progress was made in producing clean milk and the new barns, with their fancy fittings and concrete floors and bright airy stalls, were so crowded that some of the cows had to be kept and milked in one or two old dusty, ramshackle barns. To the surprise of everybody concerned, the milk drawn in the old dusty barns was found to be nearly as clean and free from bacteria as that milked in the new up-to-date barns.

You may ask how it was known so promptly that the milk from the old barns was so nearly equal to that produced in the new barns. It was simply because the milk from every barn on the farm was carefully examined every day under the microscope and the bacteria counted. This similarity in the milks produced under such diverse conditions was evidently due to the covered pail.[1]

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* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

The fact that clean milk could by any means be produced in a dirty barn was a great discovery and bound to bring about radical changes in the entire dairy business. Like many of the most important discoveries and inventions in the world, it came about largely through an accident. Yet it is none the less valuable for all that, inasmuch as it bids fair to prove an inestimable boon to suffering humanity.

The dairy farm of which I have just spoken failed financially, partly because it was started some years ago, before the public was so wide awake as it is now to the question of clean milk, and partly because the whole process of producing clean milk was then much more of an experiment than it is now.

The man who started the dairy sold his interest in it after some years of struggle to make the public appreciate what he was offering them. He made no money by his venture, but he came out of it with the idea firmly impressed on his mind that clean milk for the multitude can be produced and sold at a price within the reach of any man of moderate means, always provided that the farmer can be induced to cooperate with the milk company or the wholesaler who puts the milk on the market.

I went with my scientific friend a number of times to a filthy and badly kept dairy and spent some hours of valuable time trying to impress on the dairyman how easy it would be to produce clean milk by a few simple precautions. Patiently and carefully the doctor (for the scientific dairyman was primarily a doctor and a hygienist) would state and restate the steps to be taken and his listener would promise in a half-hearted way to carry out the directions, but would invariably wind up the discussion by asserting that he ought to get at least a half cent more a quart for his milk. And so far as the farmer is concerned, this is the crux of the whole matter. If he is to produce cleaner and better milk, he must have some reward for his extra pains and trouble and the higher degree of intelligence which he puts into his business. The philanthropic attitude of those great milk companies which undertake to produce better and safer milk for the suffering and helpless babies of the tenements, and to pocket all of the advanced price themselves, has not seemed to appeal to the farmer. The farmer has had a hard enough time to make both ends meet without spending more money in producing wholesome milk than he can get for it. As one of them has expressed himself, he feels sorry for the poor sick babies in New York City, but the babies he is most interested in and is bound to take care of are his own babies. Consequently, if he should send better milk to market, he should demand a better price for it.

One of the great milk companies has had a long and expensive litigation because the farmers from whom they purchased the milk which the company sold, would not consent to have their herds tuberculin-tested. The idea of offering any more money to the farmers for their extra expense and trouble in getting their herds tuberculin-tested never seems to have occurred to this company. Now that the suit has gone against it, however, the company seems to have been able to make some arrangement with the farmers, inasmuch as it announces that it is prepared to furnish tuberculin-tested milk at 10 cents a quart to anyone who wants it.

Now, in spite of every precaution that may be observed in drawing, handling and transporting milk, there is no absolute guarantee that it may not become contaminated with germs pathogenic to man.

The epidemic of tonsillitis and influenza which prevailed in and about Boston last spring and summer, and claimed many victims, of whom a considerable proportion died, was, after a careful and impartial investigation, traced to the milk from one of the best and most scientifically conducted dairies in the world. It was also found that the contamination of the milk was not due to any fault or carelessness on the part of any employee or agent of that dairy. So far as one can judge from a review of the testimony of the impartial and painstaking scientists who conducted the investigation, such a contamination of the milk of any dairy cannot be prevented by any means known to science, unless the milk shall be properly pasteurized or sterilized. This episode in the history of scientific dairying has been dwelt on in this paper because it occurred so recently and was so thoroughly investigated. Other similar occurrences have been reported from time to time in this country and abroad. Some years ago I was interested in a study of the spread of a mild form of diphtheria by the milk of one of the best dairies anywhere, which is the pioneer "certified milk" dairy in America. The investigation seemed to prove without question that the diphtheria was spread by the milk of this dairy, although every known precaution (except pasteurization) had been observed in preparing the milk for market.

Mr. Nathan Straus and many others, including the scientific man of whom I have been writing, agree with Professor Sedgwick and the other investigators of the Boston epidemic in asserting that milk cannot be guaranteed to be free from pathogenic germs (including those of tuberculosis) unless it has been pasteurized.

Some physicians hold that pasteurized milk has lost some of its most valuable nutritive qualities, so that its constant use may produce rickety babies; and furthermore, that pasteurization may be a bad thing because, by covering up nastiness in the milk, it will encourage lax and dirty methods in producing and transporting milk. While it must be admitted that there is a certain amount of truth in these objections to pasteurization, those who favor the universal pasteurization of milk have, so far at least, the better of the argument.

While the matter was being discussed the other day, our dairy doctor pointed to his own child, a ruddy and round little girl of 4, and said, "Do you see anything rickety about that child? She has never had any milk since she was weaned that has not been pasteurized, and she has had very little other food of any kind." And so far as the objection goes that pasteurization may be a cover for careless or dirty dairying, no good dairyman will allow his milk to be dirty and trust to subsequent heating to conceal that dirt. Even if he were disposed to do this, the methods adopted by the milk company of which I am writing, which will be presently described, will effectually prevent such a fraud on the milk consumers. Having made up his mind that milk must be pasteurized before it can be guaranteed, the question how this could be satisfactorily and economically done immediately confronted our dairy expert. He had heard that brewers pasteurize their beer at the breweries, after it has been bottled, and immediately proceeded to investigate the process to find out, if possible, whether it could be used to advantage in pasteurizing milk. As a result of his study, he has installed one or more pasteurizers, similar to those used by the brewers, in which all the milk from his creamery is pasteurized after it has been bottled and a metal cap has been clamped on the bottle, just as the cap is clamped on the bottle of beer. This cap, with the date of the pasteurization plainly stamped on it, is not to be removed until the milk is used for food; so it cannot be contaminated or sophisticated in any way between the creamery and the consumer's table.

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[1] The pail now in use does not have a cloth diaphragm, as it has been found that a hood of metal over the small hole in the cover of the pail so arranged that the milker must direct the streams of milk from the cow's teats horizontally, instead of perpendicularly, answers practically every purpose. In other words, the contamination of the milk is caused by the dust which falls into the pail from the cow's sides, the milker's hands and clothes, and the dust that is always circulating in the air, especially of a stable.

Now I have briefly outlined the fundamental principles on which clean and cooperative dairying can be carried on and milk produced and sold at a profit at 9 or 10 cents a quart.

Of these fundamentals, the most important one, however, has only been hinted at. It is necessary therefore, to enlarge on it somewhat more fully.

It was said above that the main factor in the production of safe and wholesome milk at a moderate price is the dairyman. I have spoken of the injustice and futility of expecting the farmer to produce a higher-grade milk at an increased cost and not allowing him to participate in the increased profit accruing from its sale. Yet no one appreciated, until the experiment was actually tried, how potent a factor this same farmer is in the production of milk of a satisfactory quality. When our dairy doctor got his creamery started, he refused to accept milk having a bacterial content of over 10,000 per cubic centimeter, and all his farmers brought him milk just below that count, but never much below it. After thinking this over for a while, the bacteriologist in the company's employ spoke to one of the farmers about it and was surprised at the reply that there was no object in bringing cleaner milk, so long as the milk they were bringing would be accepted. Then the creamery adopted another device. It offered $40 a month in prizes, $25 first prize, $10 second prize and $5 third prize, to the farmers bringing the milk that had the smallest bacterial content during the month. A great rivalry at once arose among the milk-producers, and men whose milk had never shown a bacterial content below eight or nine thousand immediately began bringing milk having only a few hundred bacteria per cubic centimeter. The farmer was not told that he must wash his hands carefully between each milking and carefully wash the cow's flanks and udder and sprinkle the stable floor with water before milking; but under the stimulus of the prize and the chance of surpassing his colleagues, he "got busy" and found out all these things for himself and put them into practice; and again the results have been most expectedly satisfactory to all concerned.

These farmers were not ordered to have their cattle tuberculin-tested; they were paid to do it. They were given one-half a cent a quart more for their milk if it was brought from tuberculin-tested cattle. They were also given one-quarter of a cent a quart if their bacterial content was less than 10,000 per cubic centimeter. They were also given 4 cents a can (1/10 of a cent a quart) for every "point" above 3.5 per cent. of butter fat (a point being 0.1 per cent.) and they agreed to pay a penalty of 1/10 of a cent a quart for every "point" below 3.5 per cent. of butter fat in the milk delivered at the creamery.

Now we have a nearly complete cooperative scheme in which the farmers and the creamery are equally interested. The creamery, of course, belongs to the company and all the pails and cans used in holding and transporting the milk are sterilized at the creamery. The farmers get their sterile utensils at the creamery every day and bring them back the next morning filled with milk, leaving them there and taking others away with them for use that night and the next morning.

The bacteriologist is employed by the company and every day he examines every farmer's milk and posts the results on a bulletin board where everyone can see them, so that the farmers all know exactly where they stand and where their competitors stand every day of the month, and who is likely to get the prizes; and if a man fails to keep up his record, he and his neighbors immediately know it and generally can find the reason. The practical benefits of this daily supervision of the milk were strikingly shown not long ago. A farmer one day brought in some milk that showed a greatly increased number of bacteria above his average count. When this was pointed out to him he had no idea of the cause. The bacteriologist, according to his custom, hastened to the farm and inspected the herd. He found three cases of garget, an infectious disease of the cow's udder, which is supposed to convey scarlet fever to human beings who may drink the milk of the affected animal. These three sick cows were immediately isolated and a possible infection of the whole herd was prevented, as well as a possible epidemic of sickness among the consumers of the milk. It is easy to imagine that many human lives might have been saved had this custom of daily bacteriologic examinations of all the milk from every dairy been carried out in the past. It is so useful, so simple, and so practicable, that it does not seem unfair to predict that the dairy laws will eventually enforce this precaution in all creameries and public milk stations.

On another occasion a farmer brought to the dairy some milk showing an extraordinarily large bacterial content. At first he stoutly denied any known cause for this, but, on being cross-questioned, acknowledged that he had bought some milk from a neighbor and turned it in as his own. So an attempted fraud was discovered and frustrated.

Now we see some of the benefits to which cooperation in the dairy business and milk business leads.

1. A comparatively high and safe grade of milk produced at a price within the reach of practically all users of milk.

2. A contented and intelligent body of farmers producing this milk and getting a tangible reward for their improved methods. As they are now beginning to see the advantages of cleanliness they are beginning to practice it assiduously and to believe in it. Instead of looking on health and sanitary regulations as an imposition and a hardship, they are cheerfully carrying them out and are taking pride in their work, and they are also reaping a pecuniary reward, as it is just and proper that they should. This cooperative dairying has opened a new vista before the farmer and has instituted in his business methods and ways of thought an improvement that promises great things for the future. The dairyman has had a hard time for many years, and the result has been the poorest milk that he could get the milk companies to accept, with the consequent large infantile sickness and mortality in all our cities.

The attempt to make him produce high-grade milk by passing ordinances has proved as futile as the long continued attempt, so popular in this country, to make people moral and abstemious by law. Education, an appeal to the farmer's self-respect and an assurance that he will be a participant in the increased remuneration for furnishing milk that is safe for a baby to drink, will inevitably work out a revolution in the milk industry.

Our dairy doctor is an unquestioned philanthropist and his efforts will tend to raise the whole milk-producing business from its present low and unsatisfactory state into a profitable and respectable — I might almost say, a scientific — calling that may well engage the entire time and thought of any well educated and refined young man or woman.

42 Church Street.

ABSTRACT OF DISCUSSION

Dr. Arthur R. Reynolds, Chicago: It has been pretty well demonstrated that farms can produce any kind of milk that is wanted, if they are paid for it as they should be.

With all the papers, ordinances and things that are read and passed, very little has ever been said about the age of milk. It is well known that milk has germicidal properties up to the time that it is about 6 hours old, and also that cows are milked every twelve hours. A great many people in the country and smaller places can get their milk every twelve hours; every city should get some of their milk every twelve hours.

Dr. Malcolm C. Rose, New York: It was not quite clear what kind of cover or fastener Dr. Newton suggested to hold the cheesecloth in place. Many farmers would like to know of such a simple device to produce clean milk, rather than go into all the detail required for qualification for the certified class.

Dr. J. Joseph Kindred, Astoria, N. Y.: There is an important relationship between what Dr. Newton has said as to the price of milk which the farmer gets and the price which the consumer has to pay. And this brings out the point that there is no economic, basic foundation for the fact that the poor consumer and the starving parents of sick babies have to pay the price that they are now compelled to pay. In other words, there is no relationship between the law of supply and demand; and even if the farmer is able to sell his milk at a fair profit, the consumer ultimately has to pay an outrageous profit; and we understand, of course, the reason for it; it brings up the very broad proposition of the regulation of the trusts.

Dr. Joseph Goldberger, Washington, D. C.: I think we all agree that we want primarily a pure milk; and we all will agree that there is a possibility of obtaining it; but the difficulty in practical life is to keep it pure during its transit from the cow's udder to the mouth of the consumer. Now, while this may theoretically also be possible, as a matter of practical fact it is only too frequently not attainable, and therefore we must try to take such measure or measures as will insure a supply of milk, safe in the sense of being free from disease-producing organisms.

There can be no question but that pasteurization does make milk safe. Some of the objections to pasteurization to which Dr. Newton referred undoubtedly are valid; but as he also well pointed out, when weighed against the points in favor of making the milk safe to the consumer, they must fall out of practical consideration. To emphasize, therefore, I simply want to say that we must pasteurize our milk, at least in large cities, to increase the chances of the consumer getting a safe, disease-free milk. Speaking for myself, I have not, in my own family, altogether confided in that; I am speaking now of commercial pasteurization. I do not entirely trust milk even after it has been commercially pasteurized. In my own family I invariably use boiled milk; and I am bringing up two vigorous youngsters in that way. They have never had any milk (except their mother's for a short period in infancy) that was not boiled, and I do not believe that boiled milk has hurt them in the least.

Dr. J. J. Kindred, Astoria, N. Y.: May I ask Dr. Goldberger if it is possible to sterilize the whole quantity of milk consumed in the city?

Dr. M. P. Ravenel, Madison, Wis.: I would like to combat the wide-spread idea that pasteurization destroys the nutritive value of the milk and produces scurvy and malnutrition in children. Pasteurization must always be a temporary measure and should not be advocated to take the place of clean milk from healthy cows. It seems to me that one can liken the case to the choice between a pure mountain spring and filtered water from a cesspool; theoretically, the filtered cesspool makes a safe drinking-water, but people do not want it, and it is better to take a water which is pure at its source. In the same way it is better to have pure certified milk than pasteurized. Nevertheless, pasteurization is a great safeguard and should be adopted where an absolutely clean supply cannot be obtained. The charge that pasteurized milk produces scurvy has been answered repeatedly. I once heard Dr. Isaac A. Abt, in reply to such an accusation, say that he had seen children with scurvy who fed at the mother's breast, which is unquestionably true. I wish to emphasize the value of pasteurization as a measure for the protection of children against diarrheal diseases and tuberculosis and to say further that it does not interfere with the nutritive value of the milk.

Dr. Richard Cole Newton, Montclair, N. J.: I have always had a prejudice against pasteurization of milk. I was brought up in a community where it is the custom to cry down this process, saying that it may produce scurvy in children. In these days, babies are getting a more liberal diet than formerly. We tell mothers to give them apple sauce and so on, earlier than we used to do. Like Dr. Ravenel, I have seen very little scurvy or rickets of late, and it is almost criminal for a man to have much of them in his practice, because they are so easy to avoid.

One or two of the discussers have asked how the cloth diaphragm is used. One farmer, who had a dirty old barn and was very poor, just took a clean rag and tied it with a string over the top of an ordinary open pail. He took his milk to a hotel which used a lot of milk, and his milk was found to be the cleanest of any that was brought there. The milk-pail that was originally used had a cover that fitted on the top like the cover on any kind of a pail. There was a circular opening in the cover 3 or 4 inches in diameter, across which the cloth was stretched. There was a rim around this opening about 2 inches high and a cap or ring, pushed down over this rim, held the cloth fast. The cloth was renewed for every one or two cows. It has been found as good or nearly as good to use a metallic hood over this opening, and when the men milk, the stream of milk is directed horizontally into the pail. Cloth diaphragms are not used in some of the large dairies nowadays. Nearly all the dirt in the milk comes down out of the air as dust and may be arrested on the top of the hood.

Dr. Reynolds spoke about the length of time between the milking and the delivery of the milk to the consumer. Unfortunately, in New York City it does not seem possible to get the cows and the children very near together. It was said that years ago an experiment was tried in Paris on foundlings, nearly all of whom were syphilitic and practically all of whom died very young: female asses were driven up to the foundlings so that the children could suckle them, with the result that many of them lived—a striking illustration of the advantage of feeding babies warm milk. There is no question about the enormous advantage of this procedure, but in New York and Brooklyn it seems impossible; so we have to rely on pasteurization. Milk can be sold at a profit when sold in the manner described in my paper—at 10 cents a quart; that is about as cheap as clean milk can be produced.

Fresh Air and Tuberculosis.—No one should sleep in a closed room, whether sick or well. Bad air is one of the main causes of tuberculosis. Fresh air is one of the cardinal means of cure.—E. Cummings in *Jour. Outdoor Life.*

A STUDY OF SALIVA AND ITS ACTION ON TOOTH ENAMEL IN REFERENCE TO ITS HARDENING AND SOFTENING *

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Enamel softening has been considered to be necessarily associated with roughening of the surface, loss of luster and dissolution of the cemental substance that binds the enamel rods together; and whenever enamel decalcification is associated with decay of dentin this conception of enamel softening is only too accurate. But this conception seems to be only a part of the story, so to speak—the final part rather than the complete process of enamel degeneration.

For instance, 1 to 1,000 lactic acid and water at mouth temperature will cut tooth enamel in thirty minutes with a rough, white surface. A tooth placed in 1 to 500 lactic acid and some salivas will be unharmed. A tooth placed in this solution made with other salivas, after three or four days, may show the enamel perfectly smooth and to all appearances normal, and yet it can readily be pared to a slight distance with a lancet. A 1 to 500 saliva and lactic acid solution has an extremely acid taste and instantly turns litmus brilliantly red. A 1 to 20,000 lactic acid and water solution will, at the end of three or four days, leave the tooth enamel unharmed to all appearances, and yet the outer surface of the enamel will, with the edge of the lancet, be found to have distinctly softened. A 1 to 500 lactic acid solution with my saliva, although the solution has a decidedly acid taste, will produce this identical effect. The appearance of the enamel is unchanged but distinctly softened to the cut of a lancet, although before the tooth has been immersed the lancet is unable to make any impression on it.

The action of water solutions of acid calcium phosphate and acid sodium phosphate on the teeth has been mentioned by Kirk, stress being laid on the fact that these salts cause smooth white decalcification. As a matter of fact, many acids in water solutions cause smooth primary softening, if the solution is sufficiently weak. Saliva ordinarily restrains the action of most acids up to a certain point, and then begins with the smooth decalcification and ends with the same rough white decalcification that we find in a water solution. The saliva solution is ordinarily from ten to twenty times weaker in its action on enamel than is a water solution of the same acid strength. The acid sodium phosphate and acid calcium phosphate are, however, intensely interesting in their action, not only in water solutions but in saliva solutions. Acid calcium phosphate 1 to 5,000 water solution, and acid sodium phosphate 1 to 20,000 water solution at the end of two days, will turn tooth enamel into a cloudy, pearly white, with a clear smooth surface. This surface is distinctly softened to the cut of a lancet. If, however, these teeth are removed from the solutions before the process advances too far, the cloudy appearance will in time disappear, and the tooth enamel will resume its normal appearance. This phenomenon occurred many times, but once when I retested the hardness of these teeth with a lancet I found that not only had the white color disappeared but the superficial softening of the enamel had disappeared also. At first I attributed this disappearance of the softening of the enamel to previous faulty observations, but the same phenomenon occurred in my lactic acid test. A tooth that had been placed in a 1 to 20,000 lactic acid watery solution, at the end of a few days was slightly softened to the cut of the lancet, but a month or so later the lancet would not cut it. It was then that the possibility was made apparent that partially softened smooth enamel could reharden itself if the decalcification had not progressed too far.

I then made the following test: Two sound teeth with enamel impervious to the lancet were each placed in a lobe of a navel orange. These lobes were each placed in a bottle with a few drops of ether to prevent fermentation, and kept at body temperature for two days. At the end of that time the teeth were removed and examined. The lobe around one of the teeth had fermented, the lobe around the other had not. The tooth in the fermented lobe showed a smooth, white, translucent area of decalcification, running from the cutting edge to about one-third of the distance to the neck. The rest of the enamel was normal to all appearances, and yet the surface, both of the white and the apparently normal enamel, was readily pared with a lancet. The lobe in which the other tooth was embedded had not fermented, and the enamel also seemed normal, but here again the outer surface of the tooth enamel was distinctly softened. These teeth were then washed in water and kept in some of my saliva at body temperature for two weeks. At the end of five days there was a decided rehardening of the enamel surface, and the white area of decalcification on the tooth mentioned had half disappeared. At the end of ten days the enamel could no longer be scratched with a lancet; at the end of two weeks the white spot of decalcification had almost if not entirely disappeared, and both teeth appeared perfectly normal.

That saliva does possess the power of restraining enamel from carbon dioxid decalcification was proved as follows: A sound extracted tooth was placed in a sparklet or automatic soda water former, where the liquid within could be charged from a carbon dioxid cartridge. Thirty cubic centimeters of saliva were added which had been obtained by chewing rubber. The saliva was then charged with carbon dioxid and the sparklet placed in a culture oven at a temperature of 98 F. for thirty days. At the end of that time it was taken out and appeared unharmed. The tooth was then washed with a little ether and replaced in the syphon with distilled water. This water was then charged with carbon dioxid and the flask replaced in the culture oven for twenty-four hours. At the end of that time the enamel showed a chalky decalcification that could be scaled off with the finger nail.

This protective power of saliva is also exerted against lemon, orange, grape, grape fruit, strawberry, rhubarb and cherry, the special action of which was the subject of a paper[1] I wrote in 1908.

These experiments with extracted teeth, weak acid solutions and tests with a sharp lancet in the hand, while suggestive, seemed to me not sufficient to establish so reactionary a doctrine; so while morally convinced of the truth of my assertion that softened enamel could reharden, I immediately started to perfect a machine that would show in the minutest degree just how far a given force would drive a standard punch into sound enamel, partly decalcified enamel and rehardened enamel, if it did reharden, from the effects of slight decalcification. I will not dwell on the discouraging task of making good mechanics work with a scientific

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* Read in the Section on Stomatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] Read before the Harvard Odontological Society, March 7, 1908.

conscience. They would not do as they were told, and much of the adjustment had to be done by the deviser of the instrument, which from at first having an error of 1/500 of an inch, finally developed into a microdynamometer that could deliver 475 pounds pressure on a punch, the penetration of which could be measured up to 1/600,000 of an inch. Something approaching this accuracy was necessary as it was found experimentally that the scope of the average test lay usually within 1/10,000 of an inch. It was, however, decided to set the register so that it would measure in units of 1/300,000 of an inch, which as can readily be seen could be reduced by a table to microns or tenths of microns, one micron being equal to 1/25,000 of an inch, twelve of the machine units, therefore, being equal to one micron. The pressure was given by a mercury gauge to which the punch was attached. A micrometer screw supporting the anvil on which the specimen for testing was to be placed was strongly connected by castings and heavy drawn steel rods beneath the mercury gauge and punch. The pressure was applied to the specimen by placing it on the anvil and raising the anvil by the screw up against the punch until the mercury marked the pressure desired. The penetration of the punch into the specimen was made known by a microscope equipped with a specially constructed filar micrometer, which microscope was solidly screwed to the anvil. This microscope was then adjusted and set so that it could accurately divide into the desired number of parts a glass scale attached to the punch. By this device, all error in the use of the machine was largely thrown out, since only the relation between the punch and the anvil was within the scope of measurement.

In making the various tests three punches are used: a heavy steel punch with a flat hardened circular point 1/50 of an inch in diameter; an iridium pointed punch 1/50 of an inch in diameter for testing acid erosion; it will stand up to 25 lbs. without showing compression; a diamond-pointed punch with a circular, flat point 1/50 of an inch in diameter that can be used in acid solutions and will also readily stand 100 lbs. pressure. Twenty-five pounds pressure with the diamond point will give a penetration equal to 75 lbs. with the steel point. This is no doubt due to the greater sharpness of the diamond edge over the steel.

If, therefore, the specimen is so adjusted and set under pressure that there will be no give between it and the anvil, it is possible to determine accurately within, say, one-tenth of a micron, just how far the punch would penetrate under a given pressure. For instance, the specimen is carefully ground with a Reichert section grinder so that there is a flat, large base. A small spot on the top of the enamel is ground parallel to the base. This forms the area to be tested. Any pressure exerted on the enamel spot by the punch is directly expended on the enamel, without any side give between the base of the specimen and the anvil. The specimen with parallel sides is placed on an agate slab and the slab placed on the anvil. The punch is adjusted near the edge of the ground enamel and given a pressure of 5 pounds. A reading by the microscope attached to the anvil is then taken on the scale attached to the punch. The pressure is then raised to the desired amount, say, 75 pounds, for a given time, and then the pressure is reduced again to 5 pounds and another reading taken, the difference on the scale representing the penetration of the punch. To shift the specimen under the point for the different measurements, the agate slab is moved, not the specimen on the slab. This eliminates variations in the spring of the specimen, since the compression of the parallel slab on the anvil under a given pressure, will always be the same.

Five or more measurements are usually made for each reading and the average taken. By this means the density and strength of normal enamel can be shown, as can also the variations from the normal enamel caused by strong acids, water solutions of acids, saliva, fresh and stale acid saliva solutions, and the recovery of enamel from the effects of a slight acid decalcification and the rehardening of its surfaces after it has been ground with a stone.

All analytical analyses of saliva heretofore have been hampered by the fact that the investigator of it first started by chemically breaking it up, thus largely destroying it as saliva. All analytical investigation of saliva from a dental point of view up to the present time, has been of little value owing to the fact that normal saliva may be alkaline to lacmoid or congo red, neutral to litmus, and acid to turmeric paper, all at the same time. How saliva reacts to lacmoid, litmus or turmeric may be purely of academic interest, but how it may react on enamel and dentin is a vital question that interests every man that lives, and this machine has, it is hoped, made it possible for enamel to be its own indicator of how a saliva may affect it. Since the first days of physiologic study, saliva has been a most tempting field for investigation because it is the body secretion most easily obtained in a living state. It ought to be at least of equal value to the diagnostician as urine, but up to the present time it has not been. This may lie in the fact that saliva is a living substance, and urine is an effete product that lends itself to a chemical analysis that would absolutely destroy saliva as saliva. Chemical analysis that breaks up the individuality of living saliva is of little more value in showing the vital action of saliva than fried chicken would be in showing the beauties of a cock fight.

I am far from discouraging saliva analysis of any kind. Epinephrin may illustrate the living secretion of the suprarenal capsule or it may not. Salivary extracts or chemical products are interesting but inconclusively related to the living action of the secretion and, therefore, while enzymes of a curious and even therapeutic nature may be extracted from saliva, no one can prove that they justly represent the action of the living secretion unless some means are devised to make control tests with the living saliva that show the corresponding action. This machine, it is hoped, will make it possible to test on tooth enamel the acid restraining power of various living salivas in relation to a standard water solution of acid. Salivas vary in this power. The same saliva may vary at different times, apparently according to the condition of the patient.

The conditions then are as follows: During sickness the teeth, from clinical experience, are known to decay. This may be due partly to acid medicine or lack of care, but with every allowance for these sources of error, it seems to be well established that severe or chronic illness in some way may render the teeth sensitive to deterioration. Formerly it was supposed that some product was extracted from the enamel through the blood circulation, but this is now fully disproved by the histologic knowledge that human tooth enamel is, to all intents and purposes, absolutely shut off from the blood current. If a relation between approaching sickness and a loss of acid protecting power in the saliva could be established, a beginning in the diagnostic testing of the living saliva would have been fairly inaugurated. Take for example, the test that was made on a specimen of tooth enamel that I use for an illustration. One side was ground to a flat, broad base, on the other side the enamel was ground in a small corresponding parallel plane. This was placed on the anvil of the machine and raised up against an iridium point 1/50 of an inch in diameter until a pressure of 5 pounds was reached. A reading was then taken on the micrometer scale and noted. The anvil was raised up and down repeatedly until all give between the specimen and anvil disappeared, and the 5 pounds pressure always gave the same reading. Then fresh lemon juice and water 1 to 100 was placed on the specimen around the point and the point relaxed so that the fluid could readily get underneath. At certain intervals of time the pressure of 5 pounds was tried and a reading taken which showed a loss of tooth structure as follows:

2	minutes	0.8	micron
5	"	1.2	"
10	"	1.4	"
35	"	2.3	"
60	"	2.8	"

Thus, in one hour there was a loss of 2.8 microns of tooth enamel. This same test was then made on the same tooth enamel with a fresh saliva solution of lemon juice, 1 to 100. This solution turned litmus red and was distinctly sour, and yet after an hour's application the enamel showed a loss of only 0.3 of a micron. We might, therefore, express the restraining factor of that saliva as 28 : 3 or 9. Numerous other tests have been made of a similar nature and all seem to give consistent figures. They almost invariably seem to prove the power of saliva to restrain the action of lemon juice on enamel. They also show that some enamels are much more resistant to decalcifying action than others.

As an illustration, another test might prove interesting: This specimen was ground longitudinally for a base along its axis and a small parallel plane ground on the enamel of the opposite side. A solution of 1 to 100 lemon juice and water applied for an hour dissolved 1.0 micron. Saliva and lemon juice, 1 to 100, applied for sixteen hours showed no loss of tooth tissue at all. It was then tested with the steel punch 1/50 of an inch for density and was found so softened that from 60 pounds to 70 pounds pressure could not be obtained. The softened enamel simply refused to support the punch under such a pressure. The specimen was then placed in fresh saliva and set in the culture oven at blood heat for seven hours, the saliva being changed every half hour. At the end of that time the tooth was again tested with the steel punch and was found to have so hardened that 75 pounds pressure was readily withstood and a various penetration noted of 3.5, 2.8, 3.2, 4.5 microns. No doubt it would have hardened up more but the various testings had so strained the specimen that it was considered advisable to continue with others. The great softening and hardening apparent in this last test is no doubt due to the enamel being very thin so that the variations were partly due to the dentin underneath. But tests on two bicuspids extracted from the same mouth for the purpose of regulation, with perfect enamel, to all appearances show conclusively that enamel has an extraordinary power of hardening and softening under various conditions, although no acid solvent at all was used.

These specimens were soaked for about ten days in a 1-to-10 dilution of liquor formaldehydi in water. They were then cut flat at the neck and 1/80 of an inch ground off the cusps of Specimen 1, and 1/50 of an inch ground off the cusps of Specimen 2. The diamond point was used at 25 pounds pressure.

Specimen 1 (buccal cusp) when freshly ground gave an average softness of 1.5 microns, the readings being: 1.1, 2.0, 1.2, 1.8, 1.8, 1.2.

Specimen 2 (buccal cusp) gave an average softness of 1.6 microns, the readings being: 1.2, 1.6, 1.6, 1.5, 2.1.

Specimen 1 (lingual cusp) gave an average penetration of 1.2 microns, the readings being: 1.3, 1.2, 1.3, 1.2, 1.0.

Specimen 2 (lingual cusp) gave an average penetration of 1.1, the readings being: 1.3, 0.9, 1.1, 1.3, 0.9.

Here in two specimens, apparently of similar teeth from the same mouth, we find the buccal cusps having the same hardness with 0.1 of a micron, and the same with the lingual cusps; while the lingual and buccal cusps on the same teeth show a variation in penetration of from 0.5 to 0.3 micron respectively.

I speak of this comparison to show the consistency of the machine measurements. I shall now proceed with the tests on Specimen 1:

After being tested the specimen was placed in distilled water for three hours and again tested. The buccal cusp had softened from 0.3 micron to 1.8 microns, the measurements being 1.4, 2.4, 3.9, 1.9. The lingual cusp had not changed, showing a penetration of 1.2 microns, measurements being: 1.5, 1.3, 1.3, 1.3, 0.8.

The tooth was then placed in J. H. saliva over night.

In the morning the buccal cusp showed a slight hardening of one point, to the average hardness of 1.7, the measurements being: 1.8, 1.3, 1.8, 2.2, 1.6.

The lingual cusp had hardened 0.2 to the average of 1.0, measurements being: 1.1, 1.2, 1.0, 0.8, 1.1.

The tooth was allowed to stay in J. H. saliva, at room temperature, all day (nine hours) and tested again, when the buccal cusp had hardened seven points, to the average of 1.0, measurements being: 0.9, 0.8, 1.2, 1.0, 0.9, while the lingual cusp had hardened 0.1 to the average density of 0.9, measurements being: 0.4, 0.7, 1.1, 1.3, 1.1, 0.7. In this instance, the buccal cusp started at 1.5, softened to 1.8, and hardened to 1.0. The lingual cusp started at 1.2 and stayed the same, or consistently hardened to 0.9.

It was decided to try the saliva of my assistant on this specimen.

The specimen was placed in incubator, 98 F., with A. J. F. saliva and a little ether for 36 hours, and buccal cusp showed a softening of 0.5 or an average of 1.5, measurements being: 1.7, 1.4, 1.2, 1.4, 1.5, 1.5. Lingual cusp remained the same or 0.9, measurements being: 1.0, 0.8, 0.8, 1.2, 0.6. The specimen was kept in A. J. F. saliva for a day longer, when the buccal cusp showed a further softening of 0.7, penetration being, 2.2, the measurements being: 1.4, 3.4, 1.5, 2.0, 2.6. The lingual cusp showed a softening of 0.3, having an average penetration of 1.3, measurements being: 1.6, 1.6, 1.4, 1.1, 1.0.

The specimen was then placed in a 2 per cent. dilution of liquor formaldehydi in water for sixteen hours, room temperature, when the buccal cusp was found to have hardened 1.2 to 1.0, measurements being: 1.3, 0.8, 1.0, 1.0, 0.8, and the lingual cusp had hardened from 0.1 to 1.2, measurements being: 1.4, 0.8, 1.0, 1.8, 0.9.

Specimen 2: The buccal cusp showed a hardness of 1.6, the lingual cusp a hardness of 1.3. It was placed in A. J. F. saliva and 2 per cent. ether in incubator at 90 F. for three and one-quarter hours and tested again. The buccal cusp had hardened 0.5 points to 1.1, measurements being: 0.9, 1.0, 1.2, 1.2, 1.2. The lingual cusp showed a hardening of 0.2 points, having an average of 0.9, measurements being: 0.8, 1.0, 1.3, 0.9, 0.8, 0.9. The specimen was then replaced in the same saliva in the incubator for two days and the buccal cusp showed a further hardening of 0.1 point, giving a penetration of 1.0, measurements being: 0.5, 0.8, 1.2, 1.2, 1.0, 1.2, 0.8.

The tooth was then placed in J. H. saliva, at room temperature for eight hours, when the lingual cusp showed a softening of 0.6 point or an average of 1.5, measurements being: 1.2, 1.4, 1.1, 1.9, 1.9, 1.7, 1.0.

The tooth was then placed in A. J. F. saliva, in incubator for fifteen hours, when the buccal cusp was found to have softened 3 points to 1.3, measurements being: 1.4, 1.3, 1.3, 1.2, 1.2, while the lingual cusp had hardened 5 points to 1.0, measurements being: 0.9, 0.9, 1.0, 1.1, 1.1.

The specimen was put in A. J. F. saliva in incubator and the saliva was changed every half hour. In four hours, the buccal cusp had hardened 2 points to 1.1, measurements being: 1.2, 1.2, 1.1, 1.2, 1.0, 1.2, 1.0, while the lingual cusp remained about the same, showing also a penetration of 1.1.

The specimen was then placed in A. J. F. saliva and 2 per cent. ether in incubator for twenty-four hours, when the buccal cusp was found to have softened from 0.5 points to 1.6, measurements being: 0.9, 0.8, 2.1, 1.4, 2.8, 1.6, 1.4, and the buccal cusp had softened 0.2 point to 1.3, measurements being: 1.4, 1.3, 1.2, 1.2, 1.3.

Then 5/1000 of an inch was ground off the tooth surface and the cusps were again measured to see how they would compare with the original tests. The buccal cusp showed an average penetration of 1.7, one more than the original test, measurements being: 1.7, 1.8, 1.6, 1.8, 1.6, while the lingual cusp showed exactly the same hardness, having a penetration of 1.1. The tooth was then placed in the incubator with A. J. F. saliva changed every half hour for six hours. The buccal cusp hardened 0.4 point to 1.3, measurements being: 1.9, 0.9, 1.2, 1.3, 1.0, 1.5, 1.2. The lingual cusp had softened 0.1 point to 1.2, which was practically remaining the same, measurements being: 1.2, 1.4, 1.2, 0.8, 1.2, 1.4.

The tooth was then placed in A. J. F. saliva and ether in incubator over night, when the buccal and lingual cusps showed an equal penetration of 1.3, the buccal measurements being: 1.4, 1.0, 1.5, 1.4, 1.3, and the lingual measurements being: 1.2, 1.2, 1.4, 1.2, 1.4.

This softening and hardening of enamel has a very practical bearing in relation to mouth cleansing and the use of brush and dentifrices. Enamel that in its hardest state would only show insignificant wear to dentifrice grit and friction in a temporarily softened state may, through a good brushing with grit, lose a very material amount of tooth structure. This softening and hardening may readily account for the reason why some patients, especially those fond of fruit, wear their teeth down to the gum, at a comparatively early age. The mere friction of mastication is sufficient to take off a layer of enamel softened by fruit or vinegar, which if left to itself might reharden.

I have made hundreds of tests with this machine, but as these are largely of interest to dentists, I will reserve them for another paper, where there will be ample space for the tables that should, of necessity, accompany my findings concerning the variations in the action of enamel, which variations are so extraordinary as to be almost beyond belief.

But that enamel will harden and soften within certain limits, I am convinced. And that this hardening and softening is influenced by the saliva and foodstuffs is to me beyond the question of a reasonable doubt. This action I also believe may occur in dentin, but my tests concerning this latter are not sufficiently numerous to serve as a basis for a positive assertion.

For those who are interested I give a more detailed description of the microdynamometer for measuring the hardness and softness of tooth enamel. This machine can measure to 1/600,000 of an inch just how far a standard punch will be driven into enamel by a standard force.

It is now gauged to measure to 1/300,000 of an inch, which being 1/12 of a micron, the figures are mathematically reduced by a table to 250/1000 of an inch, or tenths of microns, so that as microns or tenths of microns, they can be easily understood at a glance. The tenth of a micron is the unit of measurement used in the table.

The pressure is given by a mercury gauge (9) to which the standard punch (2) with glass scale (3) is attached.

The pressure is applied to the specimen (1) by placing it on an agate slab with parallel sides (4) and the slab on the anvil (5) and raising the anvil by the micrometer screw and ratchet wheel (8) up against the punch until the mercury gauge makes the pressure desired.

The penetration in the specimen is made known by a microscope (6) which is equipped by a specially constructed filar micrometer (7) which microscope was solidly screwed to the anvil (5). This is then adjusted and set so that it can accurately divide into the desired number of parts the 1/1000 of an inch divisions on the glass scale attached to the punch.

A counter weight (10) makes the mercury gauge start at 25 pounds pressure, as the mercury gauge is not accurate before that pressure is obtained.

(11) Electric lights for lighting the specimen and illuminating the microscope.

(12) Ratchet screw for raising or lowering the glass scale attached to the punch.

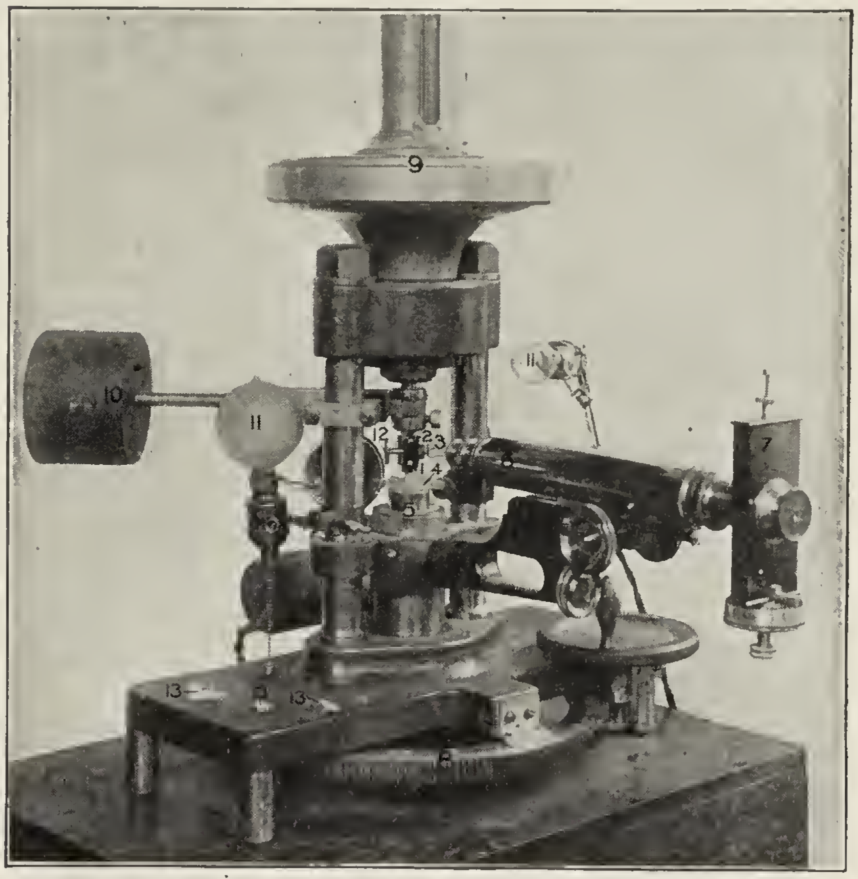

Fig. 1.—Full view of microdynamometer with the exception of the top of mercury gauge.

(13) Various tooth specimens ground and prepared for action.

If, therefore, the specimen is so adjusted and set under pressure so that there is no give between it, the slab and the anvil, it is possible to determine accurately within, say, 1/12 of a micron just how far the punch can penetrate under a given pressure.

For instance, the specimen is carefully ground on the microscope grinder until it has a flat, large base and a small spot on the top of the enamel ground parallel to the base. It is essential that the spot tested should be absolutely parallel to the base in order to avoid side give.

Three punches are used: A hardened steel punch 1/50 inch in diameter, designated as A. This is used purely for ascertaining how far a penetrating force under varied conditions will drive it into the enamel.

A punch consisting of an iridium point set into a brass rod which is used to determine the action of acids on enamel, whether erosion or swelling.

A diamond punch designated as D, ground flat 1/50 inch in diameter, and used at a pressure of 25 pounds.

All of these punches are first set on the specimen, placed on the anvil at a pressure as high or higher than they are to be used on the test, as a preliminary to any measurements being taken.

The A punch, unless otherwise stated, will be first set at 75 pounds, then the pressure reduced to nothing. Then, without moving the specimen in the agate slab that is ground parallel, the slab is moved so as to place a new area of enamel under the point. The punch is then placed at 5 pounds pressure and a reading taken through the microscope on the glass scale attached to the punch. The pressure of 75 pounds is then exerted for ten seconds, when the pressure is reduced to 5 pounds and a reading taken. The difference is the penetration.

For various readings on the same enamel surface during a single test, the agate slab is moved as desired, but the specimen is not moved on the slab as that would necessitate a new setting.

The same procedure is used with the D punch as the A or B punch. The times and pressure varying according to the test desired.

The same procedure is followed with B punch where acid action on enamel is to be determined. The specimen is set at 10 pounds, then reduced to 5 pounds and released, and again placed at 5 pounds until the same reading is always obtained. Then the acid is applied and at desired intervals, the point is placed on the enamel and the readings taken, showing erosion or swelling or a negative result as may be the case.

A negative result with the B punch may be followed with tests with the A or D punch that show softening to an astonishing degree.

ABSTRACT OF DISCUSSION

Dr. G. V. I. Brown, Milwaukee, Wis.: I believe that when Dr. Head has established the facts pertaining to saliva and enamel as he has presented them to-day, and there seems little reason to doubt that they will be established, and when this knowledge may be fitted into its proper niche in the greater structure that is building in the pathology of the different bodily divisions, then saliva will have a significance that we have never before accorded it.

Dr. C. J. Grieves, Baltimore: I did some work for the American Society of Orthodontists on decalcification of enamel, and I soon found that I knew nothing about the saliva and could not find many who did know anything about it. There are many things said, but there is little known as to the difference between living and dead saliva, if I may use that term. I found that enamel reacted very differently to these two kinds of saliva. Dr. Head had done some work along this line in regard to the ordinary aqueous solution and an acid solution in the saliva. The mucoid element in saliva is commonly condemned, and rightly so in the carious mouth in which the glycogen or carbohydrate portion is over 25 per cent., for it then becomes the normal habitat of that caries-producing organism, the decalcifying organism; I believe that normal mucus in the normal mouth is what makes for tooth protection, as it has already been shown to do in the gastro-intestinal tract. That is what makes the difference between the saliva solution and the aqueous solution.

I further found that all alloys were disassociated electrolytically in the mouth and we might well reason that enamel is decalcified by the same process which shortly destroys smooth surfaces of alloys in the mouth; the only substances not subject to disassociation are the mucoid or gelatinous substances; the common mouth mucus belongs to this group and I believe out of the mouth it protected the enamel from acid disassociation in Dr. Head's test-cases, as I am sure it does by a film in the mouth. We all have seen acid decalcifications produced by orthodontia appliances. These decalcifications are said to be rubbed out by prophylaxis, but I do not believe this. I think that the intercement substance has been destroyed by acid between the enamel rods and the interstices left are filled with mucus and the decalcified spot apparently disappears. If it is desiccated, it will then show up as an opaque spot. I firmly believe in the protective action of vital mucus in normal cases, but not when there is over 25 per cent. carbohydrate and the mucus is acid from fermentation. In erosion the mucus is nearly all in solution and there are few films on the teeth. Every normal tooth is covered by an alkaline film; where there are few films and the mucus is in solution, the action of acid sodium phosphates and calcium phosphates produces erosion.

Dr. Joseph Head, Philadelphia: I have done this hundreds of times with the same characteristic results. I have convinced myself, and now I want somebody else to try it.

Dr. E. S. Talbot, Chicago: Dr. Latham and I have been working on this for perhaps ten or twelve years from the internal point of view. We took the ground that these changes in the enamel were due to changes in the blood, and we actually demonstrated pathologic conditions of the dental pulp and the tissues which as far as we went are no doubt correct, but that work does not interfere at all with this work that Dr. Head is doing. I am not sure but we shall find that the work which Dr. Head is doing here will to a great extent solve the problem of decay of the teeth. That softening of the enamel and dentin take place through diseases of the body, there is no question. We have all seen enamel soften and the teeth decay very rapidly in tuberculosis and other diseases; the point was to prove that softening and decay did take place—I believe that they do—by establishing a degeneration of the dental pulp and the tissues of the cementum and enamel. The work which Dr. Latham and I have been doing in demonstrating that the softening of these tissues may take place from systemic conditions, added to Dr. Head's work, will help to solve this problem. It seems strange that this softening and hardening should take place in so short a time.

Dr. Joseph Head, Philadelphia: I cannot explain how these things occur, because I do not know. I am simply in a maze of astonishment. I am convinced that enamel will harden and soften. Since this has come to my attention, I have noticed spots that apparently seem to disappear, and I have had other dentists make the same observations.

If that spot disappears, would not this prove that the enamel is not the dead, inert substance that we are supposed to consider it? I cannot help feeling that the enamel is undergoing a series of changes, a sort of unseen action in itself, and that it is capable in its own molecular being of softening and hardening, something similar to the Bermuda rock which hardens under certain conditions. It is nothing unusual for crystals to harden and soften again.

A CLINICOPATHOLOGIC STUDY OF CARBON MONOXID POISONING *

J. W. McCONNELL, M.D.

AND

WILLIAM G. SPILLER, M.D.

PHILADELPHIA

REMARKS BY DR. MC CONNELL

Through the courtesy of Dr. Charles K. Mills, I am enabled to make this report of a fatal case of poisoning by carbon monoxid, the patient having died in his service at the Philadelphia General Hospital. As a recital of mere symptoms is almost valueless in these days of search for ultimate conditions, Dr. William G. Spiller kindly undertook the pathologic study and by his unusual findings established a sufficient reason for this presentation. I take this opportunity of expressing my appreciation of Dr. Spiller's kindness in associating his microscopic work with my clinical study.

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* Because of lack of space this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the authors' reprints.

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Department of Neurology and the Laboratory of Neuropathology of the University of Pennsylvania and from the Philadelphia General Hospital.

Poisoning by carbon monoxid may be divided into three great classes, the division being determined by the mode of onset of the symptoms: acute poisoning, chronic poisoning and relapsing carbon monoxid poisoning.

Under acute poisoning are included those cases in which the manifestations appear very promptly after the exposure of the individual to the toxic agent, whether such exposure be accidental or intentional. The symptoms include nausea, an indefinite feeling of illness with fulness of the head, headache, vertigo, great muscular weakness, and, if the influence of the gas is continued, drowsiness, unconsciousness and loss of control of the sphincters. Muscular twitchings or even convulsions sometimes occur. The skin and mucous membranes may be cyanotic and occasionally an erythematous rash resembling frost-bites may be seen over the malar prominences.

The sequelae of acute poisoning include pneumonia, cardiac palpitation, localized hyperemias, gastro-intestinal disturbances, transient glycosuria, cutaneous eruptions, localized edema and gangrene. In the nervous system, paralyses of central or peripheral type and choreiform movements are seen, persistent headache is complained of and mental changes take place, often only mild hallucinatory states but more commonly distinct confusional insanities.

Under the heading of chronic poisoning by carbon monoxid are placed those cases presenting headache, nausea, vertigo, general weakness and anemia with some slowness of intellectual activity and failure of memory. These are all symptoms of the acute type, but appear gradually in individuals who are chronically exposed to the toxic action of carbon monoxid.

The third class is designated as relapsing carbon monoxid poisoning, a term used to indicate the condition in those who, having apparently recovered from the initial effect of the poison, develop after a period of fair health a grave type of symptoms leading to death. Coplin, in 1905, explained the condition most uniquely, but without basis of fact. He said:

> In gas poisoning there takes place a combination of carbon monoxid with the hemoglobin of the hematoblasts present in the bone-marrow. The blood-making process is so crippled that when old injured cells are worn out and must be replaced there are no new cells prepared.

The occurrence of relapsing carbon monoxid poisoning was explained by Becker and Schwerin on the basis of a "deep-seated disturbance of the regeneration of all organs, especially of the vascular walls and the ganglion cells of the nervous system, as is evidenced by the secondary hemorrhages, idiocy, imbecility, etc., which are observed as sequelae."

Accounts of individuals suffering from relapsing carbon monoxid poisoning are not rare, and I could consume time and patience in reciting cases illustrative of the type of disease under discussion. One or two, however, that are strikingly similar will suffice for the purpose.

A man, aged 69, a porter, whose case was reported by Simon in 1868, was asphyxiated by carbon monoxid. His recovery was marked by persistent vertigo and headache. A month after his apparent return to health he developed a right hemiplegia quickly followed by death. Simon also reports the case of a woman, aged 46, who partially recovered from the acute effects of poisoning by carbon monoxid and subsequently developed mental disturbance, convulsions and rigid limbs. She was aphasic and died without any improvement in the nervous symptoms. Edsall calls attention to the fact that symptoms of much gravity often may be caused by a mild attack of poisoning, but these symptoms cannot be attributed to the immediate effects of the carbon monoxid, for Gruber, Sedgwick and Nichols and many others have fully demonstrated the non-persistence of the gas in the blood.

The following is the clinical report of a case which I observed for about six days:

CASE 1.—*History.*—The patient, C. S., was admitted to the alcoholic ward of the Philadelphia General Hospital in a stuporous condition, Nov. 28, 1911, supposedly suffering from alcoholism. There was no evidence of paralysis or other physical disability. As the patient did not improve she was transferred to the medical ward on December 1.

Except for very slight mental improvement the condition of the patient remained unchanged and she was transferred to the neurologic wards on Dec. 13, 1911.

From her son it was learned that the patient had always been well; she had never had a sick day until two weeks before admission when she became mopey, dragged her feet, seemed tired and wanted to lie down. She talked, took nourishment, did not have pain and made no complaints. Her last two days at home were notable because of the loss of control over the bladder and bowels. About three weeks before admission she was overcome by coal-gas while sleeping. She was found unconscious and taken to a hospital where after ten hours she recovered consciousness, and in two days was discharged fully recovered and able to attend to her usual duties. This condition of good health lasted but a few days. Her family, past medical and social histories are immaterial. Her son said that she complained of the stiffness of the upper extremities, but attributed it to the artificial respiration movements employed at the hospital.

Examination.—Dec. 14, 1911, the patient was examined by Dr. Mills and myself. She was unconscious, lying on her left side, irresponsive to sensory stimuli, that is, she showed no change of countenance when pricked with a pin, although the plantar reflexes were very active. Her face had the appearance of general muscular contraction, giving to it a frowning or stern expression, a sort of squeezed expression. The corrugatores supercilli, the orbiculares palpebrarum and zygomatici muscles were apparently spastic. The jaw was tightly closed.

The malar-orbiculopalpebral and the fronto-orbiculopalpebral (McCarthy's) reflexes were very prompt. The left pupil was slightly larger than the right, which was irregular. Both reacted promptly to light.

The upper extremities were very spastic in the right-angle position at the elbows with the arms held close to the sides and the wrists and fingers semiflexed. All the deep reflexes, muscle- and tendon-jerks were plus. Those examined were the von Bechterew, the coracobrachial, the biceps, the triceps and the radiocarpal.

The abdominal reflexes were present. The patient was incontinent of urine and feces.

The right lower extremity was spastic in flexion at the knee and on the pelvis. The left lower extremity was spastic, less so than the right, and almost in extension. The deep reflexes were present and somewhat exaggerated, probably markedly so but restrained by spasticity. Delayed ankle-clonus, persistent and marked, continuing for some time, was present on both sides.

The plantar-metatarsal and metatarsophalangeal reflexes were marked. The small toes went down, but on careful selective minimal stimulation of the soles of the feet the great toes were extended more than their quiet position which was one of permanent Babinski.

Course.—The condition of the patient steadily became worse with the development of spasticity of the muscles of mastication, so that the stomach-tube feedings were supplanted by nasal feedings, which latter became unsuccessful because of regurgitation of the liquid nourishment and its entrance into the larynx.

The patient died on Dec. 17, 1911, nineteen days after admission to the hospital and forty days after the asphyxiation by carbon monoxid. During her residence in the hospital she had no fever except the terminal rise of temperature to 103 F. The pulse-rate was uniformly fast, averaging from 90 to 100 beats per minute. Respirations were between 20 and 25 per minute, until the final shallow breathing set in. The blood-pressure unfortunately was not measured, but at all times to the finger the pulse was soft and easily compressed.

Laboratory studies of the urine showed no albumin, no sugar and no abnormal microscopic findings. Examination of the blood gave 92 per cent. of hemoglobin, 5,890,000 red cells and 14,300 white cells. The Hoppe-Scyler test for carbon monoxid hemoglobin was negative, the resulting color being brown. This was not made, however, until six weeks after the intoxication.

The especial clinical interest in this case lies in the time which elapsed between the initial poisoning and the development of the grave symptoms, in the bilaterality of the motor symptoms, in the intense spasticity present and in the absence of distinct vasomotor or trophic symptoms.

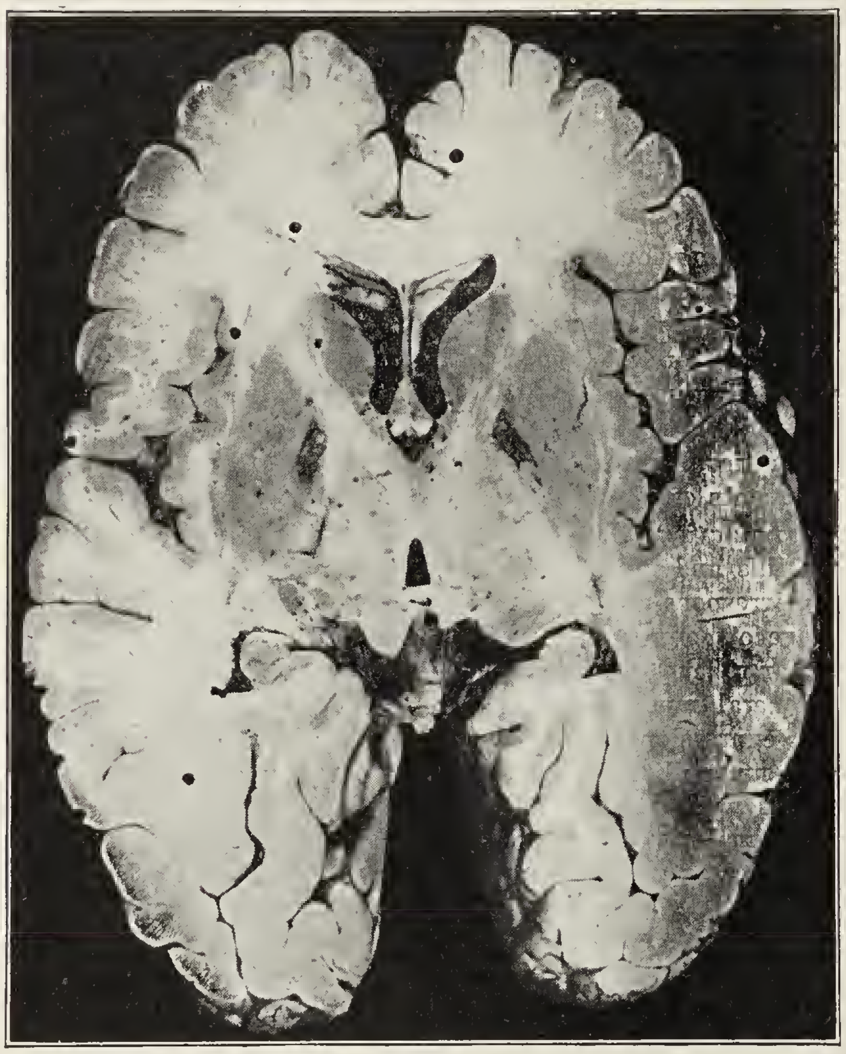

Fig. 1.—Symmetrical areas of softening in the inner segments of the lenticular nuclei.

As I have already stated, the weight of opinion seems to be in favor of the non-persistence of carbon monoxid in the blood and also the non-cumulative action of the gas. There must be, therefore, to explain the relapse, some physical or chemical process, originated by the poison and continuous in its action after recovery from the immediate effects of the acute intoxication. This I leave for Dr. Spiller to elaborate. In the paper by Dana on the functions of the corpora striata the statement is made that "in severe gas-poisoning there is a double softening of the lenticular nucleus due to thrombosis." This is the gross pathologic condition found in many of the reported cases, and fully explains the bilateral motor symptoms which conform to the type spoken of by Mills and Spiller in that the paralysis is less severe in lenticular disease than in capsular lesions.

Finally, many writers call attention to the distinct trophic cutaneous symptoms, but the only suggestion of a skin lesion in this case was the slight erythematous eruption over the cheeks and nose, somewhat like the appearance described by Peterson and Haines. Despite the fact that the comatose state lasted for days there was not a sign of decubitus or any gangrenous process.

REMARKS BY DR. SPILLER

The Betz cells in the case, reported from the clinical aspect by Dr. McConnell, are in a fair state of preservation, and there is little change in the paracentral lobules. The cells of the anterior horns of the spinal cord are well preserved, both in the cervical and lumbar regions. The vessels of the spinal pia and of the pia over the paracentral lobules and medulla oblongata are moderately thickened, and there is a very slight round-cell infiltration of the pia.

The inner segment of each lenticular nucleus shows a well-defined area of softening (Fig. 1). These areas are almost exactly equal in size, and have almost exactly the same upper and lower limits. The vessels within these areas of softening show calcification of their walls (Fig. 2), so that they stain purple with hemalum, and black by the Weigert medullary sheath method. Numerous round or irregularly shaped masses, most of them having the structure of corpuscula arenacea, are found throughout the softened areas (Fig. 3).

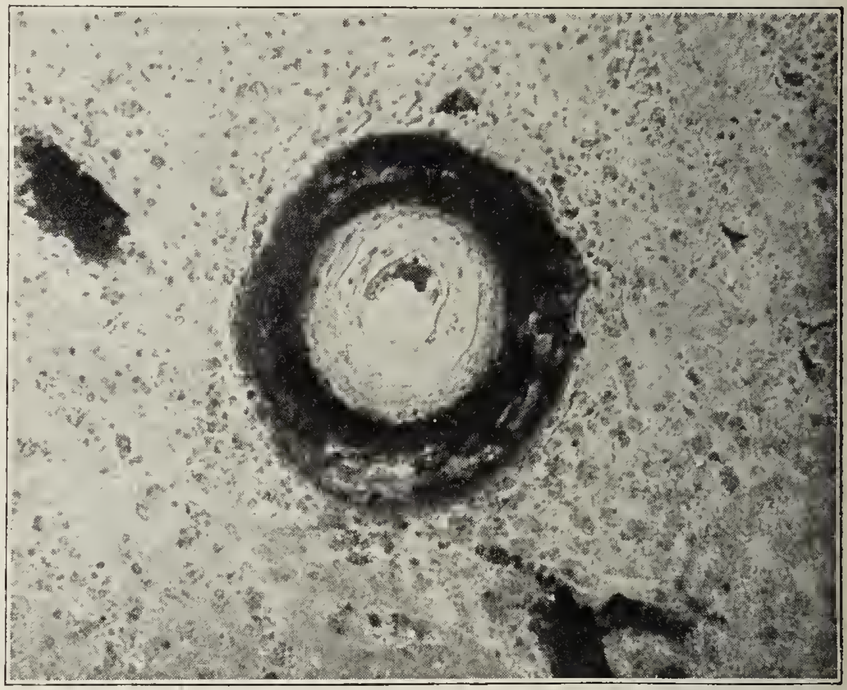

Fig. 2.—Calcified vessel in the area of softening in the lenticular nucleus.

The first thorough study of the encephalomalacia following carbon monoxid poisoning seems to have been made by Klebs; this honor is given to him by Hedrén.[1] Bilateral softening of the lenticular nucleus has been observed for many years as a result of carbon monoxid poisoning, and seems to be confined to the inner segments, but Oppenheim has written in the latest edition of his text-book that the method by which this softening is produced is not fully understood. The symmetrical softening of the lenticular nucleus always suggests carbon monoxid intoxication but it may occur from other causes, as Runeberg has shown (Hedrén). In this paper I report a case in which a history of gas-poisoning could not be obtained. The bilateral lesions were not quite so symmetrical as in the case in which a history of gas-poisoning was given.

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[1] Hedrén: Nord. med. Ark., 1902, ii, 4.

Poelchen,[2] in 1888, was able to collect the reports of twelve cases of bilateral softening of the lenticular nucleus following carbon monoxid poisoning; at least, the inference is that the lesions were bilateral in all twelve cases. He also found similar changes in the inner segments of the lenticular nucleus and its vessels in a person dead from phosphorus-poisoning, so that phosphorus seems to have the same effect as carbon monoxid. The bilateral softening from carbon monoxid poisoning may be remarkably symmetrical, not only as regards the limitation to the inner segments of the lenticular nuclei, but also as regards extent of the lesions upward and downward. Poelchen's explanation of this is that the vessels of the inner segments of the lenticular nucleus are very narrow, even at their origin from the basal vessels, are without anastomosis, without vasa vasorum, and therefore dependent alone on the blood circulating within them. The arteries of the outer segment of the lenticular nucleus are comparatively large, and probably anastomose with the arteries of the island of Reil. If the carbon monoxid poisoning lasted long enough, other vessels would become affected.

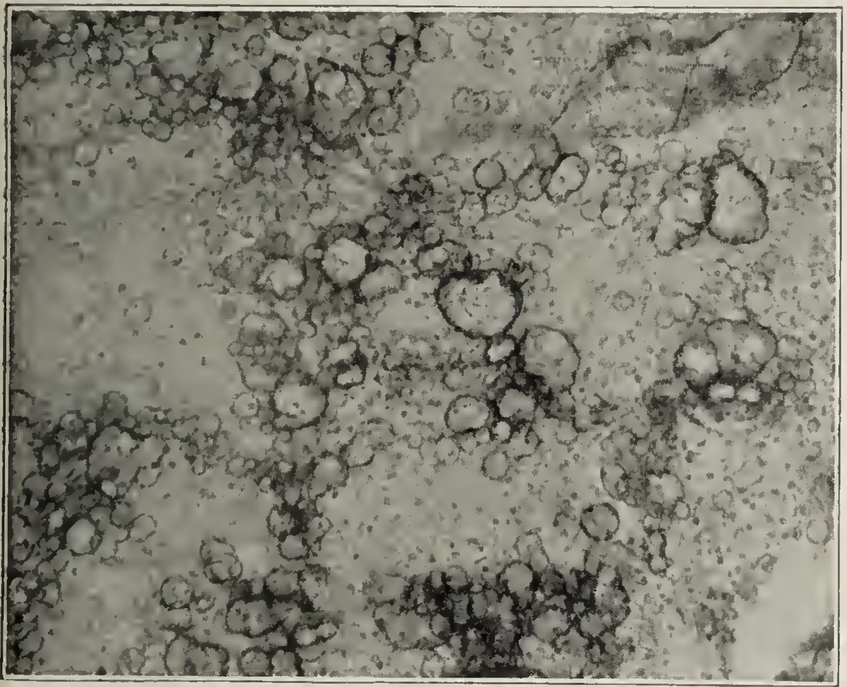

Fig. 3.—Calcareous deposits (corpuscula arenacea) in the areas of softening of the lenticular nuclei.

The most satisfactory explanation for the symmetrical softening has been given by Kolisko,[3] to whom we owe largely our knowledge of the circulation of this part of the brain. He states that in addition to the long arteries (arteries of cerebral softening supplying the head of the caudate nucleus, anterior limb of the internal capsule and anterior part of the external segment of the internal capsule) arising from the anterior cerebral artery a number of shorter arteries have their source in this artery which also convey the blood in a different direction from that in the parent stem. They are very small, about the thickness of a hair. Similar arteries arise from the carotid, the first part of the middle cerebral artery and the posterior communicating artery. These fine arteries do not anastomose. They supply the anterior part of both inner segments of the lenticular nucleus and the adjoining part of the internal capsule, including the knee. The extraordinary delicacy of these vessels with their almost perpendicular course at their origin is the cause of softening in carbon monoxid poisoning. In no other part of the brain is the circulation through such short and narrow arteries. Kolisko has repeatedly had opportunity in necropsies on those who died a few days after carbon monoxid poisoning to find symmetrical softening in the distribution of these arteries. He thinks the great distention of these vessels, which occurs in the early stage of carbon monoxid poisoning and has been known since the time of Klebs, causes thrombosis and a disturbance of the circulation in these vessels.

Peterson and Haines[4] state that a large number of experiments on animals forced to breathe carbon monoxid, diluted with either oxygen or air, have resulted in showing that the blood-pressure is at first considerably increased as the result of the stimulation of the vasomotor center. A benumbing of this center is then shown by the decrease of the pressure and a distention of the blood-vessels.

From this it appears that Kolisko's arteries of cerebral thrombosis are not concerned in the softening of carbon monoxid poisoning, but as some of these fine vessels of which Kolisko speaks have the same course, the change in the direction of the blood-current affects them equally. Hemorrhage in the distribution of the arteries of cerebral thrombosis is exceedingly rare. Thrombosis, however, has rarely been found in cases of carbon monoxid poisoning. Poelchen, Sibelius[5] and other investigators have searched for it in vain, but it was found by Kolisko and by Hedrén.

Most extraordinary is the apparently complete or nearly complete recovery from the acute poisoning with recurrence of symptoms, possibly terminating fatally. The late symptoms may develop several weeks after apparent health. This recurrence of symptoms was observed in the case reported by Dr. McConnell, and similar examples may be found in the literature. I refer merely to one, as in the extreme spasticity it resembles the case we have studied.

Hedrén reports the case of a patient who, having been overcome by carbon monoxid poisoning, was brought into the hospital unconscious and after twelve days was dismissed apparently entirely recovered. He continued well three days and then began to have severe headache and pain in the extremities. Memory began to fail, general muscular rigidity and stupor developed, and death occurred about twenty-five days after the first return of symptoms. The rigidity was so great that the patient was brought from a lying to a sitting position with great difficulty, as he was "stiff as a board." Alteration of the vessels was found in the left lenticular nucleus with thrombosis of the small vessels of this part. Small areas of softening and small hemorrhages were found in the spinal cord.

How are we to explain these delayed symptoms? There seems to be no support for the view that the occurrence of symptoms immediately or shortly after carbon monoxid poisoning depends on whether illuminating gas or coal-gas was the source of the intoxication. The carbon monoxid affects the nerve-cells as well as the nerve-fibers (Sibelius), and yet we can hardly attribute the delayed symptoms to changes in the nerve-cells alone. They were not conspicuous in the case reported in this paper. Delayed symptoms may depend in large measure on previous alteration of the vessels, as by age, and on the concentration of carbon monoxid in the gas breathed. Most cases of severe mental disturbance, in old persons, have been of the delayed type (Sibelius).

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[2] Poelchen: Virchows Arch. f. path. Anat., cxii, 1888.

[3] Kolisko: Wien. klin. Wchnschr., March 16, 1893, p. 191.

[4] Peterson and Haines: Text-Book of Legal Medicine and Toxicology, ii, 1904.

[5] Sibelius: Monatschr. f. Psychiat. u. Neurol., 1906, xiii, Erg. Heft.

Carbon monoxid causes fatty degeneration of the intima and muscular coat of the vessels of the central nervous system. Sibelius attempts to give an explanation for the late symptoms, and attributes them especially to the alteration of vessels. The vascular changes progress after carbon monoxid has been removed from the blood, and carbon monoxid does not remain more than a few days in the blood. Wachholz, however, demonstrated the gas in the blood in a fatal case seven days after the poisoning. Sibelius thinks it is possible that from carbon monoxid poisoning several organs become affected, and that by imperfect elimination injurious metabolic substances are retained and affect the cerebral vessels. In some cases the vascular changes are not progressive, but their results are progressive from continued imperfect nutrition. Hemorrhages may occur and cause progressive symptoms, and yet hemorrhages have only occasionally been found. Aside from these possibilities we must assume, according to Sibelius, a progression of the vascular changes, although we do not understand the method. This I would explain, in part at least, by calcification. Sibelius makes no mention of calcification, and I do not know that anyone else has done so. The nearest approach to such an observation is by Poelchen. In a case in which he examined the vessels, drawn out of the lateral perforated substance at the base of the brain, which supply the inner part of the lenticular nucleus, he found fatty change in the intima and muscular coat, and in the larger vessels the muscular coat was calcified; all other vessels in the brain were normal. He does not mention calcification of the small vessels in the inner segments of the lenticular nucleus.

Calcification of the capillaries has been found in different parts of the brain under different conditions; also in the globus pallidus by Wollenberg (cited by Obersteiner). It was very pronounced in the inner segments of the lenticular nucleus in the case of gas-poisoning described in this paper, and was present in milder form in the same region in the case to be reported with similar symptoms but without a history of gas-poisoning, although the failure to obtain any history makes the etiology uncertain. In no reported case have I found mention of the deposit of calcium loose in the softened tissue or in the form of corpuscula arenacea, as in the case here described. This calcification of the small vessels of the inner part of the lenticular nuclei is probably a progressive process and as it increases impairs more and more the nutrition of the areas supplied by the affected vessels. It doubtless causes the progressive spasticity of the limbs, but it is difficult to explain the stupor from the limited lenticular lesions. It is worthy of note in this connection that in the cases of the family form of softening of the lenticular nuclei reported by Wilson the mental condition seems to have been peculiar.

I have sought an explanation for the formation of lime salts in the brain in Wells' "Chemical Pathology"[6] and find it stated there that in calcification the calcium salts come from the blood, where they are held in solution or in suspension by the proteids, either as the carbonate and phosphate themselves, or as calcium-ion-proteid compounds, or perhaps both. This suspension or solution is an unstable condition, possible only because of the extremely small proportion of calcium in the blood (about 1:10,000), and therefore capable of being overthrown by increased alkalinity of the blood, changes in the proteids or changes in the quantity or composition of the calcium salts.

Retrogressive changes in the tissues are a sine qua non. Hyaline degeneration, the chemical nature of which is not understood, is a very favorable condition, as also is necrosis when absorption is deficient.

In the areas that are to become calcified the circulation is very feeble, the blood-plasma seeping through the tissue as through any dead foreign substance of similar structure, without the presence of red corpuscles to permit of oxidative changes.

Calcification may be caused by utilization of the proteids of the fluids by the starved tissues so completely, because of its slow passage through them, that the calcium cannot be held longer in solution. This idea has little support but has been advanced. The possibility of the formation of calcium-binding substances within the degenerated area has always seemed more attractive, and has received the most attention by investigators.

Following is the report of a case which presented the same clinical appearance as did the case of gas-poisoning, but the patient was brought into the Philadelphia General Hospital without any history, and nothing could be learned of his previous condition.

Case 2.—E. B., aged 70, was admitted Dec. 22, 1911, and died Jan. 2, 1912. He was stuporous although he answered questions at times when spoken to, but his speech was incoherent. He muttered and sang in a low voice; he had no idea of place or time, was incontinent and said he heard and saw the Lord. Later he could not be aroused. The right pupil was very much dilated; the left was contracted and irregular. They did not respond to light. There was rigidity of all the limbs, especially at the elbows. The patient lay on his back with head and eyes turned to the right. Both forearms, especially the left, were strongly flexed on the arms. Extension of the forearms passively was difficult, and when the left was extended the patient screwed up his face as though in great pain. Pricking the face with a pin caused no change in expression. The lower limbs were slightly flexed at the knees but were more easily extended than the upper. The man moved the right arm and both legs at times quite freely, but did not move the left arm—at least no voluntary movement of this limb was noticed. The biceps and triceps reflexes were exaggerated. The patellar reflexes were not obtained, probably because of the spasticity. Plantar stimulation gave plantar flexion.

Symmetrical areas of softening were found in the inner segments of the lenticular nuclei. They were larger than in the case with a history of gas-poisoning, and did not have exactly the same superior and inferior limits. The small arteries in the areas of softening showed a moderate degree of calcification, but corpuscula arenacea or other calcium deposits were not found.

Dana[7] probably was the first American writer to call attention to the bilateral softening of the lenticular nucleus in gas-poisoning. The cases described in our report are especially interesting in connection with the extraordinary cases of progressive degeneration of the lenticular nucleus of the family form, described by S. A. K. Wilson.[8] It appears that when the lesions are confined to the lenticular nuclei intense spasticity is produced with apparent paralysis, but power of voluntary motion is really retained, although all movements are awkward and are of less power.

I am indebted to Dr. A. J. Smith for the photographs.

701 North Fortieth Street—2046 Chestnut Street.

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[6] Wells, H. Gideon: Chemical Pathology, W. B. Saunders Co., 1907.

[7] Dana: Jour. Nerv. and Ment. Dis., 1908, p. 65.

[8] Wilson, S. A. K.: Rev. Neurol., Feb. 29, 1912, p. 229; Brain, 1912, xxxiv.

SAFETY-RAZOR-BLADE SCALPEL

JOHN B. MURPHY, A.B., M.D., LL.D.
CHICAGO

Every surgeon has more or less often been annoyed by a dull scalpel when a sharp one was very much desired. Furthermore, after a few strokes of the scalpel, especially when made in a firm or resistant tissue, like an old scar, the cutting edge of the scalpel becomes dulled. Sharpening scalpels is a nuisance and at best very unsatisfactory. In order to overcome these objections, I have devised some handles to carry the two types of safety-razor blades most commonly used. After these blades are no longer serviceable for the purpose for which they were intended, they make excellent scalpels. They are cheap and easily obtainable.

The accompanying illustrations are self-explanatory. The ordinary scalpel handle is provided with two arms, united above but not below, between which the knife blade is inserted. To carry the double-edged blade, one arm is provided with two stubs which fit into the two perforations in the blade, so as to hold the blade firmly, and a thumb-ratchet locks the arms, thus making a splendid, double-edged cutting instrument (Figs. 1 and 2, *A*).

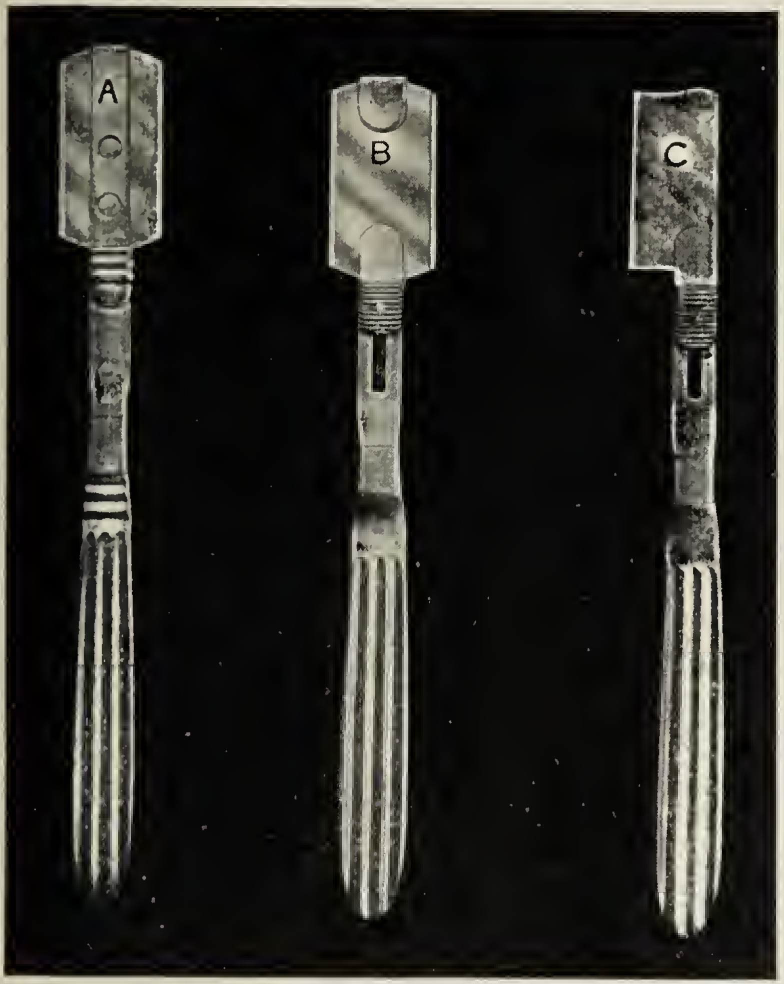


Fig. 1.—Three styles of handles: *A* is used for a double cutting-edged blade; *B* is provided with the flange, which is visible on the right-hand edge of the blade; *C* is the single cutting-edged razor-blade handle.

A second type of handle has the carrying arm provided with a broad flange which protects one cutting edge so that a single cutting-edged instrument, like the ordinary scalpel, is obtained. This scalpel handle has only one arm, which is turned down over the blade on top. The thumb-ratchet when pushed up secures the blade below (Figs. 1 and 2, *B*).

The third type of handle is intended to carry a single cutting-edged blade, like the auto-strap razor blade. It is constructed like the second style of handle except that it has no flange on the carrying arms and is not provided with stubs, this blade having no perforations (Figs. 1 and 2, *C*).

I have used these scalpels for some time in all my work and have found them very serviceable and satisfactory.

104 South Michigan Avenue.

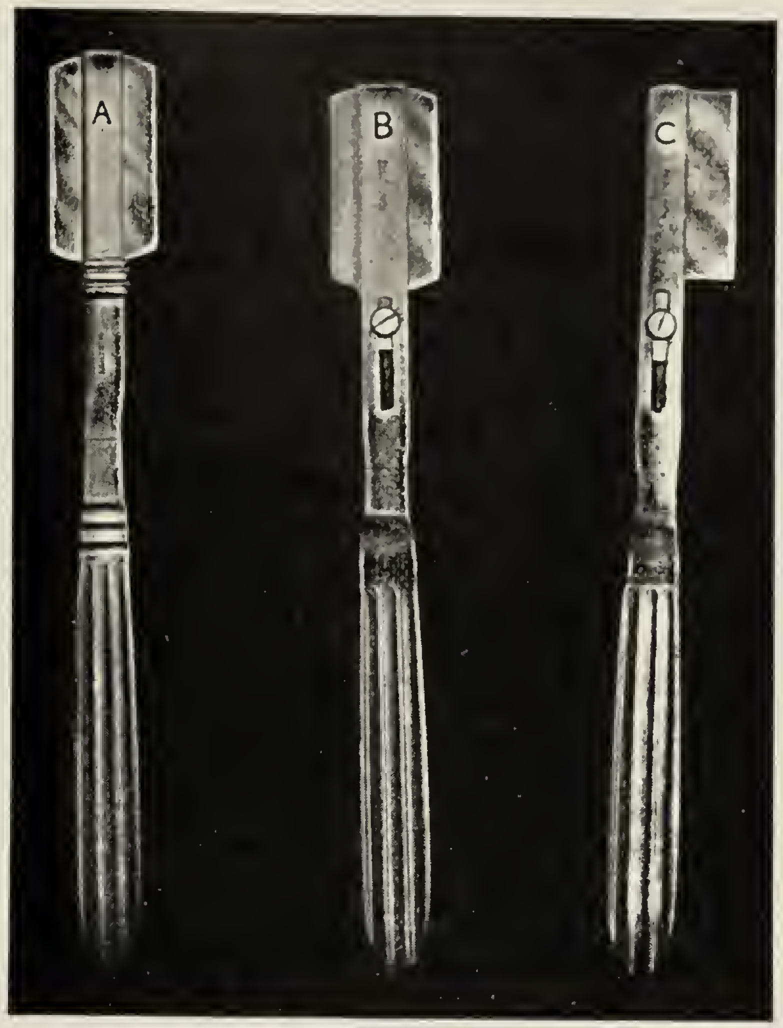
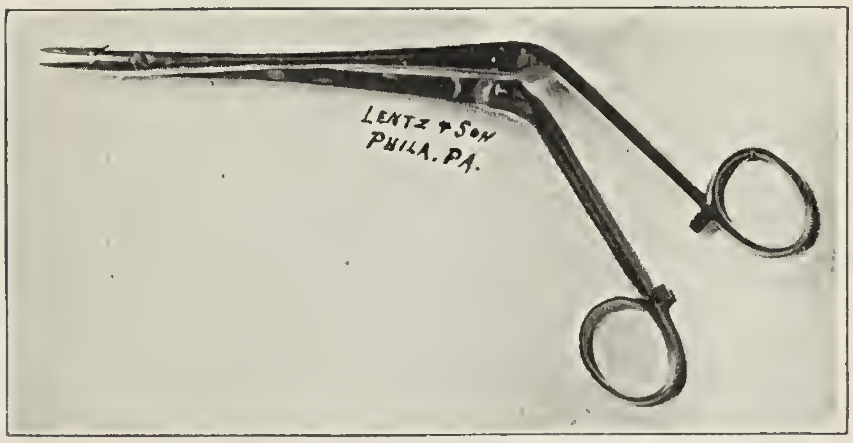


Fig. 2.—Reverse of the three handles. The flange on *B* is now seen covering the left half of the blade.

CLEFT PALATE NEEDLE-HOLDER

GEORGE M. TODD, M.D.
Visiting Surgeon, St. Vincent's Hospital
TOLEDO, OHIO

Much of the difficulty of placing sutures in cleft palate operations may be obviated by the use of this special needle-holder. In operating with the child in the head-down position, using the ordinary needle-holder, vision is obscured by the hand being between the field of operation and the eye. By the use of a needle-holder constructed with the hand portion at an obtuse angle, as shown in the illustration, this difficulty is overcome. The surface of the palate is plainly in sight at all times, and the sutures are readily placed in position.



Cleft palate needle-holder.

The holder, in addition to its angular shape, has a notch on one blade into which the other blade passes when the holder is closed. This prevents any side motion and secures firmness. The needle-bite is small, suitable to the work intended and the size of the needle used. It also has a catch on the finger-holds to fasten the needle securely in its bits.

316 Colton Building.

AVERAGES IN ATTITUDE AND TRUNK DEVELOPMENT IN WOMEN AND THEIR RELATION TO PAIN *

ROBERT L. DICKINSON, M.D.
AND
WALTER TRUSLOW, M.D.
BROOKLYN

PART I. THE MECHANISM OF THREE TYPES OF POSTURE, VIEWED FROM THE SIDE, BY DR. TRUSLOW

Three types of posture, varying according to differing anteroposterior relationships, are here named and discussed: (1) "kangaroo" type; (2) normal or neutral type, and (3) "gorilla" type.

Distinguishing features of the normal type are: (1) the line of gravity of the body passes through important pivotal points; (2) the pelvis is balanced in equilibrium on the heads of the femora, its position being indicated by the angle which the plane of its inlet makes with the horizon; (3) this relation of important pivotal points with the line of gravity and this balance of the pelvis insure an easy balance of all superimposed structures of the body, including the spine in its physiologic curves; (4) the rear perpendicular touches two points, the shoulders and the buttocks (Fig. 1).

The carefully balanced segments of the body are retained in position by nicely balanced muscle forces. In this normal position, the internal organs of the trunk are placed in proper anatomic relation to each other. The position therefore conduces to normal visceral activity.

Anteroposterior deviations from the well-balanced position of the normal type tend toward: (1) mechanical instability; (2) muscle and ligament strain and pain, and bone deformity; (3) abnormal relationship of the viscera of the trunk and therefore toward derangement of their function.

These deviations mainly tend toward two opposite types, which are called respectively the "kangaroo" and the "gorilla" types (Figs. 2 and 3).

There are other etiologic factors, but this paper is limited to pointing out the relation of the *corset* and the relative *height of heel* to the two variants from the normal in posture.

In the accompanying cuts and in the complete paper the three types are compared segment with segment, noting in each mechanical relationships, muscle and ligament equilibrium of strain, and pain and visceral relationship. Treatment is outlined from the standpoints of correction by mechanical support—corsets and shoes—and by prescriptive exercises. The question of other methods of treatment of the abdominal and visceral ptoses is not here discussed.

The "kangaroo" type of posture conduces to strain on and pain or aching of the low back muscles, and of the muscles back of the knees and of the calves. The posture favors the forward-carried abdomen and pelvis, and thus forward displacement of their viscera. Sacro-iliac joint strain is not infrequent. This position tends toward weakening of the long (plantar) arches, but relieves strain on the metatarsal arches of the feet.

In the neutral position there is no mechanical tendency toward the abnormalities outlined. Pathologic conditions may here cause, as in the other conditions they may modify, the strains elsewhere mentioned, but this posture does not cause them.

The "gorilla" type of posture favors strain and pain of the upper back muscles, iliopsoas muscles or of the sacro-iliac joint structures (which may easily be mistaken for low-grade pelvic inflammation, etc.). The position is very liable to cause metatarsalgia or pains

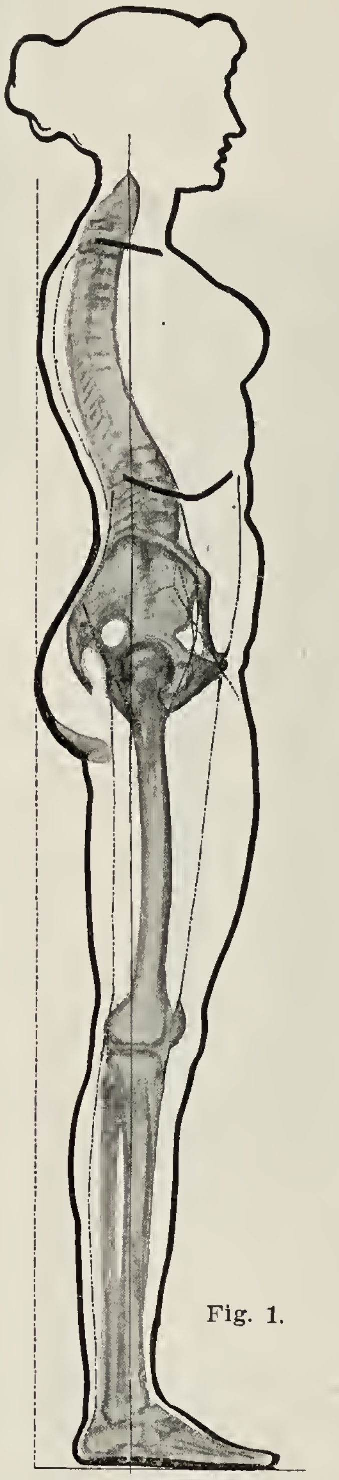


Fig. 1.

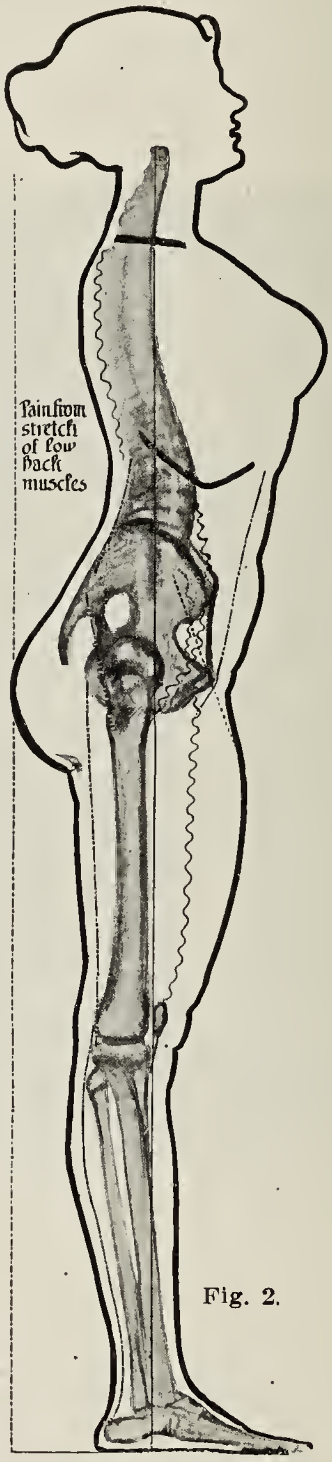


Fig. 2.

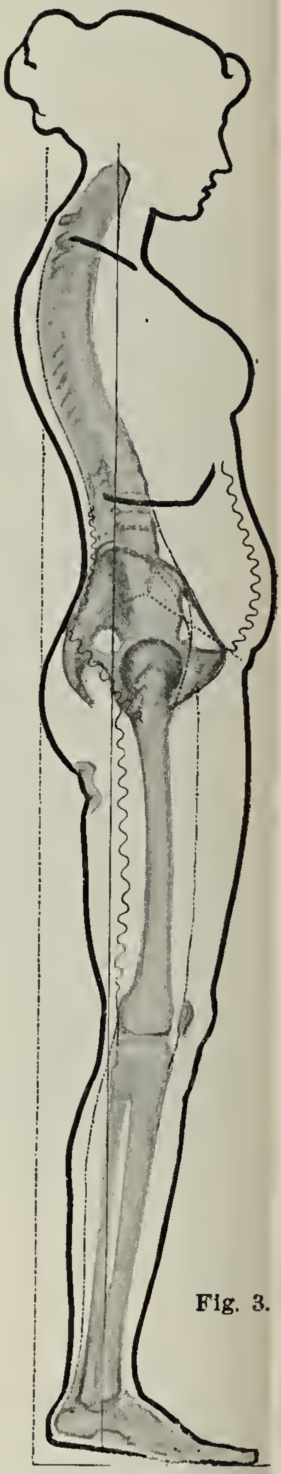


Fig. 3.

Fig. 1.—Normal or neutral type of posture. Distinguishing features are: (1) Line of gravity of body passes through important pivotal points; (2) the pelvis is balanced in equilibrium on the heads of the thigh bones; (3) this relation of important pivotal points with the line of gravity and this balance of the pelvis prevents muscle and ligament strains, and (4) the rear perpendicular touches the middle back and the buttocks.

Fig. 2.—Kangaroo type of posture. Distinguishing features are: (1) Most pivotal structures of the trunk are carried in front of and those of the lower extremities behind the line of gravity; (2) the pelvis rotates forward downward; (3) the forward carried trunk puts strain on the spinal and pelvospinal ligaments and muscles, and tends toward forward displacement of abdominal and pelvic viscera. Wavy lines indicate muscles relaxed; dot and dash lines show muscles in action.

Fig. 3.—Gorilla type of posture. Distinguishing features are: (1) Most of the pivotal structures of the trunk are carried back of and those of the lower extremities in front of the line of gravity; (2) the pelvis rotates backward downward; (3) the backward carried trunk puts its own variety of strain on the spinal and pelvospinal ligaments and muscles and tends toward backward and downward displacement of the abdominal and pelvic viscera. Wavy lines indicate muscles relaxed; dot and dash lines, those in action.

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* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* Because of lack of space this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the authors' reprints.

in the fore part of the foot. Especially is this the case if high heels are worn.

The mechanical treatment of the kangaroo type includes a corset, which shall make strong circumferential pressure on the pelvis, and shall have ascending lines which shall shift the trunk backward (Fig. 4). Moderately high heels, to relieve "knee-back," may at first be worn. Gymnastics must tend toward posture training and toward special development of abdominal, buttock and calf muscles. For the gorilla type, the corset must have strong pelvic pressure and must have lines which shall carry the trunk forward (Fig. 5). A sacral pad will help this. The heels must be lowered as quickly as possible and special foot-braces, with metatarsal arch support, are often necessary. The exercises aim toward posture training and toward the development of scapulovertebral, abdominal, anterior thigh, calf and toe flexor muscles.

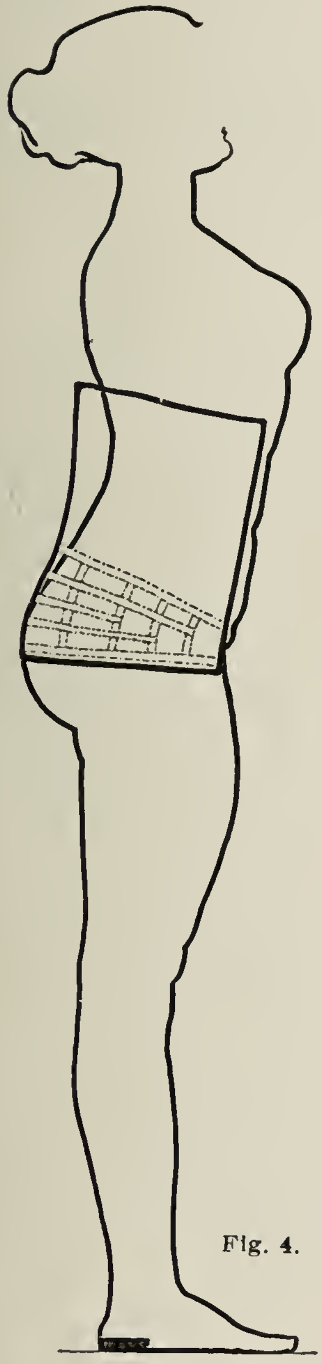


Fig. 4.

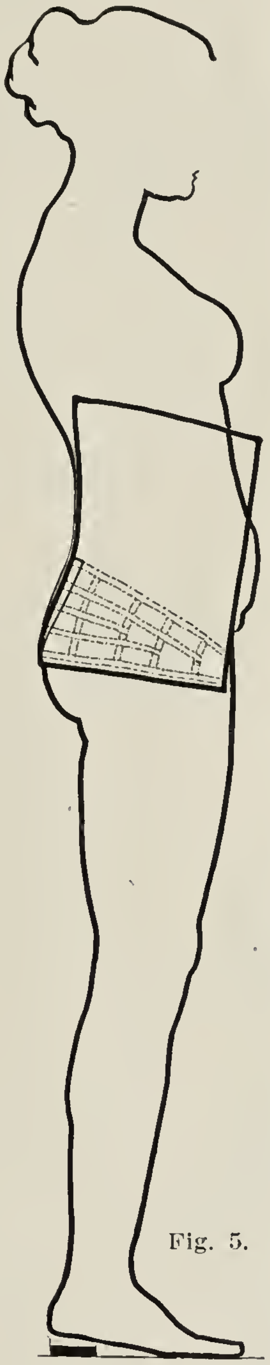


Fig. 5.

Fig. 4.—Mechanical treatment of kangaroo type. The corset is tight, or even reinforced about the pelvis, and its lines are such as to hold trunk backward. The heels may be moderately high to relieve the strain of "knee-back."

Fig. 5.—Mechanical treatment of gorilla type. The corset is tight about the pelvis, and its lines are such as to hold the trunk forward. The heels are lowered to carry knee balances backward and specially padded soles are placed under painful metatarsal arches.

This preliminary study of the mechanism of three types of anteroposterior posture takes cognizance of the valuable work of Goldthwaite, Reynolds, Lovett, Dickinson, Franklin Martin and others. It could well be supplemented by more in the same direction and by studies of variations from the normal, due to lack of lateral balance.

In conclusion, this paper points out the mechanical instability of habitual body-carriage in front of the line of gravity and to the rear of this line; it draws particular attention to trunk, sacro-iliac, knee and foot strains; it shows the relation of corsets and of heels to these, and outlines principles of mechanical treatment by correcting corsets, proper foot support and by prescriptive exercises.

PART II. AVERAGES IN ATTITUDE AND TRUNK DEVELOPMENT IN WOMEN AND THEIR RELATION TO PAIN,

BY DR. DICKINSON

How many clinicians strip patients standing? He who does not misses the chance to detect the source of many an ache. Loath as we must always be to subject women — particularly those of sensitive English and American up-bringing — to the distress of this procedure, the time will come when no man will consider himself careful or thorough in a search for causes of chronic pains about the trunk who does not carry out

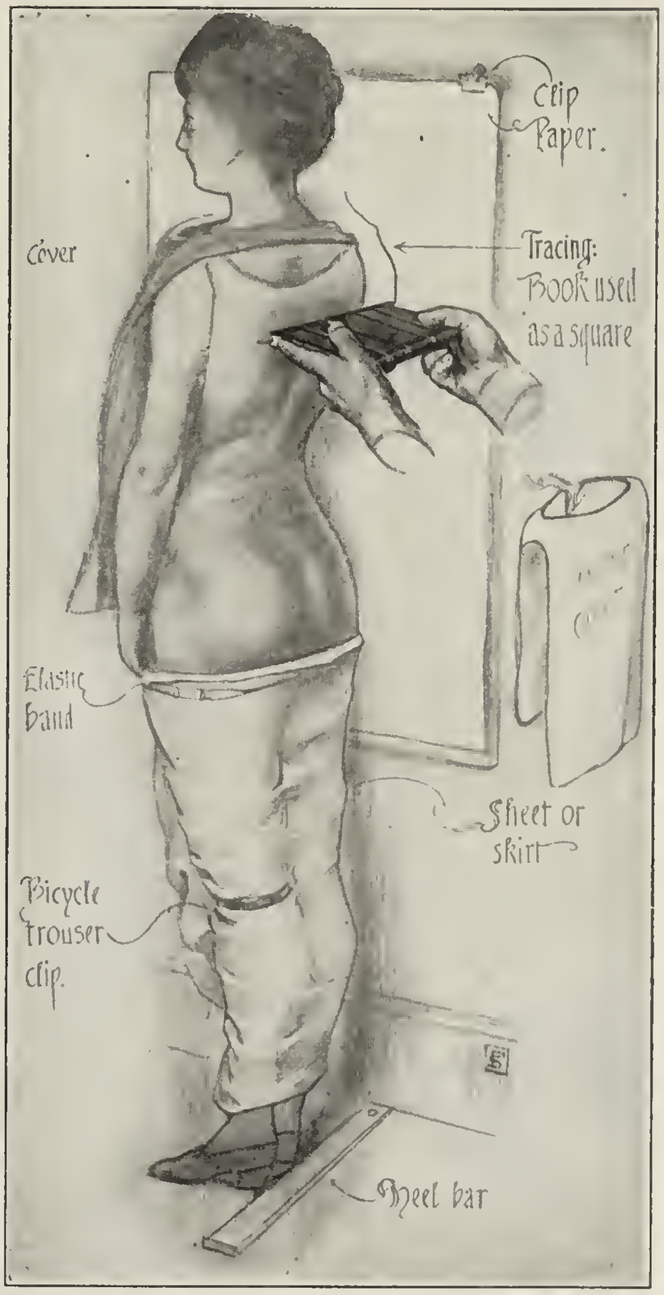


Fig. 6.—Simple office method of taking outlines of the figure. The subject stands against a heel bar on the floor, the bar being pivoted to swing out of the way when not needed, and always swinging back to the same mark. The clips that hold the paper are fixtures; the edge of the paper hangs to a mark on the wall or against a drawing board (which should run to the floor). In this way accurate comparisons may be made with past and future conditions, because the paper will always be in the same relative position to the heel bar. A narrow book that acts as a square is held in both hands; in its groove a soft pencil or crayon is caught in place by elastics and with this pencil the profile is followed and the tracing made. The sheet held snugly by hip garter and knee clip exhibits the knee action. The whole is more exact, simple and speedy than photograph or shadow tracing.

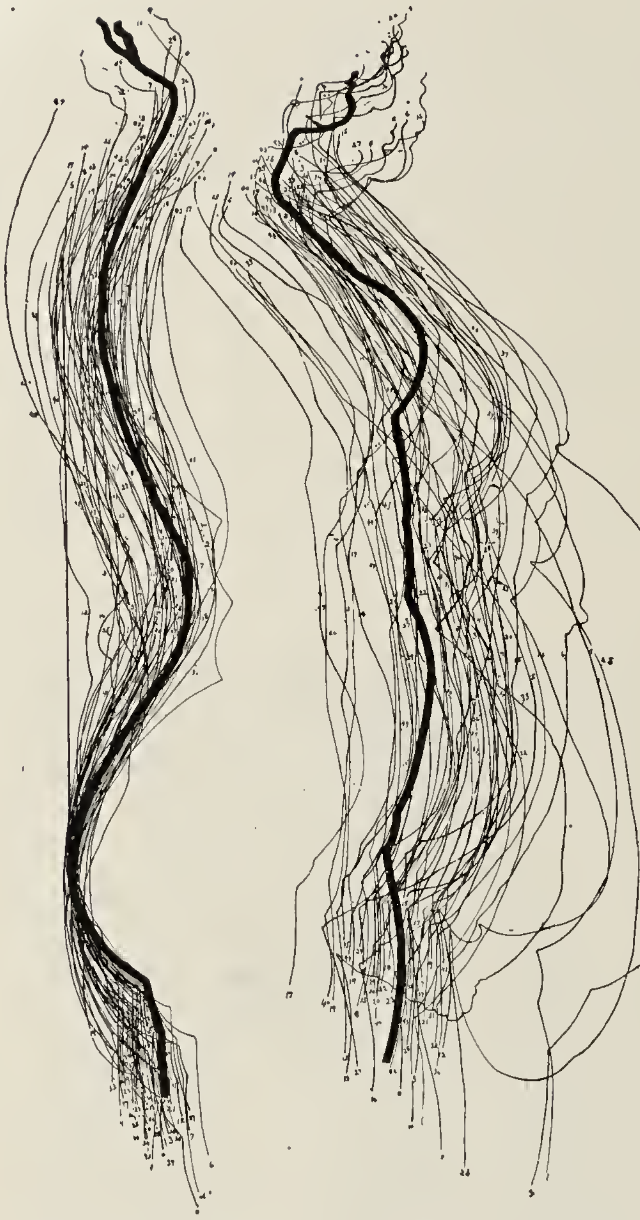
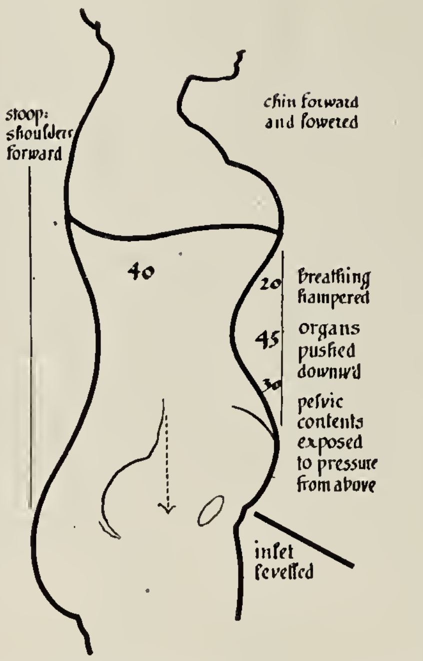


Fig. 7.—A group of forty-seven tracings superimposed in order to study averages and extremes. The average shoulder is in fair relation to the buttock, the average chin is forward, breast pendant, abdomen thick, prominent, sagging—whether children have been borne or not—the buttock long and low. Hundreds of the authors' tracings multiply the same lines. Heavy black line normal (antique).



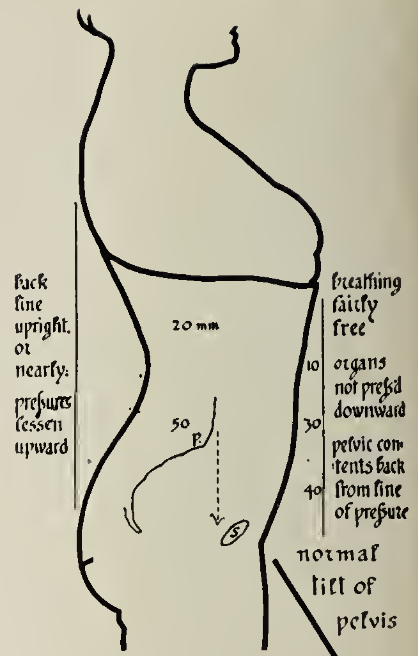
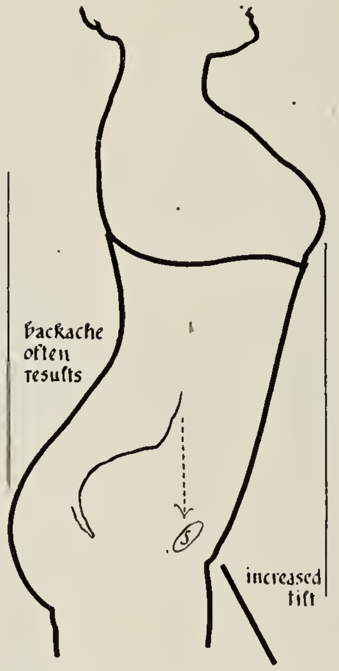

back line upright or nearly:
pressures lessen upward
20 mm
50
breathing fairly free
10
organs not pressed downward
30
pelvic contents back from line of pressure
40
normal tilt of pelvis

Fig. 10.—The average corset and its defects. Hour-glass shape, maximum pressure at waist line, rib constriction, chin and shoulders thrown forward, inlet leveled. Figures are mm. of pressure.

Fig. 11.—The erect posture of the "tolerable" corset with low areas of pressure in its upper parts and good pelvic inclination.



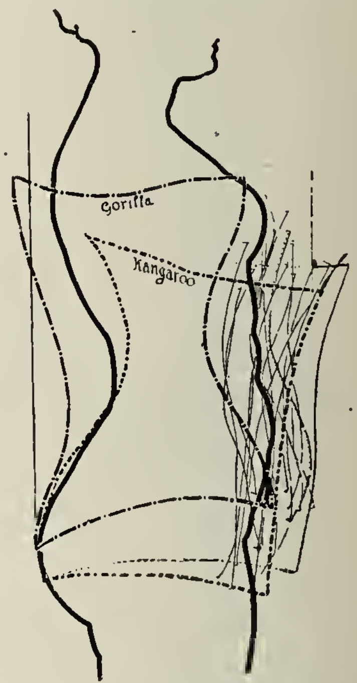
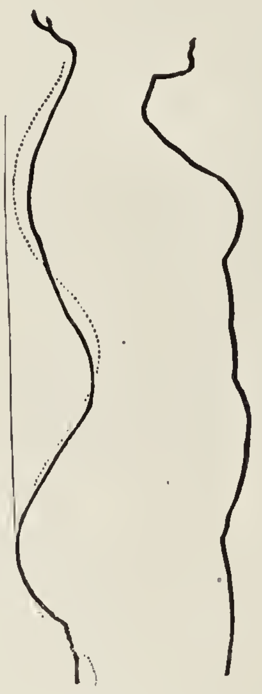


Fig. 12.—"Straight front" corset tends to "kangaroo" type of carrlage.

Fig. 13.—A group of outlines of fronts of corsets to show averages and extremes.



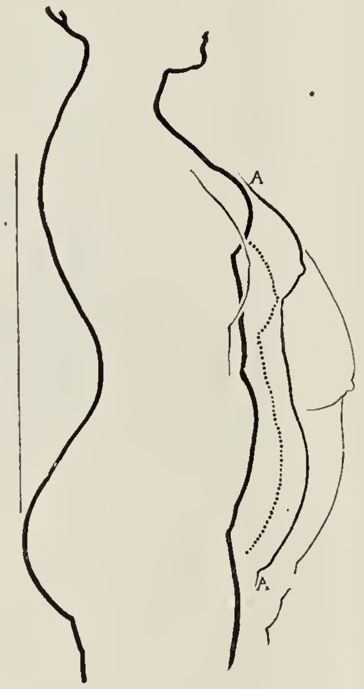
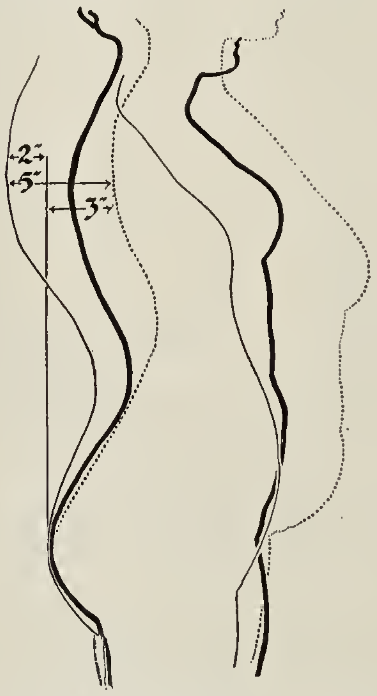


Fig. 8.—While the average back in the scapular region nearly approaches the perpendicular from the buttock, the droop forward of the neck brings an excessive curve in this region which produces a round-shouldered effect; that is, a general tendency to the gorilla type of back. Dotted line the average.

Fig. 9.—Anterior lines of the trunk. The breast drags downward in nearly every instance. Along the abdomen the dotted line and the heavy black line A show the most common averages according to the previous occurrence of pregnancy or not. This average anterior abdominal line which is strikingly in advance of the normal (heavy black) line, shows greater prominence at its lower portion: This is the main average deformity of women.



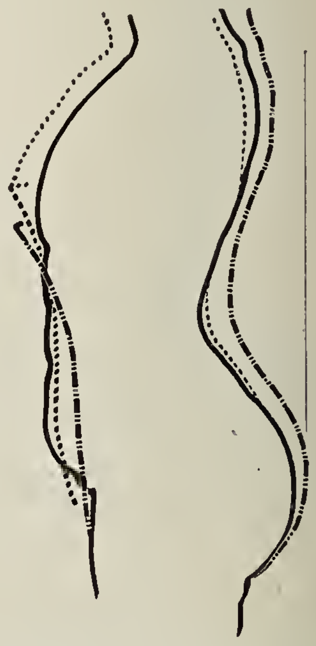
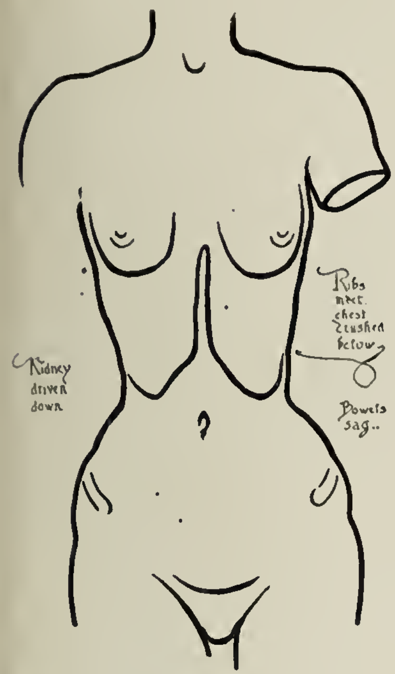


Fig. 14.—Extremes in carriage of shoulder, the heavy black line being the normal. Both the individuals shown by dotted and thin lines were disabled by backache and promptly relieved by correction of attitude, with muscle strengthening.

Fig. 15.—Betterment in carriage from proper corset. The black line without, the fine dotted line with usual corset. The shoulders have been brought backward and the center of gravity altered by better corseting, as shown by dot and dash line, the first step in the gradual process.

such observation as one of the regular details of a systematic examination.[1]

The average civilized woman sags. The average back is nearly upright. The shoulders run only slightly toward rounding, and the chin to drooping. The deformity which is practically constant is protrusion of the abdomen. Relaxed from poor muscle, pushed out by low-hung inner organs, and padded with fat, mostly below the navel, the anterior abdominal wall is in advance of the normal, 1 inch in a large group and 2 inches in yet another large series. The breasts drag down and the buttocks sweep low. Most hips and thighs show fat pads, but these, like the abdominal adipose, are local deformities and not part of a general obesity.



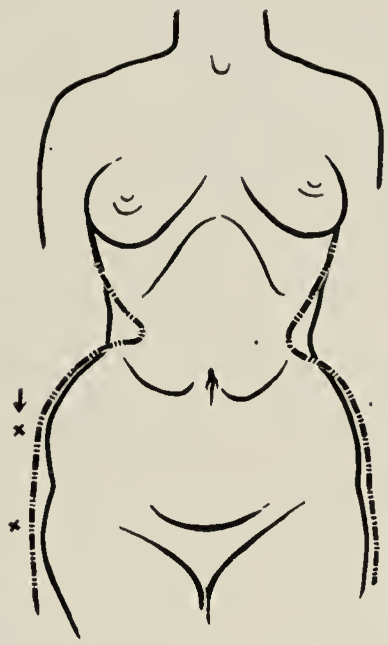


Fig. 16.—Congenital deformity accentuated by corsets. The long trunk type suffering from constriction during period of growth. The angle between the cartilages of the ribs does not admit the finger; kidneys and bowels hang low.

Fig. 17.—Hip-pad and thigh-pad produced by the corset: the "chorus girl" figure. Extreme instance of deformity produced by hour-glass corset. Between hip-pad and thigh-pad the newer form of corset, by its high-pressure pelvic girdle, is producing a second waist line, indicated on the right of this patient.

Drawn from a large number of cases, my tracings show not only the frequency of the defects listed above, but the persistent presence of faulty muscles all about the waist line, and a very constant narrowing of the chest and of the angle in front, between the cartilages of the ribs.

Among postures, one-third were found good, one-half defective. Certain types of body form are particularly susceptible to defective carriage and defective corsets, such as the individual with the long and slender trunk, and the overfeminine figure.

The corset may be tolerated, except during active exercise, if neutral.[2] Corsets other than harmful are not much in evidence. The hour-glass form, with its pressure mainly at the waist line and its downward drive, was determined to be still the average design, being found in fully two-thirds of the cases studied. In one-half the cases all pressures ran high. The spring or gap of the corset when unhooked — the most convenient measure of amount of constriction — should not exceed 2½ inches. The tight corset harms vigorous women little, weaker women, greatly. But there is no substitute for Nature's corset — the well-set-up anterior abdominal wall.

The remedy lies in thoroughness in examination, particularly among women with backache and enteroptosis and neurasthenia; in muscular training continued after the year it is usually abandoned — the fifteenth — and systematically ordered after labor, and in the supervision of gymnastics and of dress.

We have advocated stripping, at least to the union suit, or to the cape shown in Figure 6. To avoid delay in office work a dressing-room, however small, is desirable; to avoid criticism, a nurse or attendant is advisable, though not essential; to save disappointment, results should not be promised except in terms of months and with the understanding that defects of attitude and atrophy and pressure are but one of the causes of the ache and weakness. The secret of success is persistence, and no more difficult task presents itself to the practitioner than the remodeling of the muscular habits of the flabby and obese or the self-indulgent. Printed slips or typewritten sheets of instruction concerning exercise and carriage; a diary or daily notes to be submitted to the physician at stated intervals, somewhat after the manner of the sanatorium inquiry, showing what has been done daily in the number of exercises; cold sponging, and regulation of nutrition—all these are essential to results.

The eye, once having been led to look for trunk defects, becomes trained to see them quickly, especially if a few of these have been traced in order to develop the powers of observation; or the office attendant may be trusted to draw attention to many of these matters. It is the old question of thoroughness versus superficiality — of a patient hunt for less obvious causes.

168 Clinton Street—67 Hanson Place.

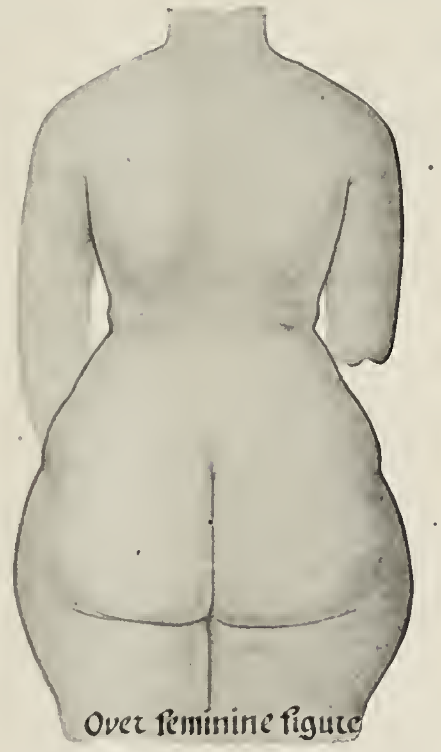


Fig. 18.—The overfeminine type. Large hips heavily padded, with small upper trunk and narrow lower chest and atrophy of back muscles causing rebellious backache.

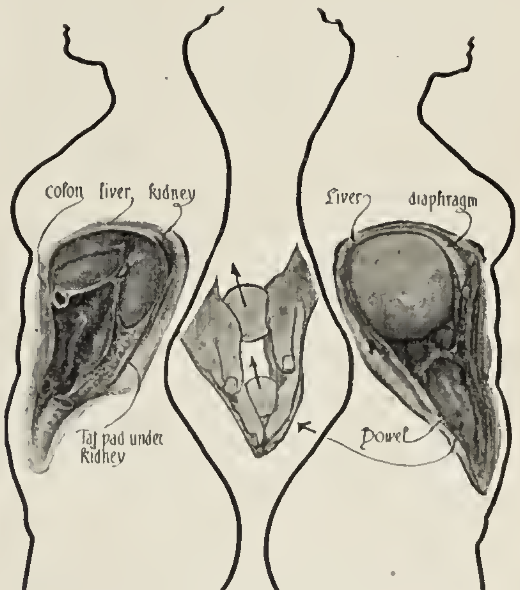


Fig. 19.—Only by muscular action with fascial integrity can the mobile masses in the wedge-shaped cavity be held from slipping downward.

ABSTRACT OF DISCUSSION

DR. ROBERT B. OSGOOD, Boston: The question as to whether a fairly vicious corset has any marked immediate effect on the position of the organs, especially the stomach, has interested me. Two x-rays of a young woman of 20, in good health and without symptoms, were taken one directly following the other after a bismuth meal, both in the standing position. The first shows the lower border of the stomach at the level of the umbilicus. The second, after putting on the corset, shows the stomach crowded upward almost 10 cm. One can easily imagine the extent to which the organs below the hour-glass corset constriction must be crowded down and a sagging stomach or colon be made still more ptosed and there retained. The question at once arises as to what effect attitude alone has on the causation of back pain. Of 130 tracings of a college class taken alphabetically 53 per cent. showed bad postures and 47 per cent. neutral or good. Of the faulty attitudes, 4 per cent. could be classed as kangaroo and 49 per cent. as gorilla. The lumbar lordosis was increased in 17.6 per cent. and diminished in 9 per cent. and considered to be within normal limits in 73.4 per cent. It would seem that faulty attitude may exist, at least for a certain time, without necessarily giving rise to subjective symptoms of pain, when we consider that while 53 per cent. showed a bad position of standing only 5 per cent. had pain. The prevalence of faulty attitudes in women is suggested by this series. In 760 cases of low back pain in the clinic of the Massachusetts General Hospital 70 per cent. of patients were men. Of course, some of these were traumatic but a large number were classed as attitudinal. Since so large a proportion were men, the corset alone cannot be responsible. I think we must consider the exact localization of the pain in these cases of static back or postural strain as still somewhat *sub judice.* That a constant strain on the lumbar muscles may induce pain referred to their insertions and attachments seems entirely rational and undoubtedly explains the pain in many cases when these faulty postures become constant. There would seem also to be strain on the sacro-iliac joints, pivotal as they are. In women, following childbirth, we are familiar with the train of symptoms which their continued relaxation sometimes produces, and when we can appreciate tenderness to deep pressure localized over the posterior sacro-iliac ligaments and can cause pain by motions which strain these joints alone, I believe we may suppose strain of these joints to be a cause of pain. Certain it is that treatment directed to the protection of these joints relieves the discomfort.

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[1] Such an examination is outlined in the complete article. Here the illustrations and their legends must carry nearly the whole of the findings of my inquiry.

[2] Dickinson, Robert L.: Toleration of the Corset; Prescribing When We Cannot Proscribe, Am. Jour. Obst., June, 1911.

AFTER-RESULTS IN TUBERCULOUS PATIENTS TREATED DURING THE YEARS 1891-1911 AT THE SHARON SANATORIUM *

VINCENT Y. BOWDITCH, M.D.
BOSTON

AND

WALTER A. GRIFFIN, M.D.
SHARON, MASS.

This paper is the result of an investigation of the present condition of patients discharged from the Sharon Sanatorium from the time of its foundation in 1891 to Jan. 1, 1911; that is, no patient will be reported who has not been away from the sanatorium at least one year.

In the nineteen years thus covered 592 patients have been discharged. Of these, twenty-two stayed so short a time that they were considered not treated. Nine others were admitted for some other complaint than tuberculosis of the lungs. Twenty-four did not react to tuberculin and were termed merely suspected cases. Seventeen in the early years of the sanatorium were discharged as well, this term being used, it may be, because at that time there had been no definite rules formulated by a nomenclature committee. These seventeen patients also are not considered in this report, since in practically all instances they were admitted with the diagnosis of phthisis questioned, or as having bronchitis, and received no tuberculin test. This leaves 520 patients, of whom forty-eight were discharged as "not improved," 175 as "improved" and 297 with the disease "arrested" or "apparently cured."

Of the forty-eight non-improved, all died as might be expected, a mortality of 100 per cent. Of the 175 discharged as improved, 107, or 60 per cent., died; in fifty-one, or 29 per cent., the condition is reported good, and seventeen, or 9 per cent., have not been traced. Some of the improved patients have continued in a very gratifying condition of health, and frequently they have arrested their disease and have taken up their life-work again. The following history is fairly typical:

Case 190.—This patient, without any family taint of tuberculosis or previous severe illness, had had a cough for a year following an acute cold. She presented on examination well-marked dulness with harsh respiration at both apices, especially the left. Numerous fine and medium moist râles were present over the upper half of the left side front and back and at the extreme lower base. The sputa showed tubercle bacilli. The patient stayed ten months in the sanatorium and has remained in excellent condition for ten years except for an attack of appendicitis which required operation. She was a professional singer and has taken up her work again, holding a position in a large city church.

In 1902 a report was made of seventy-nine patients with arrested cases treated at Sharon Sanatorium.[1] Of these, six, or 7.5 per cent., have not been heard from recently, and twenty-two, or 26.5 per cent., have been reported as dead. This leaves at least 66 per cent. of this series of patients still living after ten years, and perhaps a higher percentage, if some of the six who have not been heard from could have been reached. Practically all of the 66 per cent. report that they are in good physical condition, and many of them are wage-earners. The following case may be cited in illustration:

Case 49.—Two brothers and two sisters of this patient died of consumption. Two months before entrance she had a sudden hemoptysis of fairly large proportion. Examination showed dulness in the middle of the right back with fine râles. Tubercle bacilli were numerous in the sputa. The patient was discharged in 1894, seventeen years ago, and has remained well although her work has been hard as a domestic in Boston, until about a year ago when she married and returned to her old home in Ireland.

As before stated, we have at this time 297 arrested and apparently cured cases to report. All which received the latter term (forty-four) would have been considered arrested cases according to the previous method of tabulation, and for the purpose of this paper we shall consider them as arrested cases. From this point of view it is only fair to say, however, that "arrested" used to mean more to us than the present use of the term allows, for if tubercle bacilli were present at the time the patient was discharged, the term "improved" was formerly the most favorable one used. On the other hand, in the early years of the sanatorium a case was frequently called "arrested" after a shorter period of residence, even though at times only a little over a month had elapsed. Such patients had lost cough and expectoration, if any, almost immediately after entrance. They had learned the regimen of the sanatorium and had good home environments. In practically all such instances the after-results have justified the expectation expressed by the term. According to the present nomenclature, however, certain patients have gone out as "improved" because of residence limited to less than two months. Numerically, such cases have been as many as those which, with tubercle bacilli still persistent at time of discharge have been called "arrested," according to the present use of the term, so that for the purposes of comparison with previous reports we have counted together the cases of arrest and apparent cure and called them arrested.

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* Read at the Annual Meeting of the American Climatological Association, at Hartford, Conn., June, 1912.

[1] Tr. Am. Clim. Assn., 1903, p. 64.

Of the 297 cases so classed, twenty-five, or 8 per cent., have not been traced, and thirty-five patients, or 10 per cent., have died, leaving 237 patients, or 81 per cent., known to be alive and for the most part in excellent health.

In arriving at a diagnosis nearly all patients since 1902 who have not shown tubercle bacilli in the sputa have been tested with tuberculin before being pronounced tuberculous. This has been done to avoid the criticism which could be advanced with some justice that occasionally patients without tuberculosis might have been discharged, thus bettering the reported results of the sanatorium. Each year there are three or four who are sent out as "suspected" cases, but without taint of tuberculosis as ascertained by the test. It might be said, however, that all of these could at least be classed under the frequently heard but erroneous term "pretuberculous;" that is to say, these patients are always debilitated and in a condition to be attacked by disease. The sanatorium care and regimen is therefore a good thing, for it teaches such patients how to care for their physical condition so that they are not so liable to any disease.

In our opinion the administration of the tuberculin test is not to be lightly undertaken. We remember one rather harrowing experience which it may prove of interest to recount.

Case 206.—Two years before entrance, this patient had a cough for about three months. She afterward began training as a nurse and the chest was examined by chance by one of the visiting physicians, although there were no symptoms referable to the chest at that time. She had dulness over the upper half of the right lung and medium and fine râles all over this side. As there was no sputum for examination, she was given 0.002 gm. tuberculin about two weeks after entrance. This caused a slight reaction, and as the patient seemed all right she was allowed to stay up the next day. The temperature, however, went up a little on that day and the two days following. The patient was again put to bed and was kept there for nearly eight weeks before she could be safely allowed about. A part of this time the temperature varied between 100 and 103 at night, and cough, which had been absent up to this time, became troublesome, the sputa containing many tubercle bacilli. This upset naturally worried us a good deal, but on further investigation it was found that on the two or three days after the test the patient overexerted herself walking, so that the upset was ascribed to this as much as to the tuberculin. After discharge this patient again took up nursing and remained in good condition for several years. She finally died of an acute hemorrhage nine years after discharge.

Since this case we have been more hesitant in applying the test to patients who present signs of persistent active catarrh in the lungs, and one or two instances usually occur each year in which we consider a patient to be tuberculous because of the history and certain suspicious signs in the chest even though no tubercle bacilli are found and no tuberculin is given. The following would be a rather typical case of this sort:

Case 532.—The father and mother of the patient had died of tuberculosis about one and one-half years before the patient's entrance. The patient had had what was called "grip" with occasional cough. Recently there had been no cough or expectoration. The chest showed marked dulness over the upper half of the right side and at the apex on the left. Breathing was harsh on the right and the voice was bronchophonic. Medium and fine râles were heard in plenty over the dull areas. The throat showed general congestion with a small ulceration on the left; the true vocal cord and both false cords were red and swollen. The patient had been hoarse for a year. At no time was any sputum available for examination. Such a case certainly needed no tuberculin to prove that treatment was necessary, and the administration of a test dose might have had disastrous results.

In obtaining the results nothing new or original has been used in treatment. The trinity of fresh air, good food and rest have been the main reliance. About four years ago an experiment was made with a sleeping-out balcony. The five patients who were on this balcony did so well and were so enthusiastic that other balconies were made, until now every room has a large door through which the bed may be wheeled on to a veranda. All the patients favor sleeping out and if, for any reason, the weather forces them to remain with half the doors closed there is a general complaint of stuffiness and lack of air, even though under such circumstances there is better ventilation than in any ordinary room. We have concluded, therefore, that even though we cannot say in any individual case that the patient is better for sleeping out, still we feel that, all things considered, the condition of patients is so much bettered that the expense of making the balconies has been justified.

In forty-two cases tuberculin has been used therapeutically. For the most part these were not especially favorable cases; in fact, nearly half (nineteen) were considered moderately advanced and there were only four patients who were free from tubercle bacilli in the sputa. Of these four the signs in two extended over more than half of each lung. One of the others, who had a history of hemoptysis, had definite signs in one lung which have persisted to the present. The other patient had a tuberculin reaction and was given treatment because her home environment was poor and it was desired to give her as much resistance as possible. Seven of the forty-two patients have died. Four of these were treated in the first years of our use of tuberculin and would not at present have been chosen for such treatment, since they were evidently fast failing, and showed elevation of temperature and rapid inroads of disease. Another of the seven who have died wore herself out needlessly by too much traveling contrary to advice, and one had a sudden hemoptysis. One patient who had tuberculin treatment has not been traced. This leaves thirty-four of the forty-two cases, or 83 per cent., in good condition. This seems to us a good showing, considering the relatively poor condition of many of the cases, and we therefore favor the use of tuberculin in cases of open tuberculosis without fever and, theoretically at least, we believe that it is indicated in closed cases as a means of conferring something of an active immunity. Before leaving this phase of the subject it would perhaps be of interest to touch on the history of the first patient who received the treatment at the sanatorium and who has done so well for eight years that we have at times felt like giving tuberculin to all patients as a routine.

Case 243.—This patient was first admitted April 20, 1903. There were well-marked signs all over the left side of the chest and at the top of the right side. The sputa contained many tubercle bacilli. With ordinary sanatorium treatment the cough and expectoration ceased and she was discharged at the end of eight months. Within six months the patient was back again with a renewal of all the old symptoms. With the same treatment she had received before she gained a little in the next five months but without evidence of radical improvement. Finally she was given tuberculin over a period of five months in doses ranging from 0.0005 gm. to 0.6 gm. At first the cough and expectoration increased, but soon the condition began to improve and for more than a month before the patient was discharged the symptoms were entirely absent and the physical signs showed much improvement. After discharge she worked for a time in a bleachery without breaking down; at present she is a waitress in a summer hotel and reports that her health is excellent, eight years after the use of tuberculin.

In considering again the results of treatment in this series of cases, one cannot but be impressed with the after-condition of the arrested cases as compared with that of the improved cases—health being reported good in 81 per cent. of the former and in only 29 per cent. of the latter. The oft-repeated moral is again brought forcibly to mind by these figures, that in order to give patients the best chance for recovery and for subsequent usefulness in life, they should be treated at an early stage while yet the disease may be arrested. We have learned that patients are practically never cured during residence at a sanatorium; they are merely started in the right direction. It is fairest to them, therefore, to begin treatment at a stage when they may be given the best chance to regain health.

In reviewing the work accomplished in the last twenty years, we feel that our attitude has been one of conservatism in regard to the results obtained. When one reflects on the condition of affairs in the treatment of tuberculosis twenty or twenty-five years ago, and recalls the sense of hopelessness that was felt whenever a patient presented himself with symptoms of pulmonary disease, especially among the less favored classes, we feel that we are justified in looking with great satisfaction—even enthusiasm—on the work of twenty years at the sanatorium.

It is often impossible to impress on others by figures alone facts which through long years of experience stand as positive proofs to us of what we wished to obtain. It was never believed or even hoped that sanatorium treatment alone would eradicate tuberculosis; but it did not take long to convince us that it was a great step in the right direction and that infinitely more could be done than heretofore to bring people back to health, even under what had been considered in former years most unfavorable conditions.

In stating our results, it must be remembered, too, that in using the term "arrested" we have applied it to the results obtained in many cases in which at the beginning of treatment the physical signs and symptoms of disease were well marked, and in spite of which condition a successful result was often obtained for a number of years. The surprising part has often been that such patients have remained so long without relapse on resuming the ordinary conditions of life.

To those who have been closely connected with the work, the fact that has been of far greater influence than the mere collection of figures, although these themselves have given us the greatest satisfaction and more than we had dared hope for in former years, are the faces and general aspect of patients who on reunion days at the sanatorium appear to give their tribute of gratitude for help which they have received in former years. The evidence that these persons give, not only of the good done to themselves, but of their influence on others in teaching methods which tend to prevent disease, is the most gratifying part of all our work.

We have no sympathy with the attitude, which happily is now lessened, that because sanatorium treatment has not proved to be a panacea it has therefore failed in its purpose. On the contrary, with greater confidence than ever before, we feel it to be one of the great and important factors to be resorted to in conjunction with every other known method of combating the disease which still holds the highest place in the mortality list of the civilized world.

THE ETIOLOGY OF BERIBERI

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PORTO VELHO, BRAZIL

In The Journal, some time ago, there appeared an editorial comment[1] on the sanitary work incident to the construction of the Madeira-Mamoré Railway, in the states of Amazonas and Matto Grosso, Brazil. I take it, therefore, that a brief description of this work would be deemed of interest to physicians. For this reason, and in order to give a side-light on my subsequent remarks, I venture to prefix my observations on peripheral neuritis in Brazil, with the following:

THE MADEIRA-MAMORÉ RAILWAY

The Madeira-Mamoré Railway is 227 miles long. It extends from the head of navigation on the Madeira River southward and upward to the navigable waters of the Mamoré River—from Porto Velho de Santo Antonio to Guajara-Mirim. Except for the improvements made by the company, both of these formidable names locate mere spots in the Brazilian jungle. The first train over the whole line was run on April 30, 1912.

Porto Velho is situated in south latitude 8° 45′; is 300 feet above sea-level; has a rainfall of 90 inches per year, and a temperature range from 56 F. in the cool June nights to 102 F. in the hot September days. It is on the right bank of the Madeira River, which at this point has an annual rise and fall of 45 feet. The annual volume of water discharged by this river is about the same as that of the Mississippi. Boats drawing 8 feet of water ply on it all the year, and ocean-going vessels of 7,000 tons come to Porto Velho every year during the period of high water, from December to May.

Three previous attempts to build this railroad were unsuccessful, because of the terrible rates of sickness and death among those concerned. Mr. Neville B. Craig[2] has written a most entertaining volume describing one of these melancholy failures.

WORK OF AMERICAN PHYSICIANS

The sanitary branch of this work has from the beginning, in 1907, been under the direction of American physicians employed by the contractors. In 1910, Dr. Oswaldo Cruz, Brazil's foremost sanitarian, visited Porto Velho, sojourned here three weeks, approved the work then being done, and urged the compulsory administration of daily prophylactic doses of quinin to all employees not protected by screened houses. In a non-military organization this has been found impossible to carry out perfectly, but even its partial enforcement has been of untold benefit. Without the powerful influence and personality of Dr. Cruz the liberty-loving Brazilians would have rebelled against this regulation.

In 1911 the number of employees was about 5,000, comprising, approximately, 250 North Americans, 2,000 Brazilians, 1,000 Spaniards, 750 Greeks and 1,000 others, representing practically every country in the world. The number of physicians at this time was nineteen, of whom eighteen were Americans. In all, forty physicians have been employed, of whom thirty-six were American, two Brazilian, one Spanish and one English.

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[1] Sanitary Work in Brazil: Good Health a Commercial Asset, The Journal A. M. A., Sept. 24, 1910, p. 1120.

[2] Craig, Neville B.: Recollections of an Ill-Fated Expedition.

The sanitary measures adopted have consisted in the provision of screened houses for all employees of the higher grades; in antimosquito campaigns in and about the permanent camps, that is, camps destined to become towns; in the compulsory, prophylactic administration of quinin to employees; in the regulation of food and water-supply; in the usual measures against the so-called quarantinable diseases; in attention to disposal of garbage and sewage, and, finally, in the prompt hospitalization of all except slight cases of illness.

The nearest city and base of supplies is Manaos, where, for many years, yellow fever has been rampant. On seventeen occasions cases of yellow fever have been brought to Porto Velho by the river boats, and last year a number of employees contracted the disease at the old town of Santo Antonio, 3 miles from Porto Velho. We have been able to prevent the disease from getting a foothold anywhere on our line of work, only three cases having occurred in which the infection did not originate outside of our zone.

Malaria, yellow fever, blackwater fever, bacillary dysentery and beriberi are the chief tropical diseases with which we have to contend. We have had one rather sharp outbreak of typhoid fever, and lobar pneumonia has killed more than 200 of our employees. The hospital consists of six detached wards with a normal capacity of 250 beds, an operating-room, a clinical laboratory, a post-mortem room and the necessary out-buildings. We do autopsies on the bodies of all persons dying in the hospital. The material is only too plentiful. In addition to our employees, we receive a number of patients from among the *seringueros* for hundreds of miles around. From Jan. 1, 1908, to Jan. 1, 1912, there were admitted to the hospital of this company 30,430 patients.

DESCRIPTION OF A FORM OF PERIPHERAL NEURITIS

Among the 30,430 admissions to the hospital of the Madeira-Mamoré Railway between Jan. 1, 1908, and Jan. 1, 1912, the diagnosis of beriberi or of "polyneuritis" or of "multiple neuritis" was made 963 times. The affection is known locally as *polynevritis,* and following the teaching of the celebrated Brazilian physician, da Silva Lima, a goodly portion—in North Brazil, a majority—of the profession affix the word *palustre.* They regard the affection as a multiple peripheral neuritis incident to malarial infection. Oswaldo Cruz himself shared this opinion until his visit to this hospital in the summer of 1910.

Symptoms.—Few diseases present such a variety of clinical aspects. The onset may be sudden, the course swift and tragic. We have a number of charts of intelligent patients, with clear histories, in whom the duration of the disease from its very first symptom up to death by cardiac dilatation occupied less than one week. On the other hand, the onset may be so gradual and the symptoms so poorly defined that the disease is well advanced before the patient seeks relief. Some recover in a few days; others are bedridden for months. Some are waterlogged from the beginning; in others there is little or no edema. In some the affection throughout seems to be entirely cardiac; in others the heart appears to be absolutely unaffected even though the paralysis be extreme. The deep reflexes may be lost as a first manifestation of the disease; quite frequently they are markedly exaggerated not only in the beginning of the disease, but also throughout its course and immediately before its fatal end. They may be exaggerated to-day, and absent a week from to-day.

Sometimes the pain, particularly in the legs, is excruciating; more often the legs feel dead with vague, slight pains, or the "pin-and-needle" sensation. A patient may enter the hospital to-day with no symptoms save the subjective ones of pains in his legs, and in forty-eight hours have become so edematous as to be almost unrecognizable. The pain may be chiefly substernal, or in the thighs, or in the forearms. It may be entirely absent.

Death may come with dyspnea, cyanosis and a feeble, fluttering pulse, while the patient seems yet robust; or it may come as a terminal dysentery or pneumonia after he has been exhausted by many weeks of suffering.

Clinical Classification.—What one may take as the type of our patients presents himself for treatment complaining that his legs are swollen and that his calves are sore and painful. One finds on examination a rapid heart frequently with the pauses equal, and sometimes with a reduplication of the second sound over the pulmonic area; edema of the legs of maximum intensity over the pretibial area; knee-jerks usually exaggerated, but frequently lost, and areas of tenderness on the legs, giving rise to the "stiff" gait, with or without areas of anesthesia and of paresthesia. Fully three-fourths of our cases present these symptoms and these alone. The tachycardia may be slight and may not be noted unless one makes the patient walk about. The arhythmia may be absent. Edema is present at some time in perhaps 90 per cent. of all cases. Pain in the legs, especially the calves, and in the thighs, particularly along their internal and posterior aspects, is also a fairly constant feature.

Patients of this group—and it comprises 75 per cent. of the total—usually recover on being put to bed and given an easily digestible diet, with treatment of any associated malady as malaria or uncinariasis. A few, however, grow progressively worse in spite of any and all treatment.

The severe cases fall into two groups: (1) those in which symptoms, apparently cardiovascular, dominate the situation, and (2) those in which paralysis of various groups of muscles, with pain and tenderness along the nerve trunks, is the characteristic feature. To the former of these two groups belong the acute pernicious cases characterized usually by anasarca and a rapidly developing dyspnea, cyanosis and death.

Any case may at any time develop these pernicious symptoms. Even in these fatal cases the edema may be slight. Sometimes the patient dies suddenly of heart failure after he has so far recovered, apparently, as to have been allowed to sit up.

A striking and cheering feature of a proportion of this group is the rapid recovery, which begins on the institution of rest in bed and good nursing.

Our severe cases of the paralytic or atrophic type fall clinically, also, into two classes: (a) a smaller group with a rapid onset of paraplegia, and (b) a larger group characterized by the slow development of paralysis, by some sensory disturbances and by extreme chronicity. These are the cases which accumulate in our wards and overcrowd them, unless they are invalided away.

A man may walk into the hospital with a mild tertian infection, which yields promptly to quinin. He has experienced nothing beyond the usual phenomena of a malarial attack, save, perhaps, an unwonted feeling of weakness in his legs. He is surprised to find that, after the subsidence of the fever, his legs become weaker instead of stronger, until in a few days or weeks he is unable to stand. His heart may apparently be unaffected. He has no pain. The blood and urine are negative. Usually, but not always, there is edema of the legs. The knee-jerks are lost; or, without any coexisting malaria, these phenomena may develop within a very few days. The frequent association of malaria with this form of the disease has done much to hang the whole beriberi symptom-complex on the malaria peg in the minds of those whose work has been confined to regions where both affections are rife.

The second group of the severe cases with slight cardiac involvement corresponds exactly to the picture conjured up by the words "multiple peripheral neuritis." If these patients are able to walk the diagnosis may be made at long range. If they are bedridden the most cursory examination will suffice. All the dear old text-book descriptions here come into their own: the "step-page" gait, the lost tendon reflexes, foot-drop, wrist-drop, atrophied muscles, areas of anesthesia, areas of hyperesthesia, areas of paresthesia—all the well-beloved phrases troop gallantly to service and describe with precision the unfortunate patient.

Mortality.—Of 797 patients admitted to the Candelaria Hospital during the years 1910 and 1911, 120 died —a mortality of 15.6 per cent. The mortality varies in a most extraordinary manner. Sometimes it will be not more than 2 or 3 per cent. for months, and then a time will come when half the patients die.

Pathology.—No one feature of the gross pathology as seen at our autopsies is characteristic. Atrophy of the skeletal muscles is sometimes present. In the acute cases it is absent. Dilatation of the right ventricle is almost invariably present. The left ventricle may be dilated. In old cases there is hypertrophy of the right ventricle. Pericardial effusion is fairly constant. The other serous cavities usually contain more or less fluid, and at times the whole cadaver is water logged. The kidneys may be congested, but there is no nephritis. The cardiac cases that have dragged on for some time may show chronic passive congestion of the liver.

Our attempts to estimate duodenal congestion have been unsatisfactory. The paraplegic cases seldom come to autopsy unless a terminal affection—notably bacillary dysentery—sets in. Signs of chronic malarial infection are, in this region, frequently present as a matter of course. No attempts to demonstrate degeneration of the peripheral nerves have been made.

EVIDENCE THAT THIS AFFECTION IS BERIBERI

In writing the foregoing I have sought to describe what I see here. I believe that I have presented a clinical entity which must be classified as beriberi. At any rate it constitutes my first proposition, namely, that this affection is beriberi. To the above one might add abundant historical evidence — if libraries occurred in the Brazilian forest. Leopold[3] referred to north Brazil as "the fatherland of the disease" [beriberi]. Bondurant,[3] of Mobile, mentions Brazil first in his list of countries where beriberi prevails. Manson[4] speaks of the "epidemic wave" of the disease which passed over Brazil in the early sixties. Castellani and Chalmers[5] refer to Brazil as a place where beriberi is said to occur. Herzog[6] mentions the occurrence of beriberi on the Atlantic coast of South America and particularly in Brazil. Osler[7] has seen cases of beriberi from Brazil. Magalhães[8] wrote an exhaustive monograph on the cardiac phenomena of cases studied in Rio Janeiro.

RICE NOT A FACTOR

My second proposition is that this affection as it occurs in Brazil is not etiologically related to a diet of polished rice. To posit this negation requires some temerity on the part of a mere clinician, after reading the papers of Fraser and Stanton,[9] and many references to the work of Chamberlain and Vedder,[10] Heiser and others in the Philippines. I do it because I have seen some patients with beriberi whose diet was varied and abundant — who had not eaten a grain of rice for many months before the onset of the disease; a large number of patients with beriberi, who, enjoying a liberal, protein-abounding diet, had eaten it only occasionally throughout their lives, and a great number of sufferers from the disease, in whose diet it could not be considered the staple article. Of the latter class I have seen a goodly number who for months before the onset of the disease had had rice excluded from their diet.

Unlike the Oriental, the South American, by nativity or adoption, is a meat-eater. He eats the European breakfast, but he eats two full meals every day and partakes liberally of meat at both. Beans, which are supposed to have a therapeutic value in the treatment of beriberi in the East, are staple articles of diet throughout North Brazil. They abound on the tables of the poorer classes. *Feijoada,* a compound of bacon, red beans and dried beef, lightly touched with garlic and bathed in its own gravy, is the dish universal among the poor, and not despised by the wealthy. The bean with meat is the staple article of food of the Brazilian peasant. Rice and *farinha* (cassava) and bananas are side dishes. It must be admitted that the Brazilian laborer eats some rice practically every day, and that the incidence of beriberi is perhaps highest in his class; but the same line of reasoning would incriminate polished rice as a causal factor in lobar pneumonia, malaria, uncinariasis and gonorrhea. Among our Brazilian employees lobar pneumonia is twenty times more frequent, relatively, than it is among our American employees.

In December, 1909, alarmed at the increase of beriberi among our employees of all classes, we caused rice to be eliminated from all company messes and removed from all the commissaries. In lieu of rice we furnished macaroni. The staple foodstuffs of the laborers were made to consist of dry biscuit, meat (dried and tinned meat and codfish), beans and macaroni instead of dry biscuit, meat, beans and rice. Conditions along the line of work were such that a large majority of the laborers were deprived of rice. The men who boarded at the company's messes ate no rice at all. The beriberi rate climbed steadily throughout the year 1910, and dropped abruptly at the end of the year exactly as it had done in 1909. In 1910 on a comparatively rice-free diet, there was relatively three times as much beriberi among our employees as there was in 1911, during which year all the messes and all the commissaries of the company served and sold rice freely. The rice has always been the same kind — white, polished rice.

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[3] Sajous' Cyclopedia of Medicine, i.

[4] Manson: Tropical Diseases.

[5] Castellani and Chalmers: Manual of Tropical Medicine.

[6] Herzog: Osler's Modern Medicine, iii.

[7] Osler: Practice of Medicine.

[8] Magalhães: O Coracão no Beriberi.

[9] Fraser and Stanton; Jour. Trop. Med. and Hyg., Nov. 5, 1911, et seq.

[10] Chamberlain and Vedder: Philippine Jour. Sc., November, 1911

One of our American physicians, who did not eat a grain of rice while in Brazil and who purposely refrained from eating it because of its supposed association with beriberi, contracted the disease after about ten months' service here and was invalided home. Three other members of our staff, who lived at headquarters and who ate rice only occasionally, certainly not more than once a week, were invalided home with the diagnosis in both cases of beriberi. One of these men ate at the table of the chief engineer, the other two lived at this hospital. At neither table did rice appear except occasionally. Two other physicians stationed in the camps contracted the disease and were invalided home. Because one of these physicians had malarial parasites in his blood, when he got home, his affection was there diagnosed as "malarial neuritis." In all, six physicians have contracted the disease here — six healthy, young adults who lived on a full protein-rich diet.

The incidence of the disease among physicians has been greater than among any other class except the Brazilian laborers. Does not this fact alone speak volumes?

In 1910, out of a total of 690 admissions to the first-class ward of this hospital, there were twenty-four cases of beriberi. Many of these patients came here and were invalided back to the United States during the time that rice was prohibited. They did not eat a grain of rice. They were clerks, mechanics, camp foremen, timekeepers, etc. Their diet here would not have suffered, in comparison, as to quality, quantity and variety, with the diet of persons similarly employed anywhere in the United States. Fresh meat, onions, potatoes and an abundant supply of the best American tinned meats, fruits and vegetables were supplied in lavish profusion, in addition to the bacon and beans which have belted the globe with steel rails. Among the men from whom these cases were drawn (and no account is taken of a number of contract-expired men, who left of their own accord when the disease first manifested itself) the food-supply was above criticism from any standpoint.

TIME INCIDENCE

If beriberi were due to polished rice, *per se,* one would expect its occurrence to be fairly uniform throughout the year, and from year to year, in a population that eats the same kind of rice in apparently the same quantities all the time. Such is not the case. Of 565 patients admitted to the Candelaria Hospital in 1910, 114 were admitted during the first six months, and 451 during the last six months of the year. In 1910, 565 were admitted; in 1911, with a force of employees 25 per cent. greater and the Brazilian contingent relatively much greater, 232 cases were admitted. Practically, we, as well as the laity, recognize the period from July to December as being the beriberi season. This was the case in 1908, 1909, 1910, and from present indications, it will be the case in 1912. The year 1911 was an exception, the admissions for beriberi being fairly evenly distributed over the twelve months.

PLACE INCIDENCE

The constant shifting of laborers from camp to camp makes it well-nigh impossible to present figures of value as to relative admission rates for beriberi from the various camps. That certain camps yield a much higher percentage of beriberi patients than others is, however, firmly impressed on the minds of all who have, in any capacity, managed the labor on this work. In the fall of 1910 more than three-fourths of all the West Indian Negroes in one of our camps (Camp 16) contracted the disease. The same camp furnished us beriberi patients of all nationalities, and of all grades of employment so long as it was active. In the same year, of four West Indian Negroes living in a palm shack set back from the right of way in the woods, near Camp 22, two died of beriberi, a third was invalided to Manaos and the fourth with the "rudimentary" type of the disease was lost sight of. No other cases of beriberi occurred in any of the other 200 or so laborers strung along the right of way for a distance of several kilometers. The only thing in any way peculiar about this hut was that it was set back in the woods instead of being out in the open, as were the others. In Porto Velho, in 1910, in a period of four months, of three men in succession employed as job printers in a certain house, two died of the disease and a third was invalided to Manaos. In a period of five months in 1909-1910, three men employed as night watchmen in this hospital died of beriberi, and a fourth was invalided home with the same diagnosis. A considerable number of our orderlies were attacked, one of our cooks, two of our nurses and, as stated, two of our hospital physicians.

The rate has been very high among the crews of the company tugs that ply between Porto Velho and the mouth of the Madeira River. In 1910, on two occasions, one of these tugs was put out of commission because of the death or disability from beriberi of her officers, especially her pilots and engineers. The officers living "first-class" have had the disease at least as often, relatively, as the men. The captain of one of the company's larger passenger carrying steamers was invalided home last year with beriberi. The universal complaint of the first-class passengers on this steamer is that they get meat served in too many ways, with too much grease. Fresh beef, dried beef, fish, potatoes, onions, bread made from American flour, beans and rice, with tinned milk, butter and fruits form the bill-of-fare on all these boats.

I have seen cases of beriberi in robust people who have never had malaria or hookworms. I have seen it in nearly all races and nationalities. It has occurred here among all grades of employees. It is, I think, more frequent among those whose resistance has been lowered by other diseases or by the abuse of alcohol. Children usually escape and women are not attacked as often as men. As most of our employees are young men, I cannot speak positively of the age incidence.

CONCLUSIONS

1. A fatal form of peripheral neuritis occurs among residents of the Madeira Valley and among the employees of the Madeira-Mamoré Railway. This neuritis must be classified as beriberi, or as a member of an as yet hypothetical beriberi group.

2. This disease bears no intimate relation to the consumption of rice, polished or unpolished, as a staple article of diet.

3. This disease is not due to the absence of protein in the diet of those whom it attacks.

I desire to make acknowledgment to Dr. E. J. Whitaker, whose assistance in the preparation of this paper has been most valuable.

Candelaria Hospital.

Sleeping Out.—There are two classes of people who should sleep in the fresh air in all seasons—those who have tuberculosis and those who do not want to get it.—E. Cummings in *Jour. Outdoor Life.*

A FURTHER STUDY OF THE END-RESULTS OF THE CONSERVED OVARY *

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BROOKLYN

In 1909, I presented before this Section a report based on a study of the records of 300 cases occurring in my personal services, in which resection or conservation of an ovary had been done. Since that time a large number of secondary operations have been necessary for the relief of symptoms caused by the retained or the resected ovary. These explorations have given me a wider insight into the living pathology of the ovary or the part of the ovary which was retained in the effort at conservation.

While I am still convinced that the importance of the ovary to the woman cannot be overestimated (not only is it the primary and all important organ in the reproductive cycle, but it regulates and controls the perfect attainment of development, growth and function in the individual woman, and its retention is essential to sex perpetuation), yet I must conclude from the study of the end-results of resection and conservation that frequently, owing to a defective appreciation of the living pathology of the ovary at the time of the primary operation and to our inability to estimate the effect which change of position and suture have on the retained ovarian structure, our attempts at conservation are often defeated.

In this study I shall endeavor to differentiate between and draw conclusions from the end-results of the resected versus the conserved ovary. It is surprising that so little clinical data of value have been contributed to the literature on resection and conservation during the past few years, for with the exception of the excellent analysis of the end-results, collated by Clark and Norris, and the contributions of Peterson, Reynolds, Dickinson and myself, there is a dearth of new information. On the other hand, much has been done in establishing the position and importance of the ovarian secretion Frank and Chipman have contributed excellent papers on this subject, from which I shall take the privilege of quoting. The parenchyma cells of the ovary secrete a substance or substances which react on the general body metabolism, and control especially the nutrition, growth and activity of the uterus. "This secretion is present at all times in greater or less quantity, but it is produced in greater abundance at recurrent periods, when it brings about those conditions of growth and hyperemia which characterize the proestrous or menstrual process. After ovulation, which occurs during the estrous, the secretory cells of the ovary show still greater activity and cells of the ruptured graafian follicle become converted, largely by a process of simple hypertrophy, into luteal cells of the corpus luteum."

Chipman believes that the added secretion of these luteal cells, an increment of quality, of quantity, or of both, raises the nutrition of the uterus which leads to those decidual changes in the uterine mucosa which insure the engrafting of a fertilized ovum. When such engrafting occurs, this secretion maintains the nutrition and growth of the placenta until the latter reaches its maturity. The decadent and fibrotic changes which the placenta undergoes during the latter months of pregnancy are coincident with the retrogression and disappearance of the luteal cells.

The ovary, while maintaining a perpetual secretion, undergoes a series of cyclical changes which increase or modify this ordinary secretion, and with these, the changes in the uterus are correlated. While the exact nature of this secretion is not known, it is definite that the loss of the ovary means the loss of sex influence to the individual, and produces grave disturbance in the general metabolism. The earlier in life the loss of the ovarian secretion occurs, the greater is the calamity, though clinical observation shows that the severity of the nervous phenomena differs in different individuals, as, for instance, the nervous symptoms are less subsequent to operation and the general health of the woman better when a hysterectomy and double oöphorectomy have been performed for suppurative conditions in the pelvis than when a total ablation has been made for fibromyomas. Again, it must be admitted that an ovary conserved for the ovarian secretion, if unhealthy, will leave the patient in a worse state mentally, nervously and physically than if total extirpation had been made.

In regard to the types of ovary which can be conserved, my experience is in accord with that of Reynolds, that a moderately enlarged ovary, the seat of multiple follicular disease, may be reduced to the normal size, placed in a proper position in the pelvis, and retained with considerable hope that the dysmenorrhea and catamenial depression will be greatly improved; also, that an ovary that has been in bad company may be dug out of a capsule of adhesion, the original focus of infection having been removed, and may go through such reparative changes as to become a useful organ. An enlarged ovary is not necessarily a diseased one, for the size of the ovary is affected by its position. A continuance in a bad position leads to changes in its tunic which favor the production of follicular change and retention-cyst formation.

The natural and proper conservation of the ovary consists in leaving it alone, and in placing it in such a position in the pelvis without twisting the ovarian ligament that there is no obstruction to its afferent or efferent circulation. An ovary should never be conserved and then allowed to drop back into the pelvis in a dependent position. When there is interference with the efferent circulation, changes in the ovarian structure rapidly follow, the organ swells from passive congestion, the stroma increases, the tunica thickens, developing follicles become imprisoned, the amount of intrafollicular fluid is rapidly increased and retention-cysts form, often growing with great speed. I have already reported a case of cyst formation within six days of the primary operation, due to a twist in the utero-ovarian ligament which interfered with the efferent circulation.

The distinction between conservation and resection is not properly understood by the profession. Excision of a portion of diseased ovary is conservative but not conservation, and the prognosis as to the final outcome of the conserved versus the resected ovary differs widely. Conservation implies that the ovary is relatively normal, while resection deals with an organ more or less diseased.

The ovary which can be resected with a fair degree of success is the ovary with a large monocyst on its surface, the small dermoid, or the fibroid, from which we are able by careful dissection to retain a sufficient quantity of healthy ovarian structure to make a functionating ovary. It has been proved that the ovarian ligament which hypertrophies as a consequence of cystic changes frequently contains active parenchyma tissue, and that the ovary possesses a considerable capacity for regenera-

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* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

tion of tissue after its partial removal, if its circulation is not interfered with.

The influence of position on the conserved or resected ovary is a subject which has not had sufficient consideration from operators. My own experience has taught me that when anything interferes with the efferent circulation of the retained portion of ovarian tissue or the conserved ovary whether it be the position in which the ovary lies, as when it is dependent on the misplacement of the ovarian suture, or because of a misplacement of the uterus, which carries the ovary down with it, or when a salpingectomy has been made without due regard to the utero-ovarian anastomosis, the ovary becomes heavier and tends to fall into the culdesac and to change in its size rapidly.

As the surgeon becomes better acquainted with ovarian pathology and the necessity of the ovary being in proper position, fewer and fewer ovaries are removed. Our early mistake was not to recognize that multiple cystic ovaries were the result of interference with the efferent circulation and thickening of the tunic, both of which were due to the dependency of the organ occasioned by hyperplasia, etc. There is probably no part of surgery in which long experience and study of the living pathology is so important as in the decision of what shall be done with a particular ovary which is enlarged to two or three times its normal size.

To ascertain the end-results of the conserved versus the resected ovary, I have selected and tabulated from the records of my clinic since May 1, 1909, 229 cases in which some conservative procedure on the ovary has been practiced. There has been no primary mortality.

In sixty of the women operated on it was possible to retain both ovaries after freeing them from the associated adhesion produced by their infected or diseased neighbors, the uterus and tubes. In each of 102 cases, one ovary was conserved while extensive resection was done in but sixty-seven cases. No attempt was made to save pus ovaries. Enlarged, adherent, edematous, prolapsed and multiple cystic ovaries of moderate size were retained and tacked up in proper position in the pelvis without any attempt being made to diminish their bulk, except by the puncture of small cyst formations on their surface. The results have on the whole been gratifying, for out of twenty-four secondary operations in this series only three necessitated the extirpation of the conserved ovary, as against twenty-one ablations of the previously resected ovary.

I have been able to follow and keep accurate records of 181 patients out of the 229 operated on, and over 150 have been examined at monthly intervals, for periods varying from three years to two months, thus allowing us to make accurate notes and drawings of the exact pelvic conditions.

In this series there were twenty-eight resections of the ovarian structure from large monolocular cysts whose cavities contained from 1 to 10 pints of fluid, in which it was practicable to save sufficient ovarian tissue to construct a serviceable ovary about 2 by 5 cm. in size. Observation has shown that such an ovary during the first four weeks following operation undergoes a primary enlargement, sometimes attaining a size two or three times that of the portion conserved. It then slowly begins to shrink, to lose its tenderness and to perform its functions naturally. At the end of three months, on physical examination, the involution seems complete. None of these women have returned for reoperation. Two are now pregnant, and all have menstruated regularly since the operation. In three instances the type of the period is changed in time and duration and the quantity of blood lost each month has gradually diminished. None has shown any of the nervous phenomena of the menopause. Twenty-one have been examined in the past three months and their records show that seventeen have pelves free from exudate. The ovary is of normal size, in high position, palpable and not tender. Painless enlargement was present in the remaining four. All are at present enjoying good health.

An analysis of the twenty-four cases of this series coming to secondary operation, in which we were able to study the living pathology of the conserved or resected ovary in the pelvis and after its removal, has given us some helpful hints as to what to do next time.

The abdominal findings have been more or less consistent. The conserved or resected ovary has presented further cystic changes which have involved the entire structure and have always been attended by a low type of peritoneal inflammation, producing thin, diffuse adhesions most difficult to handle. This condition was noted in eighteen cases in which the left ovary had been retained, while only six women who had had the right conserved or resected have come to a secondary exploration. Thin-walled cysts of the size of an orange had formed on the resected ovary in four patients. In these the adhesions were particularly dense and extensive. It was evident that the sigmoid and omentum had promptly become attached to the suture line. A gradually developing amenorrhea or a persistent metrorrhagia was present in all of these cases.

These observations have suggested the following conclusions:

1. Only healthy ovaries should be conserved.
2. The right ovary when retained is less prone to subsequent inflammatory changes than the left.
3. All retained ovaries or portions of ovaries should be placed in such a position in the pelvis that their circulation is uninterfered with.
4. Resection gives the best results when its application is limited to large monocysts, retention-cysts, fibroids or dermoids.
5. The multiple cystic ovary should either be left alone or ablated. Resection is not permissible.
6. When a resection is made it should be extensive, excising the entire diseased area. The suture should only approximate the wound edges, not constrict them. The retained portion should be tacked up in the pelvis to maintain an equal circulation, and the suture line should be always covered with a reflexion of the peritoneum.

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ABSTRACT OF DISCUSSION

Dr. Le Roy Broun, New York: In deciding during an operation what course should be pursued, I am largely influenced by the age of the patient, the primary thought being, however, to have the pelvis in such a condition that secondary operations will not be invited by subsequent pathologic changes. I have had no experience in resecting ovaries other than in a few instances when, on account of the youth of the patient, it was imperative that as much as possible of the secretive surface of the gland should be preserved. These were instances in which a corpus luteum cyst had become pathologic in size. On the whole, it has never been my custom to meddle with ovaries with small multiple cystic follicles. For such conditions are evidence of disturbed circulation in the ovarian tissue and should be treated not by resection and leaving the ovary in the same position as before, but by lifting and retaining the ovary in a plane more nearly approaching the normal.

In the presence of adhesions, better results are obtained by using a sharp dissector rather than the fingers.

Where it is necessary to remove a tube, I hesitate greatly to leave the ovary, and rarely do so when the other ovary is unquestionable, except at the request of the patient, or in instances of young women. When the woman is at or near the menopause, or when the other ovary and tube are healthy, I believe it is to the interests of the patient to remove the ovary, together with the affected tube. My reason for this belief is that no matter what method we may use for anchoring the conserved ovary after its accompanying tube has been removed, the disturbance in the venous return will, at times, be sufficient to set up pathologic changes in the conserved ovary, sufficient to necessitate a second operation, which will at all times be more serious than the original operative procedure, on account of the adhesions developing in the wake of the circulatory disturbance.

In such conditions the after-health of the patient is far better when the ovaries are removed at the same time than when we conserve them in whole or in part. In instances of such conservation there has been, as a rule, a long period of tender ovaries, treatment and mental unrest. In instances of hysterectomy for fibroids, the nervous disturbance of the menopause is lessened when the ovaries and tubes can be conserved, and I believe in general it is of advantage to the patient to do this. In these instances, however, I have been forced to operate a second time on four patients for developed cysts in one of the retained ovaries. My practice is at present to conserve the ovaries and tubes in such instances if possible when the patient is young, but to remove them when the patient is at or near the menopause.

Dr. W. B. Dorsett, St. Louis: I have had some very startling experiences following resections of the ovary in cases of dysmenorrhea, the conditions being entirely relieved by resection. I do not mean to say that all conditions of dysmenorrhea can be relieved by resection of the ovary. There is much in the technic that should be closely observed. The resection should imply that a portion of the ovary is removed, not simply the opening of a cyst with the needle and dissecting it out. In some cases it is almost impossible to scrape out the cyst, and therefore a large portion of the ovary should be removed. In doing so a wedge-shaped piece should be cut down to the very edge of the ovary so that all cysts can be removed by the two incisions. Regarding the covering over by the peritoneum mentioned by Dr. Polak, there are two classes of ovaries that give me trouble: those with very thick and those with very thin coverings. In both there is tearing out when the needle is put in. It is necessary to carry the needle down to the very bottom of the deepest portion in which the ovary has been incised, that is, when the wedge-shaped piece is removed. I agree with Dr. Polak on the advantage of anchoring the ovary after operation. One-half of the results obtained are due to the suspension of the ovary rather than to the resection.

Dr. H. J. Boldt, New York: In my experience the ordinary cystic degenerations of the ovary are absolutely different. They gave no symptoms and were left alone. Taking out a wedge-shaped piece seemed useless. In a large ovary it may be done, not for the purpose of removing part of the ovarian structure, but for the purpose of decreasing the size of the ovary or of diminishing its weight. It is possible that we may at times be compelled to do a secondary operation because of a cyst forming in that ovary. Yet it is not desirable invariably to remove ovaries that seem to be healthy. I should always retain the ovary, no matter what the condition causing the abdominal section, so long as it was macroscopically in good condition. Particularly is this the case in ovarian tumors. With apparently no more functionating stroma, I have been able by shelling out the tumor to retain the ovary. In one case in which it was necessary to remove the complete ovarian tissue on one side the other ovary had joined in the tumor. It would have been most disastrous for the future of that patient to have taken out the ovary. I was able to preserve sufficient of the ovarian stroma to continue to functionate; the patient is now married, and I have no doubt but that a satisfactory result will ensue. Therefore, whenever an ovary is sufficiently healthy to retain its function I retain it.

Dr. F. J. Taussig, St. Louis: My experience is based on three secondary operations but they have all been done on ovaries a portion of which had been left on the left side, and I have found that the cyst wall was always closely adherent between the ovary and the sigmoid or rectum. The question arises, What is the cause of this increased frequency on the left side? When the two ovaries are equally good and there is no material reason for choosing one in preference to the other, of course, we would as a result of this evidence prefer leaving the right ovary and removing the left entirely. But when the right ovary has to be removed and we are compelled, therefore, in order to have any ovarian tissue left, to utilize the left ovary, we ought to see how we can vary our technic to diminish the number of cystic conditions following. It occurs to me that the closeness of the intestine may be the main feature in this matter, and that if we draw the intestine over toward the right side by a suture, it might reduce the frequency of cyst formation.

Dr. T. J. Watkins, Chicago: I agree with Dr. Polak on the indications for the work. His method of covering the line of sutures with the peritoneum would seem to me to be original with him, and I should like to ask if he has been doing that for a long time. There is a possible danger of the development of follicular cysts from not leaving the ovary free. It has the advantage, however, of covering over the raw surface. I have been going a little further than Dr. Polak. I have occasionally resected small abscesses in the ovaries in young women, preferring to run the risk of secondary trouble to producing an early menopause. As yet I have had no unfavorable results so far as we know. We have operated a second time in some ovaries of much the same class as mentioned by Dr. Polak, cases of perioöphoritis in which the ovaries became cystic after operation. In resecting these ovaries, the greatest danger has appeared to be from the formation of adhesions. Lately if both ovaries have been affected, I have resected only one. In resecting ovaries of late I have left less tissue, leaving only a comparatively small part of the ovary that is attached at the hilum, but in none of these cases has the menopause been produced. What should be done in cases of so-called sclerocystic ovaries is still a problem. The pathologist has not yet determined whether they are really pathologic. We have no idea what produces them and we have very little observation as to what becomes of them when they are left. We should keep such patients who have not been operated on under observation for the purpose of determining what really becomes of these so-called sclerocystic ovaries.

Dr. H. P. Newman, San Diego, Cal.: I would have supposed that the removal of ovaries for menstrual pain—"ovarian dysmenorrhea," so-called—and neurasthenic conditions in general, was no longer a debatable question in an organization like this. Ovarian surgery has passed the experimental stage and no longer justifies the removal of the organs in young women for disturbed function, pain and nervous symptoms. In view of the deplorable situation in which a woman in early menstrual life is placed on the sudden and complete cessation of this function, we are reluctant to do the necessary radical work even in cases of malignancy, uncontrollable hemorrhage and those pathologic conditions for which there is as yet no other relief. And as for cystic and sclerotic conditions we no longer extirpate for them About the hilum sufficient ovarian structure for healthy functioning will be found, and by plastic work we may excise the degenerated tissue and retain enough normal to insure ovulation as well as menstruation, so essential to the well-being of the young woman. We may look, perhaps, in the direction indicated by the reports of the newest developments in organotherapy and ovarian transplantation for suggestions of relief for those unfortunates who are now paying the price of radical operations, necessary or not, formerly done, in whom there is no possibility of return to normal and who appeal to us for assistance in the effort of the nervous system toward compensation.

Dr. W. B. Dorsett, St. Louis: I hope Dr. Newman did not understand my position to be that of removing ovaries for dysmenorrhea. I said I had had remarkable results in the treatment of dysmenorrhea by resecting the ovary. I did not report, and do not know that anybody has reported, removal of the ovary for the treatment of dysmenorrhea.

Dr. J. O. Polak, Brooklyn: Dr. Taussig in speaking of my method of resection implied that his conception was that there was no peritoneum to the ovary. I do not cover my wound in the ovary with the peritoneum of the ovary. I try to use the back of the broad ligament so that I turn the scar into the broad ligament. It came to my notice a year and a half ago in reoperating on a woman in whom I had done a resection. She came back to me because of adhesion of the sigmoid to the suture line of the right ovary which was down in the culdesac. I separated that adhesion and made a further resection as it was the only ovary the patient had and she was young. I partially turned the ovary on itself burying the suture line in the broad ligament, with satisfactory result. I have continued that procedure. The one point which I do wish to bring out is that true conservation is leaving the ovary alone, and that the best result I have had in resection has been in the resection of large ovarian cysts in which apparently there is no ovarian structure, and yet in which by careful resection it has been possible to retain a functionating and menstruating woman. Two of the patients so treated are now pregnant. This is a small percentage of the whole number of cases but is sufficient to show that the ovary even after marked resection is capable of producing an ovum.

HEREDITY IN NERVOUS DISEASE AND ITS SOCIAL BEARINGS *

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My theme is old; yet every topic into which heredity enters can now, in view of the recent advances in this study, be viewed in a new light. So possibly I may be able to present ideas in a new way.

Mental abnormality may be divided into two sorts: lack of development and weakness. Let us consider the origin of each sort. The development of an individual is a complex of processes which work individually to the production of specific organs, and collectively to the development of the individual as a whole. Modern studies in heredity indicate that, typically, each part develops to a certain extent independently of every other, at least in the early stages. Later the secretions of thyroid and thymus, testis and ovary, and doubtless other organs, exert a general or a specific influence on development. Finally, insufficient nutrition of the embryo or the presence of certain poisons may exert a wide-spread inhibiting effect on developmental processes. Even starvation exerts a somewhat selective influence since all organs are not equally retarded; and there is reason for concluding that malnutrition and poisons have a different effect on different persons, retarding those in whom the internal impulses to development are weakest. Consequently, it is difficult to draw inferences as to the influence of alcohol on the development of man from its influence on the development of guinea-pigs. It is stated that when guinea-pigs and rabbits are subjected to alcohol their young develop imperfectly. There are many detailed family histories in which both parents have been alcoholic sots during the reproductive period, and yet they have produced children without spina bifida, harelip, cyclopia or other marked teratologic conditions.

Failure of mental development may, on the classification adopted, be regarded as of four sorts:

1. Intrinsic and general, producing idiots and cretins.
2. Intrinsic and specific, producing the feeble-minded.
3. Extrinsic and general, resulting (it is alleged) in abortions, miscarriages, etc.
4. Extrinsic and specific, causing (perhaps) some cases of harelip, eunuchoidism and some other defects.

Of the four classes, the second is the commonest. From my point of view feeble-mindedness is the failure of development of specific mental traits, the determiners for which are not present in and have never been acquired by the germ-plasm. The defects are a direct inheritance from our remote ape-like ancestors in which the trait had not yet been acquired. The feeble-minded have gained most human traits, but not all the mental ones.

The group of the mentally weak includes those persons who, under the influence of stress, break down mentally. The stress reveals the hidden weakness but does not cause it. Studies of the families of epileptics, dementia praecoxes and manic-depressives reveal the fact that they belong to strains with mental weakness. If we inquire whence these strains arose, no final answer can be given; but the suggestion may be made. Every person has a weakest part; we are not like the "one-hoss shay." And there is evidence that there are human strains that are not resistant to attacks on the respiratory tract; others whose weakness is in the circulatory system; others whose alimentary tract is the first to give way; and others whose nervous mechanism cannot stand great stress. And those persons who go insane belong, for the most part, to this last set.

The origin of these insane families may well go back to their animal ancestors, for animals are characterized by precisely these same strains. Or we may say that the mentally weak include those mental adjustments which have not kept pace with the increasing demands of our civilization. Neural weakness in man is probably a direct transmission from neural weakness in lower animals.

From this point of view, the origin of a feeble-minded child, which seems so like the visitation of an offended God, is merely the necessary cropping out of inherited animal traits, and the origin of a functionally insane person is, within limits, determined by a fortuitous combination of weak determiners.

Leaving for a moment the matter of the origin of neuropathic strains, let us consider their relation to society. Society is an organization of a gregarious species for development of common interests through cooperation and division of labor. Social progress implies mutual understanding, ability to cooperate and to play one's part well, while regarding the good of others. Society is built on human behavior, and the behavior of an individual at any time is his reaction to the stimuli that fall on him. The reaction is determined not only by the stimulus but also by the individual's make-up, both that part which comes through heredity, and that which comes through training (which, in turn, is largely influenced by heredity). Society has decided that certain kinds of behavior — reactions — are, on the whole, good for the development of society, and that certain others are bad. The inability to learn to count, to read, to write, to distinguish colors, the lack of ambition, of foresight, of industry, of inhibition to drink, of sex control and control over other emotions, such as anger, fear, hatred, suspicion and revenge, the strong desire to take the property of others, to realize excitement by conflagrations or by false tales, the tendency to seclusiveness, to shyness, to conceit, to periods of depression, to hyperexcitation and exaltation, to expansive ideas, to loss of memory, to loss of orientation, to cruel treatment of animals and children — all of these reactions are "inheritable" and are bad for society,

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

which has labeled them "bad behavior." The persons who behave this way are incompatible with a safe and progressive social organization, and they should, in the worst cases, be segregated to protect society, and above all that they may not reproduce their kind.

Society's method of dealing with those who exhibit antisocial behavior is often inadequate. The theory of treatment is: (1) to avenge the misdemeanor; (2) to give pain, so as to supply a deterrent to the individual; and (3) to set an example of consequences which shall act as a deterrent to others.

The first motive is clearly illogical, as the persons who act antisocially cannot properly be held responsible in this behavior in the sense of deserving pain. The occurrence of recidivists who form a large part of all "criminals" indicates the inadequacy of the second aim. As for the third aim, if the punishment of the individual is of little effect on him, it is clear that it must be of much less effect on another. As a matter of fact, there is little evidence that punishment has any effect except in minor antisocial behavior. Since punishment is inadequate in the case of the grosser breaches of conduct the whole system should be abandoned and replaced by lifelong restraint like that afforded the imbecile and permanently insane.

Finally, since most if not all kinds of nervous disease have the hereditary element, it is clearly desirable that such disease should not be perpetuated by unfit matings such as between two strains containing nervous weakness. In order that such marriages may not occur, the fact of neural weakness in a family strain should be known to one contemplating marriage into that strain. It is the duty of a physician in the exercise of his broad function as eugenist, to warn young people who are contemplating a choice that is clearly unfit. The rule of secrecy in family affairs enjoined on physicians should not apply to prevent a physician from speaking in such cases, even as the laws in some states are requiring him to report venereal disease. Any rule of secrecy which acts against the progress of society, and especially against fitness for marriage is a grossly antisocial, immoral law, and should be repealed. Not infrequently the student of the heredity of a characteristic has to ask the physician concerning the occurrence of a characteristic in a given person, A. B., whom the student knows only as the name appears in some pedigree with which he is working; occasionally the physician, usually a young man, declines to assist on the ground that he is not at liberty to give the desired information. Knowledge that might well lead to conclusions of great import to humanity is withheld in the blind following of a rule whose main motive is praiseworthy, but whose application is too broad. Inheritable traits are not personal property. They come to the individual from down the ages out of the society of the past; they will be disseminated, if the person or his fraternity have children, into the society of the future. What right has the momentary possessor of the trait to claim it as his private and personal affair? A knowledge of his traits belongs to society; is it not wrong for the medical profession to maintain these false ideals of the private nature of inheritable traits?

If the defense is that physicians must protect those by whom they are paid even at the expense of society, then the sooner the state takes over the whole matter of private as well as public sanitation, the better. A relation that was satisfactory when disease was regarded as a personal and private matter is inadequate now that health and disease are properly regarded as public and social affairs. I do not see any logical outcome of the development of medical science but this: that the health of the individual shall be regarded as one of the principal interests of the state, and that eugenics, as determining liability for disease or for imperfect development, shall be recognized as one of the principal divisions of state sanitation.

ABSTRACT OF DISCUSSION

Dr. L. Pierce Clark, New York: Many, if not most neurologists, make a special point of advising their patients regarding the matters laid down in Dr. Davenport's paper. The whole subject will take an immense jump forward in practical impetus when we can predict the future outcome of different kinds of matings. The matter is now largely a case of spilled milk or locking the barn after the horse is stolen. To control and manage all medicine is a questionable procedure for any class of society, certainly an extra hazardous venture as our society is constituted to-day. The crying need of the moment regarding sterilization is more definite information and not more legislation. The latter is now far outrunning the former. In Connecticut they have not made use of their antimarriage law of the unfit at all as the people are not back of it. I understand that a reactionary tendency is in progress in Indiana also. The main practical issue to-day is to collect and study facts regarding sterilization of the unfit, teach the people the importance of application of these facts and follow a well-thought-out plan of legislation. After all, the prophylaxis of preventing marriage of the unfit, rather than sterilization, will be the truly rational approach to the problem.

Dr. A. C. Brush, Brooklyn: We must consider this question seriously before we push any measures to the point of legislative enactment. To start a public campaign on the matter of the new series of transmission of hereditary tendencies too abruptly would be unwise. According to one pronouncement of the mendelian law, if a man with psychopathic tendencies marries a healthy woman and four children are born, two will be psychopathic and two normal. Without knowing whether or not a young person will develop psychopathic tendencies, have we a right to interfere with the marriage; or how will we select those with psychopathic tendencies? I wish Dr. Davenport would consider that in summing up. I am not, however, advocating the theory of striking at the whole family; that would be an injustice.

Dr. Woods Hutchinson, New York: The public mind is becoming quite receptive to these ideas, even though at first sight as repulsive as that of sterilization. The strongest expressions of objection to the new legislation and doubts cast on the wisdom of it come from the medical profession rather than the laity. As Dr. Davenport says, the more carefully these defectives are studied, the more the hereditary element comes out in them. At the training school at Vineland, N. J., they have clearly demonstrated that from the union of a feeble-minded man and a feeble-minded woman never yet was born a normal child, and in the various matings between sound and feeble-minded persons the defects appear in offspring almost in mendelian proportions. In investigating criminals born in Indiana I have shown that nearly 50 per cent. of them are traceable to 150 families. The problem is one of great importance, and its solution is feasible and practical. It involves the sterilization of only about 3 per cent. of the community, and within two generations we should have at least diminished by three-quarters our criminals, prostitutes, insane, epileptics, feeble-minded and inebriates. I spent a week in a reformatory where sterilization has been carried out to the fullest degree; out of 700 sterilizations on confirmed criminals, over 600 were at the request of the men involved. They are willing to protect themselves and society against this possibility, if society will approach them in a kindly, broad, liberal and sympathetic spirit. If we could make our influence felt in the courts and study the individual history of these criminals, we could accomplish something. I asked a famous detective if he knew anything of the history of the McNamara brothers, the dynamiters. The general statement had been made that these men were ordinary members of society who had gradually let the lust of blood and hatred of capital grow on them until they committed crime. "Yes," he said, "their father was in jail twice, once for assault for attempted murder, and once for incest with his own feeble-minded child, sister of the two criminals, and there was another feeble-minded child in the family." And yet that matter was threshed out for months in the press and the courts without any question as to the mental responsibility of those two men. I believe that what we as physicians have to say on this subject, based on a rational, broad, humane regard for the unfortunate, should have weight. Of course, we know that 60 to 75 per cent. of the fallen women are definitely mentally defective. We should look on those people as our unfortunate brothers and sisters who fail to develop, who need our care, sympathy and protection and not our hatred and punishment. Then, if we rise to our possibilities, we shall reform society, wipe out crime and reform even our courts and the legal profession.

Dr. William W. Graves, St. Louis: I would call attention to the fact that in clinical medicine some attention is invariably paid to that part of the study called family history; but up to the present, so far as I know, the data thus derived have been based largely on hearsay testimony. Family pride and forgetfulness and, in some, untruthfulness render the data thus secured inaccurate. As much as I would applaud the good accomplished by field workers in the collection of data bearing on family histories, yet the study of the individuals of families in a comparative clinical way will yield just as important and even more definite information bearing on those factors which make for a bad heredity. In our studies of the problems of heredity it is not sufficient to depend on hearsay testimony; we must apply, in addition, comparative clinical methods to these problems. We know of no standard of humanity except that which is established by the parents. It is obviously unfair to compare the members of one family with those of another because the determiners of the ascendents represented in the parents are different in each family. If we will utilize in our studies of heredity that standard which is established by each pair of parents and study the parents and the progeny in a comparative clinical way, we shall get back to first principles. It is recognized everywhere that well-mated and healthy parents, as a rule, produce healthy progeny, which compare favorably one with the other and each in turn with the parents; so that, utilizing the parents as standards and approaching the problems of heredity in a comparative clinical way, in addition to estimating hearsay testimony at its full worth, we shall not only be able to determine the effects of bad mating but also to determine those factors of disease which make for bad heredity.

I was pleased to hear Dr. Davenport say that recent studies have shown that alcohol has not played that important rôle in the production of bad heredity which we have heretofore believed it did. My observations are wholly in accord with this view. There is a disease, however, which has as yet failed to receive full consideration as a cause of bad heredity. While we have recognized that syphilis may be transmitted to the offspring, we have recognized as "tainted" only those who show Hutchinson's teeth, interstitial keratitis, deafness without otitis, bone, joint, skin and mucous membrane affections; the other progeny of syphilitic parents who have not shown these signs we have considered as healthy individuals. Comparative clinical studies of the progeny of syphilitics will show how false are our present conceptions in regard to the effects of this disease. Such studies generally applied and using the parents as standards will not only enable us to determine the effects of good and bad mating, but will also enable us to determine the diseases which render a good heredity bad and a bad heredity worse.

Dr. E. E. Southard, Cambridge, Mass.: Whatever may be said against the field workers and their lack of intimate medical knowledge or anthropologic knowledge, which are not really always necessary, there seems as yet to be no instance of a normal child born from feeble-minded parents. The same cannot be said, I think, of insane parentage, but there are few data in this direction. We are apt to synthesize the conditions of degeneracy, insanity, epilepsy, inebriety and the like, including crime and pauperism, under the same category, without due attention to the different parts which hereditary and non-hereditary factors play. Take Dr. Brush's problem concerning the marriage of a normal person with a degenerate. Suppose the degenerate to be a feeble-minded person; there would be strong doubt in my mind whether the man desirous of marrying her is normal. I think that problem is not so common as it is in mendelian fields, where we can control the sexual relations. The marriage of two insane persons, I think, is relatively infrequent. At least I endeavored to collect data in this direction in the state of Massachusetts, which is supposed to be a highly degenerate state. I found a few instances of the union of two persons degenerate in the direction of insanity. The problem of the union of epileptics is economically a smaller one; it is not likely that two epileptics would marry unless they were also imbecile. I remember one meeting in which a man stated that he had a very good example of heredity. A grandfather, a father and a son showed epilepsy. "This," said he, "would form a good example for the hereditarian." But it turned out that the grandfather had senile arteriosclerosis with late epilepsy. The father was syphilitic, and the son had polioencephalitis with ensuing epilepsy. It seems hard for medical men to understand that most series of facts are a result of a conspiracy of factors, and in this conspiracy the hereditary and the nonhereditary factors may both play an important part. Which is the more important is the question. Medical men call certain conditions hereditary. What are the factors in these cases? The factors are mandatory. The children are under certain mathematical rules, subject to the disease of the parents. But there are conditions in which the hereditary factor is not mandatory; it is what the lawyers call permissive, and if the other factor that sets off the disease does not come into the life of the offspring, then the disease stands out and the heredity is so far concealed. On this line of distinction between the mandatory and the permissive types of factors in inheritance, I think that one may tend to resolve the difficulties which arise, when hereditarians on the one hand and the medical etiologists on the other get together and cannot come to terms.

Dr. Tom A. Williams, Washington, D. C.: I was surprised to hear Dr. Davenport say that many of the traits which prevent a proper adaptation come from the lower animals. Of course, all our traits do originally come from the lower animals. But why select those particularly as coming from the lower animals? We should not refer to our remote origin in animals for such traits, but to the fact that there has been the acquisition of an unsuitable character in the germ-plasm—not an acquired character, but a modification of the germ-plasm through some noxious influence. It is not conceivable that a feeble-minded race can have survived through the eons of time through which the human species has persisted.

Those who should not marry and should not transmit are those who are the possessors of undesirable traits. If when an apparently desirable person happens to transmit to his or her offspring undesirable traits, such undesirable offspring should be prevented in their turn from begetting or bearing children, even though he may produce some healthy progeny.

There are certain tendencies which develop in children as well as in adults which are not the propensities of the race at all, but which occur by reason of the extreme differentiation of the reactions in different parts of the brain due to environment and other causes, which make it easy to pervert the natural tendencies, the capacity for which is inherent; considering the great complexity of the cortical substance in man it is very easy to pervert tendencies entirely by environment or education. One of the instances used by Dr. Davenport was pyromania; another, excessive libido. Each of these particular characteristics in an adult may be induced in childhood by a series of circumstances which have made those particular practices to him desirable; in the same way, there are individuals in whom the development of those tendencies, natural to us all, is so suppressed by environment as hardly to appear at all until given play later on in life.

Dr. E. E. Southard, Cambridge, Mass.: Do you not suppose that the hereditary side of this question has been investigated frequently by the Freudians in regard to the tendencies just mentioned?

Dr. Tom A. Williams, Washington, D. C.: I cannot speak for the Freudians, because I am not a Freudian myself. Dr. Davenport's solution of medical secrecy and the confidence of the patient in the medical man is beautiful for theoretical, sociologic environment, which we have not yet attained; but the practical issue, I fear, will be that those individuals who require medical assistance in connection with that which they believe may lead to their sterilization will be very careful to avail themselves of the assistance of those practitioners who are not official; in other words, they will resort to the charlatans and quacks who are always present among us. Therein perhaps would lie greater disadvantage to the community than if professional secrecy were retained inviolate.

Dr. J. N. Hurty, Indianapolis: Nearly 200 years ago, Descartes, the most original man of this latter age, and one of the greatest thinkers we have ever had, whose thought has powerfully influenced modern investigation both from the experimental and from the speculative point of view, said that if ever the human race was to be raised to the highest practical level in all ways, physically, mentally and morally, the science of medicine would point the way. Descartes was not a physician; he was not connected with the science of medicine, which had not advanced, of course, in that day as it has now. I consider it a remarkable prophecy. I believe, therefore, that eugenics is largely a medical problem, and medicine must do much in solving it. I cannot help but accept, in the experience that I have had, the teachings we have had to-day from Dr. Davenport. I believe, too, with Descartes, that the salvation of the human race largely lies with the science of medicine.

Dr. Warren D. Calvin, Fort Wayne, Ind.: Many restrictions should be placed on the license to marry, and properly enforced. In Indiana those applying for marriage licenses are supposed to give proper data as to their physical conditions; and I believe that there is a provision that the license must be refused in case certain conditions are found. But this law is not enforced; at least I know that it is not in our county, and I believe that Dr. Hurty will bear me out that it is not in general. Our county clerk recently informed me that he never had received answers of such a nature as to serve as cause for refusing a license. There is but one conclusion, and that is that many applicants falsify. Consequently, any law that we may secure the passage of along this line will not be worth the paper on which it is written, until we have educated the people to recognize its importance. Heredity cannot be too strongly emphasized. We have to contend constantly, however, with those who emphasize the other side of the question, the side of environment; advocating one side is not denying the other, for the two dovetail; we should show the import of heredity to the people at large. We are not the only people that are considering the question of eugenics. There is a multitude of people in all the learned professions that are considering the questions, with whom we can work. But on the heredity phase of the subject we are probably better fitted to educate people than any one else.

The question of heredity was brought to my mind by a little story. A professor, noted for his statistical knowledge and a member of the board of one of our state institutions for incorrigible boys, in talking with a prominent man, called attention to a boy just received at the institution. The professor said: "The mother of this boy was tuberculous and the father was cancerous; 95 per cent. of the descendants of such persons have conditions of mind and body such as you see in this boy." "Well," said the prominent citizen, "I have often wondered what was the matter with me. My father had cancer and my mother had tuberculosis." I do not know whether the man was joking at the time or not, but we can look about us and see people of note whose ancestral history is very bad physically; but, probably, unexpectedly good mentally. I want to ask Dr. Davenport whether or not he believes that there is not some danger of an increase in venereal diseases following the application of sterilization. These people know that they cannot become parents and for that reason is there not some danger of spreading venereal disease because of this knowledge on their part? If that be true, does sterilization present more than a partial solution of the problem?

Dr. Matthew Woods, Philadelphia: I would like to emphasize the fact that alcoholism in the parent does not have as much to do with the transmission of disease as was generally supposed. There seems to be a swinging of the pendulum in this direction among a certain class of medical men, and yet most of the old observers and nearly all French, English and German writers still say—not to be too exact—that about 40 per cent. of all cases of epilepsy are due to chronic alcoholism on the part of the parents or parent. This division of opinion may be due to the fact that a large number of epilepsies occur in families in which there is no apparent history of inebriation, the parents not only being temperate but teetotallers in the matter of drink; also to the number of families escaping neuroses when the parents were known to be intemperate. This discrepancy militating against the old theory may be explained by a knowledge of what seems to me the truth; that is to say, it is not so much chronic alcoholism, other things being equal, that results so often in the transmission of nervous disorders, as it is the fact that either one or both prospective progenitors were under the influence of alcohol at the time of conception. An otherwise temperate man, for example, at his own wedding or later may become, we shall say, exhilarated. We know now, thanks to Metchnikoff, the effect temporarily produced on the white and red corpuscles and the secretion by alcoholic exhilaration. This effect, extended to the spermatozoa, would account for the neurotic child, and yet it may never occur again in the life of the father, and the inebriation may have left no impression on his memory to record afterward. Epilepsies due to such an abnormal condition at the time of congress constitute, I am convinced, some of the cases supposed to occur spontaneously or without known cause. Again, in the case of drunken parents, they may be but periodic drunkards with intervals of sobriety, and the reason that sometimes they seem to have no epilepsy or other nerve disorders in the family is that the children were not begotten at a time when the parents were intoxicated. Investigate in this direction your next case of epilepsy if there is no family history of the disease and I will be surprised if, now and then, your discovery does not corroborate my theory.

For years I have felt we did not know all that was necessary to be known about these mysterious appearances of convulsions in families free from neurotic conditions. In looking into my case-book more carefully and by more searching inquiry, I succeeded in tracing seven cases of solitary epilepsy in so many families to seven almost solitary intoxications on the part of the parents. Such a fact or possibility should be emphasized in giving instruction to prospective parents.

Dr. S. Grover Burnett, Kansas City, Mo.: I think Dr. Woods' argument only goes to prove, according to the data that have been collected pursuant to the mendelian law, that the sequelae of alcoholism are practically looked on as an inheritable unit.

Dr. E. E. Southard, Cambridge: I think that the committee of the Breeders' Association would like to put the expensive and time-consuming intelligence of its workers on some single case or all those cases to work out the heredity, such as is practically impossible for any physician unless he puts all his time on it. I do not know how many months Dr. Davenport takes to work up such a set of cases properly. But it would require some labor to demonstrate that epilepsy is solitary, and to show that epilepsy is not an acquired epilepsy, due to brain tumor or some organic condition of the brain. To prove that 54 per cent. of the autopsies of one state hospital turned out in a long series are instances of organic epilepsy and not due to a brain tumor would be difficult. I do not suppose any one would think alcoholism could produce such a condition; and to prove that three generations are free from alcoholism is a difficult task. I think the Breeders' Association would like to take up that problem. It occurs to me that it is a problem whether or not persons who engage in the sexual act under these conditions are neurotic. So that there will be some chance of there being neurosis in any case.

Dr. C. B. Davenport, Cold Spring Harbor, N. Y.: I am glad to know that physicians are giving advice to persons contemplating marriage. I have been told that some physicians do not consider it altogether in accordance with etiquette. I have never urged sterilization because I think it is a case in which legislation outruns public opinion. This is shown by the fact that of the eight states which have laws for sterilization in only two or three have any operations been performed under that law. Indiana is a conspicuous example of a state in which many operations have been performed, but I understand that one of the other states has recently begun sterilization. Public opinion is not supporting the commissions and they hesitate to act. Whether sterilization may not increase the amount of venereal disease is an important matter which I do not think can be answered offhand. I trust that we shall soon have some definite information on the matter. At present there is a field worker of the Eugenic Record office in Indiana who goes to the homes of the persons who have been sterilized and studies their subsequent history with special reference to the question whether the removal of the possibility of parentage either on his own part or on the part of the consort has made it easier for him to have frequent illegitimate unions which would be of a nature that would increase the spread of venereal disease. We shall have some facts bearing on that matter within the next six months.

I think that we have no reason for doubting that there have persisted through the last five thousand or ten thousand years without break one or more feeble-minded races. Of course, our detailed histories do not extend back so far. We merely know that when we go to a locality in the Berkshires and another in the Lake George region we can go back for seven generations and find that there has persisted a feeble-minded race without a break. Feeble-minded have married feeble-minded continually for that period; and if for the last seven generations why not for seventy or seven hundred generations? It seems probable that there has been such uninterrupted transmission of feeble-mindedness from remote generations. When I speak of feeble-mindedness though, I am speaking about something of whose essence I know nothing, and I do not think that any of us know much. There is talk of having a census of the feeble-minded. But how can we make a census of them until we have some way of defining them? I trust that in the next few years we may by further study and analysis of the subject get such precise knowledge that this question may be more intelligently discussed, and the census proposed may be more intelligently made.

ADAMS-STOKES DISEASE

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The Adams-Stokes syndrome consists essentially of hree cardinal conditions: syncopal seizures with either omplete or partial loss of consciousness, epileptiform or poplectic convulsions and permanent bradycardia nvolving heart-block.

Usually the onset of an attack is preceded by certain uras in exactly the same way as is an epileptic attack. ertigo is generally also present. These prodromal ymptoms may be manifest as much as several days efore the attack itself appears.

Stokes at first suggested the name of "pseudo-apolexy" for this disease and laid special stress on the yncopal character of the seizures and the absence of aralysis. In the light of our present knowledge there must also be included the phenomenon of heart-block which is so prominent a feature of the condition: the blocking of the normal impulses traveling from the auricles to the ventricles and a dissociation in the rate and rhythm between the auricles and ventricles.

The following case, which I saw through the courtesy of Dr. J. J. Gailey of this city, shows some interesting relations:

The patient, M. K., was a married woman, aged 54. Her parents died when about 60 years of age, the mother from cerebral hemorrhage, the father from septicemia. She has two sisters who are said to be well, and had one brother who died of pneumonia. The patient had measles and scarlet fever in childhood; had pneumonia twice, once twenty-one years ago and again five years later. At about the age of 25, the patient married; the husband was a very hard drinker. Syphilitic history was present. The first three children were born at term. Subsequently the patient had five successive miscarriages.

Twelve years ago she had a cerebral hemorrhage. Her left extremities have since then been greatly weakened, though not paralyzed. As the patient expressed it, "shocks are so frequent in our family that we all more or less expect to get one." The shock she had also apparently produced a retinal hemorrhage in her left eye which since then has been blind.

Ever since the patient was 15 years old she has been subject to attacks of convulsions. At first they would occur once a month. They continued at this interval for twenty-five years, or until she was 40 years old, when they abruptly became less frequent, recurring every six months and later every year. At such times, however, the attacks would be multiple, four or five following in succession. The attack previous to the last one occurred three years ago. As well as she can remember, these attacks were always preceded by certain auras: vertigo, buzzing in the head and tingling in the fingers. There was always complete unconsciousness (so her sister says) and the convulsion would involve the whole body. There never was any biting of the tongue or subsequent paralysis.

The last attack occurred May 29, 1912. I reached her as she was regaining consciousness, the convulsion having subsided. Her sister, who is a trained nurse, stated that she had been unconscious for about half an hour. There was no incontinence of urine or feces. The temperature was slightly raised. There was marked rapid pulsation of the veins in the neck. Radial pulse-rate and ventricular beat were 35, and were intermittent and irregular. The pulse-tension was high and the arteries sclerotic. The auricular beat was 80 and very arhythmic. No murmurs were present, but both the second aortic and second pulmonic sounds were sharp and accentuated. Gallop rhythm and pulsus bigeminus were present. The urine was negative.

Subsequent examination showed auricles and ventricles acting synchronously, rate 40; pulse dicrotic and regular.

In this case, the luetic history, the presence of arterial degeneration, the heart-block associated with syncope and convulsions make the diagnosis of Stokes-Adams disease conclusive.

The question that arises in this case is, How long has this syndrome existed? Or is it only of recent origin?

According to Dieulafoy the duration of this disease does not exceed three or four years. Turrell and Gibson,[1] however, report a case which they had under observation for eight years. Inasmuch as the syndrome occurs in patients about the age of 50 and is so intimately related to lues and arterial degeneration, it is of course untenable that the seizures which the patient had since 15 years of age were always of this nature.

Were they previously epileptic? Very likely; although there is no previous history of trauma or hereditary predisposition to epilepsy. But if they were and had continued so, especially at the rate of their recurrence for twenty-five years, it is presumptive that at the present time she would have the status epilepticus. This she has not. On the contrary, the attacks suddenly decreased in frequency and the attack previous to this last one occurred three years ago. The conclusion is therefore permissible that this syndrome is an independent condition and of comparatively recent origin.

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[1] Turrell and Gibson: Brit. Med. Jour., Nov. 14, 1908.

The auriculoventricular bundle (bundle of His) is the pathway for the conduction of impulses from the auricles to the ventricles. It is a part of the Purkinje system of fibers. It arises in the right auricle on the interauricular septum near the coronary sinus below the fossa ovalis. It then passes downward and forward through the fibrous ring between the auricle and ventricle. Then it divides into two branches, one for each ventricle, which pass down the interventricular septum and mingle finally with the ordinary cardiac muscle.

Pathologic changes, such as gummas, calcareous infiltration and fatty degeneration, in or near this bundle almost always produce a complete or partial heart-block. Cases are on record, however, in which at autopsy extensive changes have been found in the bundle without any symptoms having been evident during life.

In the case reported by Beck and Stokes,[2] it was found that the primary lesion consisted of a calcareous infiltration of the auriculoventricular groove and its surrounding muscle and fibrous tissue. This produced pressure on the bundle of His resulting in myocarditis with atrophy of the muscular fibers which therefore interfered with the normal transmission of impulses from the auricles to the ventricles.

In the case reported by Turrell and Gibson, no changes were found in the bundle or its branches. A fibrosis, however, was present in the central fibrous body of the heart which extended downward and encroached on the bundle.

In several cases reported from Muller's clinic[3] in Munich, one showed extensive pathologic changes in the bundle with only partial heart-block. Another showed a complete obliteration of the bundle and yet the ventricles frequently contracted in connection with the auricles. It is quite possible therefore that in cases of long duration other routes for conduction may become developed.

In cases of complete arhythmia in which no involvement of the bundle of His is discoverable, it is also possible that the Adams-Stokes syndrome may result from irritation or pathologic processes in the cardio-inhibitory fibers of the vagus nerve.

Is this syndrome always of a permanent character or may it be transient? That it may be transient is evident from a case reported by Gerhardt.[4] In this instance a young man, aged 25, had an acute inflammatory rheumatism. During the first week of this illness he had several attacks of heart-block which finally yielded to normal heart action. While recovering from the rheumatism he contracted typhoid fever from which he died in the fifth week. Autopsy showed inflammatory changes in the bundle of His. It is therefore possible for an acute infectious disease to cause inflammatory changes in the bundle resulting in transient attacks of heart-block.

Finally, the condition can be produced experimentally. Just as the pressure of a Gaskell clamp in the auriculoventricular groove of the frog's heart produces a block, so does compression of the bundle in the dog's heart produce a block. Tigerstedt and Erlanger have shown that by compressing the bundle either a partial or complete blocking of the impulse, depending on the degree of pressure, can be obtained. When the compression is made, the ventricle shows a slower rhythm than the auricle and independent of it. On removal of the pressure the ventricle again beats in harmony with the auricle. By a stronger degree of pressure the block may become complete, in which case the ventricular rhythm loses entirely its relationship with the auricular rhythm, the beat and the rate being much slower than that of the auricle and independent of it. In partial block, the ratio between the ventricular and auricular rate is definite, every second or third auricular beat being followed by a ventricular contraction. In complete block no such ratio exists. These experimental observations are in accord with the observed clinical facts.

255 North Main Street.

PREVALENCE OF THE HEROIN HABIT

ESPECIALLY THE USE OF THE DRUG BY "SNUFFING"

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Heroin or diacetyl-morphin is so frequently employed in the treatment of various diseased conditions that the question of formation of habit from its use is a serious one. It is often prescribed for cough, the result of irritating conditions in the air-passages, and physicians not infrequently tell their patients what drug they are prescribing, so that indirectly the patient comes to look on heroin as a harmless sedative for his cough. Even physicians are not sufficiently alive to the danger of habit from its use. This in all probability is largely due to the fact that pharmacologic text-books lay very little stress on this point, and in many cases neglect to mention it altogether. In one instance a patient who came under my observation told a physician, who was called to treat him for an attack of laryngitis, not to give him anything that contained opium, because he had formerly been a slave to this drug. The physician replied: "I will give you some heroin; there is no danger of habit from that." This the patient took, with the result that he later had as much difficulty in breaking away from the heroin as from the opium habit.

In some cases, too, heroin is given hypodermically by surgeons to allay the discomforts before and after operations. That this may result in habit is illustrated by the following case which Atwood[1] reports:

> The patient was a neurotic woman, aged 29, who was given heroin hypodermically for relief from pain after an operation for appendicitis. The effect was so pleasant that she asked the name of the drug. On being told, she began to take it secretly, increasing the dose until she used daily from 2½ to 4 grains hypodermically. As a result she lost 50 pounds in weight, became greatly debilitated and her digestion was disordered. The heroin was immediately withdrawn, and, as a result, she had severe colic and diarrhea. Smaller doses were given, and then the drug was gradually discontinued, with good recovery.

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[2] Beck, Harvey G., and Stokes, William Royal: Arch. Int. Med., October, 1908, p. 277.

[3] Muller: Deutsch. Arch. f. klin. Med., July, 1908.

[4] Gerhardt: Deutsch. Arch. f. klin. Med., July, 1908.

[1] Atwood, C. E.: A Case of Heroin Habit, Med. Rec., New York, 1905, lxvii, 856

Some patients who are addicted to the use of morphin substitute heroin because it is easier to obtain. A further reason for the use of heroin is that firms advertising preparations containing this opium derivative call attention to their harmlessness. As an example there is stated in the advertisements of a nostrum advertised in most of the medical journals that it "is decidedly preferable to preparations containing codein or morphin, by reason of the fact that it does not produce narcotism, constipation, gastric disturbance or habituation, even though its administration be protracted."

Pettey,[2] in the last 150 cases of drug habits coming under his care, saw eight cases of heroin addiction. Three of these were initial cases; in one the patient had been cured of the opium habit, but following an operation heroin was prescribed, and the habit followed. The remaining four patients purposely substituted heroin for morphin, to which they had been addicted.

The purpose of this paper is to call attention to the fact that heroin is being used extensively by means of "snuffing," in the tenderloin districts of large cities. Since my attention was called to this, I have made inquiry from patients with other drug habits who come to the Medical Department of the Dispensary of Western Reserve University and Lakeside Hospital, and I almost invariably have found that they are perfectly familiar with the use, among many of their companions, of heroin by snuffing. Patient 1, whose case I report below, said that he knew at least twenty of his associates who used the drug in this manner. They have no difficulty in obtaining the heroin, as they procure it from a common source, paying 60 cents for 100 one-twelfth grain tablets. The method of use is to take three or four tablets, fold in a piece of stiff paper, crush the tablets, and snuff the powder either from the paper or from the "snuff-box" on the dorsal surface of the base of the thumb. In another instance reported to me by Dr. Charles H. Tanner of Willoughby, Ohio, the patient used heroin in suppository form.

The symptoms in all of these cases resemble closely the symptoms of chronic opium poisoning, except that when heroin is used by snuffing, the patient has a chronic rhinitis. This is similar to the rhinitis with ulceration which has been reported by W. D. Owens[3] in those addicted to the use of cocain.

REPORT OF CASES

The following cases illustrate these statements:

Case 1.—F. B., a man aged 21, nine months ago began to use morphin. Through the influence of his companions he changed to heroin, crushing the tablets and snuffing them. He now uses from seventy-five to 100 one-twelfth grain heroin ablets daily. His chief reason for changing from morphin to heroin was that it was easier to obtain. He says that at east twenty of his companions, many of whom work at soda-water fountains in drug-stores, use this drug. He says hat the heroin makes him sleepier than morphin, although he effects of the latter last longer. When the effect begins o wear off he is very restless, especially in his arms and legs, walks the floor constantly, and is unable to concentrate his mind on anything. His nose runs, he has cramps in his bdomen and diarrhea, is very much depressed, and seems to be lacking in energy to do any work. He has lost 15 pounds in weight and is very nervous and restless. His face shows peculiar pallor, his pupils are contracted, the nasal passages how evidences of a chronic rhinitis, and his tongue is heavily oated. His heart, lungs, abdominal organs and urine are ormal. He was referred to an institution for treatment.

Case 2.—J. O'D., a man aged 22, a companion of the first patient, began using heroin four years ago, on the advice of a friend, who had told him that it was good for a cold and for sore throat. He used three or four one-twelfth grain tablets daily until nine months ago when he increased to ten tablets. He now uses from seventy-five to 100 tablets daily by snuffing. He says that in Cleveland and in Toledo, his former home, heroin is used extensively in the tenderloin districts by men and women. His symptoms and his physical appearance are the same as described in the first patient except that he complained more of itching of the skin.

Case 3.—A physician, aged 60, had previously been addicted to the use of morphin but had been cured. Five years ago he began to take heroin because he suffered from a chronic cough. At that time he thought that there was no danger of habit from its use, because he said he believed the statements of various manufacturing firms which stated that there was no danger of habit. He gradually increased the dose to 2 or 3 grains daily, taking the drug by mouth. He says that the effect of the heroin is more deadening than that of morphin. He was cured of his habit two years ago but since then he has been a physical wreck. I did not see the patient during the time that he was taking the heroin but the symptoms, as described by him and the other physicians who saw him at that time, are similar to those seen in chronic morphinism.

Case 3 is worthy of emphasis, because the patient, a physician, is positive in his statements that he was misled by the advertisements of proprietary medicines in medical journals. From these facts we may conclude that heroin should be prescribed with the same care as morphin because of the great danger of habituation.

DEMONSTRATION OF THE GREATER SUSCEPTIBILITY TO HEAT OF SARCOMA CELLS

AS COMPARED WITH ACTIVELY PROLIFERATING CONNECTIVE-TISSUE CELLS *

ROBERT A. LAMBERT, M.D.
NEW YORK

The eradication of cancerous growths from the body by other than surgical means will depend on the discovery of some vulnerability of the cancer cell which is not shared by the cells of the organism. Any property which differentiates the cancer cell from the normal cell must therefore be regarded as important, and I wish in this brief communication to direct attention to experiments which indicate that the cells of rat and mouse sarcomas are less resistant to heat than are normal connective-tissue cells of these animals when both are placed under similar experimental conditions.

A number of observers have reported on the resistance of cancer cells to various chemical and physical agents. For example, it was shown that mouse carcinoma cells survive freezing with liquid air (Michaelis, Moore and Walker; Gaylord); or treatment with a 1:3,500 solution of mercuric chlorid (Clowes); and that rat sarcoma cells (in emulsions) are not all destroyed when subjected to seven-hundredth-normal potassium cyanid solution for forty hours (Loeb). The resistance of cancer cells to heat, though not so striking, has been emphasized by several observers (Jensen, Loeb, Clowes, Haaland).

Comparative studies, however, on the relative susceptibility of cancer and normal cells to harmful agents have been few in number, owing, no doubt, to the lack of suitable methods of comparison; for, whereas injuries to cancer cells can be tested by their subsequent inoculation into animals, no equally satisfactory test has been available for determining injuries to normal cells.[1]

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[2] Pettey, G. E.: The Heroin Habit, Another Curse, Alabama Med. Jour., 1902-1903, xv, 174.

[3] Owens, W. D.: The Journal A. M. A., Feb. 3, 1912, p. 329.

* From the Department of Pathology, College of Physicians and Surgeons, Columbia University. This investigation was conducted under the George Crocker Special Research Fund.

We now possess, however, in Harrison's method of cultivating tissues outside the organism, an easy means of studying normal and malignant cells under identical experimental conditions, and it is with the results obtained by the use of this method in comparing the susceptibility to heat of normal and tumor cells of the mouse that the present report is concerned. The study was undertaken at the suggestion of Professor MacCallum and forms one of a series of comparative studies on cancer cells and normal cells.

Dr. Hanes and I described in a previous communication[2] the successful cultivation of rat and mouse tumors in blood-plasma, and we have since shown that certain normal tissues of these animals are likewise capable of cultivation *in vitro.* In the present study, cultures of a transplantable mouse sarcoma and actively growing normal connective-tissue cells of the mouse have been employed. The connective-tissue cells were grown from small pieces of blood-vessel (aorta and pulmonary). In testing the resistance of the cells to heat, hanging-drop plasma preparations containing actively growing cells were placed for various lengths of time in a hot-air thermostat which subjected the cultures to temperatures above that of the body.[3] The cultures were afterward removed to an incubator kept at 38 C. (100.4 F.), and observations made at twenty-four-hour intervals.

The results show, first of all, that while both types of tissue exhibit the most active growth when incubated at from 37 to 39 C. (98.6 to 102.2 F.), cell wandering and multiplication take place also at from 40 to 41 C. (104 to 105.8 F.). Temperatures above 42 C. (107.6 F.) were found to be distinctly harmful and it was observed that the degree of injury sustained by either tissue is dependent on two factors: the height of the temperature and the duration of exposure.

Stated summarily, the results of these comparative studies show that corresponding to any degree of temperature between 42 and 47 C. (107.6 and 116.6 F.) a "time of exposure" may be found which will suffice to destroy sarcoma cells and yet allow connective-tissue cells to survive. For example, connective-tissue cells survive a temperature of 42.5 C. (108.5 F.) for from twenty-four to forty-eight hours, while sarcoma cells are killed; connective-tissue cells are viable after six hours' exposure to a temperature of 43 C. (109.4 F.), fifty minutes' exposure to 44 C. (111.2 F.), and twenty minutes' exposure to 46 C. (114.8 F.). The cells in sarcoma cultures receiving the same treatment are practically all killed. A smaller number of experiments with sarcoma and normal connective-tissue cells of the rat gave the same general result as with the mouse tissues; that is, normal cells proved to be the more resistant.

It is not to be inferred from the figures just given that sarcoma cells show a marked susceptibility to temperatures above that of the body; or, indeed, that there exists any great difference in the degree of resistance to heat exhibited by malignant and by normal connective-tissue cells of the mouse. On the contrary, it was necessary to carry out a number of experiments to determine the combinations of temperature and "time of exposure" which would effect the death of the one and allow the survival of the other tissue.

That sarcoma cells exhibit a considerable degree of hardiness the following results show: They survive a temperature of 42.5 C. (108.5 F.) for from six to twelve hours, 43 C. (109.4 F.) for three hours, and 44 C. (111.2 F.) for thirty-five minutes. These figures indicate one of the difficulties that would be met were the attempt made to raise the temperature of sarcoma cells in the body above their thermal death-point.

The object of this report is not to suggest a therapeutic measure but to record, in the course of a series of comparative studies on the biology of cancer cells and normal cells, a finding relating to the greater vulnerability of malignant tumor cells to at least one injurious physical agent. We work, however, with the idea that this method of investigation may bring to light a practicable point of attack on the cancer cell.

437 West Fifty-Ninth Street.

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[1] It may be suggested that the fact that adult skin as well as certain embryonic tissues of rats and mice can be successfully transplanted is opposed to the idea that animal inoculation may not afford a satisfactory method for testing the effect of injurious agents on normal body cells. It must be remembered, however, that normal tissues suffer a considerable degree of injury in the process of transplantation itself; and, furthermore, that growth after transplantation is limited, inconstant and in many instances transient in character. Nevertheless Gaylord reported (Jour. Infect. Dis., v, 445), that he could demonstrate by this method that the cells of the mouse embryo were killed by freezing with liquid air, whereas mouse carcinoma cells, though injured, survived such treatment.

[2] Lambert and Hanes: The Journal A. M. A., Jan. 7, 1911, p. 33.

[3] Objects placed in a hot-air bath reach the temperature of the surrounding medium much more slowly than in a water-bath. The figures given in the present report, therefore, do not indicate the actual time the cells were heated at the recorded temperature. Since the study was purely a comparative one, however, and the conditions were the same for both kinds of cells, the point is not one of any importance in this case.

PRIMULA DERMATITIS

ITS OCCURRENCE IN RURAL DISTRICTS

H. A. SHARPE, M.D.
CHICAGO

During the last few years there have appeared in the literature many reports of cases of primrose dermatitis. In the dermatologist's experience a primrose dermatitis is not uncommon. The cases reported by Drs. Sweet,[1] Foerster[2] and Zeisler[3] were caused by the hothouse or domesticated primrose flowers. The class of cases in which I have been especially interested and to which I desire to call the attention of the country practitioner in particular are caused by the flowers of the wild primrose, *Primula farinosa,* Linné, which grows wild throughout the southern part of Wisconsin, Minnesota, Michigan and northern Illinois.

During the past six years, while in country practice, I have had occasion to treat many such cases and have divided them into three groups, acute, subacute with exacerbations each spring, and chronic. The acute cases come to the physician most commonly in April, May, June and July, when the primrose flowers are budding and in bloom. The subacute and chronic cases begin in the spring, and an acute exacerbation occurs each succeeding spring. It is not at all infrequent in districts where the primrose flowers grow abundantly to see these chronic cases extending over a period of time from ten to fifteen years. The most common diagnoses are eczema and dermatitis. I give cases illustrative of the three groups:

Case 1.—*Acute Primula Dermatitis.*—G. N., aged 22, Norwegian, farm-hand, previous history negative, came to my office June 15, 1908, with characteristic eruption on thumb, index-finger and middle finger of right hand, and index-finger of left hand, most marked on radial side. On June 1 he had taken a walk through the fields and gathered wild primrose flowers. He also milked cows that during the night walked among these dew-laden flowers, thereby taking up the toxic principle on their udders to be transmitted later to the hands of milkers. Treatment consisted essentially of mild ointments and removal of the cause.

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[1] Sweet, E. A.: Poisoning by Primula Obconica, The Journal A. M. A., June 29, 1912, p. 2024.

[2] Foerster, O. H.: Primula Dermatitis, The Journal A. M. A., Aug. 20, 1910, p. 642.

[3] Zeisler, Joseph: Some Uncommon and Often Unrecognized Forms of Toxic Dermatitis, The Journal A. M. A., June 29, 1912, p. 2024.

Case 2.—*Subacute Primula Dermatitis.*—G. C., a man, aged 18, previous history negative and present health excellent, came to me May 20, 1910, with a distinct and characteristic eruption on the right index-finger extending to adjacent surface of the middle finger. The same eruption had appeared on the index-finger for the past four years and presently it involved the middle finger. He had had treatment each spring from physicians, who diagnosed the case as eczema. The trouble appeared each spring after the cows had been turned into a pasture that had quantities of primrose flowers; it continued until September or October.

Case 3.—*Subacute Primula Dermatitis.*—The patient, G. R., had a severe acute attack in June, 1909, presenting the characteristic symptoms and history of primrose dermatitis. That fall he went to high school, coming home over Saturday and Sunday. During such a trip in May, 1910, he noticed the reappearance of the eruption on his hands and also on his forehead, for in perspiring, when milking, he would wipe his forehead. I advised the patient to remain in the city until August, which he did and recovered.

Case 4.—*Chronic Primula Dermatitis.*—The patient, G. G. S., a man, aged 53, strong, previous history negative aside from present trouble, came to America from Norway in 1885 and located on present farm. In spring of 1887 he noticed that his hands, especially his thumbs and index-fingers, became sore and itched, and crusts would form, which he believed to be due to chapping although in fall and winter the reaction was less marked. Physicians diagnosed and treated the case as eczema. During the last twelve years the lesions extended to both elbows, and in 1908, when I first saw him, the pain was excruciating and the itching intense. During this time the patient had consulted dermatologists, each confirming the diagnosis of eczema and not one questioned him relative to the primrose. He had considered his case hopeless and my visit was for palliative measures. At this time Dr. Foerster's article[2] appeared. I found that over half of the patient's farm grew quantities of the primrose. I advised him to sell his farm and move to the city, which he did. The treatment that I used, aside from the removal of the source of poisoning, was:

Oil of cade	1 to 3 per cent.
Salicylic acid	1 to 3 per cent.
Mercury ammoniate	5 to 15 per cent.
Phenol (for itching when present)	1 to 2 per cent.
Zinc oxid ointment to make	100 per cent.

In six weeks the change was marked and the skin soon ecame normal, remaining somewhat red with few areas of car tissue. The patient has been entirely free from the rouble for the past four years. I attribute the success of the reatment primarily to the removal of the exciting factors.

My conclusions are, first, that primrose dermatitis in he rural districts is not so uncommon as the literature eads one to believe, and, second, that the wild primrose lower can cause a violent dermatitis, lasting years, esembling very closely a chronic eczema: I wish to mphasize the thought that, in treating cases resembling cute and chronic eczema, the country practitioner hould not lose sight of the fact that the wild primrose s capable of producing such lesions. In my series of ases I believe that the most common method of poisonng is through handling the udders of cows that have alked among the dew-laden flowers. The etiology, iagnosis and treatment have been covered very fully y Drs. Zeisler and Foerster.

100] West Lake Street.

NOTE ON A NEW METHOD OF SUTURING BLOOD-VESSELS

J. Shelton Horsley, M.D., Richmond, Va.

The method of suturing blood-vessels which I described recently in The Journal[1] consists in the use of a new instrument together with the application of a continuous mattress suture. The mattress suture apposes the intima more satisfactorily than the overhand stitch. I have found, however, that it is sometimes difficult to prevent leakage with the continuous mattress stitch, as the points between the sutures have but little compression by the suture and no raw surface. For this reason, if a leakage occurs, it is sometimes difficult to stop. This is particularly true when suturing vessels of different caliber, as in transplanting a segment of vein between the cut ends of an artery, and has been the chief objection to this method.

In order to overcome this objection, I have recently used a *double* mattress stitch, or cobbler's stitch, which has been so successfully employed by Dr. Crile in intestinal suturing. With this stitch properly used there will practically never be a leakage of more than a few drops, even when a segment of vein of large caliber is placed between the ends of an artery of much smaller caliber. The guy sutures are placed on the instrument as indicated in the article above mentioned, but instead of the guy suture that goes to the end of the short shaft being fastened to the button and cut, the unthreaded end only of the suture is wrapped around one of the buttons on the short shaft. This leaves two ends threaded in needles, one from the upper button on the long shaft and one from the end of the short shaft. The latter needle is passed through the margins of the vessel at the point where the upper guy suture on the long shaft passes through. Thus we have at this point two needles which are then used to make a double mattress or cobbler's stitch. A needle is taken in each hand and penetrates the edges of the vessel at about the same point. If passed at right angles to each other, the needles can be passed at the same time and drawn through quickly, the needle that points to the right being pulled through with the right hand and the needle that points to the left with the left hand.

This method of suturing is carried out in the first third, the threads being drawn snugly each time, then the handle of the instrument is depressed away from the operator and the second third is sutured; it is again depressed, this time toward the operator, when the last third is sutured. The suturing should be continued one stitch beyond the point of commencement, when the two threads are tied in an ordinary knot. There is no occasion for taking back stitches and the suturing can be quickly done, especially after a little experience in handling the needles after the manner of the cobbler stitch.

REPORT OF DEATH FROM UNRECOGNIZED DUODENAL ULCER FOLLOWING OPERATION FOR CHOLECYSTITIS

E. Gard Edwards, M.D., La Junta, Colo.

The frequent existence of duodenal ulcer in conjunction with a diseased gall-bladder is a recognized fact. The case here detailed is given for the reason that the unrecognized duodenal ulcer was the cause of death in an operative case of cholecystitis which to all appearances was progressing to recovery.

History.—The patient, aged 54, six years prior to this operation had an attack of violent pain on the right side, which was diagnosed as gall-stone colic. Two years of perfect health followed; then a period of four years of indefinite history of indigestion. Five days prior to the time the patient was sent to the hospital a chill occurred, followed by a sudden rise of temperature to 103, vomiting and severe pain in the region of the gall-bladder. At the time of her admission to the hospital, an examination showed, in addition to the clinical symptoms, a blood-count of 4,200,000 reds, 12,400 whites. The urine was normal in every respect. Stomach contents showed normal acidity. Observation for two weeks failed to show occult blood in the stools at any time and only for the first eight days after the attack of pain had there been vomiting or rise of temperature. A palpable mass remained on the right side, though without marked tenderness. Without any appreciable change in the blood-count or urine (stomach contents not again being analyzed), operation was advised, the case being diagnosed as an infected gall-bladder.

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[1] Horsley, J. Shelton: A New Method of Suturing Blood Vessels, The Journal A. M. A., July 6, 1912, p. 4.

Operation and Course.—Pus showed immediately on incision of the peritoneum and the mass was found to extend well down to the posterior border of the liver, the gall-bladder being pushed to the right side of the abdominal cavity. This, after being freed from its adhesions and opened, showed several large, faceted calculi. The gall-bladder, owing to its apparent necrotic condition, was removed. Convalescence was normal in every respect until the fifth day, when it was apparent from a sudden pulseless condition of the patient as well as from the almost immediate appearance of ingested liquids through the abscess opening that there was an opening from the duodenum to the abscess cavity. No attempt was made to repair this, the condition of the patient seeming to forbid further operative interference. Patient died two days later.

Necropsy.—This showed a ruptured duodenal ulcer, about three-fourths of an inch in diameter, a clean cicatrix at the separation of the gall-bladder from the liver and the abscess cavity practically obliterated.

This case is detailed on account of the existence (unrecognized by the operator) of the duodenal ulcer in addition to the abscess of the gall-bladder, after what he supposed was an exhaustive examination. Differential diagnosis was made on the following: A palpable mass in the region of the gall-bladder, a normal red blood-count, the leukocytosis, no vomiting after the first forty-eight hours and the absence of occult blood in the stools.

New and Nonofficial Remedies

The following additional article has been accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Its acceptance has been based largely on evidence supplied by the manufacturer or his agent and in part on investigation made by or under the direction of the Council. Criticisms and corrections are asked for to aid in the revision of the matter before publication in the book "New and Nonofficial Remedies."

The Council desires physicians to understand that the acceptance of an article does not necessarily mean a recommendation, but that, so far as known, it complies with the rules adopted by the Council.

W. A. Puckner, Secretary.

CYCLOFORM.—Isobutyl para-aminobenzoate.—Para-aminobenzoic acid isobutyl ester. Cycloform is 2-methyl-propyl-3-amino-benzoate, $C_6H_4(NH_2)COO.CH_2.CH(CH_3)_2$, the 3-amino benzoic acid ester of 2-methyl-propan-1-Ol.

Cycloform is a fine white crystalline, odorless powder. It is soluble in ether, benzol, acetone, alcohol and olive oil, but only slightly soluble in water. It melts at 65°.

If 0.1-0.2 gm. cycloform be heated with a concentrated solution of sodium hydroxide the odor of isobutyl alcohol will become apparent.

If 0.1-0.2 gm. cycloform be heated with 5 Cc. of 25 per cent. hydrochloric acid or 10 Cc. of 20 per cent. sulphuric acid on a water-bath until a clear solution results the latter will yield on cooling a mass of white crystals.

If 0.1 gm. of cycloform be incinerated no weighable residue should remain.

Actions and Uses.—Cycloform is said to act only on wound surfaces or mucous membranes as a superficial and prolonged anesthetic and as a mild antiseptic. It is said to be useful as a dressing for wounds and ulcers, especially chronic ulcers of the leg; in the treatment of burns, rectal diseases, chronic eczema, and painful conditions of the larynx and pharynx. It is said to be useful internally in cardialgia and obstinate vomiting.

Dosage.—As a dusting powder or in 5 to 20 per cent. ointments with petrolatum and in suppositories. Internally in doses of 0.1 Gm. to 0.2 Gm. (1½ to 3 grains).

Manufactured by the Farbenfabriken vorm. Friedr. Bayer & Co., Leverkusen, Germany (Farbenfabriken of Elberfeld Co., New York). U. S. patent No. 958,110 (May 17, 1910; expires 1927). U. S. trademark No. 73,892.

Therapeutics

OBSTRUCTIVE JAUNDICE IN CHILDREN

Jaundice occasionally occurs in young children, in whom it is generally a catarrhal jaundice, caused by inflammatory obstruction of the common duct. It sometimes occurs in groups, in families, or among children associated with each other, and may then be regarded as caused by some kind of infection.

While the treatment of this inflammation is not much different from that of the same condition in the adult, it is more important to select the proper food. To do this it is necessary to understand the physiologic relation of the bile to nutrition. Talbot[1] of Boston well presents the present understanding of this chemistry.

Talbot states that bile pigments and salts first appear in the intestine during the third month of fetal life. This bile, with the secretion of the intestinal canal and the desquamated epithelium, gradually accumulates to form the meconium. At birth the intestinal canal is sterile, but it shortly becomes infected and remains so throughout life. The bacteria are chiefly of the acid-forming group as long as the baby is fed human milk, but if the child receives cow's milk bacteria of the putrefactive or alkali-forming group are present.

Bile is excreted by the liver in the form of bilirubin, which is changed by oxidation and bacterial action into biliverdin, and later into hydrobilirubin. The latter may be converted into leukohydrobilirubin, if the putrefactive changes are greater. A considerable part of the bile, after performing its part in digestion, is absorbed and carried back to the liver, where it is reconverted into bilirubin. Hydrobilirubin does not appear in any amount in the feces until putrefaction is well established; this commences when the child begins to have cow's milk, which contains more casein than does human milk. Two other bodies, urobilin and urobilinogen, which correspond with hydrobilirubin and leukohydrobilirubin, but which are not chemically identical with these bodies, also occur. Urobilinogen is formed by the action of bacteria, and cannot be found in the urine or feces when the bile-duct is obstructed and bile cannot enter the intestine.

The important function of the bile is to aid the pancreatic juice in the digestion and absorption of fat. Neutral fat is first split into fatty acids, and these are then converted into soaps. Unsplit fat is absorbed with difficulty, or not at all. Bile facilitates the emulsification of fats and increases the fat-splitting action of the pancreatic juice. Bile also has the power of dissolving fatty acids and of increasing the solubility of soaps in water. The bile takes but little part in the digestion of proteins and carbohydrates; at least these foods can be digested in the absence of bile. Hence when bile is prevented from entering the intestinal canal the absorption of fat is seriously interfered with, only about 40 per cent. of fat being absorbed, while normally 90 per cent. of the fat ingested is absorbed.

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[1] Talbot, F. B.: Am. Jour. Dis. Child., June, 1912, p. 398.

Talbot quotes Schmidt as stating that about 25 per cent. of dried feces of healthy individuals is fat, which represents about 5 per cent. of the fat ingested, while with jaundice due to obstruction about 50 per cent. of the dried feces is fat, which represents about 25 per cent. of the total fat ingested.

The clay color of the stools in obstructive jaundice is due partly to the absence of bile pigments and partly to the presence of excessive quantities of fat. Talbot says, "It must be remembered, in this connection, that leukohydrobilirubin is white bile, and that the white stools, such as are seen in other types of indigestion due to fat, do not mean of themselves that there is no bile in the feces."

Talbot's investigations, in the out-patient department ı the Massachusetts General Hospital, of children who ıave obstructive jaundice show that jaundice generally ıppears suddenly, with fever, vomiting and pain in the tomach, which lasts for a day or two and is followed y jaundice, clay-colored stools, bile in the urine and oss of appetite. In other cases the onset may be insid-ous, without fever, following an indiscretion in diet. specially in fat and sugar. These cases may appear as complication of some infectious disease, such as diphheria, the exanthems and otitis media. The liver is nlarged in about three-fourths of the cases. Fever and omiting at the commencement of the disease are also resent in about three-fourths of the cases.

If the obstruction to the entrance of bile to the intes-ine is complete, urobilinogen will be absent from the rine.

The treatment of acute catarrhal jaundice in children, side from that necessary for the fever or pain, is to eep the patient warm in bed, as chilling increases the bdominal congestion; give frequent hot baths; apply arm or hot fomentations to the abdomen, and adminter laxatives. The ingestion of fat and sugar should e restricted. Cow's milk contains a more or less large mount of neutral fat; therefore if milk is used it should e skimmed; generally the patient is better without ilk. He may have some simple starches, as thin reals. If the patient has no fever, he may have eggs, d a small amount of simple meats if he is old enough r meat. Potato is perhaps one of the least digestible, cording to Talbot, of the starches.

Small doses of bismuth subcarbonate combined with dium bicarbonate are always soothing to the duodeum, and the alkali may render the mucous plugs more sily dislodged. Ammonium chlorid in small doses. ven in sour mixture or dissolved in plain water and ministered with some effervescent water, tends to make e mucus and the catarrhal exudate in the bile-ducts s tenacious and hence more easily dislodged. The se of ammonium chlorid for a child 5 years old would 0.2 gm. (3 grains) three times a day, after meals. The appetite is generally poor when there is jaundice. d sometimes 1 drop of the tincture of nux vomica in wine-glass of water, as a simple bitter, will be acceptle as an appetizer in older patients. Young children ll rarely accept this bitter. On the other hand, it is t wise to push the food much in catarrhal jaundice en there is no appetite.

For a long time after the patient is convalescent, illing of the body should be avoided, and non-stimulating, non-irritant food should be taken, as recurrences of the duodenal inflammation readily take place.

The laxative selected depends on the age of the patient. The proper dose of calomel, with an alkali, is generally the best laxative at first. Later one of the laxative waters may be given, or one of the effervescing laxative saline powders; if the patient is a child, senna or cascara are simple and satisfactory laxatives.

Whether the patient is an adult or a child, the abdomen especially must be kept warm for some weeks or even months, and a child, at least, should wear a flannel abdominal bandage for a time.

DISTURBANCES OF THE HEART

(Continued from page 2069)

CHRONIC DISEASE OF THE VALVES

Before discussing the treatment of broken compensation in general, it may be well to describe briefly the differences in the symptoms and treatment of the various valvular lesions.

MITRAL STENOSIS: MITRAL NARROWING

This particular valvular defect occurs more frequently in women than in men, and between the ages of 10 and 30, and is generally the result of rheumatic endocarditis or chorea, perhaps 60 per cent. of mitral stenosis having this origin. Other causes are various infections or chronic disease, such as nephritis. Of course, like any valvular lesion, it may be associated with other lesions, and sooner or later in many instances, when the left ventricle becomes dilated or weakened, mitral insufficiency also occurs.

It has sometimes seemed that high blood-pressure has caused the left ventricle to act with such force as to irritate this mitral valve and later develop from such irritation a sclerosis or narrowing, and stenosis occurs. It has been suggested that, though lime may be of advantage in heart weakness, as will be stated later, if the blood is overfull of calcium ions the valvular irritations may more readily have deposits of calcium, in other words, become calcareous, and therefore cause more obstruction. It is quite likely, however, that this sort of deposit is only a piece of the general calcification of tissue in arteriosclerosis and old age and could not be caused by the administration of calcium to a younger patient, and might then occur in older patients even if substances containing much calcium were kept out of the diet. Calcium metabolism in arteriosclerosis, and in softening of the bones is not well understood.

Patients with this lesion are seriously handicapped when any congestion of the lungs occurs, such as pneumonia, pleurisy or even bronchitis. Asthma is especially serious in these cases, and these patients rarely live to old age.

The pulse is generally slow, unless broken compensation occurs; dyspnea on exertion is a prominent symptom; the increased secretion of mucus in the bronchial tubes and throat is often troublesome, and there is likely to be considerable cough. If these patients have an acute heart attack a feeling of suffocation is their worst symptom and the dyspnea may be great, although there may be no tachycardia, these hearts often acting slowly even when there is serious discomfort. When compensation fails there is an occurrence of all the usual symptoms, as previously described.

The distinctive diagnostic physical sign of this lesion is the diastolic and perhaps presystolic murmur heard over the left ventricle, accentuated at the apex and transmitted some distance to the left of the heart. There is also an accentuated pulmonary closure. To palpation this lesion often gives a characteristic presystolic thrill at and around the apex.

The first symptoms of weakening of the compensation are irregularity in the beat and venous congestion of the head and face, causing bluing of the lips, often nosebleed and sometimes hemoptysis and insomnia. Later the usual series of disturbances from dilatation of the right ventricle occurs. As previously stated, with the absence of good coronary circulation and the consequent impaired nutrition, the left ventricle may also dilate and the mitral valve may become insufficient. Sudden death from heart failure may occur with this lesion more frequently than with mitral insufficiency and less frequently than with aortic insufficiency.

A particularly dangerous period for women with this lesion is when the blood-pressure rises after the menopause and the patients become full-blooded and begin to put on weight. Also, these patients always suffer more or less from cold extremities. In most cases they sleep best and with least disturbance with the head higher than one pillow.

Besides the usual treatment for broken compensation in patients with this lesion, digitalis is of the greatest value, and the slowing of the heart by it, allowing the left ventricle to be more completely filled with the blood coming through the narrowed mitral opening during the diastole, is the object desired. This drug acts similarly on both the right and left ventricles, and though there is no real occasion for stimulation of the left ventricle, and it is the right ventricle that is in trouble, dilated and failing, still a greater force of left ventricle contraction helps the peripheral circulation. The action on the right ventricle contributes greatly to the relief of the patient by sending the blood through the lungs and into the left auricle more forcibly, and the left ventricle receives an increased amount of blood, the congestion in the lungs is relieved and the dyspnea improves. Perhaps there is no class of cardiac diseases in which more frequent striking relief can be obtained than in these cases of mitral stenosis.

If the congestion of the lungs is very great and death seems imminent from cardiac paralysis, if cyanosis is serious and bloody, frothy mucus is being expectorated, venesection and an intramuscular injection of aseptic ergot may be indicated. Digitalis should also be given, hypodermatically perhaps, but its action would be too late if it was not aided by other more quickly acting drugs. The physician may often save life by such radical measures.

MITRAL INSUFFICIENCY: MITRAL REGURGITATION

This is the most frequent form of valvular disease of the heart, and is due to a shortening or thickening of the valves, or to some adhesion which does not permit the valves to close properly, and the blood consequently regurgitates from the left ventricle into the left auricle during the contraction of the ventricle. Such regurgitation may occur without valvular disease if for any reason the left ventricle becomes dilated sufficiently to cause the valve to be insufficient. Such a dilatation can generally be cured by rest and treatment. As with mitral stenosis, the most frequent causes are rheumatism and chorea, with the occasional other causes as previously enumerated.

The characteristic murmur of this lesion is a systolic blow, accentuated at the apex, transmitted to the left of the thorax, generally heard in the back, near the lower end of the scapula, and transmitted upward over the precordia.

Of all cardiac lesions, this is the safest one to have. Sudden death is unusual, the compensation of the heart seems to be most readily maintained, and the patient is not so greatly dangered by overexertion or by inflammations in the lungs. As in mitral stenosis, any increase in blood-pressure—whether the normal increase after the age of 40, any continued earlier high tension or increase from occupation or exercise—is serious as causing the left ventricle to act more strenuously, so that more blood is forced back into the left auricle, the lungs become congested, and the right ventricle, sooner or later, becomes incompetent.

When compensation fails with these patients, the first sign is pendent edema of the feet, ankles and legs; subsequently, if there is progressive failure of compensation, the usual symptoms occur.

The treatment is principally rest and digitalis, and the recovery of compensation is often almost phenomenal. Patients with this lesion are likely to be children and young adults, and the heart muscle readily responds as a rule to the treatment inaugurated. Later, in these patients, or if the lesion occurs in older patients, the return to compensation does not occur so readily. If the condition is developed from a myocarditis or from fatty degeneration of the heart, it may be impossible to cause the left ventricle to improve so much as to overcome this relative dilatation or relative insufficiency of the valve. If the dilatation of the left ventricle is due to some poisoning such as nicotin, with proper treatment—stopping the use of tobacco, administration of digitalis, and rest—the heart muscle will generally recover and the valve again properly close.

AORTIC STENOSIS: AORTIC OBSTRUCTION

Valvular disease at the aortic orifice is much less common than at the mitral orifice, and while stenosis or obstruction is less common from rheumatism or acute inflammatory endocarditis than is insufficiency of this valve, a narrowing or at least the clinical sign of narrowing, denoted by a systolic blow at the base of the heart over the aortic opening, is in arteriosclerosis and old age of frequent occurrence. If such narrowing occurs without aortic insufficiency at the age at which it usually occurs, it may not seriously affect the heart. It may follow acute endocarditis, but it most frequently follows chronic endocarditis or atheroma, in which the aortic valves become thickened and more or less rigid; this condition most frequently occurs in men.

Anything that tends to increase arterial tension, as tobacco, lead or hard work, or anything that tends to cause arterial disease, as alcohol or syphilis, is often the cause of this lesion.

At times the edges of the valves may grow together from ulcerative inflammation, and the lumen thus be diminished in size; or projecting vegetations may interfere with the opening of the valve and with the flow of blood. With such narrowing the left ventricle more or less rapidly hypertrophies to overcome its increased work.

The murmur caused by this lesion is a systolic one, either accentuated in the second intercostal space at the right of the sternum, or perhaps heard loudest just to the left of the sternum in this region. The murmur is also transmitted up the arteries into the neck, and ma at times be heard in the subclavian arteries. It may be transmitted downward over the heart. The pulse is slow, the apex of the rise of the sphygmographic arteria tracing is more or less sustained and rounded, and the rise is much less than normal.

If this lesion occurs in old age, there is general arterial disease present and the tension and compressibility of the arteries vary, depending on how much they are hardened. The disturbed circulation is evidenced by imperfect peripheral circulation and capillary sluggishness, with at times pendant edema of the feet and ankles, but, perhaps, little congestion of the lungs. The left ventricle being sufficient, there is no damming back through the left auricle to the lungs. The left ventricle may, however, become weakened, either by some sudden strain or by a chronic myocarditis, and relative insufficiency of the mitral valve may occur. The subsequent symptoms are typically those of loss of compensation.

This lesion may allow a patient to live for years, provided no other serious disturbance of the heart occurs, such as myocarditis or coronary disease; but sooner or later, with the failing force of the blood-flow and the lessened aortic pressure, slight attacks of anemia of the brain occur, causing syncope or fainting. Also, sooner or later these patients have little cardiac pains. They begin to "sense" their hearts. There may not be actual anginas, but a little feeling of discomfort, with perhaps pains shooting up into the neck, or a feeling of pressure under the sternum. Little excitements or overexertions are likely to make the heart attempt to contract more rapidly than it is able to drive the blood through the narrowed orifice, and this alone causes cardiac discomfort and the feeling of cardiac oppression.

It is essential, then, that these patients should not hasten and should not become excited; and any drug or stimulant that would cause cardiac excitement is bad for them. On the other hand, these are the very patients in whom, sometimes, alcohol in small doses may be advisable, especially if the patient is old; and a dose of alcohol used medicinally when an attack of cardiac disturbance is present is good treatment. The quick dilatation is valuable. Nitroglycerin will also do good work in these cases, and with high blood-tension may be the only safe drug for the patient to have on hand. As soon as his attack occurs, with or without real angina pectoris, let him dissolve in his mouth a nitroglycerin tablet. If he feels faint, he will feel better the moment he lies down, and in this instance he may be improved by a cup of coffee, or a dose of caffein, camphor or ammonia.

If the left ventricle becomes still weaker and shows signs of serious weakness, or if there is actual dilatation, the question of whether or not digitalis should be used is a subject for careful decision. The left ventricle should not be forced to act too sturdily against this aortic resistance. Consequently the dose of digitalis must be small. On the other hand, it frequently happens, especially in old age, that myocarditis or fatty degeneration has already occurred before this cardiac weakness develops in the presence of aortic narrowing, and digitalis may not be indicated at all. We cannot tell how far degeneration may have gone, however, and small doses of digitalis used tentatively and carefully, perhaps two or three drops of an active tincture two or three times a day, and then the drug carefully increased to a little larger dose to see whether improvement takes place, is the only way to ascertain whether digitalis can be used with advantage or not. If it increases the cardiac pain and distress, it should not be used. Strychnin is then the drug that should be relied on, with such other general medication as is needed, combined with the coincident administration of nitroglycerin, which may also be given in conjunction with digitalis, if deemed advisable. Generally, however, if a heart with aortic stenosis needs stimulation the blood-pressure is generally none too high, although there may be arteriosclerosis present. Therefore when nitroglycerin is indicated to lower blood-pressure, digitalis is not usually indicated; when digitalis is indicated to aid the heart, nitroglycerin is generally not indicated. These patients must have high blood-pressure to sustain perfect circulation at the base of the brain.

Patients who have this lesion should not use tobacco in large amounts, or sometimes even small amounts, as tobacco raises the blood-pressure and thus puts more work on the left ventricle; in the second place, if the left ventricle is failing, much tobacco may hasten its debility. On the other hand, with a failing left ventricle and a long previous use of tobacco it is no time to prohibit its use absolutely. A failing heart and the sudden stoppage of tobacco may prove a serious combination.

AORTIC INSUFFICIENCY: AORTIC REGURGITATION

This lesion, though not so common as the mitral lesion, is of not infrequent occurrence in children and young adults as a sequence of acute rheumatic endocarditis. If it occurs later in life it generally is associated with aortic narrowing, and is a part of the general endarteritis and perhaps atheroma of the aorta. Sometimes it is caused by strenuous exertion apparently rupturing the valve.

This form of valvular disease frequently ends in sudden death. On the other hand, it is astonishing how active a person may be with this really terrible cardiac defect. This lesion, from the frequent overdistention of the left ventricle, is one that often causes pain. While the left ventricle enlarges enormously to overcome the extra distention due to the blood entering the ventricle from both directions, the muscle sooner or later becomes degenerated from poor coronary circulation. Unless the left ventricle can do its work well enough to maintain an adequate pressure of blood in the aorta, the coronary circulation is insufficient, and chronic myocarditis is the result. If the left ventricle has maintained this pressure for a long time, edemas are not common unless the cardiac weakness is serious and generally permanently serious; that is, slight weakness, in this lesion, does not give edemas as does slight loss of compensation in mitral disease, and unless the weakness of the ventricle is serious, the lungs are not much affected.

The physical sign of this lesion is the diastolic murmur, which is loudest at the base of the heart, is accentuated over the aortic orifice, and is transmitted up into the neck and the subclavians, and down over the heart and down the sternum with marked pulsations of the arteries (Corrigan pulse) and often of some of the peripheral veins, notably of the arms and throat.

If the left ventricle becomes dilated the mitral valve may become insufficient, when the usual lung symptoms occur, with hypertrophy of the right ventricle; and if it fails, the usual venous symptoms of loss of compensation follow. This lesion not infrequently causes epistaxis, hemoptysis and hematemesis.

Digitalis is always of value in these cases, but it should not be pushed. If a heart is slowed too much the regurgitation into the left ventricle is increased. Therefore such hearts should not be slowed to less than eighty beats per minute, or sudden anemia of the brain and sudden death may occur. These patients must not do hard work.

(To be continued)

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SOME UNTOWARD FEATURES OF SUBCUTANEOUS NUTRITION

The desirability of having some appropriate procedure whereby food can be introduced into the organism at times when, owing either to pathologic developments or to surgical complications, the participation of the alimentary tract in the digestive preparation of the food is precluded, has encouraged repeated attempts to devise a suitable substitute for the natural ingestion of our nutrients. There are published records of numerous attempts at subcutaneous and other forms of parenteral nutrition with complete avoidance of the gastro-intestinal canal. In the case of the soluble carbohydrates, such as dextrose, some success has apparently been achieved. The employment of fine emulsions of oil for subcutaneous injections has found temporary advocacy through the researches of Mills and Murlin,[1] who have reported favorable gains in this way, although the earlier experiences with the subcutaneous use of fat for nutritive purposes were anything but encouraging. Until more recently the parenteral introduction of proteins has frequently been reported to be accompanied by a considerable output of protein in the urine so that the nutritive possibilities involved were unpromising. The newer facts of hypersensitiveness have served only to complicate the problem.

A recent investigation of the possibilities of subcutaneous nutrition which Dr. Ornstein has carried out in Professor Tangl's laboratory in Budapest[2] reveals a somewhat unexpected element of danger which must serve as a warning against wide-spread application of procedures which are based on limited experimental trial. Ornstein has noted that the utilization of blood-serum and sugar introduced subcutaneously into starving dogs may be apparently excellent for some time. The tissue components can be spared by this somewhat indirect supply of nutriment, and although the availability of the furnished energy is distinctly less than what is experienced with a comparable quantity of food presented by the usual oral path, the results are nevertheless sufficiently striking to direct attention to the possibilities of feeding in this manner. It transpires, however, that if this mode of parenteral introduction (which in comparison with intravenous or intraperitoneal methods is the only one that offers any permanent practical usefulness) is daily continued more than a few days, cachectic symptoms ensue; and if the subcutaneous procedure is persisted in, death may follow amid symptoms of anaphylactic shock.

This procedure might have been regarded as an adequate nutritive measure if judged by its incipient success; its ultimate failure plainly teaches the hidden dangers of any limited or one-sided nutritive or dietetic scheme which has not been tested over sufficiently long periods of time to establish conclusively either its physiologic harmlessness or its therapeutic utility.

SUGGESTION IN HYPERTHYROIDISM

Recently a series of cases of hyperthyroidism have been reported in which various operations on the nose and throat have brought great relief of symptoms and sometimes such a remission of the uncomfortable manifestations of the affection as would ordinarily be called a "cure." In the majority of these cases hypertrophied turbinates were found and various methods of treatment, especially cauterization, were followed by favorable effects on the constitutional affection. Successful treatment of other pathologic conditions of the nose, however, as nasal polypi and spurs on the septum, had a similar beneficial result. The removal of adenoids from the throat and of hypertrophied tonsils had a like favorable action.

These reports do not serve to alter the status of hyperthyroidism or its connection with some definite disturbance of glandular metabolism within the body, but they emphasize the fact that favorable influence on the minds of patients suffering from even outspoken hyperthyroidism is likely to have a most happy effect. If these patients become persuaded that some mode of treatment is likely to be beneficial, there is prompt relief of most, and sometimes, it would almost seem, of all of their symptoms shortly after the institution of the treatment in question. Such persons are eminently susceptible to suggestion and it seems probable that in many cases the functional disturbance of glandular secretion which brings about the symptoms of hyperthyroidism is due to the effect of worry and mental anxiety in a subject whose sympathetic nervous system is not strongly under control but may be rather readily affected by the patient's mental condition.

This probability suggests a possible reason why so many remedies and methods of treatment suggested for hyperthyroidism have proved alluringly curative in a number of cases when the treatment was first instituted and have afterward proved quite inefficient. During the last twenty years nearly a score of different remedies have apparently proved distinctly beneficial to sufferers from hyperthyroidism. Nearly twenty years ago an English surgeon used thyroid in the treatment of the disease and reported good results. Later after more careful analysis of his cases and their treatment he found that while he thought that the butcher was supplying him with thyroid he had actually been giving his patients thymus. In other hands neither thyroid nor thymus did any good. In a few reported cases parathyroid improved the symptoms at least of hyperthyroidism, and epinephrin and other glandular products have had some reported successes. Then came the use of various serums obtained from thyroidectomized animals which relieved symptoms. Then a preparation of animal serum obtained after the injection of portions of enlarged human thyroids into animals seemed to do good. After a time, however, all of these remedies proved unavailing.

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[1] Mills, Lloyd H., and Murlin, J. R.: The Influence of Oils and of Lecithin on the Protein Metabolism, Proc. Soc. Exper. Biol. Med., 1911, vii, 166. Mills, L. H., and Congdon, E. A.: The Utilization of Fats and Oils Given Subcutaneously, Arch. Int. Med., May, 1911, p. 694; abstr., The Journal A. M. A., June 10, 1911, p. 1757.

[2] Ornstein, L.: Stoffwechselversuche mit parenteraler Ernährung, Biochem. Ztschr., 1912, xliv, 140

In the older history of medicine much is said about goitrous conditions which could be cured by various methods. One favorite mode of treatment was by wrapping a dead snake around the neck or in milder cases the sloughed-off skin of a snake. Still another method was the touch of the rope by which a man had been hanged. Occasionally the touch of the hand of an executed criminal was a favorite mode of treatment. Burnt sponge and burnt seaweed, each of which probably contains iodids, were also said to be beneficial. Mummy, which retained its place as a remedy until well on in the eighteenth century, was said to be particularly efficient in the cure of these goitrous conditions. It is evident that throughout the ages the suggestibility of patients suffering from exophthalmic goiter has made them favorite subjects for all sorts of therapeutic experiments which seemed to have a good effect.

The story of the last twenty years when compared with that of the preceding period enables us now to recognize the necessity for the careful and critical investigation of any remedy or mode of treatment that may be asserted to benefit this affection. This applies as well to surgical procedures as to purely medical remedies.

EXPERIMENTAL SCURVY

The possibility of imitating, by experimental methods, the pathologic lesions or other manifestations of specific diseases has always been of great advantage in scientific medicine. In the case of the bacterial infections it has given a means of studying prophylactic or curative measures without recourse to human patients. Most of the therapeutic advance achieved in the field of immunity has been accomplished through the aid of experimentally produced disease. The disorders of nutrition, on the other hand, have been far less easy of imitation in the same way. Experimental diabetes, for example, is not always an exact analogue of the human type; and the pathology of purin metabolism as manifested in gout has scarcely been reproduced in laboratory animals.

It was a distinct step in the direction of progress when the essential features of beriberi could be induced in animals by appropriate feeding. The polyneuritis of birds which was described in the classic researches of Eijkman is the close imitation of a human disease which has benefited by the newer knowledge of the etiology of the former. Another disorder, scorbutus, has now lent itself to more effective scientific investigation, since its salient features have been produced experimentally by Axel Holst of Christiania.[1]

There have been at least three prominent theories advanced to explain the origin of human scurvy. 1. Scorbutus has been regarded as an infectious disease. 2. It has been attributed to decayed food which induces a sort of alimentary intoxication. 3. The most widely current view has charged scorbutus to protracted lack of fresh food, notably fresh vegetable food. This explanation has obtained a wide acceptance and fits many of the known experiences. Notable exceptions have always raised doubt in the minds of critical investigators, a most striking illustration occurring in the well-known case of the polar explorers Nansen and Johansen, who subsisted on meat and fat alone during their memorable winter in Franz-Josef Land. The experiments of Holst and his colleagues have shown that it is possible to induce in certain animals, notably guinea-pigs, pathologic changes which correspond with the scorbutic symptoms of man. The method consists in feeding exclusively with various cereals or bread; so that here again the dangers of a one-sided dietary are brought into surprising prominence. All of the diagnostic signs — looseness of the teeth, hyperemia of the gums, bloody extravasations in various regions about the bones or in the non-skeletal portions of the extremities, pathologic manifestations in the epiphyses, and even occasional subcutaneous hemorrhages — are reproduced in the suitably fed animals. These striking phenomena of scurvy do not occur, however, when certain other types of food, such as carrots, cabbage, etc., form the exclusive diet. It might appear as if the manifestations with the cereals were primarily those of inanition; but a careful analysis shows that this is not the case.

Fresh vegetables have long had a reputation as antiscorbutic agencies. This belief finds a considerable justification now in Holst's observation that the experimental disease can be averted or relieved by many of these green vegetables, of which cabbage is an illustration. Cooking as a rule diminishes the curative potency of the fresh vegetables; and a temperature of from 110 to 120 C. (230 to 248 F.) appears generally to be more destructive to the effective substance than is the boiling temperature. Drying likewise may be detrimental to the preservation of the antiscorbutic properties of fresh vegetables.

It would take us too far afield here to relate the numerous details of interest which have come out in these studies. The important fact is that the whole subject is now opened for investigation in an experimental way, without depending solely on statistical information gathered from human experience or waiting for suitable clinical material. The human patient and medical history may now be expected to furnish suggestions or corroboration of the laboratory findings. In any event it is clearer than ever that scorbutus is primarily a disease of faulty nutrition induced by inappropriate feeding; and the unsolved problems of infantile scurvy appear nearer to solution.

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[1] Holst, Axel, and Frölich, Theodor: Ueber experimentellen Skorbut, Ztschr. f. Hyg. u. Infectionskrankh., 1912, lxxii, 1.

The chemical nature of the somewhat unstable additional substance which is essential to perfect nutrition when cereals form the bulk of the diet remains to be ascertained. With regard to the mode of administration of the antiscorbutic products it can already be said, however, that intraperitoneal injections have hitherto shown no prophylactic potency, the alimentary tract appearing to be the efficient channel of administration. The goal of success will, of course, be the discovery of the exact chemical make-up of the active substances which must at present be sought in crude extracts and similar mixtures. Meanwhile we are learning more and more about the peculiar nutrient rôle of individual foodstuffs.

INTERNAL DERANGEMENTS OF THE KNEE-JOINT

Injuries to the semilunar cartilages, while one of the most frequent types of derangement of the knee-joint, have been much neglected in the literature dealing with joint surgery. The condition is one in which early recognition of the injury is extremely important, inasmuch as observation has shown that recurring attacks are practically inevitable unless precautions are taken against them. It may be of interest, therefore, to review briefly the observations of Martin[1] based on 449 cases in his personal experience.

Of these 449 cases 282 occurred in miners, and 81 in football players, a total of 80.8 per cent. due to mining and football. Other forms of sport caused 2 per cent. The coal-miner performs his work with the knees more or less flexed owing to the lowness of the veins in which he works; under these circumstances a slight swing of the body wrenches the knee or twists the joint, and the cartilages are torn. Usually the cartilage, nipped between the two bones, is dragged toward the center of the joint and split longitudinally. In the case of football the running is not straightaway, but consists rather of dodging, twisting and swerving, and this, coupled with the fact that the cleated boots tend to hold the foot momentarily while the knee rotates, gives the exact mechanism for producing the injury.

In 92 per cent. of the instances the internal semilunar cartilage was the one affected, in 53.3 per cent. the right knee was involved and in 46.7 per cent. the left knee. These figures correspond closely to a large number of isolated observations mentioned in various textbooks. The history of a case is typical: There is a sudden twist and the joint locks, so that it is impossible to extend the leg; after moving and wriggling the leg in various directions there is usually a sudden snap and the full power of movement is regained. Usually within a short time there is an effusion into the joint and over a short period marked tenderness and slight swelling, the tenderness being usually just inside or outside the patella. Subsequent attacks may occur the same day, the next day, or at irregular intervals. A slight cause may be sufficient to bring on an attack, such as catching the bed-clothes with a toe, stepping from a car, or stumbling on irregular ground; needless to say, this may happen at an awkward moment and serious consequences may result. Thus in one instance a severe laceration of the hand occurred due to spiking on a fence-rail in an attempt to prevent a fall; and in one instance the locking occurred in a swimming-pool following a dive into the water.

There is a considerable difference of opinion regarding treatment. The consensus seems to be that the forms of manipulation necessary to restore the joint to a normal condition cannot be definitely set forth, as the internal cartilage may be misplaced either medially or laterally. Many observers say that prolonged rest after the initial injury frequently will prevent recurrence. Others advise the wearing of an elastic knee-brace, and other methods of permanent or temporary bandaging have been recommended. It is the opinion of Martin that if the patient is a laborer, or an athlete who wishes to continue in sport, operation is advisable. When the patient finds himself permanently unable to extend the joint, operation should be performed at once. Martin has had no bad results whatever in his cases. Unfavorable results have been reported, but at most are few. The only other reports of extensive series of cases treated by operation or manipulation are from England and Germany. In this country there seems to be an aversion to operation on the knee-joint in these cases. Evidently the subject demands further attention with special reference to simple surgical treatment.

FEVERS FOLLOWING SUBCUTANEOUS INJECTIONS

The increasing employment of the method of subcutaneous and intravenous injection for the introduction of drugs or other restorative agents into the organism has directed attention to some of the phenomena occasionally attendant on these procedures. Various investigators have observed a rise of temperature following the injection of certain solutions and have naturally associated it with the most conspicuous component of the fluid employed. The types of substances charged with this fever-producing property are by no means uniform or similar. One need merely recall the terms "water-fever," "salt-fever," "sugar-fever," "tissue-fever," applied to the pyrexia noted after introducing solutions of the products suggested by these names in an experimental way. Intravenous infusions of saline, for example, have repeatedly been described as precursors of a febrile rise in temperature; and "salt-fever" has formed a subject of lively discussion in the pediatric literature in particular, owing to the pronounced sensitiveness of youthful individuals to the injections. At present the fever met in man after injections of sterilized saline containing salvarsan has assumed a greater prominence than has been accorded to the more largely experimental types previously referred to, owing to the unusual practical interest centered on this drug.

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[1] Martin: Lancet, London, 1912, ii, 1067.

Last year it was suggested by Wechselmann[1] that the fever so often encountered after the use of salvarsan is due to gross bacterial infection of the saline, demonstrable just before sterilization. He insisted that the fever no longer followed injection if the salt was dissolved in freshly distilled water. A subsequent critical study of this subject at the Lister Institute of Preventive Medicine in London[2] has disclosed the interesting fact that even water or ordinary saline is not free from pyrogenetic properties after the organisms present have been destroyed by heat. Solutions made with freshly distilled water are inert in respect to temperature effects; but solutions which have harbored organisms frequently contain fever-producing substances indestructible by prolonged heating and presumably of a colloidal nature. If these observations are substantiated, they suggest that this avoidable contamination by the water used in the preparation of saline or salvarsan solutions is a more important factor in these injection fevers than has been realized.

The facts may vitiate some of the deductions drawn from previous work on the causation of fever which is the sequel to injection of a variety of substances dissolved or suspended in water. Above all they give a warning of the importance of extreme care in the preparation of all solutions for injection and of the need of a pure solvent in any event.

FACTORS CONTRIBUTING TO RECENT ADVANCES IN OUR KNOWLEDGE OF COMMUNICABLE DISEASES

Our knowledge of the etiology of infectious diseases has advanced not uniformly, but by leaps and bounds as new methods have been developed and new incentives have arisen. With the evolution of a bacteriologic technic, following the work of Pasteur and Koch, there was a rapid expansion in our knowledge of bacterial infections. The discovery that Texas fever was transmitted by the tick started extensive studies on the relation of insects to the transmission of disease. The demonstration that certain diseases are due to ultramicroscopic organisms — so-called filterable viruses — rapidly led to a study of many diseases of obscure etiology, and cleared away much of the confusion regarding them. Great epidemics have furnished an incentive for the most exhaustive study of some of our essentially epidemic diseases, as cholera, plague, influenza and meningitis.

There was a period not long ago when little was done to advance our knowledge of some of the important infectious diseases endemic throughout almost the entire civilized world. Since that time, however, greater experience in interpreting results, the training and development of men for research, the foundation and endowment of large institutions for research, such as the Rockefeller Institute, the Memorial Institute and the Hygienic Laboratory of the U. S. Public Health Service, and the adoption of new methods by research workers, have made possible the recent increase in our knowledge of this class of diseases. Certain diseases formerly thought not to be communicable have been found to belong to the infectious class. This is the case with poliomyelitis, which for years was considered to be a degenerative disease of the nervous system, and which recent researches have proved to belong among the infectious diseases. An important element, well illustrated by experimental poliomyelitis in the rabbit and in the monkey, is the recognition that a disease may present a picture clinically different in one species from what it does in another.

The use of the monkey as an experimental animal, instead of the small animals usually employed, has contributed more than any other factor to the important recent additions to our knowledge of the acute infections. Recent work has shown that the monkey is susceptible to a number of diseases which affect man but which are transmissible with difficulty, if at all, to the small laboratory animals, such as rabbits, rats and guinea-pigs; and through this new medium of experiment we have been able to reproduce these diseases at will and to study them under laboratory conditions. Without the monkey as an experimental animal our knowledge of typhus fever, poliomyelitis, measles, cerebrospinal meningitis and scarlet fever would not have made its recent great advances; indeed, it probably would have remained at a standstill for many years to come.

Another important advance was in the adoption of methods of experiment by which the infective material was brought into immediate contact with the organs or tissues of the body primarily or most seriously affected in the natural disease, as in experimental meningitis and poliomyelitis, in which the infective material is put directly into the cranial or spinal cavities. The use of special mediums or special methods of culture has contributed greatly to our knowledge of the specific cause of certain infectious diseases, such as leprosy and syphilis. A valuable method is filtration through earthenware filters by means of which contaminating organisms are removed. Future advances in our knowledge of the acute infections apparently depend to a large extent on the discovery of new methods of staining the etiologic agent, and of new methods of culture.

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[1] Wechselmann: Neuere Erfahrungen über intravenöser Salvarsan-Injektion ohne Reaktions-Erscheinungen, München. med. Wchnschr., July 11, 1911, Deutsch. med. Wchnschr., April 27, 1911.

[2] Hort, E. C., and Penfold, W. J.: A Critical Study of Experimental Fever, Proc. Roy. Soc., London, B., 1912, lxxxv, 174.

Unfortunately the application of this knowledge to the control and eradication of the diseases has not kept pace with its acquisition. With a few notable exceptions, such as the control of yellow fever through mosquito eradication and of bubonic plague by rat campaigns, health authorities have been slow to apply the great mass of information now available to them by reason of the researches of the last few years. What at present is more needed than research is a more general application of the results already at hand. Research in our large institutions should of course be encouraged and developed; and the laity, physicians and health officers should be impressed with the importance of using the information already available. Our law-makers should also be informed that it requires money to carry out the measures for the control of disease which have been pointed out so convincingly by laboratory studies. Who can predict how many lives would be saved and how many cripples for life prevented if means were provided for fly campaigns next summer in order to carry into effect measures for the prevention of poliomyelitis by the control of the stable-fly?

Current Comment

A NEW DIAGNOSTIC TEST IN MENINGITIS

Since the introduction of the serum treatment for meningitis the necessity has arisen for definite diagnosis between meningitis caused by the meningococcus and meningitis caused by other organisms like the streptococcus, pneumococcus and tubercle bacillus, as obviously the serum treatment is effective only in those cases caused by the meningococcus. H. Vincent and other French investigators[1] have developed a test which they believe to be accurate in its differentiation between these classes of cases, and almost as simple in its application as the agglutination test in typhoid. The test is a precipitin reaction performed by adding one or two drops of an antimeningococcus serum to a tube of fresh cerebrospinal fluid which has been obtained from the patient by spinal puncture, and which has been cleared by rapid centrifugation for ten or fifteen minutes. After the serum has been added, the test tube and a control tube are incubated at 52 C. (125.6 F.) for a few hours. If the meningitis is caused by the meningococcus a definite precipitation will be present in the tube to which the serum was added and should be absent in the control tube. This test embraces no new principles, and the result is what would naturally be expected in a mixture of fluids containing antigen and antiserum under suitable conditions. Those who have tried the reaction on extended series of cases affirm that it is specific in its action and is especially valuable as a delicate test for differentiating obscure cases. Collignon and Pilod state that by means of this test they are able to differentiate accurately in that difficult class of cases in which bacterial examination of the cerebrospinal fluid fails to reveal the causative organism. Their results are verified either by post-mortem findings or by the subsequent course of the disease under serum treatment. They recommend that the serum used for this test be free from phenol or other preservative which might interfere with the reaction. Precipitin reactions occur rapidly; consequently the result, at least when positive, would be expected to become apparent promptly. Strangely enough, few reports of the application of this test have found their way into English and American literature. It is possible that our laboratory diagnosticians will find the test a valuable addition to their resources.

NUT-GROWING AS A HOBBY

Nuts are "food for the body and food for thought. Bread, butter and beefsteak are furnished by nuts, in a nutshell, in tablet form, in sealed individual packages, water-free, concentrated and uncontaminated," says an announcement of the Northern Nut-Growers' Association,[1] which is an association primarily not for profit, organized by a number of physicians, pomologists, editors, horticulturists and some others engaged in a commercial way in the propagation of nuts, fruits and trees. Nut-growing as a hobby for physicians and others is said to have much to recommend it; most of the members of the association have taken up nut culture for the pleasure derived from the scientific propagation or improving of old and the creation of new varieties of the various edible nuts. They do not lose sight of the fact, however, that the nut industry is an important one and is deserving of greater attention on account of the food value of nuts and the profit which may be derived from them. Dr. Robert T. Morris, president of the association, who is an enthusiast on nut propagation, says that there are few acres of tillable land in the United States that will not yield a hundred dollars' worth of nuts to the acre per year with less care than would be required for almost any other crop. At present the United States imports nuts to the value of thousands of dollars, though it is known that nuts can be successfully grown in almost every state of the Union and in Canada.

FRIEDMANN'S INOCULATION AGAINST TUBERCULOSIS

In another place in this issue of The Journal,[2] and in the Berlin Letter of last week's issue,[3] reference is made to Friedmann's treatment of tuberculosis. This method of treatment does not appear to be based on any new principle. It represents simply another effort to utilize for curative and preventive purposes the antigenic substances in the tubercle bacillus, without the simultaneous introduction of any toxic or harmful substances. In order to secure this effect, living bacilli, devoid of virulence and invasiveness, so it is asserted, are injected intramuscularly. These bacilli are said to be derived from the turtle, but the method by which they are deprived of virulence is withheld. This secrecy is not in accord with the ethical standard of scientific medicine. The report as to the results of the practical use of this carefully guarded secret shows, first, that in the experiments on guinea-pigs complete protection has not been obtained. Indeed, it is doubtful whether the protection obtained is any greater than that obtained by the injection of killed bacilli. Furthermore, there are no indications that it has been possible to cure tuberculous guinea-pigs by means of the bacilli rendered avirulent by a secret method. The treatment consequently lacks an unassailable experimental basis — a really and promptly effective cure for tuberculosis is expected to cure tuberculosis in guinea-pigs and other animals. The injections so far made by Friedmann in children seem to indicate that the bacilli as injected are harmless in children, and that is all. We have no evidence that the injections will prevent tuberculosis in children, and from the nature of the case it will be exceedingly difficult to determine what the effect of such injections really is. In the second place the alleged curative effects do not seem to be any more pronounced and definite than those obtained with the various forms of tuberculin when properly used. The remarks made in the discussion following the reading of Friedmann's paper before the Berlin Medical Society clearly substantiate this statement. Finally we come to the possible dangers of the treatment, to which Citron refers, namely, reversion to virulence on the part of the bacilli. This possibility must be reckoned with and constitutes a serious detriment to the method, no matter what its real virtue may be, if it has any. Its apparent harmlessness in children so far is counterbalanced by this possible danger. In view of these considerations there is not sufficient warrant for any other attitude toward Friedmann's treatment of tuberculosis than one of critical neutrality and judicious skepticism; for it concerns an essentially secret procedure without adequate experimental basis and without any better results to its credit than produced by tuberculin properly used.

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[1] Collignon and Pilod: Presse méd., 1911, xix, 723.

[1] Dr. W. C. Deming, 2563 St. Raymond Avenue, New York City, is secretary of the association.

[2] Friedmann, F. F.: Inoculation Against Tuberculosis, Berl. klin. Wchnschr., Nov. 11, 1912, p. 2214; abstr. in The Journal A. M. A., Dec. 14, 1912, p. 2192.

[3] Berlin Letter, The Journal A. M. A., Dec. 7, 1912, p. 2081.

RESPONSIBILITY OF THE NEWSPAPER

Newspaper sensationalism has seldom equaled the announcement, which appeared in a certain group of newspapers last week, of Friedmann's "cure," mentioned above. A syndicate letter, in the form of a cable from Berlin, and written by William G. Shepherd, announced without equivocation the discovery of a positive cure in Friedmann's serum (which, by the way, is not a serum). The matter was emphasized, however, in an unusual manner, in the form of a bracketed so-called "editor's note," introducing the article:

> EDITOR'S NOTE.—This exclusive cable from the *Press* [*Post, News. Herald*] staff correspondent in Europe is of TREMENDOUS importance. We print it with every confidence in its truth—a wonderful, glorious truth for hundreds of thousands of tuberculosis sufferers in America. We believe it is the greatest piece of news printed in any paper in many years. Shepherd is a trained investigator of long experience. His attitude toward things is distinctly skeptical—Missourian. He delights in exposing fakes and quacks. That he sends this cable is proof of a most careful investigation of Dr. Friedmann and his cure. He promises us a fuller report by the first mail steamer.

With practically no modification, except the introduction of the name of the particular newspaper using it, this note appeared in the various newspapers in the syndicate. Nearly all had big display headings, some running across the entire page. The Cincinnati *Post* outdid any other in this regard. Running across the page was the two-line legend, "Cure for Tuberculosis is Now Certain. Post Investigates Claims of Great German Scientist and Finds They Are Well Founded." It emphasizes the "editor's note":

> "Two weeks ago the press association carried a brief despatch from Berlin, declaring that a noted scientist there had at last discovered the long-sought cure for tuberculosis. The *Post* at once sent William G. Shepherd, its European correspondent, to interview the discoverer and to ascertain the exact truth," etc.

Evidently the readers of this newspaper were impressed with its tremendous enterprise. Of course the newspapers did not realize how they were being worked, and yet they might have taken a hint from this, quoted from Shepherd's letter:

> "'When will you send the serum to the United States?'
>
> "'I cannot tell. For the present I intend to treat all cases here in Berlin personally. I cannot send the serum abroad indiscriminately, for it might get into irresponsible hands.'
>
> "The truth of the matter is that Dr. Friedmann is trying to sift out one reliable offer for the American rights from a flood of telegraphic proposals from the United States, and the doctor hesitates to discuss the question of American rights over the cable. Representatives of several American interests will shortly be in Berlin to lay offers before the doctor personally, and the chances are that the cure will be in the United States before many months."

The serious phase of such sensational announcements, however, is their cruelty. Had these newspapers realized that the hopes of practically every consumptive in the United States would be aroused by this announcement, they certainly would have modified at least the "editor's note," which was so adroitly offered them in connection with the letter. It is characteristic of human nature in general to put trust in anything that seemingly offers help in an otherwise hopeless condition. It is again the case of the drowning man and the straw. This is particularly true of those wretched human beings who are afflicted with tuberculosis. To exploit in so sensational a manner even the most apparently promising cure without the confirmation of time and the judgment of those most competent to judge, is an absolute and indefensible refinement of cruelty. It is almost unnecessary to state that, as mentioned in the preceding comment, there has been no scientific evidence which would justify even a careless press in heralding this so-called consumption cure in such an extravagant manner. The Grand Rapids *Evening Press* is the only newspaper, so far as we have seen, that recognized its responsibility in this respect. It modified the "editor's note" as follows:

> "Once again it is announced that a positive cure for tuberculosis has been discovered. . . . Similar announcements have been made before, and the 'cure' under extended observation has always failed. . . . The *Evening Press* gives this report for what it is worth . . . but is itself skeptical and considers that faith should not be pinned to it until it has been demonstrated by reputable doctors in America.—EDITOR."

What a pity that other newspapers could not have appreciated their responsibility as did this editor!

AN ABUSE OF THE CHRISTMAS SEAL

The promoters of the so-called "William McKinley Memorial Hospital League" are apparently seeking to take advantage of the Christmas spirit and the popularity of similar efforts by other organizations to increase their funds. During the past week physicians and others have been receiving a circular letter from this "league" and a book of stamps, for which the recipient is asked to send one dollar. The two objects of the organization, as stated in its announcement, are to erect a non-sectarian hospital in New York, and to establish branches for the treatment and cure of tuberculosis in the various states. Neither of these objects seems to require such an organization. There are certainly hospitals enough in New York to take care of all those needing such services, while the National Association for the Study and Prevention of Tuberculosis with its branches and affiliated societies amply covers the ground as far as tuberculosis is concerned. The letter-heads of this organization show an imposing list of names, principally governors, as forming "The Council of One Hundred." We are informed that Governor Dix of New York and Governor Deneen of Illinois have withdrawn their permission to use their names in connection with this organization. We are also informed that the William McKinley Memorial Hospital League has no connection with the National Association for the Study and Prevention of Tuberculosis.

LIGHT AND DRUGS

Although it is recognized that light may exercise a variety of subtle influences, these can usually be expressed only in terms of vague generalization and have rarely found any adequate explanation. Most of the organic compounds which occur in nature are of themselves not sensitive to light; this applies likewise to the majority of synthetic products, among which are included modern drugs. Professor Neuberg[1] of Berlin has called attention to the remarkable fact that nearly all types of organic compounds acquire a pronounced photosensitiveness when they are mixed with certain inorganic compounds. Iron salts, for instance, provoke this effect most strikingly; and the phenomena of change induced by the presence of such sensitizing substances fail to evince themselves so long as the solutions containing them are kept in the dark. It will be apparent that the greatly enhanced sensitiveness to light which is thus produced by the presence of small amounts of mineral constituents may assume an important biologic significance. These inorganic components may determine the peculiar responses of the living organism on exposure to light. Neuberg has even remarked that the ingestion of mineral waters as it is practiced in many resorts may in ultimate analysis resolve itself into a form of light therapy. Without granting such a far-fetched explanation of the supposed response often experienced in the widely heralded mineral water "cures," we may direct attention to another more immediate aspect of the effect of light. Many of the familiar drug preparations represent combinations of organic compounds and metallic elements. Thus there is liquor ferri oxydati saccharati, among many other pharmaceutical products commonly preserved in solution by pharmacists, physicians and patients. Neuberg and Schewket[2] have examined the behavior of representative products toward light. Even within twenty-four hours changes can be detected as evidenced by the development of organic derivatives such as aldehyds, ketones and products of hydrolysis. In contrast with their precursors in the solutions, for example, sugars or organic acids, some of these secondary derivatives are characterized by a pronounced pharmacologic activity. The obvious lesson from the unsuspected outcome of this investigation is that organic pharmaceutical preparations containing metallic components should be preserved in dry form if possible rather than in solution; in any event they should be kept in dark containers and protected against light, and the preparation of fresh solutions encouraged as far as possible.

SCIENCE AN ICONOCLAST

We recently commented on the part imagination has played in scientific advancement.[1] Instances were quoted in which the metaphors of early writers have become established as facts by science. Sometimes the foreshadowing may seem almost prophetic; no doubt it is often mere accident. Science hews to the line no matter where the chips may fall. Often an idol of the earlier epochs of thought is shattered. Thus we sought to avoid "colds" by avoiding all contact with cool fresh air. Now, he who seeks to avoid infection of the respiratory tract wears light clothing and breathes air fresh from the open. A generation ago calomel was given to stir up the liver and increase the flow of bile. Now pharmacologists agree that whatever virtues calomel may possess it is not a cholagogue. When we were boys candy and sweets were withheld from us as things productive of many serious derangements. Now pediatricians allow plenty of sweets as an essential part of the diet for children. Not long ago we were taught to avoid drinking water with meals, as the excess of fluid diluted the digestive juices and hindered digestion. Now it seems to have been demonstrated that water taken with meals aids digestion and facilitates absorption. And so it goes.

THE CHRISTMAS RED CROSS SEAL

The Red Cross seal of the National Association for the Study and Prevention of Tuberculosis has become a recognized part of the Christmas season. Originally used in 1862 to raise funds for the use of a soldiers' relief committee in Boston, the Red Cross seal was first used for antituberculosis work in 1907 by the Delaware Antituberculosis Association. In 1908 the American Red Cross issued the first national Red Cross tuberculosis stamp, from the sale of which about $135,000 was realized. In 1909 this amount was almost doubled In

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[1] Neuberg, C.: Biochem. Ztschr., 1908, xiii, 305; 1910, xxvii, 271; xxix, 279.

[2] Neuberg, C., and Schewket, O.: Veränderung einiger Arzneimittel im Licht, Biochem. Ztschr., 1912, xliv, 495.

[1] Imagination in Science and Medicine, editorial, The Journal A. M. A., Sept. 28, 1912, p. 1195.

1910 $310,000 worth were sold, and in 1911 $334,260 worth were bought and placed on Christmas packages. The sale this year promises to exceed previous records. The American people have adopted the Red Cross seal as a part of their holiday festivities, and an increasingly large number of letters and packages bear this little stamp as evidence of the unselfish and brotherly love of the Christmas spirit. The cost to any one is slight, but the total amounts realized are large and are of great assistance to the Association in the prosecution of its antituberculosis work.

Medical News

ALABAMA

New Officers.—Lauderdale County Medical Society at Florence, December 3: president, Dr. L. W. Desprez; secretary-treasurer, Dr. R. M. Davis, both of Florence.——Etowah County Medical Society at Gadsden, December 4: president, Dr. A. W. Ralls; secretary, Dr. M. P. Hughes, both of Gadsden.——Madison County Medical Society at Huntsville, December 2: president, Dr. James F. Burnam; secretary-treasurer, Dr. Edgar Rand, both of Huntsville.——Jefferson County Medical Society at Birmingham, December 2: president, Dr. Henry Silas Ward, Birmingham.

Personal.—Drs. J. C. O'Gwynn and W. C. Jones, both of Mobile, have returned from Europe.——Dr. J. E. Leach, Gadsden, while making a professional call, November 27, was attacked and beaten.——Dr. W. S. Haddox, Arnold, was shot from ambush recently but is expected to recover.——Dr. Earle Drennan, Birmingham, has been appointed division surgeon for the Mobile and Ohio Railroad.——Dr. Thomas Hughes, Russellville, fractured his left leg and sustained other serious injuries in a runaway accident, near Franklin, recently.——Dr. C. W. Wright, Fort Payne, was operated on in Chattanooga, Tenn., recently.——Dr. R. A. Burns has been elected mayor of Alabama City.

GEORGIA

Clinic for Crippled Children.—A free clinic for crippled children has been established at the Grady Hospital, Atlanta, and the hospital appeals for funds for the maintenance of the clinic and for the employment of a suitable person to give systematic and scientific exercise.

New Officers.—Third District Medical Association, twelfth semiannual meeting at Cordele, November 20: president, Dr. C. H. Richardson, Montezuma; secretary-treasurer, Dr. Charles A. Greer, Oglethorpe. Fort Valley is the next place of meeting.——Eleventh District Medical Association at Waycross, November 19: president, Dr. Adrian Dallas Williams, Folkston; secretary-treasurer, Dr. J. T. Carswell, Waycross. Next meeting at St. Simons Island in June.——Sixth District Medical Society at Macon, November 13: president, Dr. I. M. Anderson, Barnesville; secretary, Dr. J. H. Adams, Macon (reelected).

ILLINOIS

Epidemic Disease.—Diphtheria is said to have again broken out at Pana and at Dunkel, 5 miles north.——Dr. Charles F. McClure, health commissioner of La Grange, has ordered the closure of the schools of the village for one week on account of the prevalence of scarlet fever.

New Officers.—Illinois State Association for the Prevention of Tuberculosis, at Chicago, December 3: president, Dr. W. A. Evans, Chicago; vice-presidents, Drs. T. O. Hardesty, Jacksonville, and George T. Palmer, Springfield.——Streator Medical Society, November 26: president, Dr. A. N. McCord; secretary, Dr. J. E. Clark.——North Central Illinois Medical Association, thirty-ninth annual meeting at Pontiac, December 3: president, Dr. Ezra T. Goble, Earlville; secretary-treasurer, Dr. George A. Dicus, Streator (reelected). La Salle was selected as the next meeting place.

Personal.—Dr. Frank H. Jenks, superintendent of the Ransom Sanitarium, Rockford, formerly chief-of-staff of the Elgin State Hospital, is reported to be critically ill with heart disease in the Presbyterian Hospital, Chicago.——Dr. William H. Ludewig, Rock Island, was the guest of honor at a dinner given by physicians of the city, December 3. Dr. J. R. Hollowbush was toastmaster and the guest of honor was presented with a silver loving-cup, suitably inscribed, the presentation speech being made by Dr. G. L. Eyster.——Dr. William Patch, Coleta, has been adjudged insane and committed to the Watertown State Hospital.——Dr. J. B. Shawgo, Quincy, has been adjudged insane and committed to the Jacksonville State Hospital.——Dr. F. J. Parkhurst, Danvers, who has been seriously ill, has completely recovered.

Chicago

Sanitarium to be Started.—Ground will soon be broken for the erection of a home for advanced cases of tuberculosis at Belmont and North Fiftieth avenues by the Jewish Consumptive Relief Association of Chicago. The new building is to cost about $75,000.

Changes in Medical Superintendency of the Kenilworth Sanitarium.—Dr. H. W. Powers has resigned as medical superintendent of the Kenilworth Sanitarium, and is succeeded by Dr. Sherman Brown, formerly assistant physician of the Kings Park State Hospital, New York.

Personal.—Dr. L. R. McBurney was cut by broken glass and bruised in a collision between an automobile ambulance and a street car, December 4.——Dr. W. A. Evans has been elected vice-president of the Progressive Club of Chicago.——E. Sherman, chief of the food bureau of the Health Department, who has been absent on account of ill health for several months, has returned, recovered.

INDIANA

Non-Residents Excluded.—A resolution was passed by the city board of health of Indianapolis, November 8, excluding all patients not residents of the city from the hospital. Exceptions to this rule will be made only in cases of emergency.

Personal.—Dr. J. E. Hiatt, New Castle, has been elected coroner of Henry County.——Dr. James V. Nelson and wife, Logansport, sailed for Europe, November 29.——Dr. C. C. Wert, Kingman, has been appointed health officer of Fountain County, vice Dr. J. R. Hicks, Covington, resigned.——Dr. David S. Wiggins, New Castle, has been elected president of the newly organized Henry County Branch of the Indiana Association for the Study and Prevention of Tuberculosis.——Dr. O. V. Schumann, Columbia City, has been elected president of the Whitley County branch of the same organization.

Hospital News.—Work began November 8 on the new St. Francis Hospital, Beach Grove. The building will cost $200,000 and will have a capacity of one hundred beds.——St. Joseph County has appropriated $15,000 for the erection of a new tuberculosis camp capable of accommodating fifty patients. Plans for the construction of the camp are now being considered.——The new hospital for the insane, Woodmere, Evansville, recently completed at a cost of $85,000, was opened for inspection by the public, November 15.——Rensselaer Hospital has been incorporated by Drs. Ed. N. Loy, Ira M. Washburn, Merle D. Gwin and others, with a capital stock of $2,000.——The campaign for raising money for the Union Hospital, Terre Haute, commenced November 11. The city was divided into twenty districts and the solicitors made a systematic house-to-house canvass for money for the hospital.

KENTUCKY

Personal.—Dr. O. R. Kidd has resigned as a member of the Board of Public Works of Paducah.——Dr. E. C. Roemele, Frankfort, who was injured in a collision on the Versailles pike, December 23, is reported to be improving.——Dr. A. J. Clements, Glasgow, was adjudged insane, November 15, and committed to the Lakeland State Hospital.

Syphilis in Penitentiary.—The Board of Prison Commissioners of Kentucky states that fully 20 per cent. of the convicts in the state penitentiaries are afflicted with syphilis. At present there are 100 men in the prisons who need immediate attention in this respect. The prison physicians have done everything in their power to ameliorate the condition of the men suffering from this disease. As the state provides only one physician at each prison, it is likely that an arrangement will be made with the Medical Department of the University of Louisville to send one of its honor men to each prison to assist the resident physician in this work.

Honor Paid Dr. Lackey.—A luncheon was given by the Trigg County Medical Society, November 22, in honor of Dr. J. H.

Lackey, Canton, who was a member of the legislature which passed the act granting $30,000 to the State Board of Health and to whom credit is given by the secretary of the State Board for its passage. Dr. Homer Blane, Cadiz, the president of the society, acted as toastmaster and many communications from friends of Dr. Lackey were read. Dr. J. W. Crenshaw responded to the toast, "Dr. Lackey, as the Public Do Not Know Him," in which he paid eloquent tribute to the noble work of the beloved country doctor and expressed the regret of his colleagues at Dr. Lackey's change of residence to Nashville. Dr. Lackey made a suitable response.

LOUISIANA

Leper in Winnfield.—A Mexican, who has been in Winnfield for a month or two, has been discovered to be a leper, and has been sent to New Orleans to be treated there or placed in the lepers' home.

The Hebert Case.—The sheriff of Lafayette Parish has arranged to place a guard over the home of Hebert the insane leper, at Lafayette, who recently escaped from the State Leper's Home.

Isolation Ward Needed.—Dr. Joseph A. Dana, house surgeon of the Charity Hospital, New Orleans, strongly recommends the erection of an isolation hospital for the treatment of contagious and infectious diseases.

Sanatorium Opened.—Crowley Sanitarium, which has been in course of construction for several months, is practically completed and will soon be opened. The officers of the institution are Dr. E. M. Ellis, president; Dr. D. D. Mims, vice-president, and Dr. R. B. Raney, secretary-treasurer.

Tuberculosis Cottage Dedicated.—New Orleans Typographical Union No. 17 dedicated a cottage at Camp Hygeia, the colony of the New Orleans Antituberculosis League in St. Tammany Parish, October 27. The cottage has two rooms, has been completely furnished and screened and is ready for occupancy.

The State Board's Thanksgiving.—Dr. Oscar Dowling, president of the State Board of Health, promulgates the following as the Thanksgiving proclamation of the board:

> For the constantly increasing public interest in subjects akin to sanitation and preventive medicine; for the loyal support as a whole of the medical profession of the state; for the almost unanimous cooperation of the public health officials, national and local, and last but not least, for the good will of the united press, the Louisiana State Board of Health offers its most sincere thanks.

Personal.—Dr. E. M. Hummel, New Orleans, suffered a fractured rib and lacerations of the scalp in a collision between his automobile and a trolley car, December 1.——Dr. W. T. O'Reilly, New Orleans, has been made superintendent of public health.——Dr. Chaille Jameson, head of the laboratory demonstration work of the New Orleans Tropical School of Medicine, has returned from Port Limon, Costa Rica, where he installed a laboratory for the United Fruit Company.——Dr. Oscar Dowling has been reappointed president and a member of the State Board of Health to succeed himself.——Dr. G. C. McKinney, Doyle, has been appointed a member of the State Hookworm Commission.——Dr. J. D. Fulton has succeeded Dr. J. W. K. Shaw as city health officer of New Iberia and coroner of Iberia Parish.——Dr. Charles V. Unsworth, New Orleans, has been appointed physician in charge of the Louisiana Retreat, vice Dr. St. Mark Fortier, deceased.

MARYLAND

Public Health Lectures.—Dr. William W. Hobson, on behalf of the Medical and Chirurgical Faculty of Maryland, is making arrangements throughout the Eastern Shore for a series of public health lectures.

Baltimore

New Officers.—Baltimore City Medical Association, December 3: president, Dr. Harry Friedenwald; secretary, Dr. Emil Novak.

Nurses' Home Opened.—The Hecht Memorial Nurses' Home at the Hebrew Hospital was opened December 1. The building is three stories and a basement in height and has accommodation for sixty nurses.

Increased Appropriation for Health Department.—The Board of Estimates has made an appropriation for the health department for the coming year amounting to $218,415, an increase of $15,310 over the appropriation for 1912

Small-Pox.—During the recent outbreak of small-pox there were five cases which were sent to quarantine. Vaccination was done very generally in the affected section and thirteen who had been subjected to the disease were isolated. The disease was said to have been brought to Baltimore by a negro from Cumberland, and all of the patients are negroes.

Personal.—Dr. L. McLane Tiffany was operated on at the Union Protestant Hospital, December 2.——Dr. Thomas R. Brown, who has just returned from Europe, has been placed in charge of the clinic on digestive diseases at the Johns Hopkins Hospital.——Dr. Lloyd P. Shippen inherits $1,000 under the will of the late Dr. Richard A. Cleeman, Philadelphia.

MASSACHUSETTS

Reorganization of Staff.—The department of general surgery in the Boston Dispensary has been reorganized and placed under the charge of Drs. Benjamin Tenney and John Homans, each to be on duty for six months. Dr. Frederick M. Briggs has been appointed consulting surgeon and Drs. Robert H. Vose, Theodore C. Beebe, Henry M. Chase and Henry D. Lloyd have been made assistant surgeons in charge of the genito-urinary department.

Personal.—Dr. Charles F. Whitney, Boston, has been appointed assistant professor of physiological chemistry in the University of Vermont, Burlington, vice Dr. C. F. Dalton, who has been appointed secretary of the State Board of Health.——Drs. William E. Synan and J. N. Landry have been elected members of the school committee of Fall River.——Dr. John F. Croston has been elected a member of the school committee of Haverhill.——Dr. O. W. Roberts has been elected first vice-president and Dr. A. C. Eastman a director of the Springfield Baby Feeding Association.——Dr. W. J. Collins has been elected chairman and Dr. J. E. Hayes a member of the executive committee of the Northampton Antituberculosis Society.

MICHIGAN

Personal.—Dr. Gordon H. Yeo, resident physician at the Calumet & Hecla Hospital, Calumet, has gone to the Isthmian Canal Zone.——Dr. Emory J. Brady, a member of the staff of the Kalamazoo State Hospital, has been appointed assistant superintendent of the Newberry State Hospital in the Upper Peninsula.

Items About Hospitals.—The Woodward Hospital has been established at 821 Woodward Avenue, Detroit, with accommodation for forty patients. The institution is intended as an emergency hospital, and its clientele will be largely from the employees of large manufacturing establishments.——Westside Hospital, Bay City, was formally opened November 3.——Work commenced November 1 on the addition to Nichols Hospital, Battle Creek, which is to be four stories in height, of steel, brick and cement construction and to cost $35,000.——Sparrow Hospital, Lansing, was opened to the public, October 27.——The supervisors of Shiawassee County have taken steps to provide a county hospital for the care of contagious diseases.——The western annex of the Detroit Tuberculosis Sanatorium is completed and ready to receive patients. The annex increases the capacity of the institution from twenty to thirty patients.

MINNESOTA

Sanatorium Burned.—The main building of the Pokegama Tuberculosis Sanatorium, Pine City, was burned November 2, with a loss of about $5,000.

State Inebriate Farm Soon to Open.—About the middle of this month the State Farm for Inebriates, Wilmar, will be opened.——Dr. G. H. Freeman, assistant superintendent of the St. Peter State Hospital, has already assumed his duties at the State Farm.

State Board Report.—The annual report of the State Board of Health shows a marked decrease in the deaths of children under five years of age. In 1910, 1,799 deaths were reported and in 1911, 1,092. Typhoid shows a decrease from 688 to 294, diphtheria from 566 to 335, scarlet fever from 284 to 190 and poliomyelitis from 201 to 54. The two chief causes of death were tuberculosis and pneumonia.

Reasons for Vaccination.—Dr. P. M. Hall, health commissioner of Minneapolis, thus crystallizes his reasons for vaccination in Minneapolis:

> Past experiences of the Minneapolis health department with small-pox.
>
> Present conditions in Eastern cities where an unusually large percentage of cases is of the malignant type.
>
> Danger of a patient suffering with small-pox in the severe form being shipped into Minneapolis, because of the general reputation of the city for having facilities and properly caring for the disease.

MONTANA

State Should Purchase Insane Asylum.—The Silver Bow Medical Society at its meeting, October 23, in Anaconda, unanimously voted in favor of the state purchase of the insane asylum and grounds at Warm Springs.

Outbreak of Typhoid Fever.—An outbreak of typhoid fever is reported at Malta in the Milk River Valley, where fourteen cases exist. Dr. Thomas D. Tuttle, Helena, secretary of the State Board of Health, who has investigated the situation, states that the outbreak is due to the contaminated water of wells in the town.

Personal.—Dr. F. D. Pease has been appointed city physician of Missoula.——Dr. A. L. Martiñallo, Butte, has started for Italy.——Dr. and Mrs. John B. Shaw, Terry, who were seriously injured in a runaway accident, recently, are reported to be convalescent.——Dr. J. P. Aylen, chief surgeon of the Northern Pacific Hospital, Missoula, has resigned and moved to Fargo, N. Dak.——Dr. and Mrs. Frederick M. Poindexter, Dillon, sailed for Europe, November 28.

NEBRASKA

Society Changes Its Name.—The local medical society, organized a year ago in Omaha, has adopted the name, the Omaha Academy of Medicine and Surgery.

New Officers.—Republican Valley Medical Association at Oxford, November 1: president, Dr. Henry Farrell, Axton; secretary, Dr. P. A. Sundbury, Holdrege (reelected).——Dundy-Hitchcock-Chase-Hays County Medical Association at Wauneta: president, Dr. W. E. Stewart, Stratton (reelected).——Boone County Medical Association at St. Edward, November 21: president, Dr. Ernest Thelen, Cedar Rapids; secretary-treasurer, Dr. G. W. Sullivan, St. Edward.

Hospital Notes.—Dr. John Buis, Pender, has built and is operating a private hospital for surgical and noncontagious medical cases with accommodation for ten patients.——The directors of the McCook Cooperative Hospital Association have completed the first payment on the building recently purchased by them for hospital purposes.——The new Contagious Disease Hospital, Omaha, made possible by the gift of a house at Tenth and Douglas Streets by the late Anna Wilson, opened to receive patients November 7. The building has thirty-three rooms and has two distinct sections, one for scarlet fever and one for diphtheria.

NEW YORK

Convalescent Home for Buffalo.—Mrs. Frank H. Goodyear has purchased eighty acres of land in Williamsville, on which she will build the Josephine Goodyear Memorial Home for Convalescent Children. The home will be constructed on the cottage plan, will be undenominational and accessible for convalescent children from any Buffalo hospital or home.

Dispensary Leases College Building.—Instead of opening a separate dispensary, it is reported, Syracuse University College of Medicine has leased its new dispensary building to the Syracuse Free Dispensary, in consideration of having its faculty members serve on the staff of that institution. The new dispensary building, which was planned with much care, is now rapidly approaching completion.

Opposes Death Penalty.—The State Superintendent of Prisons, since the release of Albert T. Patrick, is reaffirming his contention of last winter that capital punishment should be abolished. He believes that the ends of justice would be served by a sentence of from twenty-five years to life and states that there is not a man in the prisons of this state who has served a term of twenty-five years. He also recommends a board of pardons to have the power of recommendation, leaving the governor the power of granting pardons.

New Officers.—Queens-Nassau Medical Society, November 26: president, Dr. W. G. Frey, Long Island City; secretary-treasurer, Dr. James S. Cooley, Mineola.——Clinton County Medical Society, at Plattsburg, November 19: president, Dr. M. D. Briggs, Champlain; secretary, Dr. T. A. Rogers, Plattsburg.——Medical Society of the County of Westchester, at White Plains, November 20: president, Dr. E. W. Weber, White Plains; secretary, Dr. W. S. Woodruff, Mount Vernon.

Personal.—Dr. O. H. Babbitt, Auburn, has been reelected jail physician and Dr. William E. Walsh, Auburn, coroner's physician for Auburn. Dr. J. H. Whitbeck, Cayuga, has been elected coroner's physician for the southern part of Cayuga County, and Dr. A. D. Stewart, Port Bryon, to a similar position or the northern section of the county.——Dr. Jack Killen, Binghamton, to avoid running down a foot passenger, steered his automobile into a telegraph pole and was thrown to the ground, sustaining serious injuries.——Dr. William A. Binz, state bacteriologist, has established a temporary laboratory in St. Johnsville, where he will take cultures from the pupils of the schools and factory employees in an endeavor to ascertain the cause and the carriers of diphtheria, which has been so prevalent in the village.

New York City

Hospital Moves.—The Hospital for the Ruptured and Crippled has moved to its new $1,000,000 building on Forty-Second Street east of Second Avenue.

Personal.—Dr. William Seaman Bainbridge has been appointed consulting surgeon to the Tarrytown Hospital, Tarrytown, N. Y.——Dr. Joseph J. O'Connell, health officer of the port of New York, has sailed for Panama.——Dr. J. Bion Bogart, Brooklyn, who has been seriously ill with septicemia due to an operation wound, is reported to be out of danger.

New Officers.—Medical Society of the County of New York, 107th annual meeting, November 25: president, Dr. Brooks H. Wells; secretary, Dr. John Van Doren Young.——German Medical Society, December 2: president, Dr. Gustav Seeligmann; secretary, Dr. Martin Rehling.——New York Academy of Medicine, December 5: president, Dr. William L. Polk; recording secretary, Dr. Charles F. Adams; corresponding secretary, Dr. Egbert Le Fevre.——Third Ward of Queens Borough Medical Association, Dr. Charles E. Strong, Long Island City, temporary chairman; Dr. E. P. Lawrence, Flushing, temporary secretary.

New Hospital Bulletin.—The Woman's Hospital, situated at Cathedral Parkway and One Hundred and Tenth Street, has commenced issuing a bulletin for free distribution among those who are interested in gynecology. The scientific articles are contributed by the surgical staff connected with the hospital and based on work done in the hospital and laboratory. This laboratory is finely equipped and a salaried pathologist is employed who gives his entire time to the work; opportunity is afforded for the investigation of the most intricate problems. Dr. J. Riddle Goffe is the managing editor of the new publication, which will appear occasionally.

Mayor Blamed for Increase in Street Accidents.—The National Highways Protective Society blames Mayor Gaynor for an increase in the number of street accidents, attributing this increase to the mayor's order forbidding police to arrest drivers or motormen in automobile or street car accidents unless there is evidence that would support a charge of manslaughter or negligence. There were during the month of November, 1912, 223 accidents, 56 of which were fatal, against 174 accidents with 15 fatalities for the month of November, 1911. Throughout the entire state automobiles severely injured 106, trolley cars ran down 29, and wagons 18.

Protests Against Budget Cuts.—In making up the budget for 1913 the Board of Aldermen have cut the appropriations of the Board of Education $229,790, the Board of Health, $100,000 and the Department of Charities, Bellevue and the Allied Hospitals, $16,514. Nine medical inspectors and eight supervising nurses have been dropped, leaving 81,000 parochial school children without medical inspection and of these 32,000 will not have even the attention of a supervising nurse. Dr. Ira S. Wile, who was recently appointed to the Board of Education, is making a vigorous protest against this policy; the New York Milk Committee, through its Committee on the Reduction of Infant Mortality, of which Mrs. J. Borden Harriman is chairman, is up in arms because the work of the milk stations will be crippled by the cutting off of the allowance to the Division of Child Hygiene, which would have made possible an expansion of their work. The State Board of Charities is also urging on the mayor the necessity of vetoing the action of the aldermen. A joint letter has also been sent to the mayor by Comptroller Prendergast, President Mitchell of the Board of Aldermen and Borough President McAneny begging him to veto these cuts and others affecting the social welfare of the people.

New Cocain Law Urged.—As a result of the recent investigation into the sales of cocain in this city many revelations have been made. It has been shown that cocain can be very easily obtained throughout the city, that Manhattan is a distributing station for New Jersey and that the drug may be obtained in Sing Sing prison and in the Tombs. As a result of these findings, Judge Swann of the General Sessions, who has been dealing with the cases convicted under the present law, finds this law very inadequate. Although the law as passed in 1907 and amended in 1910 makes the sale of cocain, except as provided for, a felony, punishment is limited to a sentence of one year and a fine of $1,000. Other felonies are punishable by imprisonment for at least five years. Judge Swann would amend the law so that the mere possession of the drug would be considered a misdemeanor, punishable by a fine of $1,000 or one year in the penitentiary, while the actual sale of cocain should be punishable by imprisonment for at least five years. Efforts to have such a law passed at the coming legislature will be made.——A renewed effort is being made to suppress the sale of opium and cocain in the new Tenderloin. Thus far, convictions have been secured against seven places.——It has been discovered that cocain is being sold to a considerable extent to the negroes of the west side.

NORTH CAROLINA

New Officers.—High Point Academy of Medicine: president, Dr. G. F. Duncan; secretary-treasurer, Dr. S. S. Coe, Aurora.

New Hospital.—The Mercer Hospital Association of Durham has been chartered with an authorized capital of $100,000. The incorporators propose to erect a new general hospital in the city. Dr. C. A. Adams is one of the prime movers in the enterprise.

Vital Statistics Law.—The State Board of Health, the Medical Society of the State of North Carolina and the medical profession in general, are actively developing public sentiment toward the securing of a vital statistics law for the state at the next session of the legislature, and it is believed that an educated public sentiment will secure the passage of the law.

Portrait to be Presented to State Library.—Drs. J. Howell Way, Waynesville, H. T. Bahnson, Winston-Salem, and R. H. Lewis, Raleigh, the committee appointed by the Medical Society of the State of North Carolina to have prepared a life-size oil portrait of the late Dr. P. L. Murphy, Morganton, for presentation to the state library, have had the portrait painted and the presentation will take place in the state capitol at a time to be announced later.

Opportunity for Study of Tuberculosis.—The superintendent of the State Sanatorium for the Treatment of Tuberculosis, Montrose, is arranging a schedule of clinical and pathologic studies in tuberculosis for the benefit of physicians of the state, the course to be given at the sanatorium, later in the winter. Especial stress will be laid on the diagnosis of tuberculosis and efforts will also be made to send incipient cases early to the institution.

Personal.—Dr. Joseph Akerman, Wilmington, has succeeded Dr. C. D. Bell, Wilmington, as coroner of New Hanover County. ——Dr. Lyle S. Booker, Durham, announces that after December 1, he will limit his practice to surgery.——Dr. Albert Anderson, Raleigh, has been appointed a trustee of the Rainey Library.——Dr. M. R. Gibson, who has been taking postgraduate studies in Baltimore, has returned to his home in Maxton where he will confine his practice to the diseases of the eye, ear, nose and throat.

PENNSYLVANIA

New Officers.—Somerset County Medical Society, at Rockwood, October 15: president, Dr. Bruce Lichty; secretary, Dr. H. C. McKinley, both of Meyersdale.——Blair County Medical Society at Altoona, November 26: president, Dr. W. L. Lowrie, Tyrone; secretary, Dr. Charles F. McBurney, Altoona.

Hospital Notes.—Fire in the children's building of the Epileptic Colony Farm, Oakbourne, November 20, caused damages amounting to $35,000. The twenty-three inmates were roused and removed without panic or casualty.——In honor of the man who was instrumental in securing a hospital for Scranton, the officers and directors of the Taylor Hospital propose to change the name of the institution to the Edward James Memorial Hospital.——The new addition to the Miners' Hospital, Spangler, will be ready to receive patients, November 1. The building will accommodate twenty-eight patients which will increase the capacity to sixty-two beds.

Personal.—Dr. P. O. Bleiler, Allentown, is reported to be seriously ill.——Dr. Robert S. Patten, Danville, while endeavoring to cross a railroad crossing in that city, was struck by a locomotive and seriously injured, December 1.——Dr. S. F. Earnest, Hummelstown, who has been under treatment in Harrisburg Hospital, has been brought home.——Dr. Raymond B. Mixsell, Easton, has moved to Pasadena, and has been appointed clinical instructor of diseases of children in the Medical Department of the University of Southern California, Los Angeles.——Dr. A. H. Eggers, Pittsburgh, has been appointed medical superintendent of the Augusta (Ga.) hospitals and will reside at the City Hospital.

Epidemic Disease.—A total of thirty-one cases of typhoid fever with three deaths was reported to the State Health Department from Elizabethville in Lykens Valley up to December 5.——The epidemic of typhoid at Yeagertown still progresses and five new cases were reported on December 5. Analysis of the milk and water failed to show source of infection and it is thought that the Kishacoquilla Creek, practically a sewer ditch, is the cause of the outbreak, the infection being carried by flies.——Two schools were closed in Chester for fumigation, December 4, because of diphtheria. All public schools have been closed and Sunday School sessions prohibited for the present at Brownstown, because of an extensive outbreak of diphtheria.

Housing Campaign.—The Suburban Cooperative Planning Conference was held at the Bellevue-Stratford, Philadelphia, November 20. Parts of four counties, embracing twelve townships of the first class, sixty-six of the second and fifty-two boroughs and two cities, Chester and Philadelphia, were represented. Recent investigations have brought to light that certain "shanty towns" in Wayne, Bryn Mawr and Rosemont, present conditions worse than city slums and that improper sanitation and inadequate housing have made settlements exceedingly menacing. The purpose of the meeting was to provide for cooperative action for a comprehensive scheme of town development, an act being prepared for presentation to the legislature providing for the establishment of a state planning commission.

Philadelphia

Favor Health Plan.—Four progressive measures that have been drawn up by Mayor Blankenburg's advisory committee to be introduced into the next legislature have been endorsed by the Society for the Prevention of Tuberculosis. The proposed measures will prohibit dry sweeping in public places, the use of common drinking-cup and roller towels, and make it necessary for fruit, meat and pastry exposed for sale to be covered.

Money Pledged for New Maternity Hospital.—The Federation of Jewish Charities has pledged the sum of $40,000 to the Jewish Maternity Hospital for the purpose of building a new hospital. Payments of this sum are to be made as follows: $5,000 to be paid when contracts have been signed for the erection of the proposed building, and not less than $5,000 every twelve months thereafter, until the above obligation has been fulfilled.

Philadelphia Nurseries Discuss Pure Milk.—At the semiannual meeting of the Philadelphia Association of Day Nurseries, held November 21, and attended by presidents and delegates from each of the twenty-three nurseries in and about the city, the importance of cleanliness in handling milk for children and the rigid scrutiny of all sources of supply were fully discussed. Mrs. William Frazier presided and reports were made by each of the nurseries of inspections of milk supplies in each of the districts. More than 700 children are annually cared for by these institutions.

VIRGINIA

New Officers.—Petersburg Medical Faculty, sixty-seventh annual meeting, November 22: president, Dr. E. L. McGill; secretary-treasurer, Dr. W. C. Powell.

Open-Air School to be Opened.—Plans presented by Dr. Lawrence T. Price, Richmond, for the operation of an open-air school in that city, have been approved by the school board, and the class will be opened in February on the roof of the new Madison Street School building.

Public Health Association Meeting.—The Virginia State Public Health Association at its meeting in Norfolk, October 25, elected the following officers: Dr. Powhatan S. Schenck, Norfolk, president; Drs. O. C. Wright, Jarratt, and E. F. Reese, Courtland, vice-presidents; Dr. Lucien Lofton, North Emporia, secretary-treasurer, and Dr. W. F. Driver, New Market, assistant secretary-treasurer.

Opening of Medical College.—The new home of the University College of Medicine, Richmond, was formally opened November 28, in the presence of more than 1,000 guests. An unexpected feature of the opening exercises was the presentation of a silver service to Dr. Stuart McGuire, president of the college, by Dr. J. Allison Hodges, his predecessor, on behalf of the board of trustees and the faculty.

Personal.—Dr. J. M. Burke, Petersburg, chief surgeon of the Seaboard Air Line Railway, was presented by the surgeons of that line, with a handsome silver loving-cup.——Dr. W. M. Tunstall, Lovingston, who has been under treatment at the University Hospital, Charlottesville, on account of injuries received in a runaway accident, has recovered and returned home.——Dr. Charles R. Robins has been elected a member of the school board of Richmond.

The Public Health Propaganda.—Lectures on public health and social betterment are to be made a more prominent feature of the work of the state board of education. In furtherance of this design, officers and employees of the State Health Department have delivered lectures and made public speeches in practically every county and city in the state. In addition, a list of lectures has been prepared by practitioners, publicists and directors, all of whom are available for lectures and addresses in various parts of the state, subject only to the payment of necessary expenses. General lectures on the prevention of disease head the list. There are addresses on tuberculosis, typhoid, hookworm, the fly, school sanitation, municipal water and sewers, health organization, the waste of child life, registration of vital statistics, mental defectives and social diseases. The speakers directly under the state board are health commissioner, Dr. Ennion G. Williams; assistant commissioners, Dr. Allen W. Freeman, Dr. Roy K. Flannagan and D. S. Freeman, J. J. Lloyd, Jr., K. E. Miller, W. A. Brumfield, A. C. Fisher, L. T. Royster, W. H. Heck, Richard Messer, C. E. and W. A. Plecker. In addition to the general health topics, lectures are available by speakers not under control of the board, but cooperating with it, on nursing, disease and poverty, food inspection, pure milk, Virginia's feeble-minded, eugenics and heredity, and oral hygiene and care of the teeth. Among the speakers are the following: President Edwin A. Alderman, University of Virginia; Dr. R. W. Garnett, Charlottesville; Dr. E. C. Levy, Richmond; Dr. W. Brownley Foster, Roanoke; Dr. Powhatan S. Schenck, Norfolk; Prof. C. G. Maphis, University of Virginia; J. D. Eggleston, superintendent of public instruction; Dr. Charles P. Wertenbaker, U. S. P. H. Service; Drs. McGuire Newton, B. M. Rosebro, C. C. Hudson, Stuart McGuire and Greer Baughman, Richmond; Rev. James Buchanan, Richmond; Miss Nannie J. Minor, Richmond, Dr. F. M. Perrow, Lynchburg; W. D. Saunders, state dairy and food commissioner; Peyton Rowe, dairy inspector; Dr. J. N. Barney, Fredericksburg; Rev. J. T. Mastin, secretary state board of charities and corrections; Dr. William F. Drewry, Petersburg, and Prof. H. E. Jordan, University of Virginia.

WASHINGTON

New Offiers.—Snohomish County Medical Society at Everett: president, Dr. H. P. Howard; secretary-treasurer, Dr. L. G. Woodford, both of Everett.

Interstate Reciprocity.—The recommendation of the Idaho State Medical Society that bills should be drafted that would bring about medical reciprocity between Oregon, Washington and Idaho was rejected by the King County Medical Society at its meeting in Seattle, October 21.——The Snohomish County Medical Society has placed itself on record as approving the reciprocity proposal.

Personal.—Dr. Helen B. Babcock, Seattle, returned November 25, after a trip to the Orient.——Dr. A. L. Mathieu has transferred his office in South Bend to Dr. F. W. Anderson of Pe Ell, formerly resident surgeon at the Northern Pacific Hospital, Tacoma. On January 1 Dr. Mathieu will Join Dr. A. L. Macennan in the management of the Riverview Hospital, Raymond.——Drs. Ida Rebecca Lantz and E. Howard Hopkins, Hillyard, have been appointed members of the Spokane County medical consulting staff.

WEST VIRGINIA

Personal.—Dr. H. D. Hatfield, Eckman, governor-elect of West Virginia, who has been ill with pneumonia, is reported onvalescent.——Dr. Elias W. Woodruff, Dallas, was painfully njured by explosion of carbolic acid, recently.——Dr. G. A. David, Summit Point, was operated on at Franklin Square Hospital, Baltimore, recently, for the removal of a cyst of the ower jaw.——Dr. Gist Palmer, Wellsburg, is reported to be ill t a hospital in Pittsburgh.

Tuberculosis Notes.—It has been settled that the Belmont ounty Antituberculosis Dispensary will be located in Bridgeort.——At the meeting ot the West Virginia Antituberculosis ociety, held in Wheeling, November 12, Dr. R. D. Roller, Jr., Eccles, and Dr. D. B. Roller, Charleston, were elected vice-residents; Dr. I. B. Bullard, Charleston, was elected secertary; Dr. C. A. Wingerter, Wheeling, chairman of the publicity and lecture committee, and Dr. Harriett B. Jones, Wheeling, president of the tuberculosis exhibit committee.——The dispensary f the Ohio County Antituberculosis League, Wheeling, was ormally opened, October 29. The dispensary is to be open on uesday and Saturday at 12 o'clock.

WISCONSIN

Small-Pox Closes School.—Fourteen cases of small-pox in La Crosse have caused the board of education to order the school in the infected district to be closed.

New Officers.—West Wisconsin District Medical Society at Eau Claire, November 27: president, Dr. J. V. R. Lyman; secretary-treasurer, Dr. E. E. Tupper, both of Eau Claire (reelected).——Fond du Lac County Medical Society, November 13, at Fond du Lac: president, Dr. L. A. Bishop; secretary-treasurer, Dr. Flora A. Read.——Wisconsin Women's Medical Society at Milwaukee, November 13: president, Dr. Luella Axtell, Marinette; secretary-treasurer, Dr. Minnie Hopkins, Oconto.

Personal.—Dr. P. F. Gaunt, Oconto, was operated on in Mercy Hospital, Chicago, November 6.——Drs. F. V. Evert, Retreat, and H. C. Maurer, Beloit, were recently operated on for appendicitis.——Dr. R. Lloyd Williams, Green Lake, has been appointed house physician to the Johnston Emergency Hospital, Milwaukee.——Dr. Robert E. Flynn, La Crosse, has been elected physician of La Crosse County.——Dr. A. S. Gilles of the Sacred Heart Sanatorium, Milwaukee, has been appointed medical director of the Waukesha Moor Bath.

Hospital Notes.—At a meeting of the south side city physicians of Milwaukee, recently, the establishment of a new general hospital for that section of the city was considered, and a committee was appointed to confer with representatives of the South Side Civics Association regarding the enterprise.——The Milwaukee Maternity Hospital Association has bought the lot on which the hospital building stands and expects to erect a new building on the site.——Property on Prospect Street, Appleton, has been sold to the county and will be reopened and remodeled as a maternity hospital early in the year.——The new isolation hospital, at Eighteenth Avenue and Mitchell Street, Milwaukee, is completed and ready for occupancy.

The Tuberculosis Conflict.—The Wisconsin Antituberculosis Association has secured the provision of eight sanatoriums for second and third stage patients to care for 250 patients and proceedings regarding seven other sanatoriums are pending with county boards. The association has also brought about the employment of twenty visiting municipal tuberculosis school nurses in cities outside of Milwaukee. It has created sentiment for the installation of local expert health officers in two cases, the establishment of three open-air schools, the medical inspection of schools in fifteen towns and the abolition of common drinking-cups and roller towels. It has been largely responsible for securing the gift of the $32,000 Blue Mound Sanatorium to Milwaukee, for filling beds and a waiting list at the state sanatorium, for the establishment of a tuberculosis sanatorium and two visiting nurses in the Milwaukee Health Department and for making tuberculosis the best understood and most intelligently resisted disease in Wisconsin among children and the ignorant as well as among the most enlightened adults.——The county board of Kenosha County has appropriated $20,000 for the erection of a tuberculosis hospital.——The Outagamie County board has appropriated $20,000 for a county tuberculosis sanatorium.——Dane County has selected the farm of the late Henry J. Southerland, four miles south of Madison, as the site for its tuberculosis sanatorium.——In Sheboygan County the county asylum farm has been selected as a site for the tuberculosis sanatorium.——The Milwaukee County board has received a recommendation of the board of trustees of the tuberculosis hospital asking for an appropriation of $350,000 to build a tuberculosis hospital near the Milwaukee County Hospital for the insane.——The Beaver County Board of Directors has voted $20,000 for a tuberculosis sanatorium.——Fond du Lac County has appropriated $15,000 for the construction of a sanatorium and its maintenance for one year, and an additional appropriation of $1,000 is required for the purchase of a new site for the building.

GENERAL

New Leper Colony Planned.—It is reported that it is the intention of the United States government to give aid to the establishment of a leper colony on the island of San Clemente, off the coast of Southern California.

Common Towel Banished.—An amendment to the interstate quarantine regulations, in force December 9, by the treasury department, orders the abolition of the common towel from railroad cars, steamers and other interstate vehicles and stations. Towels may be used again only after sterilization.

Southern Society Incorporated.—Incorporation papers of the Southern Medical Association were filed in Mobile, November 21, by Drs. Isadore H. Dyer, New Orleans; Seale Harris, Mobile; B. L. Wyman, Birmingham; G. C. Savage, Nashville; H. H. Martin, Savannah, Ga.; W. W. Crawford, Hattiesburg, Miss., and J. M. Jackson, Miami, Fla.

Health League Recommended.—Surgeon Charles P. Wertenbaker, U. S. P. H. Service, stationed at Norfolk, has recommended to the Southern Sociologic Congress that it make the formation of health leagues one of the features of its work during the coming year. Such a league has been established by Dr. Wertenbaker at Norfolk, the aims of which are thorough sanitary inspection, correction of sanitary abuses and lectures on sanitary and personal hygiene, food values, preparation of food, resistance of domestic waste, the cultivation of physical efficiency and the building up of resistance of disease.

Lake Michigan Sanitary Association.—At the annual meeting of the Lake Michigan Sanitary Association in Milwaukee, November 26, resolutions were adopted petitioning Congress to make an exhaustive investigation of the Great Lakes; supporting the enactment by Congress of the bill carrying $300,000, including $25,000 for Lake Michigan, now under construction; for the purpose of making investigation of the extent and of the injury inflicted by the pollution of the lake water on the health of the population of the lake region, and endorsing the report on sewage disposal submitted to the authorities of Milwaukee, and the efforts of the present administration of the city of Milwaukee to carry out the recommendations embodied in the report, and recommending its study and consideration by the health officers of the several cities on the Great Lakes.

Personal.—The Buchanan Medal, awarded by the Royal Society to Col. William C. Gorgas, M. C., U. S. Army, chief sanitary officer of the Isthmian Canal Zone, was presented at a meeting of the society, November 30, and was accepted on behalf of Colonel Gorgas by the private secretary of the United States Ambassador.——Colonel Gorgas and staff sailed for Guayaquil, Ecuador, December 4, where he will make an investigation of the sanitary condition of the port, at the request of the government of Ecuador.——Dr. Carl Alsberg, a chemist in the Bureau of Drugs and Plants, has been appointed chief of the board of chemistry of the Department of Agriculture, a position which has remained vacant since the resignation several months ago of Dr. Harvey W. Wiley.——Dr. Paul Preble, U. S. P. H. Service, has been directed to investigate the prevalence of tuberculosis, trachoma, small-pox and other contagious diseases among the Indians of North and South Dakota.——Major Clyde S. Ford, M. C., U. S. Army, on duty at the American United States Embassy, Constantinople, is working energetically at the cholera camp at San Stefano.

FOREIGN

Hygiene Exposition at Genoa, Italy.—The international hygiene and maritime exposition to be held at Genoa, Italy, March, 1914, is to have an Italian colonial exhibit which is to be made a special feature of the exposition from the historical and medical standpoints.

Personal.—The Norwegian physician Dr. C. Frellsen, who has been a practitioner at Antwerp, Holland, since 1877, recently returned to Christiania to live. His friends at Antwerp presented him with a purse of $5,000 when he left and gave him a souvenir address printed at the Plantin press which dates from the sixteenth century.

LONDON LETTER

(From Our Regular Correspondent)

London, Nov. 23, 1912.

The National Insurance Act: The Crisis in the Profession at Hand

The special representative meeting of the British Medical Association has been discussing during the week the most momentous question that has ever been presented to the profession: whether to decline service under the national insurance act or to come to some compromise with the government. As stated in a previous letter, the great majority of the divisions of the association passed resolutions against working the act. At this meeting a prolonged and animated discussion took place which, as in previous meetings of the representatives, showed the existence of two parties, both indeed hostile to the act but one more uncompromising than the other. After some discussion it was decided to select from the agenda the following resolution of the Bradford division as the one best suited for bringing the question to the point: "That in the opinion of this representative meeting the regulations issued by the insurance commissioners and the latest proposals of the Chancellor of the Exchequer (described in my previous letter) are unworkable, derogatory to the profession and a positive danger to national health. As a consequence the medical profession declines to undertake service under the act and regulations as at present constituted." It was suggested that the words "a positive danger to national health" were too strong and should be deleted. This was done and the resolution was carried by an overwhelming majority. An amendment to substitute the word "unsatisfactory" for "unworkable and derogatory to the profession" as being unnecessarily provocative was lost. A discussion was then taken on a more conciliatory motion of the Norwich division: "That the recent offer of the Chancellor of the Exchequer affords the British Medical Association an opportunity for conferring with him and with the commissioners as to the points on which the demands of the profession have not yet been met." After discussion the words "as to, etc.," were deleted and for them were substituted the words "with a view to the settlement of the points on which the demands of the profession have not yet been met." As amended, the resolution was carried by a majority of 167 to 84. The representative of the Hereford division moved that a copy of the resolution be sent to the chancellor and that he be informed that "any further proposals of the government for meeting the grave objections of the profession shall receive the most careful consideration of the British Medical Association." After discussion it was decided to take a card vote on this motion. This revealed an extraordinary equality of divided opinion whether to enter into negotiations or not with the government. For doing so the card vote was 9,292; against, 9,269; majority, 23. If the voting had been taken by constituencies the resolution would have been reversed by a slight majority: ayes, 100; noes, 101. Ultimately it was decided to appoint five members to confer with the chancellor.

HOSTILITY OF THE TRADE-UNIONS TO THE PROFESSION'S DEMANDS

The executive board of the General Federation of Trade-Unions has issued a statement that "The continued subordination of the general interests of the community to the financial interests of the medical profession can be described only as scandalous." This is a little remarkable when one considers that the policy of trade-unionism in general is thus accurately described. It is not so long ago since in the London dock strike the Union of Transport Workers attempted to hold up the food-supplies of fourteen million people by stopping the unloading of the Thames shipping. The reason for the strike was flimsy, for these workers though lowly skilled are highly paid. Their leaders thought the time had come when they could dictate the terms on which transport from the docks was to be carried on. But the practice of the most ruthless egoism and the preaching at the same time of altruism for other people has always characterized the labor leaders. The following resolution has been sent to the Chancellor of the Exchequer: "The executive board of the General Federation of Trade-Unions, representing an affiliation of 195 trade-unions, emphatically protests against the continued attempts of the medical profession to exploit the national insurance act and to avoid any semblance of control by the insured persons or their representatives. The board urges the pressing need for an immediate settlement of the dispute concerning medical attendance by the creation of a state medical service or by the transference to the credit of the approved societies of those amounts last offered for medical attendance and medicine, in order that neither the approved societies nor their members may suffer any further disadvantage or handicap through the refusal of the medical profession to accept the more than generous terms now offered."

A Tribute to American Medicine

In a letter to the *Lancet*, Mr. Arbuthnot Lane has expressed his gratification at the recognition of Carrel's magnificent work by the bestowal of the Nobel prize and incidentally paid a warm tribute to American medicine. To him the career of Carrel, Frenchman though he may be by birth, is typical of the intense desire to progress which pervades America. The American man of science devotes himself heart and soul to his work, feeling that merit is the only road to success, and that if he does succeed he commands the love, esteem and admiration of his fellows in a manner that does not exist in the more complicated conditions of the Old World. The more Mr. Lane sees of America the more he is impressed by the determination of the members of its medical profession to occupy the van of progress by rendering themselves familiar with any advance in science and by combining among themselves to ensure a very high and progressive standard of knowledge. Mr. Lane concludes: "America has every reason to be proud of its capacity to present to the moving spirits of the world a soil in which they can grow with uninterrupted and stimulated vigor, and in which merit and genius receive a recognition unequaled, I believe, elsewhere. Carrel is a typical product of these conditions."

The Origin of Life

The recent address at the British Association by the president, Professor Schafer, on the origin of life (abstracted in a previous letter) has naturally aroused criticism in scientific circles. The veteran naturalist, Dr. Alfred Russell Wallace, the codiscoverer with Darwin of natural selection, concludes an article on the subject as follows: "In the whole vast world of life, in all its myriad forms, whether we examine the lowest types possessed of the simplest characteristics of life, or whether we examine the higher forms of life, we follow the process of growth from a single cell up to the completed organism, even to that of a living, moving, feeling, thinking, reasoning being such as man himself; we find everything a stupendous, unceasing series of continuous motions of the gases, fluids and solids of which the body consists. These motions are strictly coordinated, and, taken together with the requisite directing and organizing forces, imply the presence of some active mind-power. . . . The assertion that life is due to chemical and mechanical processes alone is quite unjustified. Neither the probability of such an origin nor even its possibility has been supported by anything which can be termed scientific facts or logical reasoning."

Discussing the same question at the Chemical Society of London in an address on "The Discovery of Radio-Activity; Its Influence on the Course of Physical Science," Sir Oliver Lodge remarked that the great thing to avoid in science was negations. Let them make and substantiate positive assertions. It might be impossible to construct living matter out of artificially combined materials, but the attempt was quite legitimate, and no one could say that it would never be successful. In so far as life demanded energy for its peculiar manifestations, a possible source of such energy might be suggested in the phenomenon of radio-activity. In the physical universe our power was limited to the movement of matter; all that happened after that was due to the properties of matter and of its ethereal environment. If potentially living matter was ever artificially produced by placing things in juxtaposition and bringing natural physical resources to bear on the assemblage, which was all that we could do, then it might become alive. But if this last step were taken it would be because something beyond matter, and outside the region of physics and chemistry, had stepped in and utilized the material aggregate provided, in the same way, presumably, as that in which it now steps in and utilizes the material provided, say, in an egg or a seed.

The Government Inquiry Into Nostrums. The Failure of a Prosecution

At the last sitting of the committee of the House of Commons appointed to inquire into the present state of the law regarding the advertisement and sale of nostrums the important question arose as to the power under the existing law to prosecute venders. Professor Dixon gave evidence to the effect that if the law were put into action the evil might be considerably mitigated as the Merchandise Act gave power to public authorities to prosecute in case of fraudulent misrepresentation, and he referred to a prosecution by the Liverpool corporation as an example. When Dr. E. W. Hope, health officer of Liverpool, was communicated with, however, he stated that in 1907 information was laid against a firm of pharmacists as the venders of a patent medicine (not their own preparation) on the ground that a false representation was made on the label. The case was withdrawn, as no evidence of guilty knowledge on the part of the venders could be brought forward and the pharmacists were awarded $26 costs. Further analyses had been made of patent medicines, but no local proceedings had been taken since.

The Pasteurization of Milk Criticized

Dr. Ralph Vincent, a pediatrist who has done a good deal of research work, seriously criticizes the prevalent practice of sterilizing and pasteurizing milk. He states that as the result of bacteriologic work, experiments on animals and an extensive clinical experience, to treat milk by these methods is to destroy the very germ (*Streptococcus lacticus*) on which the wholesome state of the milk depends, and in the absence of which other putrefactive germs have full play, producing acute poisonous effects in the bowel of the infant, leading frequently to a fatal result, especially during a hot season. Vincent's remedy is a simple one viz., never use anything but raw milk, cooled in the refrigerator immediately after milking to a temperature of about 35 F., and sent out in receptacles fitted with an insulating "air wall," so that there is no rise of temperature in its transit to the house of the consumer. This method would lead to a slightly increased cost but it is asserted that this need not be large.

Libel Action by a Nostrum-Vender Against the British Medical Association

The publication of the book "Secret Remedies: What They Cost and What They Contain" by the British Medical Association has naturally been much resented by the nostrum-venders who, however, have not thought it wise to attempt any legal action. At last, Stevens & Co., selling a nostrum as a cure for consumption, has brought an action for damages. This case, which occupied the attention of the court for a week, is most important, as it shows the danger to which any one who endeavors to expose quackery is exposed under the present state of the law, in spite of overwhelming medical evidence of the justice of the strictures passed. After referring in general terms to fictitious claims for inert nostrums the book goes on to say: "It is the victim's money that is wanted; therefore the price is fixed high and the advertisements written up to it. Although Stevens is so engagingly candid about his rivals he follows the plan of sending one letter after another to any sufferer whose name he may have obtained, a system which seems to have been invented in America; it is certainly cheaper than bold advertisement in the newspapers, and is apparently more satisfactory, as it enables the vender to give individual attention to the depth of his correspondent's pocket. The farce of revealing a formula by such fancy names as these is one of the oldest dodges of the quack medicine man and no such names as 'umckaloabo' and 'chijitse' appear in any available work of reference in pharmacy." Later the following description was given: "Stevens, C. H., the proprietor of a remedy for consumption, which has been put on the market in South Africa and England under the name of Sacco and later in South Africa as Lungsava, the recipe for which is stated to have been long in use among the Kaffirs and Zulus. Stevens has acquired a number of testimonials from medical men who must now regret their precipitate action. He is now in England on a new campaign." The remedy was described as "a clear red liquid containing in 100 fluid parts 21.3 parts of alcohol, 1.8 of glycerin and 4 parts of solid substance. This solid substance agreed in all respects with the solids of decoction of krameria or a mixture of this with a little tincture of kino."

For the plaintiff, Mr. E. M. Holmes, curator of the Pharmaceutical Society of Great Britain and formerly lecturer for the society, gave evidence that the plaintiff had submitted to him for examination two substances—a plant called chijitse, which he recognized as belonging to the natural order *Geraniaceae* and a root, called umckaloabo, which, from microscopic examination he believed belonged to the *Polygonaceae* family. Some analytical chemists also gave evidence that they had examined the plaintiff's remedy and found that it did not contain either krameria or kino. Several doctors of no eminence whatever, one of whom described himself as the "author of a number of letters to the *Lancet*," stated that they had found the nostrum beneficial. Stevens himself gave evidence that his mixture was made from the plant mentioned above which grew in South Africa and was used by the natives in the treatment of consumption and also from the root mentioned. When "Secret Remedies" was published he was doing a large business—$21,000 a year; after its publication his receipts dropped to $14,500. He had sent letters to thousands of physicians and had received thousands of letters from them, though often with requests not to publish their names. On cross-examination he admitted that the statement in one of his advertisements that he had gone through unexplored country in Africa and spent thousands of pounds to get the remedy was "exaggerated;" it was written by an advertising agent and he did not read it carefully. For the defense a number of eminent specialists, Dr. Theodore Acland, Sir Douglas Powell, Dr. Arthur Latham and others were called and stated that there was no evidence whatever that Stevens' mixture had any curative properties or contained any active principle capable of influencing consumption.

Mr. Justice Pickford in summing up said that the case was important, because if the plaintiff had been wrongfully accused he was entitled to be cleared. On the other hand, it was important that the British Medical Association should have a right to criticize things said to be cures. The verdict of the jury did not necessarily involve whether the remedy was good or bad. The defendants had said in effect that the plaintiff claimed in his advertisements to cure advanced cases of consumption, although he knew he could not do so. If they proved that, they were entitled to a verdict. In his advertisements the plaintiff had claimed to cure every case of consumption. He also stated that he returned to England from South Africa "to prove his work to the satisfaction of the British government." This was inaccurate, because he returned to start a commercial enterprise. In another advertisement he said: "It cost me many years of ceaseless toil to bring the remedy to its present state of perfection." He had given no evidence to that effect. In another advertisement he invited persons suffering from consumption to such an extent as "to consume all except the soul and the bones" to see him. Persons in the last stage would naturally pay anything. Did he honestly believe that he had a remedy which would then be effective? None of the physicians called by him had said anything which justified his claim to cure advanced cases. If he made claims which he knew were improper, then the defendants had proved what they said. If it was not quite true the defendants might have to pay damages. The jury disagreed and was discharged.

It is a melancholy fact that no matter how preposterous the claims for a nostrum may be physicians can always be found to swear that it has proved beneficial in their experience, but these are never men of any professional eminence. They are quite unknown to the general profession until they appear in the witness box.

PARIS LETTER

(From Our Regular Correspondent)

Paris, Nov. 15, 1912.

Population Statistics

The population of France during the first semester of 1912 shows in place of the excess of 18,279 deaths recorded during the first six months of 1911, an excess of 14,172 births. This is caused by a decrease in the death-rate, for the birth-rate has continued to decrease in spite of an increase in the marriage-rate.

Formation of an Army Morphologic Laboratory

A laboratory of morphology has been founded at the Palais des Invalides. It is intended to permit the army to benefit by recent work on human morphology and to make use of soldiers for the study of anthropologic types.

Dr. Monprofit and the Balkan War

Dr. Monprofit, professor of clinical surgery at the Ecole préparatoire de médecine d'Angers, has been invited by the Greek government to go to Greece to organize a sanitary service in the military hospitals. He has accepted on condition that his sojourn in Greece shall be only for a few weeks and that he shall remain free to return to France if European complications arise.

Foundation of a Municipal Museum of Hygiene

The city of Paris has just founded a museum of hygiene which includes a library of seven sections devoted to urban hygiene, the hygiene of dwellings, prophylaxis, the hygiene of foods, group hygiene, hygiene of transportation and social hygiene.

One Hundred and Fiftieth Anniversary of the National Veterinary School of Lyons

The one hundred and fiftieth anniversary of the foundation of the national veterinary school of Lyons has just been celebrated in that city. It is the oldest in France and perhaps in the entire world.

The Foundation of the International Bureau of Foodstuffs

As I have mentioned in a previous letter (The Journal, Nov. 2, 1912, p. 1637), the official delegates of the various governments represented at the international congress for the investigation of methods of analysis have decided on the creation of a permanent international bureau of analyses of foodstuffs, to be located in Paris, in recognition of the leading rôle taken by the French in the combat against adulteration of foodstuffs.

Unhealthful Houses in Paris

At the last meeting of the Société de statistique, M. Juillerat explained the working of the bureau which has in charge the sanitary condition of the houses of Paris. Since Jan. 1, 1894, account has been kept of the number of deaths from contagious diseases, especially pulmonary tuberculosis, in each house in Paris. In 1904, ten years after the records had been started, an abstract of the records was made which showed the distribution of tuberculosis in the houses. This showed that 38 per cent. of the total number of deaths had occurred in 5,263 houses. Certain sections and streets were responsible for two or three times as many deaths as occurred in the rest of the city. The officials decided then to employ means which the law of Feb. 15, 1902, had authorized for the protection of the public health, in an attempt to clean up those houses which were the active foci of tuberculosis and to make them healthful. The chief fault was the darkness of the living-rooms. Up to 1908, the number of deaths from tuberculosis had been increasing. In 1907 and 1908 a total of 10,262 was reached. March 1, 1909, 549 houses, a little more than one-tenth of the tuberculous houses, had been improved by having airless and dark rooms abolished. In 1909 the death-rate from tuberculosis fell to 9,714. March 1, 1910, the number of houses made sanitary was 886 and the mortality fell to 9,449. March 1, 1911, 1,132 houses had been overhauled and the mortality had fallen to 9,371. This is real progress, and ought to justify the conclusion that the work of the bureau is responsible for the good results. Dr. Juillerat believes that the same system may be applied to other diseases, especially cancer, which seems to be similar as far as houses are concerned to tuberculosis, since one-tenth of the deaths from cancer in the past five years have occurred in houses classed as tuberculous.

Responsibility of the Surgeon

A patient entered the Bichat hospital in the service of Dr. Lecène to be operated on for appendicitis. He was placed on the operating-table, anesthetized with chloroform and washed with soap, alcohol and ether. These substances were then wiped off with compresses. At this moment, having perceived an acne papule which later might cause infection, Dr. Lecène asked for a thermocautery. In burning the papule he caused a severe accident, for some alcohol which remained blazed up, severely burning the patient. Several months later Dr. Lecène and the Assistance Publique were sued for 60,000 francs ($12,000). The tribunal named three experts, Professors Pozzi, Reclus and Duval, who decided that there was no professional fault. The burn had been caused by pure accident, led up to by the unusual conformation of the patient. The ether and the alcohol had been wiped away with dry compresses according to custom; but a deformity of the hip of the patient, caused by hip-joint disease from which he had suffered when young, had caused a little alcohol to remain in the inguinal fold, which was unusually deep; besides, the patient did not lie flat on the table because the loins owing to ankylosis were unusually prominent, and the alcohol ran under his back and was absorbed by the linen which had been placed there. Notwithstanding the opinion of the experts, the court decided that though there may not have been professional fault, there was at least negligence. Far from agreeing that the deformity of the patient justified an interpretation of the injury as accidental, the court decided that the surgeon, who must have noticed the deformity and who ought to have paid special attention to it, ought not to have let the thermocautery touch the patient until he was sure that no trace of alcohol remained on any part of the body, especially in the unusually deep inguinal fold, and under the back. The Assistance Publique was freed from blame, but Dr. Lecène was ordered to give the patient 15,000 francs ($3,000) damages.

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, Nov. 15, 1912.

Personal

November 19, Professor Czerny, the well known Heidelberg surgeon, celebrates his seventieth birthday. He was born in Austria and studied medicine at Vienna. At first he devoted himself to ophthalmology; then he became assistant of Oppolzer and in 1868 assistant of Billroth. In August, 1870, as Billroth's assistant, he went as volunteer to the Franco-Prussian War and distinguished himself mainly in the management of the hospital at Weisenburg. In 1871 he became connected with the faculty at Vienna, but the same year was called to Freiburg as director of the surgical clinic. In 1877 he became successor of Gustav Simon, director of the surgical clinic at Heidelberg. In 1906 he resigned his office of surgical instructor in order to devote himself completely to the foundation and management of the Heidelberg institute for cancer research.

Prof. A. Czerny of Strassburg, cousin of the Heidelberg surgeon, has received a call to the position of director of the Berlin pediatric clinic, as successor of Heubner. On the list of those proposed for the appointment were the names of Professor Finkelstein of Berlin and Professor Salge of Freiburg, both pupils of Heubner. According to all indications, Czerny will accept the position.

At the request of the faculty, Dr. Grotjahn has accepted a position as instructor in social hygiene; in this way the professorship of social medicine and hygiene, which is vacant as the result of the appointment of Kirchner as ministerial director, will at least be partly filled.

Professor Wessely is temporarily in charge of the Würzburg eye clinic, whose director, Professor Hess, as I have already reported, has gone to Munich.

Professor Kretz, director of the Würzburg pathologic institute, contemplates resigning his position.

The title of "Excellency" has been conferred on Prof. von Angerer, the well-known Munich surgeon and private physician to the prince regent of Bavaria. In Bavaria this distinction is conferred on medical men less frequently than in Prussia. Prof. von Leube is the only other physician in Bavaria who holds this title.

Advertisements on Wrapping Paper Used by Pharmacists

Attention has been repeatedly called by physicians to the evils connected with the practice of having advertisements printed on the paper used by pharmacists and druggists in wrapping their goods. These wrappers are, to a large extent, supplied without charge by manufacturers of medicines, food preparations, etc., and are covered with printed commendations of their product. In this way they secure efficacious advertising before the public, and the pharmacists and druggists are willing to lend a helping hand as accomplices, because in this manner they get the wrappers free. Physicians are interested in the elimination of this evil, as the public is led by such advertising to self-treatment. After attention was called to this fact at the last year's *Aerztetag*, as I reported at that time, the *Deutsche medizinische Wochenschrift* took an especially strong stand against this evil. Fortunately, the board of directors of the German Pharmaceutic Association has recommended to its members not to use any more such wrapping paper. Recently also the society of drug manufacturers has recommended similar abstention to its members. In the resolutions adopted it was also advised that with pharmaceutic preparations there should not be included explicit advice as to self-treatment, physician's reports, physicians' statements as to the results of the treatment, and testimonials. [A fatality from this cause has recently been reported in Germany: The purchaser took the medicine according to the directions found on the wrapper around the bottle, which were in the advertisement of an entirely different remedy.]

Russian Students

As I reported some time ago, the medical students of Munich took strict precautions against the overcrowding of the local clinics with Russian students, especially undesirable ones. Recently a St. Petersburg daily newspaper harshly criticized its countrymen as revolutionary and lacking in regard for the most elementary requirements of decency. Following this, the Berlin *Vossische Zeitung* asked a number of local professors, among them Hertwig, Hildebrand and Waldeyer, to express their opinion. Almost all directly contradicted the insulting statements of the Russian newspaper. Hertwig also states that Russian medical students in general are diligent, and that he knows of no misconduct on their part. So far as the treatment of native students by the Russians is concerned, no complaints worth mentioning have come to his knowledge. He says that the German student regards it as an honor for a arge university to attract foreign students, and thus to bring recognition of German culture also outside of its own empire.

Reform in the Advertising of Medicinal Articles

In a similar manner as by the control of advertising of remedies in the medical press and by the rejection of objectionable advertisements (in regard to which I informed you in my ast letter) the medical press will suppress the advertising evil which is carried on by the distribution of special reprints of articles on therapeutics. It is found that manufacturers of herapeutic products distribute special reprints in which the ections giving unfavorable effects of the described remedy are uppressed, while, on the other hand, statements in favor of he product are made specially conspicuous. Further, favorable reports on remedies are distributed after the statements have been recalled as experience has modified the first impressions. The association of the German medical press therefore passed resolutions at its last meeting declaring that special reprints must be an unchanged copy of the original work. Individual portions must not be made conspicuous for the purpose of advertising, and it is not allowed to make additions or omit certain parts. The reprints supplied to a certain firm may be distributed only with the consent of the author, at first only to the end of the third year following the publication. For the further distribution a new consent of the author is necessary. An industrial firm may be furnished with a supply of special reprints in regard to a remedy only on the manufacturer agreeing not to distribute such reprints to the laity. It remains to be seen how authors, editors and the chemical manufacturing firms will adapt themselves to these requirements.

Instructions in Legal Medicine for the Police

Professor Ziemke of Kiel has established a course of medicolegal instruction for the local police to instruct them in medicolegal questions which must be considered on discovery of crime.

Discreditable Remuneration in Contract Practice

A publication of the medical officers of the insurance societies in one of the larger Bavarian cities shows how just is the complaint of physicians in regard to the insufficient compensation from the Krankenkassen. Of the total appropriation of 322,507 marks for the first half of 1912, for physicians, medicines and remedies, and sick-benefits, physicians received only 19,567, that is, 6.07 per cent. The expense of management of the eight societies in the contract (one local Krankenkasse, four trade Krankenkassen and three free aid societies) will probably be not much lower! The most busily engaged physician received for each individual case (not for the individual service) for half a year 1.73 marks (43¼ cents). In this are included visits up to a distance of two kilometers (a mile and a quarter). More money was paid out to dentists than for special surgical and obstetric services, and for visits more than two kilometers distant.

The city street railway company at Munich has announced that positions for four medical officers were open. The total amount appropriated for these four positions is 3,600 marks, or 900 marks for each ($225), which is less than a street car conductor receives. For this the medical officer will have to examine each man for the acuteness of vision, the sense of color, hearing, nervous system, etc., and give his professional judgment as regards the applications of the sick for leave of absence and stay in the country, and take care of the necessary yearly examination of the railway employees as well as the workmen employed in the varnishing department. However, as a sufficient number of physicians have applied, who have not calculated any further or who have not asked regarding the salary, and as also the organized profession has not expressed any opinion on the subject, the city street railway will get its cheap help.

The Medical Member of the Berlin City Council

A salaried city medical councilor with the function of a regular member of the city council was authorized at the last session of the common council of the city of Berlin. The salary is at first to be 15,000 marks ($3,750), which shall be increased after three years to 18,000 marks ($4,500). (This important innovation was discussed in the Berlin Letter, November 9, p. 1730).

VIENNA LETTER

(From Our Regular Correspondent)

Vienna, Nov. 20, 1912.

Sixth International Congress for General and Medical Electrology and Radiology

This congress, held in Prague during the first week of November, was attended by about 760 members. About 130 papers were read. It was impossible to exclude political and racial enmities from even this purely scientific meeting, for Prague is the hotbed of our deplorable political difficulties. Therefore German scientists were ready to boycott the congress, but at the last moment a public clash was averted. It was not the fault of those who had charge of the meeting that political feeling was exhibited. The members were welcomed by the government and the municipality and the social entertainments were of the customary types in such instances. Of the many interesting papers the following are worthy of notice: Professor Stoklasa of Prague spoke on the "Influence of Radio-Active Substances on the Development of Plants." He had worked with pitchblende containing in 1 kg. only 0.000136 gm. of radium. He used from 0.5 to 1 gm. (7½ to 15 grains) of pitchblende enclosed in a glass tube and placed in the flower-pots. By these means he could increase the productivity of the plants by from 50 to 70 per cent. If radio-active water be used, the best results are obtained with water containing 600 Mache units, as the plant embryo is awakened more quickly and the semen begins to develop with greater energy. In some instances the gain was 100 per cent. compared with ordinary water. It was found that photosynthesis of the carbohydrates in the cells with chlorophyl is increased by radio-activity. This might be used in future farms on a scientific base. Similar experiments were conducted by Professor Donner of Lille, France. He used emanation; plants in this gas were made to grow more quickly, all the other conditions (temperature, humidity) being equal. The growth of wheat especially was increased.

Professor Mezernickyi of St. Petersburg, read an instructive paper on "Chemical Actions of Radium Emanation." The chief result of his experiments is the fact that purin bases are dissociated by emanation. He therefore emphasizes the hypothesis of His, that uric acid can be dissociated by radium; this was formerly doubted by many authors. Uric acid is broken up into carbon dioxid and ammonia. He further could show that 29 mg. of sodium urate were dissociated by radium emanation within twelve days. Bertolotti of Turin, Italy, has examined various radio-active substances from a therapeutic point of view. He found that actinium and mesothorium are even more energetic in destroying living tissues than radium itself. Ghilarducci of Rome has treated diabetes mellitus with emanation. He claims that in several cases this resulted in a disappearance of sugar from the urine. The use of radio-active waters and emanation in the Bohemian baths was described in a paper by Drs. Pelc and Trema. They have examined the springs of all the Bohemian spas, including Karlsbad and Joachimsthal, and gave in their paper details relating to the inhalation and drinking cure of the various places, as well as descriptions of the bathing establishments.

Dr. Manabe of Tokio described the Japanese radio-active baths. The Japanese make a large hole in the ground where radio-active waters appear and the baths are taken there and then. This prevents the loss of emanation so frequent in the European baths.

"The Surgical Use of Radio-Activity" was the title of a paper by Professor Sticker of Berlin. He employs radium combined with mesothorium for malignant growths, accessible to this treatment, with satisfactory results. A paper by Messrs. Degrais, Wickham and Slavik of Paris dealt with the same subject. The authors have been working on the treatment of cancer by radium for four years. They assert that it is possible to benefit also internal cancer by permanent application of radium in tubes.

The influence of alkalies in the conductivity of the blood was investigated by Professor Trunecek of Prague. He has found that electricity is conducted in the blood not by the water or by its organic substances, but simply by its mineral salts. The latter are dissociated by the electric current into the basic and acid components which are the real carriers of electricity. Trunecek has made a serum out of the salts contained in the normal blood-plasma which, he says, are useful in cases of hypertension and arteriosclerosis, or when the viscosity of the blood has increased owing to the accumulation of acid products of metabolism. The application of high-frequency high-tension currents was shown and described by Professor Etcheverria of Santiago, Chile. He has invented an apparatus permitting application of the strongest currents on the human body with impunity. He uses this method of treatment in certain psychoses and brain diseases and reports good results with this novel method. Dr. Bonnefoy of Cannes states that his observations on the physiologic action of high-frequency currents have convinced him of their calming action on the circulation, although the rapidity of the blood-stream is increased and the peripheral warmth is raised.

A remarkable paper which caused much discussion and criticism was read by Cirera-Salse of Barcelona, who reported that he had cured appendicitis by galvanization and electrolysis. He also pointed out that electrolysis has a great future in the treatment of exudations and inflammations of the pelvic organs. In another paper on the treatment of malignant growths, Wickham of Paris gave details of his method of attacking the newly formed tissue, the essentials being the application of the radium at the base and around the periphery of the growth, and the use of large doses so that destruction of cells is surely obtained; it must be kept in mind that a weak application cannot be compensated or strengthened by the duration of the exposure to the radium. It is advisable to influence all parts of the tumor in an equally strong degree.

Professor Becquerel read a paper on "Radio-Activity and Biology." Although at first it was thought that all life was accompanied by radio-activity, exact investigations have proved that radio-activity is rather detrimental to life, some rays even being directly fatal to cells. Thus the *x*-rays, consisting of positively charged particles and possessing a velocity of 20,000 km. per second, are most abiotic, while the beta-rays, consisting of negative particles (like the cathode rays) and having the highest penetrative power, are about equally dangerous to life. Their chemical action is similar to that of the ultraviolet rays of very short undulations. Interesting data were found by Strutt in his investigations into the age of life in the universe. He has found that a mineral contains the more helium the older it is. The same holds good of fossils from various geologic periods. The alluvial deposits on the rocks of Ontario enabled the scientist to reckon out, under these suppositions, the age of the first oceans inhabited by living organisms as over six hundred millions of years. Since then, evolution had time to take place in the course of the geologic periods.

Although the congress was intended not only for medical men but also for all those interested in electricity (numerous papers being read on wireless telegraphy and on problems of electric traction and light), the majority of the members belonged to our profession. It was a success, as it was possible to attract the attention of the whole civilized world, and at the final meeting it was decided to hold another congress in two years. The meeting-place will be chosen next year.

Definite Regulation of the Relations Between Dentists and Technicians

The long conflict between the surgeon-dentists and the technician-dentists will soon be a matter of the past. According to a bill recently proposed by the government, in the future only graduated physicians will be entitled to practice dentistry in Austria. The technical assistants will be permitted to work only in cooperation with or as subordinates to physicians. The profession of technical dentists (*Zahntechniker*) will be allowed to die out. The law makes certain temporary concessions to those technical dentists who at present are practicing in this country under the technical license. Thus they will be entitled to remove or to fill carious teeth if it is absolutely necessary in the process of substituting a denture, bridge or crown work; but they must not use an anesthetic or do anything that requires profounder medical knowledge. Medical men protest vehemently against this permission of surgical dentistry to non-medical men, while the technicians, on the other hand, demand that for the future all technicians should be able to obtain an extension of license by passing certain examinations in order to be permitted to do minor surgery in the mouth. The bill will put an end to the bitter conflict. Already on these grounds a few years' charges against technicians have been dismissed.

Professor von Pirquet on Diseases of Childhood in School

The well-known specialist for diseases of children recently read before the Society for Hygiene of the School an interesting paper dealing with the diseases of school children. He finds that school diseases can be classified under one of the following heads: infectious diseases, disturbances of development of the body and degeneration. The surroundings are frequently responsible for disturbance of development. Well-fed children grow more rapidly and better than underfed children. Instruction in hygienic principles is of the utmost importance. The chief object of the Society for Hygiene of the School must be to make public the results of the united experiences of parents, teachers and school physicians in order that a healthy and strong generation of children may grow up to be healthy citizens.

Improved Facilities for Veterinary Surgeons

Owing to the boycott organized about a year ago by veterinary students against the veterinary school, the government has found that it is no longer possible to neglect the just demands of the students. Just now veterinary surgeons are in more demand than ever before, partly on account of the threatening war. Thus the government has consented to admit veterinary surgeons into the army under conditions similar to those open for physicians. The school will be endowed with sufficient funds for obtaining ample material for dissecting work, scholarships will be instituted in the school and a completely new equipment with sufficient space for study is being added to the veterinary hospital existing at present. All endeavors are being made to obtain first-class teachers for the students.

Miscellany

Disinfection of Schoolrooms.—Better knowledge of the manner in which infectious diseases are transmitted has shown the importance of contact infection. As the ordinary communicable diseases are more prevalent among children, especially school children, the importance of adopting measures to minimize the dangers of contact infection among them is apparent. In addition to the medical inspection of school children and the isolation of suspects or carriers, the frequent disinfection of schoolrooms is an important preventive of the dissemination of infectious or contagious diseases. At the Fifteenth International Congress on Hygiene and Demography, J. T. Ainslie Walker read a paper on the routine disinfection of schools, which, after giving the results of investigations concerning the rôle of school children in the transmission of infectious diseases to other members of the family, he summarizes as follows: The presence of a certain proportion of infectious children is admittedly unavoidable. These infectious children must diffuse a certain amount of infective material, the removal of which by means of frequent and thorough washing of schoolrooms and cloak-rooms is, on the ground of expense, impossible, or is at least so regarded by the educational authorities. He, therefore, offers the following plan, not as a panacea, but as a reasonably efficient measure in keeping down the occurrence of infectious diseases transmitted by the contact of school children: When the school is over for the day the floor of each class-room should be moistened with a disinfectant solution, such as 1 part of pure phenol to 25 parts of water, by means of an ordinary sprinkling-can with fine holes, and swept in the usual manner while still damp. Desks and seats should be dusted with a cloth sprinkled with the same solution. Dry dusting and sweeping should on no account be permitted. Once a week the walls to a height of 6 or 7 feet from the floor should be moistened with the same preparation by means of a spraying machine; seats, desks, hat- and cloak-pegs should be treated in the same manner and all inaccessible places where dust accumulates should be thoroughly wet with the solution. Every quarter the spraying operation should be extended to include all parts of the walls and ceiling. Walker says that the evil effects of breathing dust filled with bacteria cannot be gauged solely by the actual illness occurring among students. Many minor ailments so contracted may be too mild to warrant absence from school or call for immediate treatment, and Walker regards the method of disinfection by gas or fumigation ineffective. As an argument in favor of greater precautions in disinfection of schools, he says that as children are legally forced to attend school it follows that they should be protected to as great an extent as possible from disease by the most effective practical measures we have at hand. The Journal is disposed to wonder as to the reception which would be given to this mode of disinfection. The continuous odor of phenol throughout the school building, which would perhaps be even carried home in the scholars' clothing, might arouse protest which would interfere with the carrying out of the plan.

Relation of Eugenics to Euthenics.—Of late years several nations have been viewing with alarm their rapidly diminishing birth-rates. It has not been generally recognized, however, wherein the danger really lies. The fact of a decreasing population may in itself be of serious economic import; and even though the total population is being maintained or is growing on account of immigration, accession from without then means the swamping of the native stock. But immigration aside, the greatest cause for alarm is revealed on an analysis of the statistics on the decrease in the number of children born. Such analysis shows that the decrease is not proportional for the total population, but that it is greatest among those classes of society which are the more desirable, namely, the professional classes, the artisans and the so-called middle classes generally. Statistics show that whereas in London the birth-rate was higher sixty years ago among the classes just mentioned, fifty years later the conditions had become exactly reversed, and that the paupers, the defectives and the undesirable generally were reproducing at a greater rate than the other civic elements. The outcome of such a state of affairs, without the intervention of other forces, would be easy to predict. One modifying factor exists in the differential death-rate, which falls most heavily on the physically and morally unfit; but here again the statistics have shown that this factor is not sufficient as a corrective. Is not this a fertile land for eugenic search? And may the eugenist not hope to offer suggestions of value? It may be some time before we can hope to do much directly to stimulate the birth-rate among the better classes, but is it not time that steps were taken to check it among the worse?—L. J. Cole in *Pop. Sc. Month.*

"Essential Nephralgia."—L. Billon contributes a long article to the *Archives Provinciales de Chirurgie* (1912, xxi, 521), on the question whether there is such a thing as essential nephralgia, that is, pain in the kidney without an essential cause. He reports two cases which apparently belonged to the category but in which the pain was finally traced to abnormal movability of the kidney or other cause, and he is convinced that patient search will reveal a cause in all such cases. He reviews the differential significance of the character and site of the pain, a history of trauma, etc., and discusses the clinical pictures of latent nephritis, perinephritis, liver and pancreas disease, etc., liable to induce pain in the kidneys, and remarks in conclusion that the results have always been fortunate in the cases of the so-called essential nephralgia in which operative measures were applied; some condition was invariably found which explained the pain and which was cured by the operation.

Marriages

James A. Rusmisell, M.D., Buckhannon, W. Va., to Miss Anna L. McNutt of Sutton, W. Va., at Clarksburg, W. Va., November 21.

Frederick M. Poindexter, M.D., to Miss Florence Grace Graeter, both of Dillon, Mont., at Argenta, Mont., November 21.

Harry Glenville Tonkin, M.D., Martinsburg, W. Va., to Miss Mary Lillian Licklider, at Martinsburg, November 28.

Earl William Cauldwell, M.D., Lemont, Ill., to Miss Kathryn Smollen of Hazeldell, at Lemont, November 28.

Robert Glendenning Washburn, M.D., to Mrs. Grace Watrous Foster, both of Milwaukee, Wis., November 28.

Frank Ira Bishop, M.D., Williamstown, N. Y., to Miss Florence Morphy of Brantford, Ont., November 18.

Arthur Madison Phillips, M.D., to Miss Lynnie Susan Whitaker, both of New York City, November 27.

Harry L. Pelle, M.D., Louisville, Ky., to Miss Clara E. Wilson of Shortsville, N. Y., November 23.

Michael Albert Abrams, M.D., Baltimore, to Miss Marie Silberstein, at Baltimore, November 28.

George Earl Henton, M.D., to Miss Bertha Anna Hacker, both of Friend, Neb., November 13.

Jacob Liencester Shirley, M.D., to Miss Ethel J. Mathews, both of Dawson, Ga., November 3.

William C. F Witte, M.D., Milwaukee, Wis., to Miss Lillian E. Barr of Chicago, November 28.

Thomas A. McGoldrick, M.D., to Miss Rita Connell, both of Brooklyn, N. Y., November 27.

John Louis Schwer, M.D., to Miss Georgia Isherwood, both of Pueblo, Colo., November 28.

Abraham Ezra Jaffin, M.D., to Miss Matilda Serge, both of Jersey City, N. J., October 8.

Charles Rehling, M.D., Fremont, Wis., to Miss Ostrander of Milwaukee, November 20.

Oliver S. Lloyd, M.D., to Miss Golda L. Pearce, both of Baltimore, November 28.

E. Agnes Scott, M.D., and Willard Brandon, both of Denver, Colo., November 19.

Morris Wenger, M.D., to Miss Tillie Ullman, both of Reading, Pa., November 28.

Deaths

Edward Curtis, M.D. University of Pennsylvania, Philadelphia, 1864; a member of the Medical Society of the State of New York, and American Association for the Advancement of Science; brevet captain and major U. S. Army, during the Civil War; one of the first to make microphotographs and astronomical photographs; who was placed in charge of the microscopic department of the Army Medical Museum after the Civil War, where he remained until his resignation in 1870; professor of materia medica and therapeutics in the College of Physicians and Surgeons, New York City, from 1873 to 1886, and thereafter professor emeritus; microscopist to the Manhattan Eye and Ear Infirmary; surgeon to the New York Eye and Ear Infirmary; president of the New York Ophthalmological Society; a trustee of the New York Dispensary and medical director of the Equitable Life Insurance Company from 1876 to 1904; died at his home in New York City, November 28, from cerebral hemorrhage, aged 74.

John Dale McGill, M.D. University of Pennsylvania, Philadelphia, 1870; a member of the American Medical Association and Association of Military Surgeons of the United States; medical director and visiting surgeon to St. Francis Hospital, Jersey City; local surgeon of the Pennsylvania and Erie systems and chief surgeon of the North Jersey Street Railway Company; for several years president of the Hudson County Medical Society; for twenty-six years surgeon-general of New Jersey; at one time police commissioner, president of the board of finance, president of the board of education and president of the Hudson County National Bank; died at his home in Jersey City, November 28, from arteriosclerosis, aged 65.

Elizabeth Catherine Keller, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1871; after her graduation a member of the faculty of her alma mater; from 1875 to 1877 senior physician at the New England Hospital for Women, Boston; a member of the New England Medical Society and for several years a member of the Boston school board; died at her home in Jamaica Plain, Boston, November 29, aged 75.

John Ely Brackett, M.D. George Washington University, Washington, D. C., 1870; a member of the Medical Society of the District of Columbia; for many years professor of practice of medicine and later professor emeritus of the principles and practice of medicine in Howard University; died at his home in Washington, December 3, from cerebral hemorrhage, aged 65.

Adelbert John Douglass, M.D. Long Island College Hospital, Brooklyn, 1872; a member of the Medical Society of the State of New York; a member of the staff of Ilion Hospital and one of the oldest practitioners of Herkimer County; sometime president of the village of Ilion and a member of the board of education; died at his home, November 19, from pneumonia, aged 75.

Edwin Fletcher Ward, M.D. College of Physicians and Surgeons, New York City, 1861; a member of the Medical Society of the State of New York; surgeon of the Twenty-Eighth Massachusetts Volunteer Infantry and later on the staff of General Sheridan during the Civil War; died at his home in New York City, November 23, from arteriosclerosis, aged 76.

Edward John Kiepe, Jr., M.D. University of Buffalo, N. Y., 1897; a member of the American Medical Association; adjunct professor of materia medica and pharmacology in his alma mater; was found dead in a hotel in Kansas City, November 23, from the effects of poison believed to have been self-administered with suicidal intent; aged 46.

Lee Balfour Slauter, M.D. College of Physicians and Surgeons, New York City, 1882; for thirty years a practitioner of Fort Worth, Tex.; died in his office, November 22, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent, while despondent on account of business worries, aged 54.

George Gerald Allred, M.D. Medical College of Indiana, Indianapolis, 1905; of Danville, Ind.; a member of the American Medical Association; coroner of Hendricks County from 1908 to 1912; died in the Methodist Episcopal Hospital, Indianapolis, November 26, after an operation for appendicitis, aged 30.

Charles H. Philpott, M.D. University of Iowa, Iowa City, 1882; vice-president and director of the Des Moines Life Insurance Company; died at his home in Des Moines, November 25, from nephritis, aged 52.

Thomas A. Boggan, M.D. Memphis Hospital Medical College, Memphis, Tenn., 1896; of Tupelo, Miss.; a member of the Mississippi State Medical Association; health officer of Lee County and for several terms a member of the legislature; died while making an address in a school at Mooresville, November 20, aged 65.

George Ebenezer Francis, M.D. Harvard Medical School, 1863; a member of the Massachusetts Medical Society; assistant surgeon in the Navy throughout the Civil War; consulting physician to the Worcester City and St. Vincent's hospitals; died at his home in Worcester, November 20, aged 74.

John T. Hawkins, M.D. University of Louisville, Ky., 1881; a member of the Arkansas Medical Society; of Mount Holly; aged 57; was thrown from his horse while making a professional call near Mount Holly, November 20, and, his foot catching in the stirrup, was dragged to death.

Abraham Lincoln Fox, M.D. Rush Medical College, 1882; of Danville, Ill.; a member of the American Medical Association; died in St. Elizabeth's Hospital, Danville, November 28, from acute nephritis, for which an operation had been performed two days previously, aged 54.

John E. Bruere, M.D. Washington University, St. Louis, 1858; surgeon of United States Volunteers during the Civil War; formerly a practitioner of St. Charles Mo., but for the last five years a resident of New York City; died at his home, November 22, aged 75.

Thomas Mifflin Butler, M.D. Eclectic Medical Institute, Cincinnati, 1857; formerly a practitioner of Pecatonica, Ill.; for twelve years circuit clerk and recorder of Winnebago County; died at his home in Rockford, November 28, from cerebral hemorrhage, aged 79.

Lewis Nelson Davis, M.D. Miami Medical College, Cincinnati, 1873; of Farmland, Ind.; a member of the American Medical Association; president of the Farmland State Bank; died in Harper Hospital, Detroit, Mich., October 3, after a surgical operation, aged 63.

Alvin Matthew Cushing, M.D. Homeopathic Medical College of Pennsylvania, Philadelphia, 1856; formerly a member of the staff of the Wesson Memorial Hospital, Springfield, Mass.; died at his home in that city, December 1, from cerebral hemorrhage, aged 83.

Angus MacOdrum, M.D. Jefferson Medical College, 1900; a member of the American Medical Association; for many years connected with the Cambridge (Mass.) Relief Hospital; died at his home in Cambridge, November 23, from cerebral hemorrhage, aged 47.

Philip McNab, M.D. Long Island College Hospital, Brooklyn, N. Y., 1863; contract surgeon U. S. Army during the Civil War; an expert in medicolegal chemistry; died at his country home near Mooresville, Ind., about November 29, from pneumonia, aged 79.

William H. Jenney, M.D. Cleveland Homeopathic Medical College, 1862; a member of the hospital corps of the Army during the Civil War; first secretary of the Missouri State Homeopathic Medical Society; died in San Diego, Cal., October 19, aged 72.

Asbury J. Russell, M.D. University of Wooster, Cleveland, O., 1868; medical officer of volunteers during the Civil War; of Oakland, Cal; formerly a trustee of Merritt Hospital; died in Grass Valley, Cal., November 26, from cerebral hemorrhage, aged 67.

Edward Wright Smitheman, M.D. University of Pennsylvania, Philadelphia, 1898; of Oil City, Pa.; a member of the American Medical Association; died at the home of his parents, in Philadelphia, November 27, from tuberculosis, aged 37.

William D. Stumbaugh, M.D. Baltimore University, 1897; of Lacona, Ia.; died in that place, November 21, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent, while mentally deranged, aged 53.

Harry Milton Ferguson, M.D. Rush Medical College, 1890; of Morris, Ill.; a member of the American Medical Association and secretary of the Grundy County (Ill.) Medical Society; died November 19, from rheumatism, aged 43.

Maurice Francis Sullivan, M.D. Dartmouth Medical School, Hanover, N. H., 1886; for many years a practitioner of Southington, Conn.; died at his home in Brooklyn, N. Y., November 29, from cirrhosis of the liver, aged 48.

D. L. Benson, M.D. St. Louis Eclectic Medical College, 1883; died suddenly in a store near his home in Mountain Grove, Mo., November 23.

John F. Cherrington, M.D. Marion-Sims College of Medicine, St. Louis, 1895; died at his home in Denver, November 27, from the effects of poison, believed to have been self-administered with suicidal intent, aged 48.

H. J. Salley, M.D. Medical College of Georgia, Augusta, 1885; formerly president of the Bank of Salley, S. C., and a member of the board of education; died at his home, November 22, from cerebral hemorrhage, aged 52.

William Campbell (license, years of practice, Illinois, 1878); for many years a practitioner of Equality, Ill.; died at the home of his son in Danville, Ill., November 20, from accidental strangulation, aged 70.

Carlisle Milton Southard, M.D. Ohio Medical University, Columbus, 1902; a member of the Ohio State Medical Association; died at his home in Zanesville, O., November 21, from heart disease, aged 37.

Eliphalet Comer Baldwin, M.D. University of Colorado, Boulder, 1897; a member of the legislature from Custer County in 1910 and 1911; died suddenly at his home in Westcliffe, November 26, aged 36.

Walter Henry Tobey, M.D. New York Homeopathic Medical College, New York City, 1874; died suddenly in his automobile in front of his home in Boston, November 23, from heart disease, aged 65.

Merchant Charles Fargo, M.D. Rush Medical College, Chicago, 1912; intern in the House of Correction Hospital; died November 26, from shock, two days after an operation for hernia, aged 27.

Richard J. Brady, M.D. Jefferson Medical College, 1909; of Hastings, Minn.; deputy coroner of Dakota County; died in St. Johns Hospital, St. Paul, November 26, from pneumonia, aged 28.

Henry Diers, M.D. St. Louis College of Physicians and Surgeons, 1882; for twenty-five years a practitioner of Kansas City, Mo.; died at his home, November 28, aged 78.

Ernest Duval, M.D. Laval University, Quebec, 1884; formerly a member of the city council and school board of Rochester, N. H.; died at his home, November 23, aged 52.

Charles W. Hume, M.D. Detroit (Mich.) Medical College, 1876; of Corunna, Mich.; died in the Petoskey (Mich.) Hospital, November 22, from heart disease, aged 63.

Alexander W. Gray, M.D. University of Tennessee, Nashville, 1890; for fifteen years a practitioner of Pauls Valley, Okla.; died at his home, November 15, aged 58.

Eva Viola Mead, M.D. University of Buffalo, N. Y., 1900; a member of the Medical Society of the State of New York; died at her home in Buffalo, November 20, aged 41.

Celestia D. Messinger, M.D. Bennett Medical College, Chicago, 1883; for many years a practitioner of Chicago; died at her home in Brooklyn, December 5, aged 70.

Nathan G. Reiff, M.D. Hahnemann Medical College, Philadelphia, 1883; died at his home in Albion, Ind., November 26, from acute disease of the throat, aged 53.

Alice Bunker Stockham, M.D. Chicago Homeopathic Medical College, 1882; formerly of Chicago; died at her home in Alhambra, Cal., December 2, aged 79.

John W. Barry, M.D. Eclectic Medical Institute, Cincinnati, 1905; formerly of Springfield, O.; died at his home in Cincinnati, November 25, aged 31.

Jesse Bertram Wiley, M.D. College of Physicians and Surgeons, Chicago, 1902; of Osmond, Neb.; died suddenly at Pierce, Neb., November 4.

Samuel McCloskey Cleveland, M.D. Hahnemann Medical College, Philadelphia, 1875; died at his home in Philadelphia, November 23, aged 75.

Dennis Jerome Sullivan, M.D. Bellevue Hospital Medical College, 1876; died suddenly at his home in Providence, R. I., October 20, aged 62.

Griffin T. Dailey, M.D. College of Physicians and Surgeons, Baltimore, 1884; died suddenly at his home near Romney, W. Va., November 22.

Russ R. Roberts (license, Arkansas, 1903); of Brookland, Ark.; died in Nettleton, Ark., November 18, from typhoid fever, aged 38.

Francis Findlay, M.D. University of Buffalo, N. Y., 1860; of Franklinville, N. Y.; died in Parkville, Mo., October 3, aged 78.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

BAUME ANALGÉSIQUE BENGUÉ

A physician writes asking for the formula of Baume Analgésique Bengué. This product is another of the "patent-medicine"-"ethical-proprietary" type of nostrums. In Great Britain, it is advertised to the public as "A Wonderful Remedy for Rheumatism, Gout, Neuralgia." In this country, the exploiters find that space in cheap medical journals, reinforced by the aid of undiscriminating physicians, is a cheaper method of getting the stuff to the public. According to the statements of the manufacturers, Bengué's Analgesic Balm contains "menthol, salicylate of methyl and lanolin." When analyzed by the chemists of the British Medical Association, it was reported to have the following composition:

Menthol	18 per cent.
Methyl salicylate	20 per cent.
Lanolin, anhydrous	54 per cent.
A fat, apparently lard	8 per cent.

The estimated cost of the ingredients of a 50-cent tube of Bengué's Analgesic Balm, according to the British chemists, is 2½ cents. Evidently this imposingly named product is practically a lanolin ointment containing oil of wintergreen and menthol. Similar products are catalogued by various pharmaceutical houses under various names and with varying degrees of frankness concerning their composition. Two firms give the medical profession full details regarding the composition of their products: The H. K. Mulford Company who sell it under the name "Methyl Salicylate Ointment," and the Pitman-Myers Co. who name their product "Anodyne Balm, P-M Co." Some other firms are not so frank. Parke, Davis & Co., for instance, sell "a combination of methyl salicylate and menthol with a lanolin base" under the name "Analgesic Balm," but do not give the quantities of the ingredients; Frederick Stearns & Co. sell "Analgesic Cream, Stearns" without giving the quantities; Nelson Baker & Co. sell "Anti-Neuralgic Ointment," and no quantities are given.

THE EVOLUTION OF A PROPRIETARY—LYSOL

Regarding certain proprietary preparations and their equivalents found in pharmacopeias or other standard works of reference, it is often questioned whether the proprietary is the original and the official preparation, the imitation or vice versa. As a general proposition, medicinal compounds and preparations are not born but evolved, as in the case of epinephrin, in which the credit of discovery belongs to no one person, but to several.[1] So it is often the case that the proprietary and official preparations may be based one on the other, while both are usually based on some preparation which antedates them. This is well illustrated by the proprietary preparation Lysol, the practical equivalent of which—liquor cresolis compositus—is official in the United States Pharmacopeia. After the discovery of phenol (carbolic acid) and the recognition of its germicidal value, it was gradually learned that other phenolic compounds occurring in the crude distillates from tar and wood were more efficient and less poisonous than phenol (carbolic acid). When this was discovered, attempts of course were made to utilize these higher and more efficient phenols, which meant that their insolubility in water had to be overcome. In these attempts there were efforts to form new compounds as well as a search for simple solvents. While the first failed, because these compounds were less efficient than the phenol from which they were made, a simple solvent was found in soap. The first attempt to utilize the solvent power of soap gave creolin, a mixture of the so-called crude carbolic acid (really containing but little phenol and consisting largely of higher phenols along with inert hydrocarbons) with soap. This was followed in 1884 by Schenkel's discovery that a portion of this "crude carbolic acid" could be made soluble in water by treatment with soap. Schenkel was refused a patent on the ground that any soap manufacturer should be permitted to add phenol to his soap, but in 1889 a patent for a cresol-soap solution was granted to Damann, who used cresol, a constituent of "crude carbolic acid." The preparation was put on the market and has since been widely advertised under the proprietary name "Lysol."[2] It is thus seen that Lysol is a good example of the way in which manufacturers appropriate the discoveries of others, develop them and turn them to proprietary use.

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[1] The Journal A. M. A., March 25, 1911, pp. 901, 910.

The ill-deserved patent protection for Lysol happily expired long ago and the product can now be made by any one. In view of the non-descriptive character of the name "Lysol" and the danger in using such names in connection with potent and poisonous remedies, this cresol-soap solution has been admitted to pharmacopeias, not under the original name "Lysol," but under descriptive names such as that in the United States Pharmacopeia—"liquor cresolis compositus."

JIREH DIABETIC FOOD

"Can you give me any information as to the reliability of the claims of the Jireh Diabetic Food Company? The company claims to have treated the starch in the food in some way so that it can be taken by diabetics without increasing urinary sugar, and as the products made by the company are quite palatable they are preferred to the ordinary gluten flour."

This inquiry was received from Dr. E. P. Evans, South Milwaukee, Wis. The Jireh Diabetic Flour is one of those vicious and fraudulent products—of which there are many on the American market—that contain practically as much starch as ordinary flour but are sold under misleading names as safe products for diabetics. The law that made lying illegal has produced many changes in the Jireh advertising. To tabulate:

BEFORE	AFTER
"Jireh Diabetic Flour"	"Jireh Flour"
"Jireh Diabetic Foods"	"Jireh Diatetic Foods"
"Jireh Starch-*Changed* Foods"	"Jireh Starch-*Treated* Foods"
"No chemicals are used in the *change* of the starch."	"No chemicals are used in the *treatment* of the starch."

It is worth noticing that the Jireh concern has coined a word—"diatetic"—and uses it throughout its advertising matter. This word is used wherever the word "diabetic" formerly occurred in the Jireh circulars. It is doubtless in line with the general attempt to deceive the public without actually violating the letter of the law. The booklets sent out by the Jireh Company still contain a vast amount of pseudoscientific nonsense, although not so much now as they did a few years ago. The claim made by the concern that the starch in their flour and foods is so changed as to be harmless for the diabetic is a cruel falsehood. To quote from a report by Dr. A. L. Winton, Chief of the Chicago Laboratory of the Bureau of Chemistry, United States Department of Agriculture:

> The Jireh Diabetic Food Company designate their foods as "starch-changed," but our analyses and microscopic examinations do not indicate that the change, if any, is of a kind that renders the materials less objectionable for diabetic use.

As a matter of fact, Jireh flour contains practically as much starch as ordinary wheat flour. To be exact, Jireh flour contains 73.02 per cent. carbohydrates, while ordinary wheat flour contains about 75 per cent. Ordinary flour sells at the rate of about $3 a hundred pounds; Jireh flour sells for $11 a hundred pounds. These products were discussed in The Journal, Sept. 12, 1908, p. 932, and Nov. 21, 1908, p. 1799.

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[2] Pharm. Ztg., Oct. 14, 1908, p. 817.

Hygiene and Sanitation in the Industries.—The problems of sanitation and hygiene in industry are as individual and as difficult as are the questions of sanitation and hygiene in schools, or in municipalities, and the study of them is essential to the health of an industrial nation.—W. Talbot in *Am. Jour. Public Health.*

Correspondence

Cesarean Section from the Point of View of a Patient

To the Editor:—Early last fall when it became positive that I was pregnant and not suffering from the menopause or a pseudocyesis I had to consider seriously the outcome to myself and to the child.

The thought of a long tedious labor with extensive perineal repair and, if forceps became necessary, the probable death of the much-wanted little one was not pleasant to contemplate and led me early to look up carefully the subject of cesarean section, which I selected for the following reasons: age 41; first pregnancy; measurements small; the probability in an elderly primipara of the baby being a boy with a large head like his father; the better chance for a living baby; the elimination of perineal tears with the resulting invalidism, and finally the small mortality to both mother and child when the operation is undertaken just before labor begins.

Having settled the matter of cesarean section definitely in my own mind I found a surgeon who coincided with my views, especially when the later examinations showed a malposition of the child. This decision made for peace of mind, as much as did the continuing of my active work during the entire time of carrying the baby.

On the morning of June 13, 1912, having had mild uterine contractions most of the previous night, I went to the hospital after a breakfast of shredded wheat, milk and soft boiled egg, reaching there about 10 a. m. I was immediately prepared in the usual way for a major operation, going within the hour to the operating-room, thus avoiding the long dreary wait through which a patient usually passes when entering the hospital the night before. At my own request I was allowed to have the anesthetic on the operating-table rather than in the anesthetic room, so as to lessen the possibilities of asphyxiating the baby. I counted only five breaths before I lost consciousness and knew nothing more until I reacted in my room at 2:30 p. m. My chart says that I had severe uterine contractions, which are vouched for also by my husband, but my only remembrance of this time was an inordinate thirst and my insistence on having a continuous supply of cracked ice, which was granted, and the three hypodermics of morphin and atropin, which were given me during the first night. Several days later desiring to cough I suddenly discovered the soreness of my abdomen and the presence of the incision. I had no nausea whatever until given an enema the night of the second day and again on the fourth day following a dose of Rochelle salts. I did suffer intensely from gas in the intestine but this was relieved, as a rule, by the passage of a rectal tube. At the end of the first week I was annoyed by drenching perspiration at night. In ten days the stitches, in three continuous sutures, were removed. At the end of two weeks I was out of bed; in eighteen days I was home and I went down-stairs on the twenty-third day. At no time did the temperature go above 100 F. and to that only on two days during the first week. With plenty of ice and orange albumin-water I fared nicely until soft diet was allowed on the third day, which was followed shortly by regular diet.

The child instead of being a large-headed boy was a moderately small girl weighing 6¼ pounds, and is at present doing well. My friends remarked on the nice appearance of the baby which no doubt was due to the lack of compression. The presence in the uterus of a number of fibroids probably caused the malposition of the child.

In closing I wish to express my appreciation of Dr. M. Louise Strobel and Dr. Albert Stavely for my exceptionally good condition at present and for permission to present this case.

Martha M. Brewer Lyon, M.D., Washington, D. C.

State Supervision of the Feeble-Minded

To the Editor:—I believe that you have well summed up the situation in the last sentence in your editorial on "The Elimination of Feeble-Minded Strains" (Nov. 16, 1912, p.

801.) "Considered in all its various aspects it would appear that the most practical plan for the elimination of the feeble-minded strains should judiciously combine the methods of segregation and sterilization."

That there may be, however, such "judicious combination of segregation and sterilization" there must first be a census of all the feeble-minded in the state. The state committee on lunacy of each state should know exactly the names and location of all feeble-minded persons in the state, and should be charged with authority to compel any feeble-minded person to enter an institution whenever it deems that such action is for the public welfare; it should likewise have authority to detain a feeble-minded person in such an institution. In short, the state should have supervision over all the feeble-minded within its borders whether in institutions or living outside, and should decide which may live outside institutions and which must live inside institutions. At present this tremendously important question is largely decided by the parents and guardians of the feeble-minded—the very persons who are least fitted to give judgment on these questions. They naturally consider not the welfare of the state but that of the individual.

I believe such state supervision for the feeble-minded is most fundamental. When this has been established I would say with you, that "the most practical plan for the elimination of the feeble-minded strains should judiciously combine the methods of segregation and sterilization." But first of all the state must assume full authority over all feeble-minded within its borders.

Theodore Diller, M.D., Pittsburgh.

Queries and Minor Notes

Anonymous Communications will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

BRUSSELS CONFERENCE AND TREATY ON UNIFORMITY OF POTENT DRUGS IN THE PHARMACOPEIAS

To the Editor:—In the review of the "Digest of Comments" on the Pharmacopeia of the United States of America, Oct. 12, 1912, p. 1399, there appears reference to the treaty signed at Brussels and to a conference protocol. Please explain what is meant by the Brussels conference and the protocol and treaty.

Physician and Pharmacist.

Answer.—In response to an invitation sent out by the Belgian government, at the request of the International Pharmaceutical Congress in Paris in 1900, delegates appointed by their respective governments met in Brussels in September, 1902, to consider the practicability of eliminating differences in the strength of certain potent medicaments bearing the same name in different pharmacopeias. The conference agreed on a protocol in the form of three articles. The first article included suggestions for uniform requirements for three chemical substances, nine drugs and thirty pharmaceutical preparations. The second article proposed three general principles to be observed in compiling the several national pharmacopeias. The third article suggested the expediency of adopting a normal drop counter for measuring out drop doses of potent liquid medicines. The protocol was signed by the delegates at the conference, and, after submission to the home governments, by their diplomatic representatives.

The treaty referred to was signed at Brussels, Nov. 29, 1906, by the diplomatic representatives of the following governments: Great Britain, Germany, Austria and Hungary, Belgium, Bulgaria, Denmark, Spain, France, Greece, Italy, the Grand Duchy of Luxemburg, Norway, the Netherlands, Portugal, Russia, Servia, Sweden, Switzerland and the United States. It is an agreement between the United States and the other governments respecting the unification of the formulas for potent drugs on the basis indicated in the protocol agreed on at the conference held in Brussels in September, 1902. This treaty represents the first practical step in an agitation continued for more than half a century, to bring about uniformity in the composition and strength of widely used medicaments. The efforts made previous to 1900 were directed to the development of an international pharmacopeia and were futile because they were too comprehensive. As an illustration of the practical results so far achieved it may be pointed out that, with the single exception of Great Britain, all the powers subscribing to the protocol of the Brussels Conference have now issued revised pharmacopeias and the total number of compliances with the requirements of Article I of the protocol has been increased from 129 in 1902 to 260 in 1910, while the points of non-compliance have been reduced from 131 in 1902 to fifteen in 1910; the present United States Pharmacopeia being responsible for no less than five of the latter.

Two important instances of the effects of this conference and treaty in securing uniformity in pharmacopeial preparations are the following: dilute hydrocyanic acid, which before the conference varied in strength in the different pharmacopeias from 1 to 10 per cent. of the acid (HCN) is now required to contain 2 per cent.; syrup of ferrous iodid, which formerly varied from 0.5 to 12.2 per cent. of the salt (FeI_2), is now required to contain 5 per cent.

DIAGNOSIS IN SUDDEN DEATH OF A CHILD

To the Editor:—A female child, aged 19 months, was suddenly taken ill at 7 in the morning and died in three hours. She had been well and in good health before and was not noticeably ill during the night. When called I found the child pale and limp, with an apparent paralysis of throat muscles, as she could with difficulty make a sound—saying, once or twice, "mam." There was considerable mucus blocking the upper air-passages. Respiration was irregular and slow but not jerky; temperature by axilla, 98. There was no contraction of any muscles, but relaxation was present. Pupils were wide. The child had not vomited or coughed. There was no cyanosis. Pulse was irregular and about 90, varying greatly, becoming much slower as the condition grew worse. The child died in thirty minutes after my arrival. Paralysis of respiration first appeared. I maintained the respiration artificially for several minutes, during which the pupils contracted and the child made a feeble effort at respiration. The pupils soon dilated again and the heart ceased beating.

I could obtain no history as to possible poisoning from without. The child, at its supper, had eaten a small amount of fresh sausage. This was from their own hogs, which they had just butchered under favorable conditions of weather. (There was no diarrhea or distention.) Father and mother and three other living children were healthy. Family history was negative, except that a year or two ago they lost a 4-year-old girl, who, they inform me, died after three or four hours' illness and with precisely the same symptoms. Can you diagnose the case or suggest a possible diagnosis?

George W. Shriver, M.D., Metz, W. Va.

Answer.—Without a necropsy it would be impossible to form a definite opinion with reference to the cause of death in this case. Three principal causes should be considered: botulism, infantile paralysis and lymphatism.

1. Botulism is suggested by the history of eating sausage. The symptoms of botulism are similar to those described, although usually not so acute. As the sausage is stated to have been fresh, the probability of sausage poisoning is diminished but cannot be entirely excluded.

2. Infantile paralysis sometimes produces death very rapidly, with paralysis of the throat muscles and of the respiration. The absence of all indications of infection makes this cause very doubtful.

3. Lymphatism is a term given to a condition in which the thymus gland is much enlarged and the individual possesses only slight resistance to causes of death, so that sudden death may occur after slight causes, such as slight operation and mild infection, or even when no cause can be assigned. The symptoms in such cases are various and this condition may have been operative in the case described.

A CASE FOR DIAGNOSIS: PROBABLY SMALL-POX

To the Editor:—Please diagnose the following case: A boy, aged 2, was taken suddenly ill, with a temperature of 104 to 104.5, pulse 120 to 140 and respiration 35 to 40. He was delirious, showed cerebral symptoms and rolled his head from side to side. The temperature remained high and the pulse was frequent till the fourth day, when an eruption similar to that of small-pox or chicken-pox appeared on the face and wrists but on no other part of the body. Temperature fell, but rose again in a few days and ranged from 99 to 101.5. The nose bled a little and seemed to be stopped up with something, as from a bad cold. On about the tenth day the nose discharged sanious pus. There was never any membrane in the throat nor any history of exposure either to diphtheria or to small-pox. The mother, who nursed the child, was vaccinated early in the child's illness and on the twenty-first day of the child's illness developed diphtheria.

Could patient have had both small-pox and diphtheria? If only diphtheria, account for the eruption, which was identical with small-pox except that it was scanty.

W. E. Whiteside, M.D., Flatwoods, W. Va.

Answer.—From the history given by our correspondent we should think it probable that the case was one of small-pox with a limited eruption. The discharge from the nose was in all probability due to small-pox vesicles on the mucous membrane, inasmuch as most small-pox patients suffer from this symptom. It is, of course, possible that small-pox might be complicated by diphtheria, but we think that no such case is on record. Only a bacteriologic examination could determine this point. While the diagnosis of diphtheria in the mother's case may be correct, it is to be remembered that a membrane does not justify the diagnosis of diphtheria unless a microscopic examination has been made. Membranes in the throat may be produced by a number of organisms, including the streptococcus, pneumococcus, the organisms of Vincent's angina and others. A diagnosis of diphtheria should be based, whenever possible, on a bacteriologic examination of the secretions from the case.

DIFFERENCE BETWEEN SALVARSAN AND NEOSALVARSAN

To the Editor:—Why is neosalvarsan recommended not to be given subcutaneously, though it can be given intramuscularly? What are the clinical differences between salvarsan and neosalvarsan given subcutaneously? Are their physiologic actions the same?

Joseph A. Thomas, M.D., Valdosta, Ga.

Answer.—The manufacturers of neosalvarsan warn against the subcutaneous use of the remedy on account of the danger of producing infiltrations. Aside from this, there seems to be no difference between the pharmacologic action of salvarsan and neosalvarsan. Neosalvarsan is much less irritating to tissue than salvarsan. The recommendation not to use it subcutaneously is due to the fact that any irritant drug is much more likely to cause sloughing when introduced subcutaneously than when put into the muscle. Absorption is also quicker from the muscle.

NOSTRUMS AND NEPHRITIS

To the Editor:—I have under my care a patient with chronic parenchymatous nephritis. Microscopic examination shows occasional epithelial casts, with hyaline and granular casts. The patient feels well and appears to enjoy the best of health. Please give me your opinion on the use, in such a case, of the lymph injections put out by the Animal Therapy Company of Chicago, from whom I have just received a supply of literature.

S. T. D.

Answer.—The Council on Pharmacy and Chemistry took up for consideration the "Lymph Compound R-H," and "Orchitic Fluid Tablets," sold by the Animal Therapy Company and refused them recognition.

The treatment of a case of chronic parenchymatous nephritis is a task requiring the best judgment and the greatest knowledge that the physician can command. From the first his aim should be to do no harm, and with this in view he will recognize that since we do not know the cause of this disease, and since we are unable to influence the essential process in the kidney, the administration of a remedy capable of doing harm should be undertaken only under the clearest indications. It is probable that the remedy proposed, containing, it is asserted, a mixture of foreign proteins, might injure healthy kidneys, to say nothing of sick ones. It is well known that foreign proteins, such as the white of egg, if they enter the circulation unchanged, are excreted by the kidney and are liable to produce serious irritation, which in the case of parenchymatous nephritis might easily aggravate the existing condition and frustrate all other efforts at a cure. More especially is it imperative to do no harm when, as in the case reported by our correspondent, the patient appears to be in good health. Two questions should be raised in that case. First, is there any evidence that the occasional excretion of a few casts, whatever may be their variety, is actually doing the patient any harm? And second, since there are no symptoms, what possible improvement could be expected from treatment? It is admitted that we have no remedy which can effect an essential change in the condition of the diseased kidney. What must be done in such a case is to spare the kidney—to require of it the minimum of functional activity. In such a case, the physician who introduces an animal protein, foreign to the human system, would be taking a serious responsibility. The chances are that it would do harm; how great, no one can tell. If the physician can really make up his mind to experiment at the risk of the life of his patient, this case appears to be one unusually favorable to the manufacturer of the serum. There are chances that the diagnosis may be incorrect and that such a condition of the urine does not indicate a serious condition of the kidney. It is frequently the case after an acute infection, or some similar irritation, that the kidney continues for some time to excrete albumin and casts, but the condition eventually clears up. In such a case, if the serum did no harm it would be given the credit of curing the patient, who recovers in spite of it. It is a little unfortunate, however, for the purpose of such demonstration that the patient is said to feel well. If only he could be persuaded that he has a serious disease so that he might be somewhat depressed mentally, the effect of the cure would be more remarkable!

If the physician to whom such a patient comes for advice, instead of taking the wise course of seeking reliable information, were to take at their face value the statements of interested commercial manufacturers—if he were to administer this unknown and dangerous remedy, the effects of which he cannot predict—he would commit a breach of trust more culpable than the most vicious attempts of the nostrum-maker to mislead the physician and the public.

LITERATURE ON MALARIA

To the Editor:—We are doing the postgraduate course and are beginning on the third month of the second year—diseases due to animal parasites. Can you furnish me with or refer me to a library where I can get the most recent articles on malaria?

A. R. Carter, M.D., Murphysboro, Ill.

Answer.—

Harrison, W. B.: Prevention and Treatment of Malaria in the Negro Race Under Delta Conditions, *Mississippi Med. Month.*, October, 1912; abstr. in The Journal, Oct. 26, 1912, p. 1573.

Brockway, D. S.: Treatment of Hemorrhagic Malarial Fever Without Use of Quinin, *South. Med. Jour.*, September, 1912; abstr. in The Journal, Oct. 5, 1912, p. 1320.

Jackson, T. W.: Malarial Hot-Bed Within Sight of National Capitol, *South. Med. Jour.*, September, 1912; abstr. in The Journal, July 27, 1912, p. 1299.

Holland, E. D.: Malaria as It Concerns the General Practitioner, *South. Med. Jour.*, September, 1912.

Hand, A.: Fever: Malaria: Quinin, *South. Med. Jour.*, September, 1912.

Malaria and the Development of the South, editorial, The Journal, Sept. 14, 1912, p. 885.

Bass, C. C.: Successful Cultivation of Malarial Plasmodia, The Journal, Sept. 21, 1912, p. 936.

Cultivation of Malarial Plasmodia, editorial, The Journal, Oct. 12, 1912, p. 1331.

White, J. H.: Eradication of Malaria, *South. Med. Jour.*, August, 1912; abstr. in The Journal, July 27, 1912, p. 297.

Henson, G. E.: Possible Etiologic Factors in Malarial Recurrences; Significance of Such Cases and Their Treatment, *South. Med. Jour.*, August, 1912; abstr. in The Journal, July 27, 1912, p. 299.

Booth, B. H.: Pernicious Malaria with Cerebral Symptoms, Resembling Heat Stroke, with Report of Cases, *South. Med. Jour.*, August, 1912.

Thomson, D.: Variations in Numbers of Leukocytes and Crescents in Malaria; Destruction of Crescents; Conclusions Regarding Prevention of Malaria by Administration of Quinin, *Ann. Trop. Med. and Parasitol.*, July, 1912; abstr. in The Journal, Sept. 14, 1912, pp. 904, 905.

Prampolini, B.: Malaria in Relation to Operations and Trauma, *Policlinico*, July 7, 1912; abstr. in The Journal, Aug. 24, 1912, p. 684.

Brown, W. H.: Malarial Pigment (Hematin) as Factor in Production of Malarial Paroxysm, *Jour. Exper. Med.*, June, 1912; abstr. in The Journal, July 20, 1912, p. 226.

Rowley-Lawson, M.: Cause of Malarial Anemia and the Intravascular Migrations of the Malarial Parasite, *Arch. Int. Med.*, April, 1912, p. 420; abstr. in The Journal, May 4, 1912, p. 1398.

Craig, C. F.: Is Hemoglobinuric Fever a Manifestation of Malaria or a Disease Sui Generis? *Arch. Int. Med.*, January, 1911, p. 56; abstr. in The Journal, Feb. 25, 1911, p. 621.

Brem, W. V.: Studies of Malaria in Panama: I. Clinical Studies of Malaria in the White Race, *Arch. Int. Med.*, December, 1910, p. 646; abstr. in The Journal, Jan. 14, 1911, p. 155; II. Treatment of Blackwater Fever, *Arch. Int. Med.*, February, 1911, p. 153; abstr. in The Journal, Feb. 18, 1911, p. 925; III. Etiology of the Erythrolytic Hemoglobinuric Type of Blackwater Fever, *Arch. Int. Med.*, February, 1912, p. 129; abstr. in The Journal, March 19, 1912, p. 731; IV. Relation of Malaria to Other Diseases, with Especial Reference to Dysentery, *Arch. Int. Med.*, June, 1912, p. 698.

LITERATURE ON SPRUE

To the Editor:—Please refer me to the most important literature on the subject of sprue.

Charles E. Stewart, M.D., Battle Creek, Mich.

Answer.—The following may be referred to:

Macdonald, W. C. C.: Sprue and Ankylostomiasis; Treatment, *Australasian Med. Gaz.*, July 20, 1911; abstr. in The Journal, Sept. 16, 1911, p. 1013.

Burnet, J.: Are Pellagra and Sprue One and the Same Disease? *Med. Press and Circular*, Aug. 16, 1911; abstr. in The Journal, Sept. 16, 1911, p. 1014.

The Investigation of Sprue, The Journal, Nov. 25, 1911, p. 1775 (London Letter).

Abel, E.: Sprue Plus Syphilis, *Deutsch. med. Wchnschr.*, Feb. 29, 1912, No. 9.

Low, G. C.: Blood in Sprue, *Jour. Trop. Med.*, May 1, xv, No. 9.

Ashburn, P. M.: Some Inquiries Regarding Sprue, *Bull. Manila Med. Soc.*, March, iv, No. 3.

Pratt, J. H., and Spooner, L. H.: A Study of Sprue, The Journal, July 20, 1912, p. 218

Begg, Charles: Sprue—Its Diagnosis and Treatment. W. Wood & Co., New York. Price, $2.

ANTIFREEZING MIXTURES FOR AUTOMOBILES

To the Editor:—What chemicals or mixtures are best suited for preventing freezing in the water reservoir of an acetylene generator, and in what proportion should it be added to the water to prevent freezing at 0 C. (32 F.) or —5 C. (23 F.)? Are alcohol and glycerin permissible? What is safe and non-interferent with the action of water on calcium carbid? An answer to the above will also be of service to those who desire to prevent the freezing of the radiators of standing automobiles.

Edmund P. Fowler, New York.

Answer.—As our correspondent says, information on this subject is not plentiful. In the following answer we quote rather freely from an answer to a similar query contained in the *Bulletin of Pharmacy* and from Meyer Brothers' *Druggist*, both of November, 1911. What follows refers more particularly to the prevention of freezing in automobile radiators, fire-extinguishers, etc. In the selection of a non-freezing solution for an automobile the action of the solution on the circulating system and also the capacity of the solution to withstand high and low temperatures are the points to be considered. Among the solutions used for this purpose are sodium chlorid and calcium chlorid solutions, glycerin, wood alcohol and denatured alcohol. When salt solutions such as calcium chlorid, sodium chlorid, etc., are used, two corrosive actions, chemical and electrolytic, take place. Calcium chlorid is apt to contain hydrochlorid acid, which if not neutralized will attack metals, and directions are usually given when this is used to neutralize by the addition of an alkali. Caustic solutions, however, are just as destructive as acid solutions, forming hydrates on the different metals composing the circulating system. This chemical action, though serious, is probably second to the electrolysis which occurs universally when salt solutions are employed, and causes a rapid eating away of the metals. Sodium and calcium chlorid solutions in the strength of 0.5 pound per gallon freeze at 24 and 29 F., respectively, and in the strength of 3.5 per gallon freeze at —8 F.

Glycerin makes a pretty good antifreezing mixture as it boils at an extremely high temperature and its freezing point can be reached only by artificial means. In addition to its cost, however, which is considerable, it has some objections. Unless chemically pure, it is apt to contain fatty acid, and it produces destructive chemical action. It also destroys rubber connections and after a short time becomes foul and requires frequent renewal. Glycerin has been recommended for use in fire-extinguishers, an addition of 3½ quarts to a standard extinguisher making a solution capable of withstanding —4 F., and 4 quarts a temperature of —10 F. This use would be similar to that in the acetylene generator and though a mixture of glycerin and water would probably not prevent the generation of gas, a considerable quantity of glycerin mixed with the water might retard it. We have no evidence on this point.

Wood alcohol and denatured alcohol are good agents for this purpose. Wood alcohol has been stated to have a slight tendency to produce formic acid which would in time corrode the metal parts. It also boils at a lower temperature than denatured alcohol and less of the latter is required, as the tendency to evaporate is less. Denatured alcohol is also much cheaper. Denatured alcohol has no corrosive action on any of the metals, and its ability to withstand cold is indicated by the fact that it freezes at about —160 F. It is manufactured by fixed formulas prescribed by the government and is therefore practically uniform. It contains no solid matter and does not require filtration. The freezing points of various mixtures of denatured alcohol with water are about as follows:

20 per cent. solution.......	10 F.
30 per cent. solution.......	—5 F.
40 per cent. solution.......	—20 F.
50 per cent. freezes at about	—35 F.

A mixture of denatured alcohol and water of sufficient strength to prevent freezing at anything but extraordinarily low temperatures probably will not very materially retard the action of the water in generating acetylene gas from the carbid.

It will appear from the above that denatured alcohol is probably the most satisfactory and cheapest medium for preventing freezing in automobile radiators, fire-extinguishers and gas generators.

EDITORSHIP OF SANGAMON COUNTY BULLETIN

To the Editor:—Thank you for your item, "Sangamon County Bulletin" (The Journal, Nov. 16, 1912, p. 1804), in which you speak of the editorial on appropriations for hog cholera but none for cholera infantum. You give me credit for editorship of the *Bulletin*. While I wrote the editorial mentioned, the editor of the *Bulletin* is Dr. H. C. Blankmeyer of Springfield, secretary of the Sangamon County Medical Society.

H. D. Griffiths, M.D., Springfield, Ill.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, January 14. Chairman, Dr. W. H. Sanders.

Colorado: State House, Denver, January 7. Sec., Dr. David A. Strickler, 612 Empire Building.

Illinois: Coliseum Annex, Chicago, January 22-24. Sec., Dr. James A. Egan, Springfield.

Indiana: Room 57, State House, Indianapolis, January 14-16. Sec., Dr. W. T. Gott, State House.

Minnesota: Pathological Institute, University of Minnesota, Minneapolis, January 7. Sec., Dr. Thomas S. McDavitt, Lowry Building, St. Paul.

New Hampshire: Concord, December 17-18. Regent, Mr. H. C. Morrison, State Library.

New Mexico: Santa Fé, January 13. Sec., Dr. W. E. Kaser, East Las Vegas.

New York: January 28-31. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

North Dakota: Grand Forks, January 7. Sec., Dr. G. M. Williamson.

Oklahoma: Oklahoma City, January 14. Sec., Dr. John W. Duke, Guthrie.

Oregon: Portland, January 7. Sec., Dr. E. B. McDaniel, 702 Electric Building.

Rhode Island: State House, Providence, January 2. Sec., Dr. Gardner T. Swarts, State House.

South Dakota: Watertown, January 8. Sec., Dr. L. G. Hill.

Utah: Salt Lake City, January 6-7. Sec., Dr. G. F. Harding, 310 Templeton Building.

Vermont: Montpelier, January 14-16. Sec., Dr. W. Scott Nay, Underhill.

Virginia: Richmond, December 17-20. Sec., Dr. Herbert Old, Norfolk.

Washington: Spokane, January 7-12. Sec., Dr. F. P. Witter, Traders' Block.

Wisconsin: Milwaukee, January 7-9. Sec., Dr. John M. Beffel, 3200 Clybourn Street.

Reorganization of the Medical Department of the University of California

At a meeting of the regents of the University of California in December, 1911, the committee on Medical Instruction recommended that the departments of the medical school in Berkeley and San Francisco be brought together in San Francisco as soon as possible; that the clinical years be put on an academic basis, and that a proper teaching hospital and proper laboratories be provided. It was declared to be the regents' desire to establish a medical school of the highest standard.

Official information is received that at a meeting in April, 1912, on the recommendation of the medical faculty, the following plan of reorganization was adopted:

Clinical instruction in the medical school is to be carried on in three main departments.

1. Gynecology and Obstetrics: It was decided to put this department on an academic basis at once and to allot full academic salaries for a professor and an assistant.

2. Medicine: This department to include pediatrics, neurology and dermatology. This department cannot as yet be placed on a full academic basis, but the payment of assistants for the current year has been provided for.

3. Surgery: This department to include orthopedics, urology, ophthalmology, rhinology, otology and laryngology. As with medicine, there were not sufficient funds available this year to put the department on a full academic basis, but three paid assistants have been provided for.

In addition to the main departments, the work of the hospital pathologist was reorganized and an additional assistant professor of pathology was secured.

In accordance with the plans adopted by the regents, a movement is on foot to provide a new university hospital. The present plans aim at four units of forty or fifty beds each, to be devoted respectively to surgery, medicine, diseases of women and diseases of children. Money has already been given ($350,000) by private persons to build and equip the departments of medicine and children's diseases. In order to carry on the work in the present buildings, the regents have granted $20,000 for alterations in the hospital for accommodation of clinics and for equipment of clinical and pathologic laboratories. A children's ward has been added in the hospital.

New Hospital Dedicated

The new teaching hospital of Meharry Medical College, the George W. Hubbard Hospital, was dedicated Nov. 29, 1912. Addresses were given by a number of prominent men who are interested in the advancement of negro education. The total cost of the building was about $40,000. It is a brick structure three stories in height including the basement and comfortably provides accommodations for seventy-five patients, or 100 patients in case of emergency. It was named in honor of the venerable dean of the Meharry Medical College.

Nevada November Report

Dr. S. L. Lee, secretary of the Nevada State Board of Medical Examiners, reports the written examination held at Carson City, Nov. 4-6, 1912. The number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 4, of whom 3 passed and 1 failed. Eight candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Jefferson Medical College	(1910)	86.5
Laval University, Quebec	(1901)	78.3
College of Physicians of Ireland	(1885)	93.2

FAILED

College	Year Grad.	Per Cent.
Ohio Medical University	(1904)	63.3

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Hahnemann Med. College and Hospital, Chicago	(1890)	Illinois
Jenner Medical College	(1903)	Illinois
Hospital College of Medicine, Louisville	(1905)	Kentucky
Medical School of Maine	(1896)	Maine
Baltimore Medical College	(1908)	Maine
Univ. of Minnesota, College of Med. and Surg.	(1911)	Minnesota
St. Louis College of Physicians and Surgeons	(1895)	Iowa
Jefferson Medical College	(1898)	Penna.

Medical Economics

This Department Embodies the Subjects of Post-graduate Work, Contract Practice, Legislation, Medical Defense, and Other Medicolegal and Economic Questions of Interest to Physicians

THE OUTLOOK ON A NATIONAL DEPARTMENT OF HEALTH

The most promising feature of the campaign for national health organization is the growing understanding of the problem on the part of influential men outside of the medical profession. The Journal has repeatedly pointed out that a national department of health would have and could have nothing to do with the individual practice of medicine; that it could have no relation to "schools" of medicine; that it could not affect the individual rights of any one, and that its functions would be almost entirely educational and simply an expansion and coordination of the work already being done by existing bureaus and divisions now scattered in different parts of the executive department. Evidently the truth of these facts is being realized by all except those who are too ignorant or too prejudiced by partisan bias to appreciate the facts, or by those who are too much influenced by selfish considerations to desire the passage of the measure for the public good. In last week's issue of the *Outlook* appears a splendid editorial on this subject. It presents such a calm, accurate and well-considered discussion of the subject as to justify reprinting the greater part of it. After discussing the difference between our private and our public interest in health matters the *Outlook* says:

"There is no question of the right of the federal government to conduct such a department. It has as much right, for example, to put up barriers against disease as it has to put up barriers against goods of foreign manufacture. Moreover, it is exercising its right already through various disconnected agencies, such as the Public Health Service and the officials who are engaged in the enforcement of the pure food law. The question is not whether the federal government shall exercise the right or not, but whether it shall exercise that right intelligently and effectively by means of a single, unified, administrative body devoted solely to matters of health.

"Suppose such a department were established, what would its functions be?

"In the first place, there should be no misapprehension as to what those functions would not be. The federal Department of Health would not be concerned with the treatment of individual cases of illness. It would not have anything to do with the 'healing art.' The officers of such a department would not be engaged in making sick people well.

"Unfortunately, some of the advocates of such a department or service have done much to create a wrong impression on this point. For example, the national platform of the Progressive party, in its plank favoring the 'union of all the existing agencies of the federal government dealing with the public health into a single national health service,' adds the phrase: 'without discrimination against or for any one set of therapeutic methods, school of medicine, or school of healing.' The platform might as well have opposed discrimination against or for any school of theology. With the work of such a Department of Health, so-called therapeutic methods, schools of medicine, or schools of healing, have nothing whatever to do. One might as well say that in establishing the Bureau of Chemistry there should be no discrimination against or for the practice of alchemy; or in the work of the Geodetic Survey there should be no discrimination for or against astrology. The Bureau of Chemistry is concerned only in ascertaining and acting on the facts of the science of chemistry. The Geodetic Survey has only to take into account the scientific work of geographers, mathematicians, and astronomers. And so the sole basis of such a Department of Health as is proposed should be, and must necessarily be, the facts of science as ascertained by the scientific methods of the laboratory. As a matter of fact, there is no confusion regarding this. It must be remembered that there is nothing essentially new so far as the nature of the work itself is concerned. It should not be forgotten that it was the United States government which carried on the investigations that resulted in the expulsion of yellow fever from the Canal Zone. The federal government did not engage in curing people, except in so far as it employed physicians to care for those for whom it was directly responsible, as it employs physicians and surgeons in the Army and Navy. So far as the public is concerned, its work had nothing whatever to do with methods of therapeutics or schools of healing. It was a scientific work as firmly based on the facts of science as the engineering work in the construction of the canal and its locks. It was an error to introduce the question of schools of healing into the proposal for a unified public health service or department, and it should not be repeated. The one form of discrimination which such a department should practice should be against the unscientific, and for the methods of the ascertained facts of science.

"The primary function of such a Department of Health is that of acquiring and distributing information. In other words, it should do for the health of the people what the Department of Agriculture is doing for the agriculture of the people. The officials in the Department of Agriculture have at no time attempted to tell farmers how they must plow their land or sow their seed. The Department of Agriculture is continually studying the question of soil, of seed, of animal life, and of agricultural methods, and is storing up and tabulating this information. And then it makes this information accessible to those to whom it will be useful; it answers the queries of farmers; it sends out its instructors. This is just what such a Department of Health would chiefly do with regard to the health of the people. At present there are no uniform vital statistics for the United States. There is no means, for example, of accurately ascertaining what the death-rate in America is. . . .

"Secondarily, its function would be regulative. Now the United States government does to some extent establish health regulations. But only to some extent. To-day the nation at large must depend for protection against the invasion of cholera through the port of New York, not on its national servants, but on officials of the state of New York. It so happens that in the past the state of New York has done some exceedingly competent work in this respect; but the people of Ohio and of Pennsylvania and of Minnesota, and of other states where immigrants go, should not have to be dependent on the efficiency of the state government in New York to be adequately protected against the disease which may at any time become a menace to the whole nation by appearing at the port of New York. It is as much the function of the federal government to fortify the nation against foreign disease as it is to fortify the nation against foreign armies. It cannot do so adequately until a single, united body for that purpose is established as its instrument.

"The question whether such a body should be a Department with a Cabinet officer at its head, or a bureau erected in one of the departments, or an independent commission having no relation to any department, like the Interstate Commerce Commission, is not an unimportant question, but it is a secondary one. . . . It would be better, however, to have a bureau or an independent commission rather than not to have a unified body at all. The prime duty of Congress in the protection of the health of the American people is to unite the various disconnected, and sometimes conflicting, agencies of the government into a single body and to give it power: first, to acquire the necessary information; second, to make that information accessible to the public; and, third, to enforce generally and effectively such regulations as are now enforced by the federal government sporadically."

A PLEA FOR A SQUARE DEAL FOR THE PATIENT

Practitioners, says R. R. White (*Texas State Journal of Medicine*, November, 1912), should not become so interested in each other as to deprive the patient of his square deal.

"The daily press and popular monthly magazines are beginning the discussion of this fee-splitting business. The people have been kept in ignorance of the plan, or it could never have reached its present magnitude. Organized medicine has been negligent. Had the people been fully advised at the beginning of the practice they would themselves, as a matter of self-protection, have stopped it. They would have said to the family physician, 'I want to pay you for your services. I want to pay you for your examination and for your advice. If you have advised operation I want to pay you for that. If you have advised me to take one of my loved ones to a hospital for operation, and in your conscientious judgment as my physician, as the guardian of the health of my wife and children, as my friend and confidential adviser, you can add safety to my dear one by going with me to consult with the specialists we are going to employ to operate, then by all means go; give the specialist the benefit of your acquaintance with the family, the benefit of your observation and treatment of the case, and render me your bill for the service. But, remember, doctor, you are working for me; you are the custodian of the health of my family, the question of life or death may depend on whether or not you have made a wise selection of the operator. Do not allow yourself to be influenced by personal friendship for some particular specialist; do not allow yourself to be influenced by some personal grudge, and, by all manner of means, do not take my sick to one who will pay you a fee for the favor. If the specialist is willing to pay you a fee for bringing him the patient, there is the beginning of a collusion between you, where, for financial reasons, you will protect the specialist and he will protect you, and the Lord, unaided by that greatest boon to suffering humanity—a loyal, conscientious family physician—will have to care for my child alone. Doctor, don't put yourself in a position to be unwisely, unwittingly or selfishly influenced. You are in my employ; I will compensate you as best I can, and I want to know that I have received that to which I am entitled—your whole-soul, honest, conscientious advice and, irrespective of results, I will know that my friend, my adviser, my doctor, has given the patient a square deal.' "

White believes that whenever the people understand the question thoroughly it "will not be necessary for us to discuss it in medical meetings, for they will themselves condemn the practice of fee-splitting and stop it. As a matter of common sense, the people will know that their family physician cannot give them an unbiased opinion when he is being secretly paid for his advice by another, who is to profit thereby; and when they realize that such is the case, they will lose confidence in him and will employ a new family physician."

When the family physician takes his case to the specialist, White would have him say, " 'Here is my patient; here is the history, here is the result of my treatment, my observations and conclusions. Make your examination and give me your advice as to operation or treatment. I have advised the family that my visit and consultation would be $25 (or maybe $100); that they should provide for that before paying you your fee; that my services were rendered first, and by priority should be paid first; that if they have not enough to pay us both they should give you a note for the balance due you.'

"Would this be fair to the specialist? To be sure it would, and all whole-souled men would approve it, and, best of all, it would be fair to the patient, for it would insure him that to which he is entitled—a conscientious, frank, business-like handling of his case. Those specialists who are paying commissions for their cases have manufactured a smooth, plausible story to repeat to the general practitioner, and the burden of the song is 'square deal' and 'live and let live,' but the square deal does not apply to the patient, and the live and let live is not meant for him; it is all for the doctor. If it means anything in particular to the patient, it may mean that he has been bartered as a piece of merchandise."

The substance of the whole question is that the secret division of fees, like secret rebates and commissions in the business world, is dishonest. If it was not, there would be no reason for keeping it secret. The general practitioner will be more sure of a "square deal" if he insists on all transactions between the patient, the consultant and himself being known to all.

Book Notices

Grundzüge der Pathologisch-Histologischen Technik. Von Dr. Arthur Mülberger, M.R.C.S. (England), L.R.C.P. (London). Paper. Price, 2 marks. Pp. 86. Berlin: Julius Springer, 1912.

The object of this little pamphlet is to select laboratory methods that have been found most useful in practical work, and disentangle them from the mass of procedure described in the large works on technic. As a result we have in the space of a few pages clear directions for performing the usual tasks of pathologic histology that are required in ordinary clinical laboratories. The choice of methods is for the most part good, and the directions are plain and easily followed. As the author recommends formaldehyd solution for almost everything, it would seem a wise precaution to warn his readers that constant use of this fixative often leads to serious dermatitis.

Elementary Bacteriology and Protozoology. The Microbiologic Causes of the Infectious Diseases. By Herbert Fox, M.D., Director of the William Pepper Laboratory of Clinical Medicine in the University of Pennsylvania. Cloth. Price, $1.75 net. Pp. 237, with 72 illustrations. Philadelphia: Lea & Febiger, 1912

In this little book the author has endeavored to answer the question as to how and under what circumstances bacteria produce disease. The book is elementary in its scope, suitable for nurses, for instance, and beginners in general in the study of bacteriology. There is very little discussion of any technical matters. The book can be recommended as thoroughly reliable.

Die Migräne. Von Edward Flatau. Monographien aus dem Gesamtgebiete der Neurologie und Psychiatrie. Herausgegeben von A. Alzheimer und M. Lewandowsky. Part II. Paper. Price, 12 marks. Pp. 253. Berlin: Julius Springer, 1912.

In this monograph the author has brought together the various disease-pictures commonly called migraine, and treated them under one heading. He discusses the subject under (1) the vulgar or simple, (2) the ophthalmic, (3) the epileptic, (4) the psychic, (5) the ophthalmoplegic, (6) the facioplegic varieties of migraine. Though based on the literature of the world, the monograph is not mere compilation. On the contrary, the author has views of his own; for instance, he does not hesitate to infer a relation between migraine and epilepsy. Among the 500 cases of migraine which he had observed he found thirty-six with epilepsy either as an equivalent or as a complication. In the majority of his cases migraine occurred before the epilepsy developed and with its appearance the attacks of migraine either became less frequent or entirely disappeared. Further, he states, the more nearly symptoms approximate to the ophthalmic variety, the more likelihood is there of epilepsy supervening. His discussion of the rather unusual type of psychic migraine is full and interesting. He found it present in a rudimentary form in about 26 per cent. of all his cases, manifesting itself as a mild depression. A patient of this type he pictures as an individual misanthropic and egocentric, who shuns society and narrows his mental horizon until he gradually becomes asocial, though still capable of performing his daily routine work. In his discussion of the nature of the disease-complex called migraine Flatau goes fully into the various theories advanced, but he himself leans to the view that the condition belongs to the family of metabolic disorders of which gout is a prominent member. Under treatment, conformably to the latter view, he advises among other things a diet free from purins and publishes a list of articles for those affected with migraine in which meats, fish, coffee, tea and cocoa are practically excluded. Of drugs he favors the lengthy administration of bromids, but omits to mention the routine prescription of a reliable preparation of cannabis indica in ascending doses, from which English and American neurologists have derived considerable success in a number of selected cases. After following the author in his logical deductions with reference to etiology, pathology and diagnosis the sufferer from migraine will nevertheless seek in vain for something new to assuage his nerve-racking pain. The book on the whole is a meritorious one and deserves especial praise for its concise language and the absence of padding.

The Nervous System. An Elementary Handbook of the Anatomy and Physiology of the Nervous System. For the Use of Students of Physiology and Neurology. By James Dunlop Lickley, M.D., Demonstrator of Anatomy, University of Durham College of Medicine. Cloth. Price, $1.80 net. Pp. 130, with 118 illustrations. New York: Longmans, Green & Co., 1912.

This book owes its origin to the necessity that the student of modern psychology know the essential facts regarding the structure of the nervous system, though he need not trouble himself about details. As such facts are given in text-books of anatomy in too great detail and it would be necessary for the student to purchase the entire work, the author has endeavored to state in plain language the principal features of nervous anatomy and physiology so that the non-medical student can readily understand them. The purpose has been well carried out and the treatise is interesting and profitable reading for the medical man as well as for the layman. The author voices the hope that, while intended primarily for non-medical readers, the book may prove acceptable to the medical student for preliminary study. It might even be contended that the knowledge found in a simple text-book like this is as much as the average medical man will retain and that such a work thoroughly mastered might help the physician to retain clearer ideas of the structure of the nervous system than he acquires from the laborious study of more detailed treatises.

Dental State Board Questions and Answers. By R. Max Goepp, M.D., Professor of Clinical Medicine at the Philadelphia Polyclinic. Cloth. Price, $2.75 net. Pp. 428. Philadelphia: W. B. Saunders Company, 1912.

This book is said to be based on questions collected from lists published during the last few years in the various dental journals. The questions, therefore, are representative of those asked by state dental boards. It is asserted that questions which have been asked repeatedly and by the majority of dental examining boards have been included, followed in each instance with the answer given as briefly as was compatible with clearness. The book will doubtless be of service to those who are preparing for an examination for a license to practice dentistry.

The Imperial Cancer Research Fund. Under the Direction of the Royal College of Physicians of London and the Royal College of Surgeons of England. Fifth Scientific Report of the Investigations. By Dr. E. F. Bashford, General Superintendent of Research. Boards. Price, 5 shillings. Pp. 94, with illustrations. London: Taylor & Francis, 1912.

This report is characterized by the same excellent publication, and the numerous splendid illustrations of J. R. Ford, as the preceding reports have been, and gives substantial evidence of the vigor and fundamental sanity of the investigative work being conducted under the fund. The articles here reported all deal with investigations on natural and acquired resistance of animals to experimentally induced cancer, under the following titles: "The Manifestation of Active Resistance to the Growth of Implanted Cancer," B. R. G. Russell; "A Cytologic Analysis of the Reaction in Animals Resistant to Implanted Carcinoma," C. Da Fano; "The Nature of Immune Reaction to Transplanted Cancer in the Rat," W. H. Woglum; "Immunizing Power of the Placenta, Blood, Embryonic Skin, Mammary Gland, and Spleen of the Different Species Against Carcinoma of the Mouse," S. Higuchi.

Medicolegal

Statutory Privilege and Its Waiver

(Studebaker vs. Faylor (Ind.), 98 N. E. R. 318)

The Appellate Court of Indiana, Division No. 2, says that Section 520 of Burns' Statutes of Indiana of 1908 provides that physicians shall not be competent witnesses as to matters communicated to them as such by patients in the course of their professional business, or advice given in such cases. This privilege may be waived by the patient, or those who stand in his place, or are authorized to represent him.

The reason for this statute is that communications may be made in the relation of physician and patient which a due regard for the privacies and decencies of life should protect from being exposed to the public. This privilege may be waived, and when the matters have been once published to the world, no reason remains to hold the privilege in force. The statute was not enacted to enable persons to avoid liability or to win a suit by making it difficult to obtain evidence, but was made in order to allow them to prevent certain private affairs from becoming public property. So it has been held in this and other states that, when a witness has been permitted without objection in a former trial to testify to privileged communications, the bar of privilege is waived, and the testimony cannot be excluded on that ground at a subsequent trial.

In this case all the heirs of a Mrs. Faylor sued appellant Studebaker to set aside a deed of conveyance of real estate made by her to the appellant, on the grounds that she was insane when the deed was made and the conveyance was obtained through fraud of the appellant. On a previous trial a medical witness was permitted, without objection from any one, to testify to information gained while a professional relation existed between him and Mrs. Faylor. If the appellant would otherwise have had the right to object to the admission of the evidence on the second trial, such right was waived by failure to object at the former trial, thus permitting the communications to become public.

Under authorities cited, the right to waive the privilege of confidential communications, after the death of Mrs. Faylor, in litigation affecting her estate, was lodged in those who represented her and stood in her place. It is generally conceded that heirs may waive this privilege. The heirs or devisees seeking to overthrow a will may not waive it, however, as against other heirs or devisees. It is unquestioned that the administrator has the power to waive the privilege in order to conserve the interests of the estate. And, as before said, when once the matters ascertained in a privileged relation are published to the world without objection, no reason remains to uphold the bar of privilege.

Cross-Examination of Experts with Reference to Books

(Allen vs. Boston Elevated Railway Co. (Mass.), 98 N. E. R. 618)

The Supreme Judicial Court of Massachusetts sustains exceptions to a verdict for the plaintiff for personal injuries on account of error in the cross-examination of a medical witness for the defendant because it says that the evidence thus obtained was plainly incompetent, coming, as it did, under the settled rule that neither medical books, though of recognized authority, nor the opinions of medical experts unless testified to by themselves as witnesses, can be received as evidence. The court says that the cross-examination was directed mainly to showing what the opinions of other medical authorities were as to the effect of the plaintiff's alleged injuries in causing the disease called "diabetes mellitus." On the defendant's first objection to a reference to a book written by Dr. Davenport, the judge expressly ruled that the witness might be asked if certain authorities did not express certain views and if that did not change his opinion, although the judge said also that the jury were not to consider what was said in Dr. Davenport's book. The defendant did not then except, and the cross-examination proceeded on the same line. Finally the plaintiff's counsel asked whether the witness was familiar with any authorities which said that diabetes mellitus might come as the result of a blow, and the defendant then saved an exception (which afterward was renewed) to that line of examination. The witness was asked also about books by Naunyn and Forchheimer, the questions being framed from a medical book written in German, which the counsel held in his hand. The whole effect of the cross-examination was to impress on the minds of the jurors the idea that certain writers were men of eminence in medicine, whose opinions were of value, and that their opinions differed from the opinion to which the witness had testified. The objectionable cross-examination, against the repeated objection and exception of the defendant, was continued so that, as reported, it covered more than five pages of the exceptions. Similar questions were put in different forms as to different treatises, ending with general questions calling for and eliciting answers as to any text-books that might agree with the claim of the plaintiff, and accompanied by the display of several medical books on the table of the counsel. The effect and as may reasonably be supposed the purpose of counsel were to bring before the jury the opinions of others who were, it was suggested, persons skilled in such matters, and to lessen the weight of the witness' testimony by showing that their views were different from his. The court would hesitate to say that even a broad instruction to the jury to disregard wholly the evidence thus obtained would have cured the injury which had been caused to the defendant. Justice required that there should be a new trial of the whole case.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, Cleveland, Dec. 31-Jan. 2.
American Physiological Society, Cleveland, Dec. 26-28.
Southern Surg. and Gynec. Assn., Old Point Comfort, Va., Dec. 17-19.
Western Surgical and Gynec. Assn., Cincinnati, Dec. 20-21.

SOUTHERN MEDICAL ASSOCIATION

Sixth Annual Meeting, held at Jacksonville, Fla., Nov. 12-14, 1912

(Concluded from page 2091)

The Surgical Importance of the Breast

Dr. E. Denegre Martin, New Orleans: An important duty is the instruction of patients as to the care of the breasts. The expectant mother or nursing woman should be taught how to care for the nipples, for infection through a fissured nipple will not only lead to abscess and sometimes to complete destruction of the gland, but also will leave scars to light up at some future time into inoperable carcinomas. I have operated on more than 150 patients with cancer of the breast. Three-fourths of the cancers were in colored women and were already malignant when operated on. I am not able to-day to point out more than four colored patients who have lived over a period of six years. Twelve white patients lived, the percentage being larger because they were seen earlier. Every week we turn away from our clinics cases too far advanced for even temporary relief. The surgeon who picks his cases will of necessity secure the best results, but the benefit should always be given to the patient, even if it means but a short prolongation of life. The mortality from operations is less than 2 per cent., and in my operations, with 50 per cent. of advanced cases the mortality is less than 1 per cent. These statistics are improving daily, as far as cures are concerned. Still, the prevalence of cancer is on the increase, and we can and must reduce it.

Extra-Uterine Pregnancy

Dr. J. Hugh Carter, Memphis, Tenn.: We should operate in all cases as soon as possible, as we never know when hemorrhage is going to take place, even if it has seemingly been stopped. As to what operation should be done, I do not believe one can say until the abdomen has been opened. Then the operator should do whatever he thinks best. Each patient and the conditions found in the abdomen must be dealt with individually. I would insist on a careful diagnosis of each case of suspected tubal pregnancy as early as possible, thereby giving the patient a much better chance for her life.

Clinical Value of the Tuberculins in the Diagnosis and Treatment of Tuberculosis

Dr. Wallace J. Durel, New Orleans: In my personal observation of several hundred cases, it is evident that of eighty patients who were treated previous to 1909, of all those discharged as apparently well, and who were given the tuberculin test, the test proving negative, not one relapsed; yet many of the patients showed a distinct positive reaction on their discharge, and afterward relapsed, three dying since. This evidence convinces me that repeated tuberculin tests will show whether treated and supposedly cured patients are free from any tuberculous focus, active or latent, regardless of its size or location, and that the negative reaction means more than a mere tox-immunity in such cases

The clinical therapeutic value of the tuberculins is exemplified in the tabulated records of eighty cases of tuberculosis treated in Louisiana previous to 1909. In this report, in the first stage, 13 cases were treated, with recovery in all, and no relapse until 1912. In the second stage, 16 cases were treated, with recovery in 15, and arrest in 1. In the third stage, 30 cases were treated, 14 apparently well, and 16 arrested. In 1912, 1 of the apparently well patients had relapsed, and 1 died. Of the arrested cases, 3 patients relapsed and 2 died. Of the third stage, 21 patients were treated; not one recovered, 9 were arrested, 10 were improved, and 2 non-improved. In 1912, 16 of the 21 patients have died. These figures teach the practical lesson that the early-diagnosed cases of tuberculosis can be treated with far better and more lasting results than the advanced cases.

Serum Treatment of Cerebrospinal Meningitis

Dr. Charles C. Green, Houston, Texas: In Houston we had 182 cases with seventy-four deaths, a death-rate of 40.6 per cent., including those treated with serum and those treated without it. Out of the total number of cases treated, twenty-nine did not have the serum, consequently the death-rate runs up rather high, twenty-one deaths out of twenty-nine cases, giving the enormous death-rate of 72.4 per cent., which, although high, is even lower than the usual death-rate when the serum treatment is not used. But of the 153 cases treated with serum, fifty-three patients died, giving a death-rate of 35.5 per cent., a reduction of 37.9 per cent. in favor of the serotherapy. I have taken the number of cases that had the serum within twenty-four and thirty-six hours after the onset, and our death-rate in these was only a fraction over 20 per cent. I believe that if all these cases could be treated by men who are familiar with this procedure, the death-rate would be still lower.

Gangrenous Tonsil

Dr. U. S. Bird, Tampa, Fla.: So rare is this disease that it is not a text-book or reference-book subject. Five cases only could be found in medical literature, all of which were fatal. In addition to these I have knowledge of five cases, four in my own patients and one in the practice of a brother physician. These five cases, as compared to the five previously reported, suggest some interesting conclusions. In the first five cases the mortality was 100 per cent. The cases I report include two deaths, but neither of these was due to gangrenous tonsil, which in these cases appeared to be an intercurrent condition, more or less due to the general depression that had rendered them vulnerable to such attacks. In my fourth case only were operative measures indicated. When a small area is involved and the general condition is good, instrumentation is indicated; but in great depression and extensive involvement, two conditions that seem to be associated, active interference may result unfortunately. Only one of my cases is of interest in connection with pathology, the noma bacillus being present.

Thrombophlebitis of Orbits by Ozena Bacillus; Death

Dr. M. Feingold, New Orleans: I saw a girl, aged 15, who had an edema of the upper and lower lid, so extensive that the eye could not be opened voluntarily. There was a hard infiltration through the upper lid to the depth of the orbit. The temperature was about 101 F. The patient denied that there had been any previous affection of the nose. An operation was immediately performed, and an extensive focus of sticky, grayish, gelatinous pus was found and evacuated. Necrotic bone was also discovered in the orbit. The patient stood the operation well and spent a comfortable night. The next day, however, pulse and temperature gradually rose and patient complained of pain in the head. Probing revealed no further focus, but the edema on the right side had increased, and dilated veins were visible over the forehead and nose. Atrophic retinitis was found in each side, with crusts and pus in the middle meatus under them. On the following day the Killian operation was performed, and pus was found in the frontal and sphenoidal sinuses. After the operation the patient gradually grew worse and died on the night of the following day. The temperature had reached 106.1 F., with profuse perspiration and labored respiration. The pus was found to contain a pure culture of *Bacillus mucosus capsulatus.* No post-mortem was obtained. The interesting points in the case are the facts that a sinus affection may be latent for some length of time, and that orbital affection may be brought about by the affection of the adjoining nasal cavities.

Diagnosis of Plague

Dr. R. L. Wilson, Charleston, S. C.: In plague work great care should be taken in handling infected animals, tissue, cultures and other material. Even persons accustomed to bacteriologic laboratory work have to be reminded of danger, as several laboratory cases of infection are on record. The principal things to look out for are fleas from animals, skin abrasions, soiling of fingers, using of pipets and smoking. The principal points in diagnosis are: (1) typical lesions, especially characteristic buboes; (2) production of the disease in animals by inoculation; (3) the unmistakable presence of the plague bacillus in smears, cultures and in inoculated animals.

Symptoms and Clinical Diagnosis of Bubonic Plague

Dr. J. Birney Guthrie, New Orleans: The appearance of the patient sick with bubonic plague is somewhat similar to that of one under the influence of alcohol. The face is swollen, the eyes injected. There is a general loss of coordination, with staggering gait and thick and stammering speech. The speech disturbance frequently extends into convalescence, and with persistence of lymphatic enlargement and recent scars of suppurating buboes, may furnish the clew to identification of a previously unreported case. The recognition of cases of bubonic plague where it is known to exist presents small difficulty to the physician. It is the identification of the first cases, especially if they are of mild type, which will present the severe problem in diagnosis. In a suspicious case careful and continuous observation of the superficial lymph-nodes should be maintained, and puncture with the needle and examination of aspirated fluid made by smears and culture methods.

Finally, the early identification beyond any doubt of bubonic plague depends on the microscope. It is the duty of the attending physician to submit to the bacteriologic laboratory slides made from the fluid aspirated from every suspicious bubo and from sputum in every case of pneumonia showing more than ordinary depression at the outset, with a bright red sputum instead of the typical rusty sputum of ordinary pneumonia. The services of the public bacteriologist should be available. Possibly it might be wise to require the specimens to be submitted. The only hope of limiting an outbreak is that of a prompt diagnosis of the disease. To-day every seaport of the world is menaced by plague, and the menace will be still further increased by the opening of the Panama Canal. Therefore it becomes the duty of every one of us who practices medicine in a seaport to keep constantly in mind the possibility of encountering the disease. To this end examination of the superficial lymph-nodes during the progress of every acute febrile case becomes a matter of necessary routine.

Treatment of Plague

Dr. Isaac Ivan Lemann, New Orleans: Our chief and first attention must be given to prophylaxis. Several methods of producing active immunity have been proposed. Haffkine, working in India in 1907, proposed his well-known prophylactic. This consists of a bouillon culture of the pest bacilli, killed by heat and phenolized so as to represent a 0.5 per cent. solution of phenol. The dose of this varies from 0.5 to 1 c.c., and in special cases as much as 20 c.c. are given. The reaction varies greatly in different individuals; as a rule, there is slight fever, malaise, with local swelling, and edema for twenty-four or forty-eight hours. Ten days later, a larger dose may be given, the size varying according to the reaction following the first dose. The protection afforded by the prophylactic is not absolute. When repeated several times it affords a relative immunity for some months. From 4 to 20 per cent. of the inoculated contract the disease and from 2 to 8 per cent. die. Passive immunization by means of serums derived from animals in which an artificial immunity has been created, has been used prophylactically and therapeutically. The immunity produced by immune serums is said to last but a few days. Aside from the specific treatment the management of a case of plague is entirely symptomatic. Treatment is inaugurated with a brisk calomel purge followed by a saline. The patient must be kept in bed in a well-lighted, well-ventilated room. The diet throughout the acute stage should be liquid, principally milk and water with the addition of alcohol in cases in which there is great prostration. Later a soft bland diet is permitted. In convalescence regard must be paid to the probability of change having occurred in the heart muscle and in the kidney. The buboes must be dealt with surgically.

Resolutions Adopted

The resolutions which are summarized below were offered, referred to the council, reported back to the association and adopted:

NATIONAL DEPARTMENT OF HEALTH

President-Elect Wilson's aid was asked "in securing the passage of the bill now before Congress to establish a department of public health, which will elevate the importance of human well-being to an equal plane with that of inferior animals, now protected by the almost paternal care of a 'Bureau of Animal Industry.'"

MALARIA COMMISSION

Congress was "urged to create a commission for the investigation of malaria, with a view to recommending" measures "efficient in extirpating the disease." "Such a commission should be amply provided with funds, and invested with liberal powers." "Details of medical officers of the Army, the Navy, and the Public Health Service should be . . . at the service of this commission.

PUBLIC INSTRUCTION

"Editors of newspapers and other periodicals published in the South, whether in town or country, are urged to join this crusade against the foes of health, happiness and prosperity by publishing gratuitously such articles and documents as will, in their opinion, advance the cause, and by the still more effectual means of editorial advocacy." A copy of this action was ordered mailed to every newspaper, magazine or other periodical within the geographic boundaries of the association.

FEE-SPLITTING

Whereas, It is stated that among some physicians there has developed a pernicious custom of commercializing the most intimate and sacred confidences committed to their honor, by referring their patient who needs special or expert treatment to specialists or surgeons who financially remunerate them for their reference, either by paying a commission or by dividing with the regular physician their fees as specialists or surgeons; and

Whereas, it is prejudical to individual physicians and to the medical profession at large to allow such injurious rumors to circulate unproved or unchallenged; and

Whereas, It is the duty of our profession to protect the honorable position we have won by generations of faithful, unselfish service; therefore be it

Resolved, By the Southern Medical Association, that we earnestly condemn such dishonorable dealings on the part of anyone professing the high calling of medicine.

Resolved, That we urge all state and county medical organizations vigorously to oppose such dishonorable dealings and to appoint investigating committees whose duty it shall be to learn whether any of their members are thus dishonoring their calling, and if any are so accused to summon them before a tribunal of their professional brethren to be acquitted or convicted of this crime against honor and humanity.

Resolved, That no guilty doctor, whether donor or recipient of such a fee or commission in any way, shape or manner, should be allowed to escape a suitable penalty, such as private reprimand, temporary suspension or public expulsion.

Resolved, That these resolutions be spread upon the minutes of this association and that a copy thereof be forwarded by the secretary to every state and county medical organization within the geographic limits defining eligibility to membership in this association.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany (N. Y.) Medical Annals

November, XXXIII, No. 11, pp. 625-686

1 Rural Hygiene. H. D. Pease, New York.

2 Salicylates in Treatment of Acute Chorea, with Report of Nine Cases. N. K. Fromm, Albany, N. Y.

3 Albany Hospital: Tenth Annual Report, Department for Mental Diseases, Year Ending Sept. 30, 1912. J. M. Mosher, Albany, N. Y.

American Journal of Insanity, Baltimore

October, LXIX, No. 2, pp. 267-468

4 A Layman's View of Care and Treatment of Insane in State Hospitals of New York. H. P. Bissell, New York.

5 Three Months Without and Three Months With a Social Service Worker in Mental Clinic at Boston Dispensary. L. V. Briggs, Boston.

6 State Care of Boston's Insane. H. P. Frost, Boston.

7 Immigration as Problem in State Care of Insane. J. V. May, Albany, N. Y.

8 Korsakow's Syndrome, with Synopsis of Cases. F. B. Clarke, Chicago.

9 Laboratory Differentiation Between General Paralysis and Cerebrospinal Syphilis and Serology of Spinal-Cord Tumors. D. M. Kaplan, New York.

10 *Exciting Causes in Psychiatry. A. J. Rosanoff, Kings Park, N. Y.

11 Hereditary Ataxia. W. C. Sandy, Trenton, N. J.

12 Relation of Apraxia Problem to Psychiatry. I. H. Coriat, Boston.

13 *Statistical Study of Manic-Depressive Insanity, with Special Reference to Physical Illness as Etiologic Factor. T. A. Hoch, Worcester, Mass.

14 Some Technical Methods for Routine Examination of Brain from Cases of Mental Disease. S. T. Orton, Worcester, Mass.

10. **Exciting Causes in Psychiatry.**—The material of Rosanoff's study consists of 1,056 consecutive admissions to the Kings Park State Hospital. Two hundred and seventy-nine cases of imbecility, epilepsy, alcoholic psychoses, general paresis and other organic conditions are excluded from the study, leaving 777 cases. In 66.9 per cent. of these cases no cause has been assigned, and in 4 per cent. conditions have been erroneously assigned as causes: in more than half of the cases indications for commitment have arisen in the midst of an average environment and in the absence of occasion of special difficulty or strain. In 7.1 per cent. the psychosis has been attributed to alcohol; the further study of these cases has been postponed. In 2.6 per cent. the psychosis has been attributed to other physical causes: pregnancy, childbirth, lactation, traumatisms, surgical operations and acute infectious diseases. In 16.6 per cent. the psychosis has been attributed to psychical causes: business troubles, death or illness of relatives, love affairs, domestic troubles, etc., and in 2.8 per cent. to combinations of physical and psychical causes. In one-third of the cases in which pregnancy, childbirth, lactation, traumatisms or surgical operations have been assigned as causes the relationship between the alleged cause and the psychosis is merely one of accidental coincidence in time: there is no etiologic relationship.

The remaining two-thirds of the cases, however, leave no doubt of these factors being capable of causing insanity, although they do so infrequently. In many cases the manner of their action is obscure owing to insufficiency of data in the clinical histories; wherever more detailed data are available it appears that these factors act not as physical causes but through their psychical accompaniments.

Only in two cases out of a total number of 777 was the psychosis ascribed to acute infectious diseases; in one to typhoid and in the other to influenza. In the first case the anamnesis was furnished by a feeble-minded person and is not reliable; it would seem that the duration of the psychosis prior to admission was much longer than it was said to be, probably dating back a long time before the attack of typhoid; in the second case there is much discrepancy between the data obtained from the various sources, so that even the fact of the patient's ever having had an attack of influenza is not established. Excepting febrile and infectious deliria, Rosanoff says, the power possessed by the acute infectious diseases of producing insanity is at the most very slight and wholly questionable. Leaving aside the matter of complete separation of personal and environmental factors, the exciting causes of the forms of insanity considered appear to be invariably of a psychical nature; and the cases in which no causes are assigned do not differ essentially from others in etiologic mechanism; it so happens that in their histories there is no spectacular event to be recorded as "the cause."

13. **Statistical Study of Manic-Depressive Insanity.**—During a period of ten years, 703 patients with manic-depressive insanity were admitted to the Worcester State Hospital, out of a total of 5,706 patients, constituting 12 per cent. of admissions. Of this number 309, or 43 per cent., have, as far as is known, had only one attack. The fact that physical illness was found to be a cause in 24 per cent., or nearly one-fourth of the first attacks of manic-depressive insanity, Hoch points out to be significant, and of particular interest in the steady falling off of somatic causes in the succeeding attacks.

American Journal of Anatomy, Philadelphia

November 15, XIC, No. 1, pp. 1-117

15 Interstitial Granules and Fat Droplets of Striated Muscle. H. H. Bullard, New Orleans.

16 Fate of Jugular Lymph Sacs and Development of Lymph Channels in Neck of Pig. A. H. Clark, Baltimore.

17 *Chemical Nature of Certain Granules in Interstitial Cells of Testis. R. H. Whitehead, Charlottesville, Va.

18 *Comparative Study of Three Principal Regions of Spinal Cord in Series of Mammals. P. B. Bullard, New Orleans.

19 *Development of Cerebral Cortex. E. L. Melius, Baltimore.

17. **Chemical Nature of Certain Granules.**—Whitehead concludes that the granules in the interstitial cells of the pig, and probably also of the cat, consist of a combination, either physical or loosely chemical, of proteid with fatty material. He also shows that the pig's interstitial cells, which contain no individual globules of lipoids, are no exception to the general rule that these cells, aside from any other function that may be ascribed to them, serve as a storehouse for fatty material.

18. **Principal Regions of Spinal Cord.**—This paper presents some observations based on the study of transverse sections of the three principal regions (intumescentia cervicalis, intumescentia lumbalis and middle of pars thoracalis) of the spinal cord in a series of twenty-four mammals. An outline drawing of a transverse section of the cords in each region is included together with tables of measurements showing variations in dimension and structure of the cords in the different mammals studied.

19. **Development of Cerebral Cortex.**—It is the belief of Mellus that all mental development has an anatomic basis. In a comparative study of the cellular structure of the so-called "Broca's area" in the brains of three individuals there was found a very appreciable difference in the thickness of the cortical layers in favor of the left hemisphere. It was almost impossible to say just where this difference lies. The counting of cells in a cortical area is extremely difficult, although by no means impossible. In many instances the count varies so considerably in contiguous areas of the same convolution, due sometimes to the presence of blood-vessels and the doubtful nature of many of the cells, that it is difficult to arrive at satisfactory conclusions. As a rule, however, it appears that the deeper cortex has the greater number of cells. One would naturally suppose that a cortex increased in depth by increased functional activity would be due either to increase in the volume of the cells or separation of the cells by reason of an increase in the outgrowing or ingrowing processes, or both together. From careful and prolonged study of the motor area in the human cortex Mellus is convinced that there are great variations in different individuals in the development of the largest elements, the so-called Betz cells.

Annals of Ophthalmology, St. Louis

October, XXI, No. 4, pp. 669-831

20 Serum and Vaccine Therapy in Connection with Diseases of Eye. S. Mayou, London.
21 Two Interesting Cases of Foreign Body in Eye. G. G. Lewis, Syracuse, N. Y.
22 Case of Quinin Amblyopia. C. B. Welton, Peoria, Ill.
23 Relation of Teeth to Eyes. W. E. Bruner, Cleveland.
24 Epinephrin in Treatment of Acute Corneal Staphyloma. P. J. Pontius, Philadelphia.

American Journal of Orthopedic Surgery, Philadelphia

November, X, No. 2, pp. 171-307

25 *Etiology of Chronic Non-Tuberculous Arthritis, Miscalled Arthritis Deformans. L. W. Ely, Denver.
26 Scoliosis. E. H. Bradford, Boston.
27 *Treatment of Scoliosis (Fixed Type) by Plaster, Supplemented by Pneumatic Pressure. J. P. Lord, Omaha.
28 Industrial Education of Crippled and Deformed. H. W. Orr, Lincoln, Neb.
29 *Simple Operation for Relief of Deformity in Certain Cases of Volkmann's Paralysis. L. W. Ely, Denver.
30 Absence of Bony Femoral Heads and Necks. J. Ridlon and H. B. Thomas, Chicago.
31 Traumatic Spondylolisthesis Following Fracture of a Congenitally Deficient Fifth Lumbar Vertebra. A. H. Maccordick and J. A. Nutter, Montreal, Canada.
32 Treatment of Traumatic Flat-Foot. A. H. Cilley, New York.
33 Operative Treatment of Claw-Foot. J. T. Watkins, San Francisco.
34 *Use of Carl Spengler's "I. K." Serum in Treatment of Tuberculous Joint Disease, with Report of Cases. H. O. Eversole and C. L. Lowman, Los Angeles, Cal.
35 Pathology and Therapy of Congenital Dislocations of Hip. R. Werndorf, Vienna, Austria.
36 *Conservative Operative Treatment of Hammer-Toe. W. J. Merrill, Philadelphia.
37 Abdomino-Vesical Support. D. G. Evans, London.

25 and 27. Abstracted in The Journal, August 3, p. 392.

29. **Deformity in Volkmann's Paralysis.**—The contracture in Ely's case was due to some of the deeper intrinsic muscles of the hand, and apparently also to the adhesion of new granulation tissue binding the long flexor tendoons to the front of the proximal phalanges of the fingers. He found that when he passed the blade of the scalpel on the flat, close to the anterior surface of the phalanx, dividing these adhesions for a distance of about one-half inch, he could easily reduce the contracture, but that until this tissue was divided the contracture could not be reduced. The contracture of the thumb was due to a tight contracture of the flexor brevis pollicis and disappeared when this was divided.

34. **Treatment of Tuberculous Joint Disease.**—The authors report thirteen cases. In all but one of these favorable results were obtained from Spengler's I. K. treatment.

36. **Operative Treatment of Hammer Toe.**—Merrill transplants the extensor tendons into the metatarsal bone to preserve the function of that muscle and prevent atrophy of it. The muscle pull raises the metatarsal head and lessens the tendency to one feature in the mechanism of hammer toe and often relieves an associated metatarsalgia. The flexors are implanted into the base of the first phalanx.

Archives of Ophthalmology, New Rochelle, N. Y.

November, XLI, No. 6, pp. 559-677

38 Distortions of Visual Fields in Cases of Brain Tumor. H. Cushing and C. B. Walker, Boston.
39 Simplified Gram Technic. W. H. Snyder, Toledo, Ohio.
40 Additional Experiments on Excretion of Hexamethylenamin in Ocular Humors. L. B. Whitham, Baltimore.
41 Details of Vision of 132 Cases of Intracapsular Extraction of Cataract. H. Smith.

Boston Medical and Surgical Journal

November 21, CLXVII, No. 21, pp. 715-749

42 Syphilis: Treatment, Old and New. A. F. Downing, Cambridge, Mass.
43 *Difficulties in Interpreting Significance of Regional Muscle Rigidity and Degeneration About Thorax; Diagnostic Limitations. J. L. Pomeroy, Monrovia, Cal.
44 Importance of Early Recognition of Suppurative Otitis Media. P. Hammond, Boston.
45 Survey of Tuberculosis Situation in Massachusetts. J. B. Hawes, Boston.
46 Pellagra in Rhode Island. A. H. Harrington, Howard, R. I.

November 28, CLXVII, No. 22, pp. 751-790

47 Contributions of Nineteenth Century to a Living Pathology. W. J. Mayo, Rochester, Minn.
48 *Treatment of Pulmonary Tuberculosis by Artificial Pneumothorax, According to Method of Forlanini. (To be continued.) G. M. Balboni, Boston.
49 Under Ether. H. T. Bailey, North Scituate, Mass.

43. **Regional Muscle Rigidity and Degeneration About Thorax.**—From a diagnostic standpoint as to the presence of intrathoracic disease, most probably pulmonary, Pomeroy says that muscle spasm and degeneration is as definite a sign of those processes as similar phenomena in the abdomen. In the hands of the expert clinician, one accustomed to the various phases of this problem, muscle changes over the thorax deserve careful study, and give reliable information that inflammatory changes or pathologic processes are to be found in the thorax, provided there is nothing in the peculiarities of the individual which would otherwise satisfactorily account for the signs. It must be understood that regional muscle spasm, degeneration and reflex hyperalgesia may result from causes other than pulmonary tuberculosis, but with the limitations outlined in the paper. The careful study of these phenomena is recommended to every thoughtful clinician.

48. **Artificial Pneumothorax in Lung Tuberculosis.**—This is Balboni's first paper of the series. He discusses first the historical development of the treatment of tuberculosis by the establishment of an artificial pneumothorax by means of the injection of nitrogen gas, first proposed and practiced by Forlanini in 1882. What was done later in other countries is then discussed; finally the technic and preparation of the patient, the theories as to the action of the pneumothorax and the pathologic changes. He has treated twenty-one patients. All except two are working and have kept at work continuously during the treatment.

Journal of Abnormal Psychology, Boston

October, VII, No. 4, pp. 233-312

50 Meaning of Ideas as Determined by Unconscious Settings. M. Prince, Boston.
51 Clinical Study of Case of Phobia. J. J. Putnam and M. Prince, Boston.

Journal of Arkansas Medical Society, Little Rock

November, IX, No. 6, pp. 137-156

52 Gall-Stones. J. A. Foltz, Fort Smith.
53 Thoracic Aneurysm; Report of Two Cases. J. H. Chestnutt, Hot Springs.
54 Diagnosis of Some Urinary Affections. J. K. Smith, Texarkana, Tex.

Journal of Medical Research, Boston

November, XXVII, No. 2, pp. 115-227

55 *Pertussis: Histologic Lesion in Respiratory Tract. F. B. Mallory and A. A. Hornor, Boston.
56 *Origin of Giant Cell in Tuberculous Lesions. A. M. Burgess, Boston.
57 *Chloroma. A. M. Burgess, Boston.
58 *Pleomorphic Bacillus Growing in Association with a Streptothrix. H. U. Williams, Buffalo.
59 *Complement Fixation in Tuberculosis. A. T. Laird, Duluth, Minn.
60 *Research on Experimental Typhoid-Carrier State in Rabbit. J. A. Johnson, Philadelphia.
61 Blood-Cell Picture in Horse-Serum Anaphylaxis in Guinea-Pig: Kurloff's Inclusion Cells. M. M. Canavan, Boston.
62 Studies in Infarction: II. Experimental Bland Infarction of Lung. H. T. Karsner and J. E. Ash, Boston.
63 *Diluting Fluid for Standardization of Vaccines with Hemocytometer. J. G. Callison, New York.

55. **Pertussis.**—Whooping-cough, the authors believe, is due to a minute bacillus which occurs in large numbers between the cilia of the epithelial cells lining the trachea and bronchi and possibly also the nose. The location of the organism is apparently characteristic for the disease. Its action seems to be largely mechanical. It interferes by its presence with the normal movements of the cilia and possibly leads to their destruction. The mechanical interference with the action of the cilia, and possibly their destruction, prevent the normal removal of secretion. The bacilli and the secretion produce a continuous irritation which results in coughing and usually also in the characteristic spasm known as whooping. The bacillus found in the lesions by Mallory and Hornor, they believe, is probably identical with the organism discovered and described by Bordet and Gengou, but this identity remains to be demonstrated by the experimental production of the characteristic lesion in monkeys and puppies.

56. **Origin of Giant Cell in Tuberculous Lesions.**—Burgess reports the results of an experimental study of the origin of the giant cells which form around the fat-like substance produced by tubercle bacilli. The fatty material was injected subcutaneously into guinea-pigs and the resulting lesions were studied microscopically at various time intervals. In addition, for the sake of comparison, various other substances such as calcium salts, fat, fatty acids and cholesterin were injected in a similar manner and the lesions produced examined in parallel series of sections. The results obtained are similar in character but differ in detail. They all indicate strongly that these foreign body giant cells originate in only one way—by fusion of endothelial leukocytes.

57. **Chloroma.**—It is held by Burgess that the tumors to which the term chloroma has been applied do not constitute a pathologic entity. On the contrary, they represent a part of the pathologic process in one type of acute myelogenous leukemia. Chloroma has not been shown to have any relation to true lymphatic leukemia. Myelogenous leukemia is a blood metastasis of a true tumor whose origin is in the bone marrow and whose cells invade the blood-stream and bone-marrow. In certain cases in which the cells are, most of them, relatively undifferentiated and multiply rapidly, other tissues are invaded. Sometimes in this way definite nodules or masses of tumor cells are formed. These masses, if green, are called chloroma.

58. **Pleomorphic Bacillus with a Streptothrix.**—The organisms that form the subject of Williams' paper were obtained from a case of tuberculous pericarditis. A bacillus and a streptothrix were encountered growing together in a mixture. Under certain conditions they resembled each other closely, and nearly led to the belief that one might be transformed into the other. Eventually they were separated by plating, and in pure cultures each retains its characteristic properties. The bacillus develops into long filaments, with occasional branches, in media containing 1 per cent. of dextrose. The streptothrix produces single oval spores at the ends of the threads or branches, resembling spore-formation in some species of bacilli, including the bacillus with which it was associated as above mentioned.

59. **Complement Fixation in Tuberculosis.**—The complement fixation test with antigen derived from tubercle bacilli is believed by Laird to be at present of comparatively little diagnostic value. It is quite probable that it may be of more aid in diagnosis if better antigen is devised and certain disturbing factors are eliminated. Even in the present stage of the development of the test sharply positive reactions are obtained at times and the quantitative study of the various phenomena connected with the presence or absence of such reactions, especially when correlated with clinical findings, promises results of some value in studying the course of the disease. The more general use of the Wassermann test for syphilis in institutions for tuberculous patients, he believes, is desirable not only for the aid it gives in clearing up a doubtful diagnosis, but also for the purpose of studying the relations between the two diseases.

Eighty-five tests with the sera of thirty-four patients, the antigens used being derived from tubercle bacilli, gave complement fixation in twenty-four tests. These positive results were obtained with the blood of four patients. The blood serum of a patient in the moderately advanced stage of the disease, was tested on four different dates and each time gave a completely positive result. On May 3, 1911, different dilutions of his serum were tested and complete fixation was obtained with .01 c.c. of the serum. Again on June 28, 1911, complete fixation was obtained with .05 c.c. of his serum, no higher dilutions being used at this time. The patient was doing well during the period covered by the tests. He began taking tuberculin on Sept. 5, 1911, which was four weeks subsequent to the first test, and on June 28, 1911, the date of the last test, he had reached a dose of .00068 grm. B.F.Co. (a mixture of B.F. and B.E. given at the Adirondack Cottage Sanitarium). He was discharged with disease "arrested." The serum of a patient in the moderately advanced stage of the disease, without tubercle bacilli in his sputum, was tested on four occasions. He had been taking tuberculin treatment since Nov. 22, 1910 (S.B.E.). The first two tests were negative. On March 7, 1911, the patient had a severe general tuberculin reaction in the course of treatment and on April 20, 1911, his blood gave a completely positive reaction. On June 28, 1911, this could no longer be obtained. He was admitted as a moderately advanced case and was discharged after nine months an "apparent cure." The highest dose of tuberculin reached by him was S.B.E. .0032 c.c.

The two other positive reactions were obtained on July 7, 1911, from the blood serum of patients who were in the moderately advanced stage of the disease and had tubercle bacilli in their sputum. Both were taking tuberculin, but had received only small doses, less than .0000001 gram of O.T. and B.F. respectively. One was discharged "improved" and the other with "disease arrested." Beside these tests in which complete fixation was obtained there were a number in which there was partial fixation. Complete hemolysis was obtained in sixteen of the tests, although the antigen used alone in the same dose (without the patient's serum) had shown some anticomplementary action. This is the so-called "inhibitive" reaction of Caulfield, which he believes is characteristic of certain favorable cases or of cases doing well at the time of the test. Seven of these sixteen "inhibitive" reactions were obtained with the serum of a healthy control, the remainder were from four patients with moderately advanced disease who were doing well at the time of the test.

60. **Experimental Typhoid-Carrier State in Rabbit.**—The following summary is made by Johnston. The condition analogous to the typhoid-carrier state in man can be produced in the rabbit. *B. typhosus* can be recovered from the blood up to the end of the first month and longer following inoculation, and from the feces up to 110 days. *B. typhosus* can be recovered from the bile approximately from thirty to sixty days after inoculation, and would then seem to become attached to the gall-bladder wall, since post-mortem examination revealed the presence of *B. typhosus* in the gall-bladders of nine of eleven unvaccinated animals examined; and no typhoid organisms could be found in the gall-bladders of five vaccinated animals so examined. An inoculated animal becoming a carrier may have a reappearance of the typhoid organisms in the stools due to a catarrhal condition affecting the gall-bladder. From the results obtained in this experiment, vaccination would certainly seem to be indicated as a means of treatment in the human carrier, and also as a prophylactic agent in the prevention of such carriers. A routine examination of the stools and urine of all typhoid convalescents should be required by municipal health authorities until successive cultures are negative, as is at present the practice with cases of diphtheria.

63. **Fluid for Standardization of Vaccines.**—Counting the bacteria in the hemocytometer is the method proposed by Callison. For more than two years he has used the following diluting fluid, which has proved to be so satisfactory:

Hydrochloric acid	2 c.c.
Bichlorid of mercury, 1 to 500.............	100 c.c.
Acid fuchsin, 1 per cent. aqueous solution. q. s. to color.	

His instructions for carrying out his method are as follows: A drop of the filtered solution is placed on the ruled stage of the hemocytometer, covered with a coverslip, and examined with a 4 mm. objective. The color should be just deep enough not to obscure the ruling. If the color is too deep, filter again, as each filtration removes some of the fuchsin. If not deep enough, add more fuchsin solution. Using the red dilution pipet, draw up the bacterial emulsion to the .5 or 1 mark, and the diluting fluid to the 101 mark. Shake vigorously for three minutes, allow two or three drops of fluid to run out of the pipet, then deposit a small drop on the stage of the hemocytometer. Cover with a polished glass coverslip and set aside half an hour for sedimentation to occur. Make the count with a small diaphragm and a strong light. Keep the small square being counted well in the center of the microscopic field. Before counting, focus up from the ruled lines to ascertain if all the bacteria have settled on the ruled stage. Make the count and the subsequent calculation as for red blood cells. The bichlorid forms a mercury albuminate on the surface of the bacteria and causes more rapid sedimentation; the hydrochloric acid keeps the whole in solution, and the acid fuchsin stains the bacteria, making them more visible.

Journal of Michigan State Medical Society, Battle Creek

November, XI, No. 2, pp. 683-756

64 Benign and Malignant Ovarian, Parovarian and Uterine Tumors in Pregnancy, Labor and Puerperium. A. B. Keyes, Chicago.
65 Aphasia. C. W. Hitchcock, Detroit.
66 Hand Knowledge; Its Results and Possibilities for Acquirement. H. L. Simpson, Detroit.
67 Relation of Convulsions in Children to Dietary Errors. J. B. Jackson, Kalamazoo.
68 Cirrhosis of Liver. I. M. J. Hotvedt, Muskegon.
69 Functional Test in Surgical Diseases of Kidney. E. K. Cullen, Detroit.

Journal of South Carolina Medical Association, Seneca

November, VIII, No. 11, pp. 285-310

70 *Present Status of Goiter Surgery. A. B. Knowlton, Columbia.
71 Effects of Sugars and High Percentage of Proteids on Fermental Disorders in Children. W. Weston, Columbia, S. C.
72 Typhoid Perforation; Operation; Recovery. E. H. Sparkman, Charleston.
73 *New Method of Operation for Typhoid Perforation. L. B. Owens, Columbia.

70 and 73. Abstracted in The Journal, June 15, p. 1891.

Journal of Tennessee State Medical Association, Nashville

November, V, No. 7, pp. 263-307

74 Ocular Manifestations of General Diseases. H. Wood, Nashville.
75 *Present Status of Brain Surgery. L. L. Sheddan, Knoxville.
76 Medical Inertia. O. Dulaney, Dyersburg.
77 Salvarsan. G. R. Livermore, Memphis.
78 Clinial Diagnosis and Treatment of Laryngeal Diphtheria. O. W. Hill, Knoxville.
79 Treatment of Laryngeal Diphtheria. W. S. Farmer, Cookeville.
80 Recent Advances in Thoracic Surgery. W. A. Bryan, Nashville.
81 *Remarkable Case of Katatonia. J. W. Stevens, Nashville.

75. Abstracted in The Journal, April 27, p. 1309.

81. This case was reported in the *Journal of the Tenn. State Medical Assn.*, July, 1911, and was abstracted in The Journal, Aug. 12, 1911, p. 584.

Medical Record, New York

November 23, LXXXII, No. 21, pp. 925-970

82 *Calorimetric Observations. G. Lusk, New York.
83 Etat Vermoulu (Worm State): a Form of Senile Degeneration of Brain. E. M. Williams, Philadelphia.
84 Case of Chronic Pancreatitis with Polycythemia (Clinical Diagnosis: Pancreatic Lithiasis). G. A. Friedman, New York.
85 Large Abscess of Temporosphenoidal Lobe Complicating Chronic Purulent Otitis Media. R. Lewis, New York.
86 Literary Genius and Manic-Depressive Insanity. A. C. Jacobson, Brooklyn.
87 Bacterin Treatment in Pulmonary Tuberculosis. G. Sanders, New York.
88 Milk-Supply. C. Cristadoro, Point Loma, Cal.

November 30, LXXXII, No. 22, pp. 971-1016

89 Psychology of Gambling Habit. J. L. Corning, New York.
90 Pro and Con of Maintenance of Retro-Auricular Opening After Radical Mastoid Operation. S. Oppenheimer, New York.
91 Effect of Present Prevention on Spread of Consumption. T. J. Mays, Philadelphia.
92 Claudius Galen. (131 A. D. to 200 A. D.) T. W. Harvey, Orange, N. J.
93 Importance of Local Laboratory in Medical Practice: County Laboratory. W. S. Magill, Albany, N. Y.
94 *Disinfection of Intestine by Insufflation of Oxygen. M. Gross, New York.

82. **Calorimetric Observations.**—The results of Lusk's experiments with a dog lead him to the general conclusion that there exist the following forms of metabolism in the quiet or sleeping dog excluded from thermal influences: 1. A basal metabolism when the cells are nourished by a blood-stream which does not receive food from the intestinal tract and the composition of which is regulated by the organs of the body. 2. A metabolism due to plethora induced by an increased quantity in the blood of carbohydrate or fat metabolites which are being absorbed from the intestine. 3. A metabolism due to the stimulus of incoming amino-acids acting on the cells.

The metabolism of plethora and the metabolism of amino-acid stimulation cannot be added to each other; there is no summation of effect when both influences are brought into action together. In other words, cellular activity induced by the presence of carbohydrate is not further intensified by the stimulus of amino-acids unless the latter alone would accomplish the result. The height found for the basal metabolism of the perfectly quiet resting organism, excluded from thermal influences and determined eighteen hours after the ingestion of food, confirms Rubner's law of skin area, but places the heat elimination at a lower level.

As a practical conclusion of these experiments it appears that in a quiet and resting animal the heat production is increased by about 20 per cent. after the ingestion of a mixed diet, and this increase continues during the period of intestinal absorption; also addition of moderate amounts of protein to the diet has little effect on the production of heat, even though this protein given alone would of itself cause a considerable rise in the heat production. Hence, a mixed dietary is physiologically economical.

94. **Disinfection of Intestine by Insufflation of Oxygen.**—Ad. Schmidt introduced oxygen directly into the small intestine by means of the "duodenal tube," and the results he reported were very favorable. Gross has adopted the following procedure for the oxygen insufflation: His duodenal tube is introduced in the morning on an empty stomach down to mark 90 cm., which means about 30 cm. beyond the pylorus. This so-called "deep exploration" is particularly desirable for the present purpose, as it prevents the return-escape into the stomach of too large quantities of oxygen. The outer end of the duodenal tube is now connected direct with the regulator of an ordinary oxygen jar, and the gas is allowed to flow slowly in. From time to time, when the patient complains of distention, the influx is interrupted. In this way he has been able to administer any desired quantity of oxygen. He endeavors to apply a kind of "continuous gas bath" which may last from 1½ to 2 hours. Instead of making two insufflations a day, as advised by Ad. Schmidt, Gross allowed in one case the tube to remain in situ from morning till evening and administered the second insufflation in the evening. In the meantime the patient received liquid food per os, not through the tube. Expulsion of odorless flatus could often be observed during the administration, showing that the gas had passed the ileocecal valve.

New York Medical Journal

November 23, XCVI, No. 21, pp. 1049-1100

95 Acute Poisoning; Its Diagnosis and Treatment in Actual Practice. E. C. Hill, Denver.
96 Relation of Pregnancy to Certain Conditions of Digestive Organs. A. L. Benedict, Buffalo.
97 Teaching of Pulmonary Diseases. J. B. Huber, New York.
98 Insurability of Women; Special Reference to Effects of Major Operations. T. H. Bradford, Philadelphia.
99 Air Impurities. C. Baskerville, New York.
100 Ten Sex Talks to Girls. I. D. Steinhardt, New York.
101 Use of Mixed Infection Vaccines in Treatment of Myalgia and Arthritis. R. E. Brenneman, Pittsburgh.
102 Therapy of Syphilis. J. L. Mortimer, New York.
103 Value of Meteorism or Tympany in Peritonitis. B. Van Sweringen, Fort Wayne, Ind.

November 30, XCVI, No. 22, pp. 1101-1152

104 Gastric and Duodenal Ulcers; Etiology and Treatment. W. E. Deeks, Ancon, C. Z.
105 Inheritance of Acquired Characters: Bacterial Phenomena as Problems of Heredity. J. Wright, New York.
106 Urethral Drainage in Treatment of Chronic Urethritis. G. H. Persson, Mount Clemens, Mich.

107 Borderline Case; a Vital Problem. M. Sutton, New York.
108 Induction of Anesthesia. L. D. Frescoln, Philadelphia.
109 Air Impurities. C. Baskerville, New York.
110 *Diet in Carcinoma. E. G. Kessler, New York.
111 Postyen and Its Natural Hot Sulphur Mud Baths. E. Pisko, New York.

110. **Diet in Carcinoma.**—The proteins of the meat diet are all rich in sulphur and in Kessler's opinion ought to be reduced. However, he would not go so far as to recommend an exclusively vegetarian diet in carcinoma. A vegetarian diet would certainly not, according to his opinion, be sufficient for good nourishment with the high rate of waste in carcinoma. Proteins with a low percentage of sulphur are the caseins of cow's milk. It would also be desirable to reduce the lactalbumin of cow's milk and to use the pure casein. Conversely, one must exclude a number of vegetable foods that contain a high proportion of sulphur. To prevent cancer or metastases on the lips or in the mouth, smoking ought to be stopped. In smokers the production of sulphocyanic acid is increased. Sulphocyanic acid is a compound of neutral sulphur. It diminishes the oxidation of sulphur. Most likely, Kessler says, this is to be attributed to the influence of the nicotin. The diet which he would recommend in carcinoma would be somewhat of the following scheme, to be modified according to the taste of the individual:

Breakfast: Tea or coffee with sugar and cream (not milk, on account of the lactalbumins), little bread with much butter, fresh or cooked fruit.

Dinner: Soup, of fruit or cereals or vegetables (not meat broths), peas, lentils, beans; for change, meat, 2 ounces at the most, purée of potato, dumplings, edible roots (carrots, beets), boiled or preserved fruits, rice, salads.

Supper: Fruits with rice, potatoes with butter, salads.

The nourishment should be plentiful. The necessary quantity of casein, 1 or 2 ounces, can be mixed with butter and used with the various meals. The casein can also be added to the various soups, purées of potatoes, and to the dishes of vegetables during the process of cooking. In order not to cause any aversion of the patient to the casein, it must be absolutely pure and tasteless. A flavoring addition to the casein of stewed tomatoes and the like is also permitted. The casein may also be given in the form of a medicament, in dry powder, in one half to 2 dram doses, every three hours, between meal times, and is best taken down with a swallow of water.

New York State Journal of Medicine, New York

November, XII, No. 11, pp. 621-686

112 Results Obtained with Antityphoid Vaccine in U. S. Army to End of 1911. F. F. Russell, U. S. Army.
113 Tropical Climate and Its Physiologic Effects. J. M. Phalen, U. S. Army.
114 Prophylaxis of Some Tropical Infections. F. M. Shook, U. S. Navy.
115 Practical Results of Surgery in Epilepsy. G. K. Collier, Sonyea.
116 *End-Results of Head Surgery in Epilepsy. J. F. Munson, Sonyea.
117 *Indications for Surgical Intervention in Epilepsy. E. A. Shap, Buffalo.
118 Six Cases of Hereditary Chorea. E. P. Ballentine, Rochester.
119 Death While Using Nitrous-Oxid and Oxygen as Anesthetic. P. J. Flagg, Yonkers.
120 Experiences with Hormonal in Treatment of Acute and Chronic Intestinal Paresis. J. T. Pilcher, Brooklyn.
121 Pathogenesis, Anatomy and Cure of Prolapse of Rectum. A. V. Moschcowitz, New York.
122 Surgical Constipation. S. G. Gant, New York.
123 Gall-Stones. P. Syms, New York.
124 *Cancer of Prostate. E. Fuller, New York.
125 Public Hospitals of New York State. R. W. Hebberd, Albany.

116. **Head Surgery in Epilepsy.**—There can be no question, says Munson, that in the past there has been much ill-advised and indiscriminative operative intervention in the epilepsies, and some of the cases, viewed either from the purely surgical point of view or from the standpoint of the epileptologist, are sad commentaries on the ill-judged activity of the surgeon. He reports nineteen cases in which some surgical intervention was undertaken on the head, and which afterward came to autopsy. In some cases, the scar tissue formation has been the evident cause of continued irritation and in others there was cerebral destruction, which was sufficient to cause the attack, but in others there was apparently both a successful operation and an absence of lesion. Why, then, asks Munson, the ill success? He has frequently expressed his idea of the origin of epilepsy as an equation in which the sum of a varying number of known, unknown and variable quantities is placed equal to the seizure, i. e., causes the seizure. It would appear from this that the etiology of any case was a summation, and therefore unless one of the etiologic quantities was decidedly greater than the others, the treatment of any one of them would not cure the case. Munson believes that this is true. In looking over the cases which have been made the subjects of operation, there is found, for example, a decided neuropathic taint in many of the family histories, and if this is to be accepted as an important etiologic quantity, one must admit that it cannot be excised, along with some focal lesion, or drained away by a drainage and decompression operation. Similarly, some patients who desire operation have alcoholism or venereal excesses as part of their etiologic equation. There again the knife is handicapped. In some of the traumatic cases the trauma is not the cause, but is the result, of the first seizure, and therefore the operation is of secondary importance.

117. **Surgical Intervention in Epilepsy.**—Out of the total number of 3,502 patients admitted to the Craig Colony for Epileptics, forty-eight had been trephined either before admission or during their treatment at the Colony. In a few of these the operation had been repeated. Naturally, none of the patients operated on at the Craig Colony have been trephined immediately after a trauma or the onset of the epilepsy, as they were all confirmed epileptics at the time of admission. The results of operation on these patients cannot be compared with those obtained by operation immediately after the trauma or in the early stages of the epilepsy. None of the patients trephined at the Colony have been permanently relieved from the attacks although most of them were benefited, at least temporarily, by the operation. In several cases in which operation was done before admission, the condition of the patient had been made worse by the operation, as was stated in the histories at the time of admission. In some of these cases the relationship to trauma or focal irritation was very remote or questionable; the slight trauma to which they were attributed acting merely as an exciting cause in a susceptible individual. Some of the trephined cases were done for conditions other than traumatism. Convulsions following encephalitis or meningitis may be considered as epilepsy due to gross brain lesions. Operation is indicated in those cases in which a Jacksonian type of seizure suggests a focal lesion. Unfortunately for the operative results such a lesion may not be limited to the Rolandic region nor even situated in this area, but in one of the surrounding lobes or deeper structures and produces the convulsions by irritation of the motor area. As a general rule, the more a convulsion is limited to one extremity or part of an extremity, the more localized is liable to be the cortical irritation and the greater the chances for arrest of the seizures by removing this focus. When a definite injury to the head has been sustained, if of such a nature that fracture or hemorrhage is suspected, Sharp says it is better to operate at once and remove clots, depressed bone, etc., before the irritation leads to epilepsy; for unfortunately, the convulsions once started may persist as confirmed epilepsy even after removal of the exciting cause. When epilepsy has already developed as a result of trauma to the head a single operation may produce arrest of the attacks. In some cases in which the attacks have ceased for a year or two following the operation and then return, it has been the custom with some surgeons to trephine again. Sharp's observation is that if the first operation, with a fair amount of decompression, does not produce relief it is useless to repeat the surgical measures.

124. Abstracted in The Journal, May 11, p. 1475.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

November, XV, No. 5, pp. 231-278

126 Mastoiditis, with Observations on 150 Patients. R. H. Wright and S. C. Bowen, Richmond, Va.
127 Medicine in Lay Literature. B. M. Randolph, Washington, D. C.
128 Racial Betterment from Sociologic, Neurologic and Psychiatric Viewpoint. B. R. Tucker, Richmond, Va.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

October 18, VI, No. 3, pp. 327-413

1 *Experiments with Crude Phenol as Larvicide in British Guiana. K. S. Wise and E. P. Minnett.
2 Morphology of Trypanosoma Gambiense and Trypanosoma Rhodesiense in Cultures; Comparison with Developmental Forms Described in Glossina Palpalis. J. G. Thompson and J. A. Sinton.
3 Spirochaeta Ctenocephali, sp. nov., Parasitic in Alimentary Tract of Indian Dog Flea, Ctenocephalus Felis. W. S. Patton.
4 Outbreak of Canine Piroplasmosis Due to Piroplasma Gibsoni Among Hounds of Madras Hunt. Together with Successful Treatment of Disease with Salvarsan. T. H. Symons and W. S. Patton.
5 Attempts at Cultivation of Malarial Parasite by Bass' Method. J. A. Sinton.
6 *Urriola's Test for Malarial Infection. J. A. Sinton.
7 Early References to Tropical Diseases. C. Singer.
8 Occurrence and Distribution of Herpetomonas Pediculi. H. B. Fantham.
9 Influence of Meteorologic Conditions on Development of Trypanosoma Rhodesience in Glossina Morsitans. A. Kinghorn and W. Yorke.

1. **Crude Phenol as Larvicide in British Guiana.**—The authors are inclined to the belief that, in the case of a temporary small collection of water, if crude phenol is applied it does not evaporate to any large extent but concentrates as the puddle dries up, and further, that, having dried up, the ground is sufficiently impregnated with the phenol to render water deposited later by a shower of rain fatal to larvae. Sufficient data have, however, not yet been collected to make an authoritative statement on this point. Laboratory experiments showed that a dilution of 1 in 20,000 is efficient as regards all larvae inside two hours, but in the case of pupae a much longer time is required, probably owing to the fact that the pupa possesses a thick chitinous shell and has no alimentary canal into which to take the poison. For use they calculate one teaspoonful to every 2 cubic feet of water or 1 ounce to 16 cubic feet; this gives a dilution of about 1 in 16,000, and allows a fair margin of safety to cover errors in calculation. The crude phenol containing all its impurities is much more efficient than the purified, more highly soluble product.

6. **Urriola's Test for Malarial Infection.**—Sinton does not believe in the value of Urriola's test (discovery of malarial pigment in the urine). He says that it is almost impossible to exclude the possibility of the pigment derived from extraneous sources finding its way into the urine, and therefore the presence of small quantities of fairly large masses of pigment appears to him to be of no diagnostic value. The trouble necessary to exclude the possibilitiy of extraneous pigment appears to be too great in comparison with the value of the test. As far as can be concluded from the few patients examined by Sinton, the presence of pigmented leukocytes or casts appears to be of more value than free pigment in making a diagnosis of present or past malaria, especially in chronic cases. The presence of pigmented leukocytes or casts does not seem to be an indication of active malaria, but rather of the fact that the patient has at some time or other had malaria. Two of his patients were examined just before being discharged as cured. One of them had had no signs of malaria for two years, yet both patients showed pigmented leukocytes. The presence of such pigment in the urine probably represents an attempt by the body, both during an infection and after the infection has passed off. to get rid of the pigment deposited in the tissues.

British Medical Journal, London

November 16, II, No. 2707; pp. 1349-1428

10 Duties of State in Regard to Tuberculosis. A. Ransome.
11 Tuberculosis in General Practice. J. A. Gibb.
12 Importance of Toxin Saturation of Tissues. E. E. Prest.
13 *After-Results of Major Operations for Tuberculous Disease of Joints. H. J. Stiles.
14 Dyspepsias of Childhood After Period of Infancy. R. Hutchison.
15 Fibrous and Fibrocystic Osteitis. R. C. Elmslie.
16 Spasmodic Contraction of Peronei in Flat-Foot. G. C. E. Simpson and N. Dunn.
17 Spasmodic Club-Foot. T. R. W. Armour.
18 Physiologic Scoliosis. M. Jansen.
19 Imperforate Anus with Perineoscrotal Orifice. G. H. Edington.
20 Recent Case of Lorenz's Operation, Demonstrating by Roentgen Rays the Development of Acetabulum. W. S. Haughton.
21 *Tuberculous Infection and Tuberculous Disease in Infancy and Childhood. C. P. Lapage.
22 System of Printed Anamnesis Questions for Children Out-Patients. F. C. Eve.
23 Psychoses of Climacteric. R. P. Smith, C. J. Macalister and T. B. Grimsdale.

13. **After-Results of Operations for Tuberculous Joints.**—During the ten years from 1901-11 Stiles has done sixty-three excisions of the knee for tuberculosis and of these thirty-eight have been traced. In twenty-three of the patients there was osseous as well as synovial disease, the former being sometimes in one bone, but in the majority of cases in both. Healing by first intention resulted in fifty-three cases, while in nine cases the wound broke down or recurrence set in within a month after operation. Twelve out of the sixty-three patients required a subsequent amputation, and of these nine were under 5 years of age. Of thirty patients who have been traced and recently examined, there was absolute ankylosis in twenty-nine and slight movement in one case. In twenty-seven instances there was a little flexion, the leg was absolutely straight in one case, and in a position of genu recurvatum in two cases.

He has done fifty-nine excisions of the hip and of these forty cases have been traced. In fifty-three there was osseous as well as synovial disease, the former being sometimes in one bone, but in the majority of cases in both. Usually, however, the disease was too far advanced to say whether the disease in the bone was primary or secondary. With regard to the mode of excision, the anterior route was employed in only eight cases, nearly all of which were among the early series; four were done by an external incision and the remainder by Kocher's postero-external angular incision, this method being employed even in cases in which there was an anterior abscess. Forty-eight patients were discharged with the wound completely healed and the limb maintained in the abducted position by means either of plaster-of-Paris or an abduction splint. In three cases disarticulation of the hip was subsequently performed on account of recurrence of the disease, followed by sinuses and hectic fever; one of these patients died four days after operation. Five patients returned with slight recurrence of disease necessitating further operation. Forty-three patients were found to be well, and with the limb in good position when they returned from two to six months later to have the plaster removed. Out of forty cases traced there were twelve deaths; two died in hospital of tuberculous meningitis, nine died within six months of general tuberculosis and the twelfth eighteen months later from the same cause. The results were good in nineteen cases, that is to say, the general health was excellent, the hip ankylosed, no sinuses, the scars completely decolorized and any shortening, adduction or flexion only very moderate.

There have been fifty-four excisions of the elbow. The right elbow was affected in thirty-two instances, the left in twenty-two, the difference being due, probably, to the greater use of the right arm. In 67 per cent. of the cases the disease began before the age of five years, while in 32 per cent. it showed itself within the first two years. As a result of this early age incidence a relatively large proportion (55 per cent.) of the excisions were done in children under 4 years of age. In fourteen cases the disease was primarily synovial; in the remaining forty, one or other, or all three, bones were also involved. The humerus was involved in twenty cases, the ulna in thirteen, the radius in three, while in eight cases more than one bone was involved. Of the fifty-four excisions of the elbow thirty-four have been traced. Of these, six patients died subsequently of general tuberculosis from three months to two and a half years. Some degree of local recurrence occurred in eight cases, one of which fails to be classed among the deaths. Only one required subsequent amputation. Of the remaining six the recurrence took the form either of an abscess or sinus, with slight disease in the subjacent bone. In all of these healing was brought about by a comparatively trivial secondary operation.

Of twenty-nine cases of tuberculous disease of the ankle-joint operated on during the decennium mentioned, the disease was primarily synovial in six cases, while in twenty-three cases it was both synovial and osseous. The astragalus was involved in fifteen cases, the os calcis in five, the tibia and fibula in two and the scaphoid in one. In those cases in which it was manifest that the disease was osseous in origin, the primary focus was almost invariably situated in the head or neck of the astragalus. In thirteen of the patients the disease began in children between 2 and 4 years of age, while in twenty-one out of the twenty-nine cases the operations were performed on children between 1 and 4 years of age. Twenty-five patients have been accounted for. Two died within three months of operation. One, who had also hip-joint disease, died a year later from general tuberculosis. In six cases amputation was subsequently performed for recurrence of the disease.

21. **Tuberculous Infection and Tuberculous Disease in Infancy and Childhood.**—Tuberculous infection, according to Lapage, almost inevitably is in large towns and it must often occur in childhood without giving rise to illness sufficiently pronounced to attract attention; or the indefinite illness, if noticed, is put down to some other cause, such as rheumatism or underfeeding. Occurring at an early age, tuberculous infection often leads to fatal results, but later in childhood it may lead only to a temporary debility and then become quiescent. Such quiescent disease, which can only be diagnosed from the history, the Roentgen-ray examination, and the tuberculin test, is not infectious, and since it is so wide-spread it is not necessary to notify every case that gives a reaction to tuberculin. To do so would be to overwhelm those engaged in preventive measures and to stultify their efforts. Tuberculous disease in children is very different from that in adults. All through childhood it tends to become generalized and a large proportion of the deaths are due to tuberculous meningitis. The glands are often affected and the disease may make considerable progress in them before it spreads to other parts or gives localizing symptoms. Therefore we must not look for definite physical signs before making a diagnosis of tuberculous disease. Lapage relies on the history, the general symptoms and the special methods of diagnosis to begin treatment early.

Edinburgh Medical Journal

November, IX, No. 5, pp. 385-480

24 Place of Pathology in Medical Curriculum. J. L. Smith.
25 Habit: Exemplified in Functional Activity of Eye Muscles. G. A. Berry.
26 Eclampsia in Edinburgh Maternity Hospital, with Special Reference to Its Seasonal Incidence. J. H. Croom.
27 Situation of Lesions in Osseous Tubercle. J. Fraser.
28 Transplantation of Ovary in Human Being: Record of Three Cases. H. S. Davidson.

Journal of Laryngology, Rhinology and Otology, London

November, XXVII, No. 11, pp. 577-632

29 International Collective Investigation of Ozena. A. B. Kelly.
30 Resection of Partial Nasal Septum for Double Sphenoidal Sinus Suppurative. P. Watson-Williams.
31 Mineral-Water and Climatic Cures in Oto-Rhino-Laryngology. G. de Parrel.
32 Malignant Diseases of Upper Air-Passages, Two Cases of Epithelioma. J. Price-Brown.

Lancet, London

November 16, II, No. 4655, pp. 1343-1414

33 Modern Combat Against Tuberculosis Among Children. Nietner.
34 Motor and Speech Paralysis Due to Cerebral Angiospasm. W. Russell.
35 Respiratory Neuroses. S. West.
36 *Treatment of Sarcoma of Long Bones. F. Eve.
37 Results of Complete Removal by Operation of Transplanted Mouse Cancer. C. E. Walker and H. E. Whittingham.
38 Duty of Practitioner in Cases of Ophthalmia Neonatorum. S. Stephenson.

36. **Sarcoma of Long Bones.**—In one case of myeloma of the tibia Eve united the femur and tibia by bolting them together with a portion of the patient's own fibula, a gap of nearly 2 inches being left between them and the limb thereby lengthened. Later skiagrams appeared to show that there was a new formation of bone beneath the periosteum of the implanted fibula. It is now a year and seven months since the operation; there is no recurrence and the patient can walk with a poroplastic support, but the union is not firm and the shortening amounts to 4½ inches. Eve says that when autoplastic grafts are used the periosteum of the graft should be preserved. Eve is convinced that a certain number of sarcomata disappear under, or are profoundly influenced by, the Coley toxins, but says we have no means of determining what proportion this is to the total number treated. He believes it is only a small proportion. His present attitude is that he would not recommend Coley's fluid in any case of operable sarcoma, nor would he recommend it as a prophylactic against recurrence.

Quarterly Journal of Medicine, London

April, V, No. 19, pp. 309-408

39 *Association Between Mitral Stenosis and Renal Fibrosis. J. Cowan and G. B. Fleming.
40 *Triple Rhythm of Heart Due to Ventricular Extrasystoles. G. B. Fleming.
41 *Diagnosis of Sinus Arhythmia. J. D. Windle.
42 *Origin of Premature Contractions. T. Lewis and M. D. Silberberg.
43 *Blood-Pressure Variations Associated with Lumbar Puncture and Induction of Spinal Anesthesia. H. T. Gray and L. Parsons.
44 Edema of Orbital Tissues. J. H. Abram.
45 Syphilitic Pseudo-Tabes, Report of Case. W. B. Warrington.
46 *Sinus Arhythmia of High Grade Induced by Digitalin. E. E. Laslett.
47 *Auricular Fibrillation Associated with High Degree of A-V Block and Paroxysmal Tachycardia. C. E. Lea.
48 Congenital Occlusion of Duodenum. E. M. Cowell.

39. **Mitral Stenosis and Renal Fibrosis.**—The relationship between the two lesions, according to the authors, may conceivably arise in various ways. It may be accidental; the renal lesion may be the cause or the result of the mitral disease; or both may own the same origin. Figures quoted seem sufficient evidence that the association is not simply accidental, for Newton Pitt found that mitral disease is three times more frequently present in cases of granular kidneys than when kidneys are normal, and in the author's series the proportion is even greater [fibroid kidneys, 335 cases; mitral disease, 60 (17.9 per cent.). Kidneys not fibroid, 807 cases; mitral disease, 33 (4.0 per cent.)]. There is no doubt that the majority of cases of mitral disease are the result of an antecedent acute endocarditis of rheumatic origin. They have collected a series of 479 cases of organic mitral disease and in 275 (57.4 per cent.) the patients had suffered from some form of rheumatism or from chorea.

In a small number of cases of mitral stenosis no recognized cause of acute endocarditis can be discovered in the antecedent history, and in another group it seems unlikely, from the history of the case, that such causes, though they had been present, could be associated with the origin of the valvular lesion. It is generally agreed that the most frequent causes of these chronic cases are arteriosclerosis and chronic nephritis, and in three cases seen by the authors, the kidneys were more or less granular and the capsules adherent. It thus seems evident that in some cases the renal lesion is the cause of the cardiac one, but it is improbable that this is the common sequence. It is true that the incidence of mitral disease in cases of renal fibrosis is much greater than in cases where no renal fibrosis obtains, but the incidence is much greater in women than in men, a fact which suggests that the connection arises in other ways. The post-mortem evidence makes it fairly evident that renal fibrosis cannot be the cause of mitral stenosis in all the cases in which the two lesions co-exist, and the inference is strengthened by examination of the clinical data. The evidence seems to show that mitral stenosis and renal fibrosis may own the same cause.

40. **Triple Rhythm of Heart.**—It is suggested that the rhythmical production of stimuli at an abnormally irritable point in the ventricles may produce these rhythmic irregularities.

41. **Diagnosis of Sinus Arhythmia.**—Windle holds that irregularity of the heart in children during convalescence from febrile illness is common. In some cases it results from arhythmic contraction of the heart's chambers or disturbance in the conduction of impulses from auricle to ventricle, conditions which evidence disease of the myocardium and are of serious prognostic import; but in the majority of cases the irregularity is solely due to variations in length of the diastolic phases of the cardiac cycle, while in all respects the heart's

mechanism is normal, sinus arhythmia, a form of irregularity which is devoid of any pathologic significance whatever. The frequent occurrence of sinus arhythmia after acute illness in children is not generally known to practitioners, and the irregularity is confused with those of pathologic origin. Its recognition is important, otherwise the patient is needlessly kept in bed and subjected to unnecessary treatment until it becomes manifest that the irregularity is a negligible symptom. While, as a rule, the diagnosis of sinus irregularity is readily made on clinical examination, exceptionally it is only established from records of the heart's movements and respiration. The cases described in the paper illustrate possible fallacies in the interpretation of tracings.

42. **Origin of Premature Heart Contractions.**—The electric curves of premature contractures obtained by the authors in repeated examinations of the same patients show a remarkable constancy of outline; this fact is regarded as evidence of the constancy and limitation of the focus of irritation in which they are produced. There are facts which suggest, but do not allow them to conclude finally, that premature ventricular contractions arise, as a rule, in the special tissues which unite the auricular and ventricular musculature.

43. **Variations of Blood-Pressure.**—It is stated by the authors that in lumbar puncture the puncture of the skin is accompanied by a rise in blood-pressure which varies in extent with the degree of consciousness, the pain, and the disturbance produced by the operation, but which is not accounted for entirely by these factors. Withdrawal of cerebrospinal fluid tends *per se* to lower the blood-pressure, but the net result of lumbar puncture is to raise it for at least twenty minutes afterward. The type of blood-pressure chart obtained in lumbar puncture, when the increased intracranial pressure is of subtentorial origin, is the same as that obtained in normal individuals; or as that obtained when the increased pressure is of supratentorial origin, but in the subtentorial types the variations are less pronounced. In subtentorial cases the rise is more sustained. Blood-pressure records from cases of high spinal anesthesia show at the outset an abnormally high blood-pressure, due to mental anxiety; then a rise following lumbar puncture; next a "preliminary fall," followed by a further more marked "main fall" as the paralysis affects the thorax. Finally, as the paralysis passes off, the blood-pressure rises to its original value. Variations in the pulse-rate do not closely follow those of the blood-pressure, but a certain degree of resemblance is often seen owing to the consciousness of the patient. Vomiting during spinal anesthesia is due to thoracic paralysis. In the supine position there is no stagnation of blood in the great vessels, even when a very high spinal anesthesia is induced.

46. **Sinus Arhythmia of High Grade Induced by Digitalin.**—Three cases are described by Laslett which developed sinus arhythmia of high grade under the influence of digitalin. Two of the cases had a preexisting impairment of conductivity, notwithstanding which the grade of heart-block was not increased by digitalin so far at least as to cause ventricular silences. The first case exhibited an unusually well-developed two-peaked presystolic wave in the jugular pulse. The first wave was undoubtedly, and the second probably, auricular in origin. The peculiar form of the wave is regarded as evidence of hypertrophy of the right auricle. The third case showed an extreme sensitiveness to the drug, which, it is suggested, may have been in some way related to the fact that the auricles had just previously been in a state of fibrillation.

47. **Auricular Fibrillation.**—A case is recorded by Lea of auricular fibrillation associated with a high degree of auriculoventricular block, and with attacks of paroxysmal tachycardia of (probably) ventricular origin.

Annales de l'Institut Pasteur, Paris

October, XXVI, No. 10, pp. 737-824

49 Coagulation of Blood and Origin of Thrombin. J. Bordet and L. Delange. Commenced in No. 9.
50 Action of Manganese on the Aspergillus Niger. (Extraordinaire sensibilité de l'aspergillus niger vis-a-vis du manganèse.) (Rôle capital du manganèse dans la production des conidiés de l'aspergillus niger.) B. Bertrand.
51 Leprosy in Rats. II. E. Marchaux and F. Sorel.
52 Experimental Research on Schmorl's Bacillus. (Etudes sur le bacille de la nécrose.) E. Césari.
53 Physiologic Studies on Anaphylaxis. (Les variations de l'alexine après le choc anaphylactique dans la séro-anaphylaxie active et passive.) P. F. A.-Delille.

Archives Générales de Chirurgie, Paris

October, VI, No. 10, pp. 1133-1260

54 *Old Spina Bifida. E. Tournier and J. Ducuing.
55 *Dermoid Cysts of the Mesentery. J. Pakowski.
56 *Fascia Lata Flap for Dura Repair. (Plastiques dure-mériennes avec le fascia lata.) P. Mauclaire.

54. **Old Spina Bifida.**—Tournier and Ducuing report ten cases which sustain their statements in regard to the indications for operative treatment, that is, excision of the tumor when it is complicated with nervous symptoms of no longer than a year's duration at most, or when the tumor is free from complications but is of annoying size. When the nervous symptoms are of long duration, palliative treatment should be the rule, some orthopedic operation elsewhere than on the spina bifida offering the only prospect of benefit. Under all other conditions operative treatment is contra-indicated.

55. **Dermoid Cysts of the Mesentery.**—Pakowski summarizes thirty cases from the literature, classifying them according to the location of the cyst and discussing treatment. The preferable technic is removal of the cyst, but the clinical experiences and his own experimental research show that it is necessary to resect the segment of intestine if the circulation has been impaired by the excision of the cyst.

56. **Fascia Flap for the Dura Mater.**—Mauclaire reiterates that the fascia lata is peculiarly adapted for repairing defects after herniotomy and in the dura mater, reporting a case in which it was used for the latter purpose and reviewing the literature on the subject.

Bulletins de la Société de Pédiatrie, Paris

October, XIV, No. 7, pp. 325-409

57 *Administration of Salvarsan by the Rectum in Children. (L'absorption rectale des arséno-aromatiques chez l'enfant.) A. J. Weill, Morel and G. Mouriquand.
58 *Uremia in Infants. (La forme somnolente de l'azotémie du nourrisson. Son diagnostic avec la méningite tuberculeuse.) P. Nobécourt and Maillet.
59 *Diabetic Boy of 8. (Exposé d'un cas de diabète infantile.) P. Merklen.
60 *Pyopneumothorax and Pleural Gurgling. (Pyopneumothorax et bruit du glouglou pleural.) J. Renault and P. Lévy.
61 *Enlarged Thymus Returns to Normal Size Under Roentgen Rays; Three Cases. E. Albert-Weil.

57. **Absorption of Salvarsan by the Rectum.**—Weill reports three cases in which he was able to demonstrate the absorption of salvarsan from the rectum of children between 10 and 13. The technic was the same as for intravenous injection, with addition of 5 or 10 drops of laudanum. The rectal injection was given as slowly as possible, the rectal catheter introduced deep and the injection retained for four hours at least. He did not see any evidence of local or general by-effects and he thinks this route is peculiarly advantageous for children.

58. **Uremia in Infants.**—Nobécourt states that urea was found in the cerebrospinal fluid in thirty-nine of eighty-nine sick infants in his service. Whenever the proportion of urea was over 0.5 gm. per liter the children all died in less than a month. In some cases the uremia causes a clinical picture resembling that of the somnolent form of tuberculous meningitis except that there is myosis and no lesions in the fundus of the eye; mydriasis is more common in meningitis. Another difference is that in the uremic the pulse persists regular and is not much accelerated; in meningitis the pulse is extremely irregular while the respiration is but slightly modified. In uremia the respiration is very abnormal, even a Cheyne-Stokes type being common. The gastro-intestinal disturbances with uremia frequently subside but in both uremia and meningitis there is the increasing somnolency with progressive emaciation. In the two cases described, the infants were under 3 months old, while meningitis is rarely observed so young. Decisive evidence is afforded by lumbar puncture: urea will be found present in large amounts, from 0.51 to 3.15 in his cases; in meningitis in infants he never found over 0.25 gm.

59. **Diabetes in a Child.**—Merklen gives the metabolic findings systematically recorded through nine months in a case of diabetes in a boy of 8. No treatment proved durably effectual and the child died finally in coma.

60. **Pyopneumothorax.**—Renault reports a case which confirms the importance of the single bubble sound as a sign of pyopneumothorax in a child. The sound is elicited by placing the child in a jack-knife position on his hands and feet with his legs stiff, the buttocks very high, the head close to the legs. The chest of the child is then lifted up until he stands erect, during which auscultation will reveal a single sound as an air bubble makes its way from below upward and bursts at the surface of the fluid. Repeating the maneuver brings the sound anew each time. This sign of the fluid and air accumulation may be evident before there is anything else to suggest its presence.

61. **Roentgenotherapy for Enlargement of the Thymus.**—Weil calls attention anew to the remarkable efficacy of Roentgen exposures in reducing the size of an abnormally large thymus. His four cases bring to eleven the number on record in all of which the measure proved successful. He does not apply large doses, finding the mild amply sufficient. There was no further trouble forty-eight hours after exposure to from 1 to 5 H units, with a filter, 18/10. He does not think it necessary to do more than reduce the size of the thymus; it is not necessary to destroy it altogether. His patients were infants between 2½ and 9 months old. The number of exposures ranged from five to twelve as a rule, although Meyer gave forty-seven very mild exposures in his case.

Presse Médicale, Paris

November 6, XX, No. 91, pp. 921-928

62 *Improved Technic for Operative Relief of Gastric Crises, etc.: Excision of Spinal Ganglia. (Gangliectomie rachidienne dorsale.) J. A. Sicard and E. Desmarest.
63 Hemolysis in Tuberculosis. (Anémie hémolysinique tuberculeuse.) E. Weill, G. Gardère and A. Dufourt.

62. **Excision of Spinal Ganglia.**—Sicard and Desmarest give an illustrated description of an operation which breaks the continuity of the spinal nerves as by the Förster and Franke methods, while it seems to be free from their uncertainties and the possible dangers of both. They insist that if the Franke operation is done in a way to be harmless, it fails to accomplish its purpose, while if it is thoroughly done it is dangerous. Dejerine has reported a death on the table from double pneumothorax occurring during a Franke operation, and they have had a similar fatality in their experience. An illustration of the findings on the cadaver show that the operation acts more on the anterior than on the posterior roots of the intercostal nerves, and thus fails largely of its purpose. The technic proposed is to resect the ganglion after laminectomy, not opening into the dura mater; it is thus an extradural spinal gangliectomy. It is applicable only to the intercostal nerves, and laminectomy in the dorsal region they regard as comparatively simple. The nerve in its dura mater sheath is ligated with 0 silk close to the spinal cord, and the nerve farther along is seized with forceps. The nerve in its intact sheath is then cut with scissors close to the ligature, and the other end is torn loose by twisting it up gently on forceps. The nerve tears beyond the ganglion which is thus brought away whole, entirely outside of the dura. As the ligature is drawn tight the patient may stop breathing and the pulse grow faster, but these reflex phenomena last only a few seconds. The various steps of the operation are illustrated and a case described in which it was successfully applied. The patient was a man of 44 with tabetic gastric crises lasting two or three weeks at a time and recurring about every two months. He had been clamoring for operative relief of some kind for two years, and the above technic was applied last July. After laminectomy from the fifth dorsal to the ninth dorsal vertebrae, the epidural space was freed from fatty tissue and the ligature was thrown around the seventh left intercostal nerve between the cord and the ganglion. The ganglion was then excised by cutting the nerve above and tearing the nerve below the ganglion. The same procedure was repeated on the other side, extracting the sixth and seventh dorsal ganglia. Not a drop of cerebrospinal fluid escaped, the dura mater not being opened at all, as each sheath had been closed by the ligature before it was cut. Only three ganglia were resected as the patient was so debilitated and did not stand the chloroform well. The wound healed promptly and the man has been free from gastric crises since, but the preexisting lightning pains in the limbs and bladder symptoms still continue and the latter seem to have increased in intensity. A zone of anesthesia on the right has developed, corresponding to the ganglia excised. Sicard and Desmarest think that the lesions in tabes are too diffuse to permit much operative relief, but that intercostal neuralgia might be arrested by this operation and that this is its most promising field. Not long ago they performed a Franke operation to relieve the paroxysmal pain left from an intercostal zona. No benefit was derived, but they are convinced that this method of gangliectomy would have certainly cured their patient.

Semaine Médicale, Paris

November 13, XXXII, No. 46, pp. 541-552

64 Unequal Dilatation of the Pupil in Cerebral Hemiplegia. M. Klippel and M. P. Weil.

Archiv für Gynaekologie, Berlin

XCVIII, No. 2, pp. 221-412. Last indexed October 26, p. 1579

65 *Diagnosis of Pyelitis and Dilatation of Kidney Pelvis. (Zur Kenntnis der Pyelitis und Nierenbeckenerweiterungen während und ausserhalb der Schwangerschaft.) G. Schickele.
66 Histologic Research on Route of Infection of Tuberculosis of Uterine Adnexa. R. Keller.
67 Congenital Deformity. (Zur Teratogenie.) F. A. Kehrer.
68 *Thyroid Disease During Pregnancy. (Schilddrüsenerkrankungen in der Schwangerschaft.) W. Rübsamen.
69 Injection of Drugs into the Uterine Cervix Tissue in Treatment of Severe Hemorrhage with Acute Inflammatory Disease of the Adnexa. (Zur Behandlung schwerer Menorrhagien bei akut entzündlichen Adnexerkrankungen durch Portioinjektionen.) C. Koch.
70 Kidney in Pelvis. (Zur kongenitalen Dystopie der Niere.—Beckenniere.) R. Bretschneider.
71 *Eclampsia Result of Defective Elimination of Substances Produced to Nourish the Fetus. (Eclampsia gravidarum und Paresis puerperalis.) G. Persson.
72 Toxicity of Urine of Parturients. (Verhalten der Harngiftigkeit in der Schwangerschaft, in der Geburt und im Wochenbette, mit Berücksichtigung der Eklampsie.) P. Esch.
73 Pathologic Young Human Ovum. (Ein junges pathologisches menschliches Ei.) Todyo.

65. **Dilatation of Kidney Pelvis.**—Schickele says that roentgenoscopy of the kidney will frequently show that the pelvis and ureter may be distended without inflammation and that the pain is merely the result of accumulation of urine above some compressed point, generally in pregnant women. Treatment therefore need be only rest, removal of the compression, and copious drinking. In case of infection, injection of a local disinfectant is indicated. The main point he emphasizes is that a gynecologic examination should always accompany roentgenoscopy of the kidney pelvis. Ascending infection from the bladder is often due to some interference with the normal outward stream through the ureters, although blood-borne infection may be involved. This is suggested by the rapid occurrence and rapid disappearance of the symptoms and by discovery of the germs in the uterus secretion, blood and urine. The colon bacilli may also find their way into the right kidney pelvis through the lymphatics; constipation favors this, and if there is interference with the outflow of urine, pyelitis is almost certain to develop.

68. **Thyroid Disease in Pregnant Women.**—Rübsamen states that he found that 34.2 per cent. of 718 women in the maternity at Berne had goiter, that is, 246, while at Dresden during the same period, one year, there were only 0.29 per cent. He discusses this material from various standpoints, and also enlargement of the thyroid in the new-born. In the nine cases of congenital goiter the mothers all had goiter too. In several cases temporary enlargement of the goiter was observed in the newly born after difficult delivery.

71. **Eclampsia.**—Persson presents a number of arguments to sustain his theory that the eclampsia of pregnancy and puerperal paresis in cows are both due to the same cause, namely, retention of the substances which are intended for the nourishment of the fetus. When the child is born, this nourishment which has been passing through the placenta is suddenly diverted to the breasts, and unless these substances intended to

nourish the child find free outlet here, they accumulate and may have a poisonous action. The resulting disturbances are liable to develop whenever there is a disproportion between the supply of nourishing substances for the fetus and the capacity of the fetus to use them or, after delivery, incomplete elimination of the substances through the mammary glands. Treatment therefore should be to stimulate the production of milk and its outflow. This he has done by milking the breasts, massaging them and applying suction hyperemia by Bier's method. This is especially necessary in puerperal eclampsia. The aim is merely to render easier the normal physiologic function of the maternal organism following delivery. Anything that increases the viscosity of the blood should be strictly avoided, especially saline, while potassium iodid by rendering the blood more fluid has a very favorable action, so much so that he regards potassium iodid as almost a specific against eclampsia. He reports several cases in which headache, restlessness and other symptoms with pregnancy kidney warned of impending danger which he then warded off by potassium iodid. His views explain the benefit derived from operations on the breasts in treatment of eclampsia, while they show that even better results are possible by merely stimulating the natural function.

Berliner klinische Wochenschrift

November 11, XLIX, No. 46, pp. 2161-2204

74 *Metastatic Superficial Cancers. (Zur Klinik und Pathologie des metastatischen Krebses der Haut, im bes. des Hautnervenapparates.) M. Askanazy.
75 *Differential Diagnosis of Perforating Cancerous Gastric Ulcer. H. Strauss.
76 Severe Cerebral Symptoms in the Tuberculous Without Anatomic Findings. E. Querner.
77 Threshold Percussion of the Heart. (Das Individualisieren der Perkussionsintensität bei der Schwellenwertsperkussion —Goldscheider—des Herzens.) E. Mosler.
78 *Phenolsulphonephthalein Test of Kidney Functioning. J. Vogel.
79 *Experimental Roentgenotherapy of Tuberculous Peritonitis. E. Falk.
80 Action of Quinin on the Cornea. (Wirkung der China-Alkaloide auf die Cornea.) J. Morgenroth and S. Ginsberg.
81 Treatment of Extra-Uterine Pregnancy. E. Runge.

November 18, No. 47, pp. 2205-2252

82 Distribution of Paratyphoid Bacilli. (Paratyphus und paratyphusähnliche Bakterien mit bes. Berücksichtigung ihrer Verbreitung in der Aussenwelt und ihrer Beziehungen zu Mensch und Tier.) Weber and L. Haendel.
83 Inoculation Against Typhoid. (Aktive Typhusschutzimpfung.) G. Bessau.
84 *Inoculation Against Tuberculosis. (Heil- und Schutzimpfung der menschlichen Tuberkulose.) F. F. Friedmann.
85 Rupture of Bronchi During Compression of the Chest. S. Schönberg.
86 Paralysis of the Vocal Cords. (Habituelle Stimmbandlähmungen.) H. Gutzmann.
87 Normal Pregnancy and Childbirth with Persisting Urogenital Sinus. N. J. A. F. Boerma.
88 Estimation of Capacity of Heart. (Verwendung der Recklinghausen'schen Gleichung zur Bestimmung der relativen Grösse des Sekundenvolumens und der relativen Inhaltszunahme.) R. Kleissel. Commenced in No. 45.
89 Test for Sugar Content of Blood with Minute Amounts. (Zur Bestimmung des Blutzuckers.) O. Kraus and M. Adler.

74. **Metastatic Cancers of the Skin.**—Askanazy reports a case which he thinks is unique; the patient was a woman of 45, who six months after removal of a cancer of the breast developed numerous cancerous lumps in the skin involving nerve tissue. Each time the patient was able to foretell the development of a lump by a peculiar sensation in the skin. She located the pain exactly and within twenty-four hours a new hard nodule had developed on the point, about as large as a nut and not varying in size or consistency afterward. The nodules were most numerous on the trunk and scalp, and were identical in structure with the primary tumor.

75. **Differentiation of Gastric Cancer.**—Strauss gives the technical points useful for roentgenoscopic differentiation of ordinary gastric ulcer and a cancerous penetrating ulcer. They both require operative treatment but the discovery of metastases in case of cancer may be a contra-indication to an operation.

77. **Phenolsulphonephthalein Test of Kidney Functioning.**—Vogel joins in the chorus of commendation of Rowntree and Geraghty's method of estimating the functional capacity of the kidney. (The technic was described in The Journal, Sept. 2, 1911, p. 811.)

78. **Roentgenotherapy of Tuberculous Peritonitis.**—Falk's experimental research has demonstrated that exposure to the Roentgen rays is a powerfully effectual adjuvant to operative treatment of peritoneal tuberculosis. He is convinced that it would much enhance the benefit from a laparotomy in clinical cases.

84. **Inoculation to Prevent and Cure Tuberculosis.**—Friedmann's communication, read at the Berlin Medical Society, November 6, was summarized in the Berlin Letter in The Journal, December 7, p. 2081. Friedmann states that the remedy he is using is made from a strain of tubercle bacilli which have naturally very little virulence and which have been bred to practical avirulence for man. It has been applied to date (November 18) in 1,182 cases of tuberculosis of all kinds, and a single intramuscular injection has been given as a prophylactic measure to 335 children from one hour to 3 years old. In 90 per cent. of the children a preceding skin tuberculin test had elicited a positive response. Many times the dose suitable for human beings was injected into guinea-pigs without their showing the least ill effects or intolerance. When killed years later they were found entirely healthy. The avirulent bacilli had been totally absorbed and the animals were immunized thereby to a certain extent. The immunization thus induced was unable to resist severe artificial infection, but the animals survived on an average 363 days while the untreated controls lived only 110 days. The conditions of infection in man are never so menacing as in the artificial laboratory infection, and the outlook, he thinks, seems promising for permanent immunization by this means. He states further that the continuous thriving to date of the inoculated children testifies to the harmlessness of the method. He cited Bier, Schleich, Karfunkel and eighteen other physicians who have sent him tuberculous patients to be treated, and some of them regard the method as of great promise. [In 1904 Friedmann published an account of his efforts to immunize animals against tuberculosis by inoculation with tubercle bacilli from cold-blooded animals, supposedly avirulent for other species. His "turtle bacilli" preparations were also applied in the clinic, but clinicians soon abandoned this treatment on account of the abscesses that developed at the point of injection. An account of his work in this line was summarized in The Journal, 1904, xlii, 136, and xliii, 1909. Orth reviewed in *Virchows Archiv*, 1908, exc, 1, the entire history to date of the method of treating tuberculosis by inoculation with supposedly avirulent tubercle bacilli. In the discussion that followed Friedmann's communication, Karfunkel, Schleich and K. Küster reported surprising benefit in all their cases and a cure in many, while some of the others he had cited were much less enthusiastic. Blaschko reported abscesses at the point of injection and the death of two patients. Citron remarked that Friedmann had not yet entered into details in regard to his work but to date had announced only the general principles on which it is based. He warned that as long as we are ignorant of means to control the virulence of bacteria, at any moment an avirulent virus may develop virulence in our hands and we be unable to prevent it. He cited Pasteur's experience in this line; the vaccination against chicken cholera which at first had proved so successful and seemed so promising, suddenly started severe epidemics as, for some unknown reason, the previously avirulent virus had become virulent. For these reasons, physicians have shrunk from applying this principle in therapeutics. Citron added that while there may not be so much cause for concern in the treatment by this means of severe tuberculous processes, yet that there is every reason to refrain from inoculating clinically healthy individuals with a living virus when they merely display a positive reaction to the tuberculin skin test. He urges greater caution for the future, at least until Friedmann has made it clear to the medical world what his inoculation material actually is. In his previous research Friedmann announced that he was using tubercle bacilli from cold-blooded animals—turtles—but he has not informed the world as yet whether his present remedy is from this source or not. He describes it merely as a living avirulent bacteria material of tuberculous nature (*Bakterienmaterial tuberkulöser Art*). F. Klemperer recapitulated the history of previous attempts to make a tuberculin for clinical use from bovine and turtle tubercle bacilli, stating that the turtle bacilli preparation had to

be dropped as its injection caused local suppuration at the point of injection. Goldscheider expressed regret that the reports on treatment with Friedmann's remedy were not accompanied by exact details; the mere general impression of subsidence of night-sweats, return of appetite, etc., are not sufficiently scientifically accurate to serve as the base for estimation of the condition before and after treatment. He urged the society not to go on record as tacitly approving the inoculation with living bacilli of such large numbers of young children merely on the ground of a positive tuberculin skin reaction. The discussion on Friedmann's communication at the Berliner med. Gesellschaft was announced to continue at the next meeting.]

Deutsche medizinische Wochenschrift, Berlin

November 7, XXXVIII, No. 45, pp. 2105-2152

90 *Salt and Water in the Diet. (Rolle des Kochsalzes und Wassers in der Ernährung.) H. Strauss.
91 *Treatment of Arteriosclerosis. A. Strubell.
92 Treatment of Articular Rheumatism. P. Junghans.
93 Experience in Aseptic and Antiseptic Treatment of Wounds. P. Sick.
94 *Tuberculosis of Long Bones. (Herdförmige Tuberkulose der Extremitätenknochen.) W. Böcker.
95 Bacteriolcgy of Psoriasis. A. Menzer.
96 Copper Salts in Treatment of Superficial Cancer. (Epitheliombehandlung mit Kupfersalzen—Kupferlezithin.) A. Strauss.
97 Toxicity of Alien Albumin. .(Giftwirkung arteigener Eiweissstoffe.) A. Stühmer.
98 *Impressions of America. (Nach dem Washingtoner Kongress.) A. Pröbsting.

90. **Salt and Water in Dietetics.**—Strauss states in the course of this general review of the importance of salt as a link in the chain of factors leading to dropsy, that abstention from salt benefits only when the retention of salt is due to parenchymatous nephritis. When the dropsy is of cardiac origin, the intake of salt has no influence on it, nor on gastric secretion, that is, in his experience he was never able to bring about a normal secretion of gastric juice in cases of anacidity, even by the most copious intake of salt. On the other hand, he has had cases in which large amounts of extremely acid stomach content were vomited repeatedly while the urine for weeks contained only traces of salt—a sign of the salt-starvation of the body. In some cases this salt-starvation from incessant vomiting of the hydrochloric acid in the stomach, with extreme motor insufficiency, entailed severe prostration and spasmophilia, subsiding only when large amounts of physiologic salt solution were administered by subcutaneous or rectal injection. The "salt fever" in young children is due more to the sodium *ion*, he thinks, than to the chlorin *ion*. In heart disease, abstention from salt is useful only as the patients are less thirsty and thus are not tempted to drink so much. It has been his impression that a tendency to uremia is more marked in nephritis without dropsy than in the dropsy cases; the retained fluids dilute the retained poisons and thus are beneficial. In diabetes insipidus, also, restriction of the salt intake is advantageous as it reduces the thirst and thus aids in combating the tendency to polyuria, and is useful also in polyuria from any cause and in the treatment of obesity. He agrees with Bunge that people take too much salt as a rule, but the harm comes from the resulting thirst which leads them to drink beverages which are not always conducive to health.

91. **Treatment of Arteriosclerosis.**—Strubell reiterates that in treatment of arteriosclerosis we cannot hope for more than slight improvement in a few of the symptoms, but that this is often supremely important. Chief of all is the encouraging influence of the physician, combating the depression and frequent tendency to suicide. Strubell does not approve of too stringent restrictions; age brings so many of itself that the arteriosclerosis need not add many more. The most important point is to ward off impending arteriosclerosis by hygienic living and diet, exercise, treatment of incipient tendency to kidney disease or gout, and avoidance of excesses of all kinds, with special care to prevent congestion in the abdomen. Plethora in the abdomen leads to overfunctioning of the vessels connected with the internal organs and thus brings undue strain on these vessels with resulting sclerosis. He thinks that much can be done in this way to ward off arteriosclerosis which otherwise is invited by the hurry and stress of modern life. Among the sedative measures he has found useful in arteriosclerosis are electric baths with the alternating current. Carbonated baths might be useful if the technic were perfected, but this is very faulty to date, he says, relating instances of direct harm from the carbonated baths now in vogue. (The importance of diet in warding off impending arteriosclerosis was emphasized in a recent editorial, p. 1976.)

94. **Tuberculous Foci in Long Bones.**—Böcker reports three cases to sustain his view that on the least suspicion of involvement of the joint in a focus in a long bone near a joint, operative measures are contra-indicated as a rule. He advocates the clearing out of the process only when the focus is certainly entirely outside of the capsule and there is no danger of infecting the joint if the focus is opened up. His cases show that a sequester may become encapsulated and the focus heal without further disturbance. The gait later in one such case was interfered with by a sequester as large as a cherry ensconced in the trochanter like the kernel of a nut; it had caused no trouble until after a fall on the hip. The patient was a boy of 9 and the symptoms then were assumed to be a flaring up again of an old healed process in the hip joint. When the sequester was shown by roentgenoscopy it lay so accessible that it was removed as a preliminary measure to the contemplated operation on the hip joint, but it proved to have been responsible for all the disturbance. Its removal was followed by a permanent disappearance of all symptoms. The nest of the sequester communicated with the joint, but its prompt removal after the trauma, before it had set up trouble inside the joint, arrested all further disturbance. The cavity left by its removal soon grew up with bone tissue. In the second case the clinical tests seemed to indicate that there was no connection between the focus and the joint but the operation proved that there was and infection followed. In a third case the suspicion of a connection deterred him from operating but the process healed permanently under conservative measures and time proved that the joint was intact. Whatever treatment is applied, he adds, potassium iodid is a valuable adjuvant. Bier recently demonstrated this by three patients cured by stasis hyperemia and potassium iodid internally in an unusually short time and with none of the complications so often observed under prolonged hyperemia treatment.

98. **Impressions of America.**—A rich crop of letters is sprouting every week in our exchanges, written by members of the large party of physicians who toured the United States at the time of the recent International Hygiene Congress. Pröbsting here states that people in Germany can form absolutely no conception of the public libraries in America or of the park systems in the large cities, especially in Chicago. Personal hygiene is more highly developed than in Germany, but public hygiene lags far behind. He deplores that the rich in Germany do not seem to feel that *richesse oblige* as well as *noblesse oblige*, the fact that so many charitable institutions in America are endowed by private means being to him the most wonderful thing about the medical institutions he visited. He adds that all the party found stimulation in the congress addresses and discussions and "the small exhibition" connected with it; Germany has much yet to learn, he remarks, in regard to the hygiene of children. He says of the Chicago stock-yards that here the division of labor—specialization—is seen in its extremest development; man is merely a machine. To the thinking observer it seemed actually a degradation of the Human.

Mitteilungen aus den Grenzgebieten der Med. und Chir., Jena

XXV, No. 3, pp. 403-588. Last indexed October 26, p. 1583

99 The Cammidge Reaction No Criterion of Pancreas Disease. J. Mayesima.
100 Experimental Research on Collateral Venous Circulation in the Kidney. (Zur Bildung venöser Kollateralbahnen in der Niere.) K. Isobe.
101 Persisting Choked Disk with Otitic Sinus Thrombosis. (Eine praktisch wichtige otogene Hirnkomplikation.) S. Auerbach and F. Alexander.
102 Eunuchoidism with Diabetes Insipidus; Two Cases. E. Ebstein.
103 Successful Operation for Bilateral Cysts in Cerebellum. (Fall von doppelseitigen mit Erfolg operierten Kleinhirncysten.) S. Auerbach and E. Grossmann.
104 *Peptic Duodenal Ulcer. G. B. Gruber.
105 *Resection of Middle Portion of Sagging Stomach. (Behandlung der Gastroptose durch keilförmige Resektion in der Pars media des Magens.) E. Schlesinger.

106 Case of Mikulicz' Disease. (Fall von symmetrischer Schwellung der Speichel- und Tränendrüsen, nebst Beteiligung des lymphatischen Apparates und der Haut.) E. Plate and F. Lewandowsky.
107 *Pulmonary Abscess and Bronchiectasia from Surgical Standpoint. F. Külbs.
108 *Favorable Influence of Intercurrent Infectious Disease on Chronic Disease. D. Gerhardt.
109 Histologic Research on Local Eosinophilia in Surgical Intestinal Disease. J. Oehler.

104. **Peptic Duodenal Ulcer.**—Gruber found peptic ulceration in 7.7 per cent. of 5,884 adult cadavers; 1.5 per cent. were in the duodenum, 6.7 per cent. in the stomach; 0.1 per cent. in the esophagus. He summarizes the clinical history of the 140 cases of peptic duodenal trouble; in 17 per cent. perforation was the cause of death. He calls attention anew to the connection of peptic ulcer with circulatory disturbances. In comparatively few of the cases had the duodenal ulcer been diagnosed during life. In 75 per cent. it had been overshadowed by some other affection. His experience shows that latent peptic ulcer occurs comparatively frequently in persons with arteriosclerosis, and may first manifest its presence by a severe open or prolonged occult hemorrhage. Especially in the elderly the possibility of this should not be forgotten.

105. **Operative Treatment of Sagging Stomach.**—Schlesinger gives an illustrated description of cases in which all internal measures had failed to relieve and he restored approximately normal conditions by cutting out the middle third of the stomach, uniting the stumps directly after this wedge-shaped resection, striving to have the stumps of about equal diameter.

107. **Operative Treatment of Pulmonary Processes.**—Külbs states that fourteen patients were cured of the twenty-four operated on for putrid abscesses of the lungs and three were much improved; seven died. He comments on the rapid subsidence of all symptoms after the operation and compares his experience with the 600 similar cases on record with a mortality of 17.5 per cent.

108. **Favorable Influence of Intercurrent Infectious Disease on Chronic Affections.**—Gerhardt reports six cases of this kind, but the benefit was only transient in all. In the first, a woman of 72 with intense trigeminal neuralgia had no pain in this region during the course of croupous pneumonia; pneumonia seemed also to abolish the pain of bilateral sciatica from a tumor in the sacrum in another case. In a third case of tuberculous ascites, the diuresis became remarkable during an intercurrent pneumonia and the ascites disappeared for the time being. In the other cases the symptoms of pressure on the brain from a tumor ceased during an attack of measles; an acute psychosis subsided temporarily during erysipelas; and a subchronic articular rheumatism caused no symptoms during an attack of follicular tonsillitis. In all the cases the pains kept off for a few days into convalescence; in none was the consciousness impaired. In connection with these experiences, he mentions Bloch's recent report of a case in which a parasitic affection healed when another part of the body had been inoculated with another parasite (*Achorion quinckeanum*).

Münchener medizinische Wochenschrift

November 5, LIX, No. 45, pp. 2433-2488

110 Contraction of Muscle and Swelling of Colloid. (Muskelkontraktion und Kolloidquellung.) J. Grober.
111 *Nephrectomy for Kidney Tuberculosis; Sixty Cases. (Dauerresultate von 60 Nephrektomien.) F. Suter.
112 *Septic Rheumatoid Disease. J. Schürer.
113 Injury of Eyes During Eclipse. (Augenbeschädigung durch die Sonnenfinsternis am 17 April, 1912.) J. Hoppe.
114 Local Application of Heat by Steam. (Lokale Wärmebehandlung durch Dampf.) H. v. Baeyer.
115 *Prevention and Treatment of Ankylosis of Joints. (Gelenkversteifungen.) K. Wahl.
116 Electric Treatment of Postoperative Paralysis of the Intestines. W. Pettenkofer.
117 Operative Cure of Myelitis from Compression by Tuberculous Process in the Spine. (Fall von operativ geheilter spondylitischer Kompressionsmyelitis.) A. Mendler.
118 *Treatment of Furunculosis and Carbuncles. A. Schüle and Heddäus.
119 *Typhoid Bacillus Carriers. (Aus der amtsärztlichen Tätigkeit.) B. Göhring.
120 Technic for Control of Roentgen Therapy. (Beaufsichtigung der Röntgentherapie seitens der Vorstände an Kliniken, Spitälern und Laboratorien.) R. Kienbock.
121 The Epiphanin Reaction. (Zur Weichardtschen Epiphaninreaktion.) Korff-Petersen and H. Brinkmann.

111. **Nephrectomy for Kidney Tuberculosis.**—Suter reports eighteen women cured by nephrectomy and ten men, with seven women and nineteen men materially improved. Five of the women passed through a pregnancy later. Only one of the five patients who have died since the nephrectomy succumbed to involvement of the lungs. The fact must not be forgotten that after the nephrectomy the patients are still tuberculous, and consequently that the general measures should not be omitted. He urges the general practitioner to pay special attention to the possibility of kidney tuberculosis in all obscure and spontaneous catarrhal affections of the bladder or kidney trouble. This is the only means to enable the recognition of the local tuberculous process in the kidney in the stage in which the entire disease focus can be removed. He cites two cases out of a wide experience in which the operation was refused, and although the kidney process apparently healed, yet complications developed in the other kidney or testicle with other serious features, confirming the dangers of leaving a tuberculous kidney in the body.

112. **Septic Rheumatoid Disease.**—Schürer found the *Streptococcus viridans* in three cases of what was apparently acute articular rheumatism, only that no benefit was derived from salicylic medication. He ascribes great importance to tonsillectomy in treatment of septic articular rheumatism.

115. **Treatment of Ankylosis of Joints.**—Wahl lays special stress on the prevention of ankylosis after phlegmonous processes involving the joints. He describes and illustrates a number of mechanical appliances which permit extension or rotation of the joints with other features to cure and prevent stiffness.

118. **Treatment of Furunculosis and Carbuncles.**—Schüle advises cauterizing the center of an incipient boil as the best measure for aborting it. He applies a little local anesthesia before the actual cautery. The first boil is generally too far advanced before it is seen, but the following one treated by prompt cauterization in its early stage is aborted and the crop is thus destroyed.

Heddäus emphasizes anew the great value of a deep circular incision around a carbuncle, down to the muscle or periosteum. This localizes the trouble, and the result in his cases has been striking. He here relates a case in a diabetic in which the benefit was noticeable, although the patient succumbed to the pre-existing complications.

119. **Prophylaxis of Epidemics.**—Göhring reports another instance of the way in which it is possible to nip a typhoid epidemic in the bud by search for bacillus carriers in the environment and training the carriers in the principles of prophylactic care. He also calls attention to the necessity for greater importance being paid to the negative findings on bacteriologic examination. In two recent cases the diagnosis of typhoid seemed certain except for the absence of typhoid bacilli from the stools, and necropsy revealed miliary tuberculosis.

Therapeutische Monatshefte, Berlin

November, XXVI, No. 11, pp. 769-840

122 *Protection of the Peritoneum Against Operative Infection. (Ueber Peritonealschutz.) O. Hoehne.
123 Injections of Calcium-Gelatin. A. Müller and P. Saxl.
124 Neosalvarsan. W. Heuck.
125 Hypophysis Extract in Obstetrics and Gynecology. J. Hirsch.
126 Study of Ergot. (Zur Kenntnis der Wirkung des p-Oxyphenyläthylamins.) M. Guggenheim.
127 *Quackery and Nostrums from the Legislative Point of View. (Die Bekämpfung der Kurpfuscherei und des Geheimmittelschwindels auf dem Boden landesgesetzlicher Verordnungen.) A. Springfeld.
128 *Aspirin and Acetylsalicylic Acid. H. Linke.
129 *Reform in Advertising Medicinal Articles. (Wünsche zur Reform des Arzneivertriebes.) W. Heubner. (Von der Arzneimittelkommission des D. K. für Inn. Med.)

122. **Protection of the Peritoneum.**—Hoehne has been much pleased with the results of the injection of 30 c.c. of a 1 per cent. camphorated oil before operations to induce a local protecting reaction on the part of the peritoneum as a barrier against general infection in abdominal operations in which asepsis cannot be counted on. In his experience with 234 "unclean" abdominal operations, including 113 uterine cancer cases, there were only twenty deaths and for only two of these was a suppurative peritonitis responsible. In both of

these cases the connective tissue in the small pelvis was probably the source of the peritonitis after removal of the uterine cancer. In the eighteen other fatal cases there was no peritonitis and necropsy revealed the desired reaction to the camphorated oil. It permits the abdomen to be sutured, and in the 350 cases in which he has applied the ante-operation oil treatment there was no sign of injury from it in any instance. Recent reexamination of 150 patients showed the absence of adhesions or of any signs of ileus. In case of much infection it might be wise to follow the operation with a second smaller injection of oil. He has been applying the method for three and one-half years and states that his experience is confirming more and more that the reaction localizes the infection and destroys the germs in the abdominal cavity by mobilizing the exudation forces, the strength of which depends on the capacity of the peritoneum for reaction, the choice of the irritating substance and the duration of the irritation. The protection is confined to the germs in the abdominal cavity and does not exclude infection from the soft parts. He does not think that injections after the operation answer the purpose at all, as the reaction comes too late, but it might prove a useful adjuvant.

127. **Quackery and Nostrums.**—Springfeld reviews the legislation on these subjects in Germany and the history of the measures that have been proposed against them, especially the agitation for a central standardizing office for new remedies. He states that if the nostrum business could be eradicated millions would be saved to the people, sufficient to finance all the wished-for reforms to stamp out tuberculosis. By checking the flood of quackery also, more human lives would be saved than by the national social insurance.

128. **Aspirin and Acetylsalicylic Acid.**—Linke reports that those who have found that non-proprietary brands of acetylsalicylic acid contain free salicylic acid, while the proprietary brand "aspirin" is free from it, obtained their results through the employment of faulty chemical methods. Linke states that those interested in aspirin admit that, depending on the peculiarity of the patient, both "aspirin" and acetylsalicylic acid produce gastric disturbances, which disturbances are not uncommon, according to Linke's own experiences. As an acknowledgment of this, it is reported that the Farbenfabriken are attempting to introduce a substitute for "aspirin" which is said to be especially useful where aspirin is not well tolerated. Linke has found acetylsalicylic acid, von Heyden, to be the equal of aspirin, both chemically and therapeutically, and concludes with the assertion that a good acetylsalicylic acid, under the same conditions and with the same patient, acts as promptly and efficiently as aspirin—which is a good grade of acetylsalicylic acid and nothing more—and that both in a given case produce equal gastric disturbances. (See THE JOURNAL, Nov. 2, 1912, p. 1642.)

129. **Reform in Advertising Medicinal Articles.**—The committee appointed by the German Congress for Internal Medicine—which is entitled to be called the German Council on Pharmacy and Chemistry—announces that it has recently elected six consulting members in addition to the six regular members. The regular members are Penzoldt, Gottlieb, W. Heubner, G. Klemperer, A. Schmidt, and Spatz, nearly all editors as well as internists. The consulting members are W. A. Puckner, as representative of the Council on Pharmacy and Chemistry of the American Medical Association; Mannich of Göttingen, as representative of scientific pharmacy; Dippe of Leipsic, as representative of the German Aerztevereinsbund, and Salzmann of Berlin, as representative of the German Apothekerverein, O. Heubner of Berlin as adviser in pediatric and Bettmann of Heidelberg in dermatologic matters. In addition, E. Fischer, Thoms and His are a special advising council. The commission has installed its office at Nikolausberger Weg 23, Göttingen, in charge of Dr. O. Loeb. All questions and communications should be sent to this office. The commission is soon to publish a second list to contain the approved articles. The list B, the previously negative list, will follow later. In addition to the publication of these lists, the organized medical press has agreed to submit all advertisements to critical inspection before accepting them, so that a number of advertising abuses will be eliminated at once. It is hoped by the committee that this self-regulation, inside the profession, will gradually lead to a reduction in the grossest abuses. Further details in regard to what is practically the analogue in Germany of our own Council on Pharmacy and Chemistry, are given in the current Berlin Letter, December 7, p. 2081.

Wiener klinische Wochenschrift, Vienna

November 7, XXV, No. 45, pp. 1773-1816

130 Psychogenic Disturbances in Children. (Ueber den Mechanismus psychogener Erkrankungen bei Kindern.) F. Hamburger.
131 Protozoa in Chronic Pemphigus. B. Lipschütz.
132 *Tetany and Osteomalacia. (Zur Pathogenese der kalzipriven Osteopathien.) J. Bauer.
133 Myomas and Primary Sarcomas of the Stomach. A. Löwit.
134 The Campaign Against Tuberculosis. (Vorschläge zur Bekämpfung der Tuberkulose.) M. Winter.
135 The Municipal Pharmacies in Italy. P. Martell.

132. **Tetany and Osteomalacia.**—Bauer reports a case of tremor followed by tetany, occurring in the course of nephritis. He thinks the irritation of the nervous system by the uremic poison and its action further on the parathyroids explain the symptoms observed. In another case the tetany developed during osteomalacia in a woman of 27. The osteomalacia was independent of a pregnancy and was not influenced in any way by two following pregnancies, but with the tetany it passed into a latent stage with exacerbations later. He discusses the relations between osteomalacia, tetany and rachitis. The case is especially interesting on account of the remarkable benefit from epinephrin treatment. The causal connection of the tetany and osteomalacia was sustained by the simultaneous appearance and subsidence of the symptoms of both again and again. Three times the symptoms of both entirely subsided under the epinephrin treatment, and three times they returned again together, indicating renewed treatment.

Zentralblatt für Chirurgie, Leipsic

November 16, XXXIX, No. 46, pp. 1569-1600

136 *Improved Technic for Gastrostomy. (Neues Verfahren für die Gastrostomie und Oesophagoplastik.) W. Röpke.

136. **Improved Technic for Gastrostomy.**—Röpke has applied the technic recently proposed by Jianu for making a tube leading into the stomach, utilizing for the purpose a long narrow flap from the wall of the greater curvature of the stomach. Röpke modified Jianu's technic a little and states that the method avoids all the disadvantages of other technics while retaining their good points. The pedunculated flap is cut from the lower part of the greater curvature up toward the fundus. The tube thus formed is brought out through the pectoral muscle below the left clavicle, which effectually prevents seeping of the stomach content.

Zentralblatt für Gynäkologie, Leipsic

November 16, XXXVI, No. 46, pp. 1529-1568

137 The Streptococci in the Vagina of Parturients. (Bedeutung der Streptokokkenbefunde im Vaginalsekret Kreissender.) K. W. Jötten.
138 *Ileus During Pregnancy or the Puerperium. P. C. T. Van der Hoeven.
139 Hypophysis Extract in Treatment of Amenorrhea. R. Hofstätter.

138. **Ileus During Pregnancy.**—Van der Hoeven has compiled from the literature ninety-four cases of this kind which he tabulates, the records showing that absolutely no cause for the ileus could be found in from fifteen to twenty of the cases, even at necropsy. He then offers an explanation for the development of the ileus as he encountered it in a few cases. The gravid uterus in the open abdominal cavity does not press on the intestines enough to obstruct them, but it is possible that there is pressure on the intestines in the pelvic inlet. When the lower part of the uterus is pushed down into the pelvic inlet from above or dragged down from below, the rectum may be compressed at this point by the enlarging uterus. If the vagina is elastic it yields when the pregnant uterus grows up out of the same pelvis, which occurs about the third or fourth month, but if it is not elastic, the vagina pulls on the uterus and holds it down in the pelvic inlet, and thus conditions are readily induced which lead to ileus. A mere laparotomy will not correct the condition and the cause even then may escape detec-

tion. In the cases on record he has found five in which conditions seemed to indicate this explanation of the ileus. These conditions may also be responsible for the tendency to constipation in pregnant women.

Gazzetta degli Ospedali e delle Cliniche, Milan

November 5, XXXIII, No. 133, pp. 1393-1400

140 *Italy's Freedom from Cholera This Year. (Perche quest'anno non abbiamo avuto il colera?) E. Bertarelli.
141 Efficacy of Milk of Thyroidectomized Goats in Exophthalmic Goiter; Two Cases. (Latte steroidato nel morbo di Basedow.) A. Cantieri.

140. **Italy's Freedom from Cholera This Year.**—Bertarelli confesses that, with many others, he was sure that 1912 would witness the continuation of last year's epidemic of cholera in Italy which was responsible for 7,000 deaths, according to the official statistics. But the country has been free from cholera up to November, and this confirms, he says, the comparative harmlessness of cholera germ-carriers and the efficacy of the prophylactic measures applied, although they were far from thorough in some places. They served, however, to educate the public in personal hygiene, and to show how with a little good will and common sense it is possible to ward off cholera. He remarks that germ-carriers are not a "new" danger; they must have existed always although they were not discovered until recently. Theoretically, epidemics should spring up in the track of the hordes of germ-carrying globetrotters, and the fact that this does not occur confirms anew the extreme paucity of our knowledge in regard to the biology, etc., of cholera germs.

Riforma Medica, Naples

November 2, XXVIII, No. 44, pp. 1205-1232

142 The Venous Pulse in Fatigue. (Il polso venoso nell'uomo affaticato.) L. Ferrannini and R. Scalia. Commenced in No. 43.

Semana Medica, Buenos Aires

October 17, XIX, No. 42, pp. 753-808

143 Spontaneous and Criminal Abortion from Clinical Standpoint. E. Zarate.
144 Influence of Spleen on Gastric Secretion. (Influencia del bazo en la formacion de los fermentos gastricos. I.) F. L. Soler and L. F. Madero.
145 Eruption from Iodid Poisoning. (Penfigo yodico.) P. Ghiso.

Hospitalstidende, Copenhagen

November 6, LV, No. 45, pp. 1293-1328

146 *Laceration of the Dura Mater of the Child During Delivery. (Om Bristningen i Dura mater opstaaede hos nyfødte under Fødslen.) L. Meyer and E. Hauch.

146. **Laceration of the Dura Mater During Birth.**—Meyer and Hauch have made a special study of this subject since Beneke recently called attention to the importance of laceration of the tentorium in the pathology of the new-born. In order to study this laceration the skull has to be opened with special precautions, as they show with several illustrations. Examination of the skulls of sixty-four infants born dead or dying soon after birth at the Copenhagen maternity, showed rupture of the dura in twenty-eight cases. The laceration was the cause of death in only twelve of the cases, the proportion was thus 1 per cent. in the total 1,200 deliveries during the six months, with sixty-four of the children stillborn or dying soon after birth. The tentorium is very rich in blood vessels and the outcome depends on the extent of the laceration and size of the vessel involved.

In thirteen of the children the rupture was probably the cause of death, including six stillborn, one delivered in breech presentation, and five in vertex presentation, all difficult forceps cases. In fifteen of the cases the laceration was without clinical significance. In the seven children who were born alive with serious rupture four died almost at once; one was born spontaneously in vertex presentation four weeks before term and both tentorium and falx were completely torn, with great hemorrhage. Another of the children in this group was syphilitic, and there was partial laceration on both sides. One child was born a month before term and the longitudinal sinus was found ruptured, with great hemorrhage. The findings in each of the cases of fatal laceration of the dura are illustrated and the details tabulated. They demonstrate that the rupture occurs during spontaneous delivery only in small, prematurely born children or macerated fetuses or fetuses which have died just before birth. When rupture occurs in a well developed child there has always been some preceding difficult obstetric manipulation or the rupture is of insignificant extent. The head of a prematurely born child may not be able to stand the strain of even a spontaneous delivery. In a recent case a child was being delivered by cesarean section and just as the chin and mouth were passing through the opening in the uterus a violent contraction occurred, compressing the head for a few seconds, but releasing it again at once. The child was small (2.150 gm.), but at term. It died ten hours later and the tentorium was found torn on both sides with considerable hemorrhage. During the period in question forceps were applied in sixty-six cases but this was a simple matter in all but twenty. In this latter group the forceps got a good hold in twelve cases and no lacerations occurred, while in the eight cases in which the application of the forceps met with some difficulty there was rupture in every instance. Pressure on the head from the front backward seems to be the most dangerous in this respect. The falx is not so rich in vessels as the tentorium and consequently laceration here is less serious. (A previous communication on this subject was summarized in The Journal, June 15, 1912, p. 1888.)

Ugeskrift for Læger, Copenhagen

October 31, LXXIV, No. 44, pp. 1601-1632

147 Digitalis Preparations. (Digitalisstoffer, Digitalispræparater, frisk Digitalisinfus.) A. Oigaard.
148 Three Cases of Sclerosis in Patches in One Family. (3 Tilfælde af Sclerose en plaques.) E. Clausen.

November 7, No. 45, pp. 1633-1668

149 *Nervous Disturbances from Cervical Ribs. (Nervelidelser som Folge af Halsribben.) K. H. Krabbe.

149. **Nervous Disturbances from Cervical Ribs.**—Krabbe reports six cases which emphasize anew the variability and severity of the clinical disturbances that may be induced by supernumerary ribs in the neck. In two cases the functioning of the arm was interfered with and there was pronounced scoliosis; the latter is a frequent finding with cervical ribs. Another patient was a man whose left arm and leg had always shown some atrophy. At the age of 30 the left arm developed gangrene, compelling amputation before the cervical ribs—the cause of the vascular disturbance—had been discovered. The symptoms suggested syringomyelia in some respects. In the other cases the trouble was in the peripheral nerves; in one case the course was so acute and painless that poliomyelitis was suggested, while in the others the trouble came on gradually and the pain became so intense that life was unbearable. The diagnosis in one case had been a spinal tumor; roentgenoscopy was negative and no benefit was derived from drugs and electricity. After seven months of various measures, the patient, a girl of 22, was presented at a meeting of neurologists and the diagnosis discussed, some inclining to accept a spinal tumor, others syringomyelia, others Klumpke's neuritis or a neuritis with functional disturbances. The first sign of trouble had been noticed at the age of 12, but the pains did not develop until five years later. The possibility of cervical ribs was mentioned but discarded owing to the negative Roentgen ray findings. On assumption of syringomyelia, roentgenotherapy was applied but proved futile as also all medication. After six months of agonizing pain the patient insisted on an operation of some kind, and roentgenoscopy then with special regard to the neck revealed the cervical ribs and prompt recovery followed the operation for their removal. One lesson taught by the martyrdom of this patient is that roentgenologists seldom think of the possibility of cervical ribs; in this case the anomaly was at the seventh cervical vertebra, the rib being 3 cm. long, too small to be palpated and not evident on roentgenoscopy until specially sought for. A special feature of the case is that a sister of this patient also had cervical ribs causing trouble, and three brothers had a slight tendency thereto, while the seven other children in the family were free from it. Krabbe's six patients were between 16 and 34, and the cervical ribs had caused no disturbances until from one to ten years previous.

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PULMONARY TUBERCULOSIS AS AN OBSTETRIC COMPLICATION *

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To obtain an approximate idea of the frequency of tuberculosis during pregnancy we assume in the absence of data that it is about the same as among women of the child-bearing age. From 25 to 29 per cent. of all women in this age period die of tuberculosis and the general death-rate for the period is 8 per thousand. Consequently the yearly death-rate from tuberculosis for women between the ages of 15 and 50 is from 2 to 2.3 per thousand. Now, assuming an average duration of the disease of from five to eight years this would give a frequency between 1 and 2 per cent. This would indicate that every year there are in the United States between 22,000 and 44,000 gravidæ with active tuberculosis in one of the three stages.

Probably if all latent cases were included the number would be greater. I omit consideration of such cases that do not become active during pregnancy. Until there is more uniformity in methods of diagnosis and classification it is impossible to secure data from different clinics and institutions which can be used in computing the extent of the disease. The adoption of the suggestion of Flick of Philadelphia, made at the recent International Congress on Tuberculosis in Rome, would help to secure more reliable data. He proposes a standardization of the symptoms of tuberculosis and the adoption of an international history sheet. The introduction of such a uniform system of examination and records would bring uniformity into the statistics which now show a variation of from 1 to 50 per cent. in the frequency of tuberculosis in different institutions.

The management of this complication depends on the effect of tuberculosis on the egg and on the pregnancy; and also on the effect of pregnancy, labor and the puerperium on the course of the tuberculosis. Considering first, the effect of tuberculosis on the fetus, it must be admitted that fertilization and nidation may occur in a tuberculous tube or uterus. This eventuality is, however, very rare; but the infection of the decidua, placenta and chorion has been shown by a number of observations to occur not infrequently. When this happens, the blood of the fetus may contain tubercle bacilli. Only further observation can determine how often this occurs. Also infection through the spermatic fluid may occur.

The discovery of tuberculosis in the first two months of child life, however, is rare. Practically all observers agree that tuberculosis when it is found in infants is the result of infection after birth. It may be that fetal infection is easily overcome during intra-uterine life. A marked immunity at birth, however, does not exist. Some predisposition to the disease may occur. The nature of this has been much discussed, but without result.

EFFECT ON PREGNANCY

The effect of tuberculosis on the course of pregnancy is slight. In some cases in which there is considerable involvement of the placenta or decidua, abortion may occur.

The effect of pregnancy on the course of the tuberculosis differs much in individual cases, depending on the progress of the disease, the surroundings of the patient and the existence of complications, such as foreign infections and toxemias. If the patient gets through the first three months well there is often an improvement in her condition. She may increase in weight and in strength and come to labor in fair condition. This favorable course is more common in tuberculosis in the first stage. Sometimes it is found in the second stage of the disease. In both the first and the second stages the patient may begin to fail in the last three months. Respiration becomes difficult, coughing is very disturbing, the woman becomes very weak and loses weight. In the third stage the prognosis is always bad and the woman may die before labor begins.

The description just given is not agreed to by all. Many contend that there is always an increase in the tuberculous process during pregnancy. Assuming this to be a fact, various explanations have been given to account for it. A pregnant woman is not particularly susceptible to other infections. The special susceptibility to tuberculosis of the lungs has been attributed to the contraction of the thorax and disturbance of respiration by the lifting of the diaphragm and venous congestion. Also to the tissue changes in the lungs and air passages have been ascribed deleterious influences.

To these factors, which indirectly favor the development of the tuberculosis, have been added others which might directly favor the growth or increased virulence of the tubercle bacillus. Among such alleged factors are changes in the number and character of the leukocytes and also of the opsonins of the blood of pregnant women. Recently Hofbauer has held that there is a decrease in the lypolitic enzymes of the blood-serum of pregnant women which leads to a lipemia that favors the growth of the tubercle bacilli. This theory not having been confirmed, more recently still, he and Christofoletti and Thaler have tried to show that there is a condition of lipoid anemia — cholesteremia — that is favorable to the development of the tuberculosis germs. This latter theory remains to be proved or disproved. Meantime we cannot admit the assumed clinical fact which these

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* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

workers have tried to explain, viz., that all such cases grow worse during pregnancy.

If the patient has passed through pregnancy in good condition, labor may be quite normal, especially when there are no pathologic conditions in the passages or passenger. If she be very weak labor may be a serious strain.

It is acknowledged that in the puerperium the tuberculosis generally becomes worse even in milder cases; and in bad cases the patient may succumb within a few days or a few weeks. Perhaps the strain of labor breaks up old infection foci or causes injuries which complicate the situation. One is reminded of the exacerbation of appendicitis in the puerperium.

PROPHYLAXIS

There are two problems in prophylaxis, the prevention of pregnancy in a tuberculous woman and the prevention of infection in a pregnant woman or one liable to become pregnant. The latter problem is very important and often overlooked or slighted.

The chief danger of infection for the woman is from her husband. A man with tuberculosis should not marry. If a husband acquires tuberculosis after marriage, he should avoid infecting his wife. Every consideration of reason and affection demands this course. It is the duty of all who are interested in preventive medicine, not only health officers, but also the medical profession, to spread information on this subject. There is nearly as much reason why a tuberculous man should not marry as why a tuberculous girl should not marry. If in the married life, the husband acquires tuberculosis first, i. e., before his wife, he should, if possible, undertake a sanatorium cure. Even if a cure is not accomplished, he learns in the institution how to avoid infecting others and acquires the intelligent self-control necessary to the avoidance of the greatest danger.

The other problem in prophylaxis is the prevention of pregnancy in a tuberculous woman. Of course, a girl with active tuberculosis should not marry. This should be taught in all possible ways until it becomes a moral law in every civilized community. The prevention of pregnancy in a tuberculous wife can be accomplished by abstinence from sexual congress, by the use of measures to prevent conception and by artificial sterilization.

Of course, we advise abstinence. Sometimes it will be practiced, but rarely can we feel certain that it will be continued for any considerable length of time. Preventive measures are generally failures in the end. Hence we come to the somewhat complicated question of artificial sterilization.

ARTIFICIAL STERILIZATION

It is not immoral in itself. The serious objections to the induction of abortion do not apply to it. The chief objection is that the patient may recover from the infection and then desire to have a child. This objection is overcome by doing a temporary sterilization. For nulliparæ or women with only one child or women who have a good chance to recover, a temporary sterilization should be chosen. For women who already have several children or those who have very little prospect of a permanent cure some permanent sterilization operation may at times be preferred.

Whatever operation is made it is especially important that a written agreement be had with both wife and husband in order to avoid future possible legal complications.

It is well known that a simple ligation of the tubes is not a reliable method of producing sterilization. Neither is the incision between double ligatures sufficient. It is necessary to bring the uterine end of the tubes under the peritoneum or within the broad ligament. This can be done through a vaginal celiotomy and is among the simplest and safest of gynecologic operations in the absence of pregnancy, and with a patient in a fair condition. Later it will be possible, if the patient recovers from her tuberculosis, to implant the distal part of the tube into the uterine portion.

Several reasons may favor combining the sterilizing operation with the induction of therapeutic abortion. This may be done if the pregnancy has not advanced beyond the tenth or twelfth week. Schauta favors the practice and avoids injury to the large, soft and congested uterus by catching the round ligaments one at a time and bringing the isthmial portion of the tubes into the peritoneal opening. After the twelfth week of pregnancy it is better to empty the uterus if abortion is necessary and to wait a few weeks before sterilizing.

The two most important methods of permanent sterilization are castration and hysterectomy. Bumm combines them. He and others contend that removal of the ovaries will favor the healing of the tuberculosis through its tendency to cause an increase in the fat which helps the struggle against the infection. Others deny that the healing of the tuberculous process is effected by such an increase of fat in the body and hold that the nervous and psychic disturbances arising from the removal of the sexual glands is an injury to the patient.

Castration may sometimes be indicated as a sterilizing operation in order to stop the menstruation that may be attended with much pain or with serious loss of blood. Hysterectomy would meet the same indications and alone might be preferable to castration as the organism would retain the ovarian glands whose secretion might be of value for some time. The combination of the two procedures in the Bumm operation seems contrary to conservative practice and can be justified only by exceptional clinical results.

Pincus' method of atmocausis, or obliterating the uterine cavity by burning it out with superheated steam, has not found much general favor. The use of the Roentgen ray to destroy, more or less completely, the sexual glands is too uncertain to promise much for the future.

When both husband and wife are tuberculous, it would seem more reasonable to sterilize the husband by an operation on the vas deferens. This would be equally efficient and less dangerous, as it is generally made without an anesthetic.

INTERRUPTION OF PREGNANCY

If in spite of advice and care a tuberculous woman becomes pregnant, or if a gravida becomes infected with tuberculosis, the first question in the management will be that of the interruption of pregnancy. There are two indications for the induction of abortion in this condition: first, the vital indication, when it is necessary to save the life of the gravida who is in immediate danger of dying, and second, the prophylactic indication, when it is done to prevent the development of the disease which may be expected to occur from gestation and labor. The operation is rarely done for the vital indication. It does not hold with a patient in the first stage of tuberculosis and with one in the second and third stages only in the last half of pregnancy when artificial abortion is generally useless.

Practically, nearly all therapeutic abortions for this complication are made for the prophylactic indication. The justification of the operation depends on the correctness of the assumption that the patient's condition will suffer serious injury by the continuation of gestation and that this injury can be averted by the abortion. It is evidently very difficult to reach objective certainty with such an assumption. The correctness of the conclusions must depend on the ability of the physician to form a correct judgment. Assuming that he possesses a good theoretical knowledge of the premises and an acute sense of his responsibility, yet he must have experience. Few physicians have seen enough cases to enable them to form a correct judgment from their own experience. The reports from the literature are hardly encouraging. Veit collected 745 cases of induced abortion for this complication. Of this number the outcome was given in only 347 cases. In only 199 or about 57 per cent. were the patients reported as improved. One patient died as the result of the operation and 107 patients died within a short period, while forty-one more are reported as unchanged. This shows an absolute failure of the operation in about 43 per cent. of the cases. This is certainly a discouraging outlook. It may be admitted that not all of these operations were done from the prophylactic indication. Also, there is no classification of the cases showing the stage of the disease. The report is valuable, however, to counteract the impression that the justification of the operation may be assumed.

It is indeed possible that more years of life would be saved if the operation were entirely abandoned. We have of course the destruction of fetal life or a fetal mortality of 100 per cent. Is this offset by the increased length of life of the 57 per cent. of mothers whose condition is improved by the operation?

The legal aspect of the question demands attention. Our laws do not recognize the prophylactic indication. Only those abortions are exempted from the penalties of the criminal act that are done to save the life of the mother. It is generally assumed by physicians that an abortion done to save the health of the mother would also be accepted, but lawyers by no means agree to this assumption. In Germany this feature of the law has been much discussed in the last two years.

It is certainly not easy to find a logical justification of the prophylactic abortion. It is, of course, feticide — a destruction of human life. Who has the right to destroy this life? Has the mother? If so, can she give the right to a third person? When the mother is in imminent danger of death from the fetus it may be admitted that she can protect herself by destroying the fetal parasite. But when there is only an assumption that her health may be injured by the presence of the fetus, her right to take the fetal life is certainly much more questionable.

These considerations simply show that the question is a complicated and serious one, and that the responsibility of the physician who decides in favor of the measure is great. It is certainly desirable that the decision should be made only after a professional consultation. It is often true, however, that an internist is more apt to recommend the operation than to veto it. The obstetrician is not freed from his responsibility when an operation is recommended that he cannot approve. It would be no less than degrading for anyone to employ his skill as an instrument to do what he considers wrong or unjustifiable.

My own conclusion is that we must individualize. Sometimes, but rarely, abortion is justified. It should be done in the second half of pregnancy, only for the vital indication. All effort here should be made to save the fetus — to bring it to a safe viability term. If that cannot be done and the mother is about to die, we may take the only chance to prolong her life. In the first half of pregnancy we should carefully watch the progress of the disease. If the patient is under the most approved treatment and nevertheless grows worse, as shown by cough, fever, and loss of weight, with hemoptysis, then abortion should be induced. We must particularly take into consideration and allow for nausea and vomiting and other disturbances occurring in the second and third months of pregnancy. On this account it is sometimes difficult to decide on the operation before the fifteenth or sixteenth week.

A study of the conjunctival and cutaneous reactions in tuberculosis have shown that in an advanced stage of tuberculosis there may be a negative reaction to either. This is regarded as a bad sign since it denotes the lack of reaction in the organism. Wolff-Eisner has proposed to apply this fact in confirming the indication for induction of abortion when pregnancy is complicated with tuberculosis. In a case in which previously a positive Wolff-Eisner test showed a good reaction, its loss would denote a bad prognosis. If the reliability of this test is confirmed it may assist in deciding on an operation.

Much has been said of the social indication. It is a dangerous subject but cannot be ignored. A poor woman who has a number of children, who contracts tuberculosis and then becomes pregnant, is certainly in a different class from a well-to-do young woman in her first or second pregnancy. Without subscribing to the justifiability of the social indication as such, we agree that the social condition has a bearing on the prognosis and becomes a factor in deciding the prophylactic indication.

It may not be out of place in this connection to add that abortionists are beginning to use the prophylactic indication as an excuse for inducing abortion in cases in which there is no suspicion of tuberculosis. Women who wish to have an abortion have learned to use this plea and represent to the physician that they fear tuberculosis and desire help for this reason. Criminal abortion is rapidly coming to be recognized as a crime that affects the morals, health and lives of a considerable portion of many communities and even seriously threatens the existence of nations. Anything that encourages the crime must be avoided. The induction of abortion for weak or doubtful indications must not be allowed.

METHOD OF INDUCTION OF ABORTION

The best operation is one that involves the least risk from hemorrhage, infection and shock. During the first twelve weeks the uterus may be emptied under anesthesia with rapid dilatation and curettage. From the twelfth to the twentieth week a preliminary dilatation of from sixteen to twenty-four hours with laminaria tents should be employed. Sometimes the tent dilatation is desirable as early as the tenth week whenever the cervix seems firm and might dilate with difficulty. Of course, the danger of the curet must be kept in mind and only an instrument with a broad loop and a flexible shank should be used. Some expert operators prefer a hysterotomy, but I believe the average physician will have less risk with dilatation and curettage. As has been previously stated, sterilization may be combined with the evacuation of the uterus. In the rare cases of induction of abortion between the twentieth and twenty-eighth weeks hysterotomy is probably the safest and least exhausting procedure.

During pregnancy the patient should be treated like any other patient with tuberculosis. She should breathe fresh air, be well fed with good nutritious food and avoid exhaustion or fatigue. Like other patients she must learn to take care of herself, avoid other infections and diminish the danger of infecting others. Whenever possible a course at a sanatorium is desirable.

During the entire pregnancy she should be kept under very close watch. Temperature and pulse should be taken two or three times a day. Weight should be taken twice a week. Elimination by bowels and kidney should be watched. The amount of exercise should be regulated and the amount of sleep attained should be known. In particular the diet should be controlled and its exact caloric value determined and recorded.

Even when the patient has done very well during the middle of pregnancy, she may retrograde in the last two months and reach a serious condition bordering on collapse on account of disturbances in nutrition and respiration. Here the induction of premature labor is urgently indicated. By relieving the patient from the most trying four to six weeks of pregnancy she comes to the arduous period of the puerperium in a better condition and with better prospects. On account of the child the operation should be postponed to the end of the thirty-sixth week if possible. Then it should be done so as to furnish the quickest relief. Generally metreurysis after rupture of the membranes is the best method. After the introduction of the bag pituitary extract may hasten the labor. Sometimes a vaginal cesarean section will prove the most serviceable operation.

The watchful care of pregnancy is redoubled during labor. The physician should remain with the patient, not for the purpose of interfering but to observe the progress and the effect of the labor. Every possible care should be taken to prevent infection. In particular the third stage should be managed with patience to avoid hemorrhage and infection.

It is a well-recognized fact that the puerperium is the period of greatest danger. This may be due, as already suggested, to breaking up of old infective foci by labor and the lighting up of new and extensive infections in the lungs. It may be due to the dissemination of tuberculous infection from the placenta. Sometimes acute miliary tuberculosis occurs and is differentiated with difficulty from puerperal sepsis. Genital wound infection may occur and become unusually virulent on account of the diminished resistance of the patient. Loss of sleep from disturbance of the baby and from lactational troubles may be a factor. If the patient has been used to sleeping in the open air and is now kept in a room, this confinement will distress her. An unnecessary restriction of the diet may help to reduce her strength.

All these disturbing factors should be considered in the management. Granted a safe labor and subsequent care that obviates puerperal infection, with a good diet, fresh air, and removal of worry on account of the child, a tuberculous patient will avoid most of the dangers of the dreaded puerperium.

NURSING IN TUBERCULOSIS

The objections to the nursing of the baby by the mother are the danger of infecting the child and the strain of nursing on the mother. The child's chances of escaping infection are no doubt better if it is removed from the mother entirely. However, this is often impossible. The chance of infecting the child will be lessened if she has learned to take care of the sputum. In poorer houses it is of great importance to train the mother. If a mother has fever, cough and many bacilli in the sputum she should not be in contact with her child or with other members of the family. In the first stage, however, the danger of infecting the child from nursing is not much greater than that which arises from caring for the child.

That nursing is an added strain on the mother is true and this furnishes a good reason in many cases for forbidding nursing from the start or after a short time. Consequently, the same care that was given to the gravida must be extended to the puerpera. If she loses weight and begins to decline in strength, she must wean the child at once.

The rule of procedure is as follows: In any case, if the mother can afford to employ a wet-nurse she should do so. If one is not to be obtained and the child is strong it is fed on modified cow's milk. A competent child's nurse should take entire charge of the child. If the child is weak or premature and not likely to thrive on artificial food it may nurse from the mother at least in part but with every precaution to prevent infection. It is better to give the milk pumped from the breasts. If the mother cannot afford to employ a wet-nurse or a child's nurse but must care for the child herself, she may begin to feed it once or twice a day. Little by little she should wean it so that by the end of three or four months nursing is entirely abandoned. The entire management must be strictly superintended by the physician.

SANATORIUM AND DISPENSARY CARE

Municipal and private sanatoriums and dispensaries should give special care to women before confinement and to the mother and child. At present there seems to be no provision for this class of patients in the United States. Large institutions should have special departments for these cases. In populous cities special sanatoriums for tuberculous gravidæ and for tuberculous children would be desirable. To such institutions could be sent all patients who cannot be satisfactorily treated at home. No other class of tuberculous patients is in as much need of proper treatment and no other class is at present so much neglected. There are probably 10,000 women yearly in this country who should be sent to sanatoriums. With an average residence of three months to each patient they would require 2,500 beds or fifty institutions with fifty beds each.

A children's department should be provided in connection with the maternity department where children under 4 years, as a rule already infected, whom the mothers could not leave at home, might be received. The establishment of free maternity and children's sanatoriums for tuberculous patients would attack the disease at its source and thus aid materially in its eradication.

IMPORTANCE OF THE PROBLEM

In the study of this problem there is some danger that we lose ourselves in the discussion of professional technical details. What is the end of the whole matter? It cannot be to save a few months or years of life to poor sick women who as long as they live will be sources of danger to their families and to the community. It cannot be to bring into the world weak, defective children who become infected early and go through a short, miserable life spreading disease and undoing the work that has cost much effort and money. It were better to sacrifice both women and children.

Our aim is to save and cure tuberculous women if possible; if not, to prevent them from injuring others. We must protect the children from infection. This cannot be done by individual effort. Concerted professional and social effort is necessary. This is not simply a medical or obstetrical question in the old sense. It is a part, and a very important part, of the whole tuberculosis problem.

Seen from the point of view of public health and preventive medicine, the problem has a different aspect from that which it formerly presented to the short-sighted practitioner traveling in the rut of custom. Prevention of pregnancy, whether it involves celibacy or sterilization, comes to be almost a moral law. Induction of abortion remains the area still covered with the mists of doubt. Ethical, legal and professional mists make a uniform treatment impossible. The care of the mother and the protection of the child demand professional, philanthropic and state cooperation and that alone promises great results.

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ABSTRACT OF DISCUSSION

Dr. C. L. Minor, Asheville: I am in accord with the statement that the woman with active and progressive tuberculosis, producing constitutional symptoms, is unfit for marriage and unfit for the production of a child; but with regard to the woman whom we know perfectly well to be tuberculous, but who has no active trouble at the time, I think the rule that Dr. Bacon lays down is too wide. I have been called on very often to study the question in my patients, and I am not ashamed to say that I have allowed the marriage of tuberculous girls and I have seen a good psychologic effect and benefit to the patients from these marriages. If the whole purpose of medicine is eugenics, possibly that may be wrong. It comes down to a question of prognosis and in the estimate of prognosis, I imagine that the man who concerns himself with tuberculosis is better qualified to draw a conclusion than the gynecologist. Granted that the actively tuberculous woman has had a child, what shall we do with the child? The veterinarian tells us that calves born of tuberculous mothers that are taken away at once and kept elsewhere grow up into healthy cows. Hard as it is, the child of a tuberculous mother should likewise be separated from its mother, perhaps not absolutely, but the care must be extreme, the separation as close to absolute as it is possible to make it. This should be from the very beginning, except for one or two days. There should be no nursing at all. There is nothing more disastrous to a tuberculous woman than lactation. In the eighteenth century and in the beginning of the nineteenth it was stated that pregnancy had a good effect on tuberculosis. Since 1843 it has been recognized that this was a mistake and that it is disastrous, and yet, in the early months I have seen distinctly good effects. Metabolism seems to be improved and things go splendidly. After that point the course is usually downward. If the tuberculosis is active I believe the abortion should be brought about in the early months. From the fifth month on the consensus of opinion is, for reasons that have not been explained that interference has a worse effect than allowing the case to go to labor. Instrumental interference favors dissemination. If the patient goes to labor, Dr. Brown of Saranac Lake has advised the use of chloroform to avoid difficult labor and exertion on the part of the patient and to prevent dissemination. Lessening the loss of blood in labor is also very important. Active tuberculosis cases in which the process is making advances, as shown by constitutional symptoms, will in a very large majority of cases go down hill. It has been said that the tuberculous woman may have one child with safety; two possibly; three never. That, I believe, is true

Dr. S. M. Brickner, New York: What is it in the nature of pregnancy which when combined with an active tuberculosis makes for injury to the patient? Is it the increased strain for the support of the woman and infant? Is it the increase in toxemia due to the tuberculosis? Trembley of Saranac Lake has had a larger experience in the observation of pregnant women with tuberculosis than any one else in the world. He has found that about 46 per cent. of his tuberculous women who have become pregnant have died, although he has not stated the time each lived after conception, and 60 per cent. of these pregnant women permitted to go through have died. This would seem to offer an opportunity for the induction of abortion. I would tabulate into three groups patients with active tuberculosis that have become pregnant: 1. There are some in whom no therapeutic measure will offer any relief. That would include those with laryngeal tuberculosis and miliary tuberculosis—women who would be certain to die under all circumstances. 2. A group of patients might possibly be helped by an interruption of the pregnancy—those patients with a moderate infection only, not necessarily incipient, a little beyond the incipient stage, and yet who might by nursing and care and by having an abortion induced, be benefited as to their tuberculosis. 3. There are unquestionably patients, and I have had nine under my observation, who with a moderate tuberculosis can safely be permitted to go through their pregnancy. After all, as has been pointed out by Drs. Minor and Bacon, the question is one of prognosis, and I never would interfere with a woman who was actively tuberculous and at the same time pregnant, without the authoritative statement of an internist or one who specializes in tuberculosis, as to the possible outcome. Even then it may not be possible to prognosticate which woman will go through with safety and which will not. I was glad that Dr. Bacon touched on the question of sterilization.

Dr. R. L. Dickinson, Brooklyn: I have recently had occasion to review the German literature on the effect of the x-ray on the ovaries. Much work is being done by the best men and it is the general consensus of opinion that the x-ray is of value in this direction. It can be made to shrink an ovary and put it temporarily out of function by a few treatments. In experiments on guinea-pigs the ovary was reduced to one-half the normal size, while the other remained full size. As with the male operator in that line, the sterility is temporary. Further experimentation with dosage and duration may demonstrate that sterilization may be effectively produced by non-operative measures. There is no measure for the woman so simple, however, as vasectomy in the male. There is possibly a method which can be developed to be nearly as simple and quite as effective. I have introduced a sound with a little platinum tip, and produced a cauterization by heat at each corner of the uterus in order to produce a stricture and an obliteration. I have not yet dared to do that on the living woman in order to sterilize, but have done it a few weeks before hysterectomy and have seen that the stricture occurs. I shall sometime in the future show some of these cases and present the method for adoption. As a rule, laparotomy is a very large contract to take just for the purpose of sterilization.

Dr. Henry Farnum Stoll, Hartford, Conn.: It is a good rule that the woman who has had active tuberculosis should not become pregnant until two years after the subsidence of all symptoms. The symptoms are the important things, not the physical signs. The straining during the second stage should be avoided by the use of forceps. When the forceps has not been used there have been signs of recent extensive dissemination found at autopsy probably the result of rupture of caseous glands due to the terrific strain that takes place when labor follows its normal course. When there is anxiety to have a child, good results have been obtained by the use of tuberculin throughout pregnancy when given by men experienced in its use.

In regard to the time of operation; if the woman has the signs and symptoms of an active tuberculosis, the abortion should be done early; if in the first few months, there is a high percentage of cures (some statistics, I believe, being as high as 90 per cent.); if later, the percentage is less, and in the third stage, much less. If the pregnancy is allowed to go on until after the middle period, very little can be hoped for as far as the mother is concerned from interrupting the pregnancy. In general, it is better to terminate the pregnancy early than to try to get a living child. In regard to a tuberculous mother nursing the child, the French Society for the Prevention of Tuberculosis reports 250 children removed from tuberculous mothers and in no instance did tuberculosis develop.

Dr. J. C. Litzenberg, Minneapolis: Two years ago in the Schauta clinic there were twenty-two abortions in the women entering the clinic in five months. Von Rosthorn was also of the opinon that certain women with active tuberculosis should have the uterus emptied. One woman came in for the sixth therapeutic abortion. Only then was she sterilized. This opinion was also shared by the men in the medical clinic. We sometimes form opinions and do things when we really do not have the statistics to back them up. Unless they have changed their opinion in two years the clinicians in Vienna believe that every woman with active tuberculosis should in early pregnancy have the uterus emptied. There is an exception made in those far advanced. There is another condition in which operation is done if seen early—those with tuberculosis of the larynx, of whom 100 per cent. die if the pregnancy is allowed to continue.

Dr. L. M. Gates, Scranton, Pa.: I do not believe that you can cauterize and be sure that you are doing any thing more than producing a stricture, and you are thereby liable to produce the worse condition of ectopic pregnancy. I would also repudiate the use of chloroform in these cases as being an irritant to the lungs and an injury to the blood. We all know that the use of chloroform increases the amount of blood lost by the patient. The tendency with tuberculous women is to be relaxed, and chloroform is a further relaxant. When labor is over the effect of the chloroform is to cause post-partum hemorrhage. I would not use chloroform in the termination of labor with forceps in these cases.

Dr. T. M. Burns, Denver: It seems to be true that a certain proportion of patients get worse, not because of the pregnancy, but because of the disease. Another proportion get worse because of the pregnancy. Another proportion stay quiescent, and another proportion get better. From my experience in Colorado I do not believe that the internist is capable of saying when we should produce abortion. I know of several cases in which an internist said abortion should be induced but in which the patient went on to labor and was better than before pregnancy. When the patient comes to us in pregnancy, I believe the better way is to watch her and as soon as she starts to get worse, induce premature labor or abortion, by means of two catheters or two bougies in the uterus and gauze tampon or a rubber bag in the vagina. I do not believe this will produce any shock unless an anesthetic is necessary. In many curettements morphin will take the place of ether or chloroform.

Dr. H. G. Wetherill, Denver: I have not practiced sterilization, but it seems to me in view of the very great simplicity of sterilizing the male by vasectomy that the time has come when this simple operation should be considered to prevent pregnancy under these circumstances, rather than an abdominal operation on the woman.

Dr. C. S. Bacon, Chicago: Whether a woman is cured of tuberculosis and whether or not she dare marry are questions which we must leave to the specialist for determination. I think the suggestion of Dr. Stoll that two years' freedom from the disease is desirable is a good one. The rule given by Martin of one year's freedom from the disease is generally adopted and I had that in mind. I think two years would be still better. I cannot understand how one can advocate inducing abortion on the same patient time after time for this condition. If we are obliged in any particular case because of the special indications to induce abortion we should afterward insist on sterilization. Nothing seems to me more harmful from all sides than a repeated induction of abortion. As to the method of sterilization, of course, these instruments of Dr. Dickinson are interesting but we cannot rely on them at present. We must have absolutely reliable methods. Those who have spoken have assumed an abdominal laparotomy for tubal sterilization. We can do a vaginal celiotomy with much less shock. Some anesthesia may be desirable. The ether anesthesia, as little as we can get along with, is much safer than chloroform. The use of forceps is, of course, not to be recommended in all cases. A symphyseotomy may be done. Under no circumstances should a dangerous forceps operation be undertaken. The same obstetric principles as apply in all cases are to be observed.

INTRADURAL ROOT ANASTOMOSIS FOR THE RELIEF OF PARALYSIS OF THE BLADDER

AND THE APPLICATION OF THE SAME METHOD IN OTHER PARALYTIC AFFECTIONS *

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Any method of surgical treatment which promises relief or cure of a distressing condition hitherto irremediable by any known treatment, medical or surgical, is worthy of close attention and of adoption after its value has been demonstrated. Incontinence of urine and of feces, especially the former, in cases of traumatism causing complete or partial paraplegia is always a distressing condition, and not infrequently one of danger through the probabilities of cystitis and general infection.

We believe that the following case is the first in which the operation of intradural anastomosis of spinal nerve roots (the first lumbar to the third and fourth sacral) has been successfully accomplished, and in only one instance has it, so far as we know, hitherto been tried. The case, as the history will show, was one of severe traumatism at first causing complete paraplegia, including incontinence of urine and feces. In a few months the paraplegia and accompanying anesthesia were largely recovered from, but the patient was left with an absolute incontinence. Eight months after the operation the patient stated that he could dispense with the urinal, which he had hitherto worn constantly, for a period of twelve hours and that with the assistance of pressure over the suprapubic region, partial evacuation of the bladder was possible.

Of course several months are required for physiologic union to take place fully in a case of either peripheral or root anastomosis, but the result in this case so far is most satisfactory. The operation has also shown that no reason exists why nerve-root crossing should not become a valuable addition to our neural surgical procedures, not only for the relief of paralysis of the bladder and bowels of organic origin, but also for obstinate and distressing enuresis of unknown cause. The operation also has a field in some forms of residual paralysis after poliomyelitis and probably in some monoplegias of central or peripheral origin.

REPORT OF CASE

J. S. G., aged 27, married, was a business man who had always had unusually good health until he met with an accident, July 6, 1911. A large gas tank exploded in a shop in which he was at the time. He was thrown some distance with much violence and was rendered unconscious, remaining

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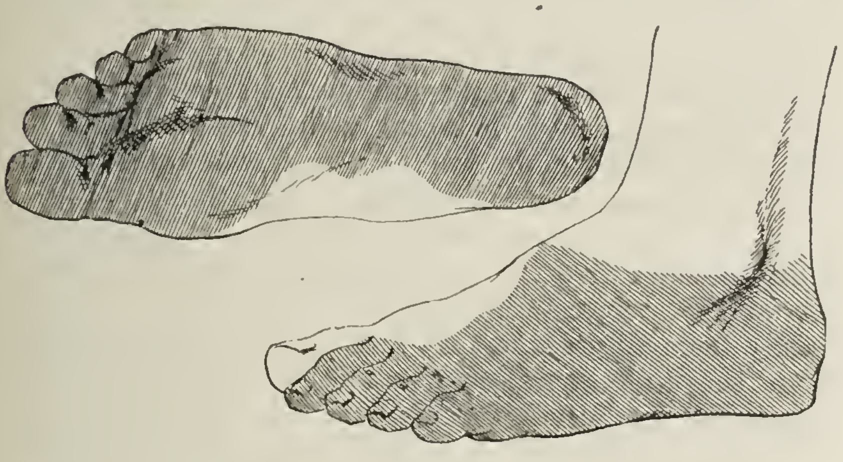
* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

so for five or six hours. He was taken about thirty or forty miles to a hospital.

He had lost power in both lower extremities. Immediately after the accident his feet were very sensitive to pressure, so much so that it was impossible for him to have his stockings put on. His bladder and bowels were paralyzed. He had to be catheterized for four weeks. He gradually improved, especially as regards power in his lower limbs, but certain very positive conditions remained when he was first examined by us. The loss of power in his lower extremities showed itself then simply in an inability to lift himself and stand on his toes and fore part of his feet, the impairment being therefore chiefly in the calf movements.

His bladder continued paralyzed and in consequence of this he had absolute incontinence, and he had also developed some cystitis. His bowels were torpid, although not so bad in this respect as at first. When they were opened by the use of a cathartic he could not fully control the evacuation.

About a week after the accident he suffered much pain in his back. This disappeared; and he had not had any shooting pains or girdling pains along the spinal column. He had no reflex spasms or jerkings in the lower extremities.



Figs. 1 and 2.—Areas of impaired sensation on sole and dorsum of left foot.

Several examinations gave the following results: Station and gait were good. In attempting to stand on the toes and fore part of his foot he had evident difficulty, although able to perform these movements. For a long time, as above indicated, he was not able to stand in this way at all. Examination of separate movements of the foot showed that he could abduct, adduct, dorsal flex, plantar flex and perform movements of all possible description on the ankle. The power to elevate the heel was slightly impaired. Extension and plantar flexion of the great toe and other toes were preserved. All movements of the leg on the thigh and the thigh on the abdomen were preserved and well performed. Knee-jerk on the right was present and normal; on the left it was much impaired and sometimes absent. Both ankle-jerks were absent. His great toes remained in a slightly extended position but no Babinski response was obtained, and indeed no reflex whatever was obtained on both dull and sharp stimulation of the sole. Examinations for touch, pain and extreme heat and cold showed that these forms of sensation were lost over the sole of the left foot except on an area of its inner aspect, the same being true of the dorsum of the foot, except along its inner border (Fig. 1). The areas of impairment reached about as high as the internal malleolus. On the right foot similar areas were impaired, but impairment or loss was more marked over the toes (Fig. 2). Callus on the dorsum of the right foot at the metacarpophalangeal articulation had been present, according to the patient, since he began wearing shoes after the accident. Sensation was lost over the right buttock and thigh, in an approximately saddle-shaped area, which gradually decreased in width to its termination an inch or two above the popliteal space. On the left a somewhat similar area was present but was narrower and shorter, reaching only to a point just below the gluteal fold (Fig. 3). The scrotum was also anesthetic. An impairment of sensation was present in the coccygeal and anal region

A study of the areas of anesthesia indicated that the nerve roots or segments of the cord involved were, for the feet, the fifth lumbar and first sacral, and for the buttock, scrotum and anal region, the second and third sacral, probably the fourth and possibly the fifth.

The patient's greatest distress was by far that which resulted from the paralysis of his bladder, with distention and overflow. He constantly had to wear a urinal. He thought that the power to expel the urine had not improved but the inability had probably increased to some extent, while in other respects he was conscious of much improvement. His sexual powers were practically abolished. His feelings of numbness in the feet, and his weakness in trying to stand on his toes he was sure were decidedly less, continuous improvement having taken place. He expressed himself as being quite able to stand all his other afflictions if he could only get rid in whole or in part of the distressing bladder trouble.

The patient was admitted to the hospital of the University of Pennsylvania for further investigation. Roentgen-ray examinations were made by Dr. H. K. Pancoast, who reported a fracture of the right half of the first lumbar vertebra.

After much consideration of the subject with the approval of the patient's brother, who was a physician, and with the urgent approval of the patient himself, it was determined to try to anastomose the twelfth thoracic or the first lumbar root to the third and fourth sacral roots. It was recognized that nerve anastomosis offered the only hope for the patient's relief and as this was anatomically impossible outside of the vertebral canal, it was thought that it might be accomplished intradurally.

The operation was performed by Dr. Frazier, Feb. 29, 1912. The following were the notes made by him at the time of the operation and the subsequent hospital records:

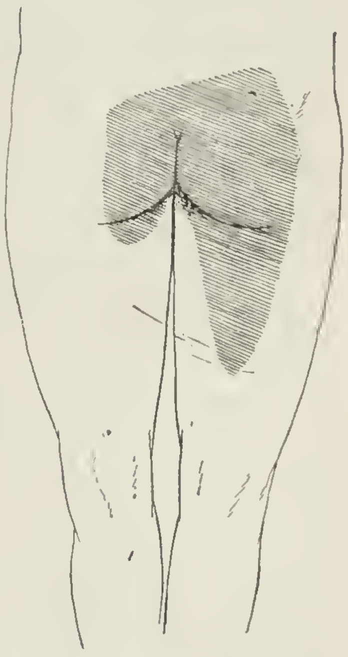


Fig. 3.—Areas of impaired sensation on back of the thighs.

Laminectomy — Intradural Anastomosis of the First Lumbar and Third and Fourth Sacral Roots.—Through a curved incision a cutaneous flap was reflected and the spinous processes and laminae of the twelfth thoracic and first and second lumbar vertebrae were removed. Evidently there had been a fracture of the second lumbar vertebra, as several fragments were found quite loose and readily detached. The dural sac seemed unusually distended, and when it was opened a considerable quantity of cerebrospinal fluid escaped (from 1 to 2 ounces), even though the patient was in the reversed Trendelenburg position with the level of the head considerably below that of the pelvis. Inspection of the cord revealed no evidence of injury. There were no adhesions, no areas of softening, in fact no abnormality that could be detected with the naked eye. After consultation with Dr. Mills, I decided to carry out the plan which we had considered carefully before the operation and had submitted to the patient's brother. It was intended to effect an anastomosis between the twelfth thoracic and third and fourth sacral nerves intradurally.

With the assistance of Dr. Edward M. Williams, using a unipolar electrode, the other, a large pad electrode, being closely applied to the shoulder of the same side, the twelfth thoracic and the first lumbar were stimulated within the dural sac, and the one distinguished from the other by the fact that the contractions in the case of the twelfth thoracic were confined altogether to the trunk and abdominal muscles, while in the case of the first lumbar they were associated with contractions of the extensor group of the thigh. Attention was then turned to the conus for the purpose of identifying the third sacral root. What was taken to be the second sacral was first picked up on a blunt hook, and its faradic stimulation was followed by contractions only of the big toe on the affected side. On the ground that we were dealing with the second sacral, the next two nerves adjacent to it and to the inner side were selected for the anastomosis. As it was found by measurements that the twelfth thoracic, even if divided extradurally from its point of exit from the canal, would not reach the conus, it was decided to use the first lumbar. The latter was divided extradurally at its exit from the spinal canal and brought within the dural sac through a transverse incision in the dura. An end-to-end anastomosis was effected by a single No. 1 Chinese silk suture.

After the nerves had been identified by faradization, pads saturated with a 4 per cent. stovain solution were kept applied to the cord in order to block, if possible, any harmful impulses.

Toward the latter part of the operation the patient's respiration became very shallow and feeble, but on changing his position to his side and resorting to moderate stimulation, normal respiratory function was promptly restored. The dura was closed with a continuous silk suture, and the musculo-aponeurotic layer with buried catgut sutures. The usual cigaret drain, together with a small wick of iodoform gauze, was introduced through a stab wound down to a point of bleeding from the vertebral veins.

The operation was necessarily long and tedious, but at no time were any special difficulties encountered, except in one instance when a vein was divided at the time the first lumbar root was cut. This was followed by quite free bleeding, readily controlled, however, by a tampon.

The identification of the various roots was simpler than had been anticipated. The anastomosis was effected on the left side only, where the sensory evidence indicated less injury to the cord or nerve roots.

On March 4, 1912, the patient complained of deep-seated pain in his thigh, making him gasp. His ankle felt stiff and sore. He thought also he could feel urine accumulating in the bladder.

On March 11, 1912, Dr. Mills examined the patient without moving him from a recumbent position. Flexion, extension and other movements of the thighs were good and all the movements of the feet and toes were present, these having been tested in detail; the only weakness shown was in dorsal flexion and abduction of the right foot, this being only a partial loss. The knee-jerks were absent and there was no Babinski response on either side. Slight plantar flexion of the toes occurred on plantar stimulation.

Tactile sensation, tested by light touch of the finger, was everywhere preserved on the feet and legs below the knees. Pain sense tested by pricking was defective in definite similar areas on both sides. It was lost on the soles of the feet except the inner side about the hollow of the foot half way between the roots of the toes and the heel. On the dorsum it was lost entirely on the inside over all the toes. In a linear area from the metatarsophalangeal articulation three or four inches toward the instep, about the instep and toward the internal malleolus, this area of retained sensation was enlarged. On the outside of the foot a tongue of analgesia extended an inch or two above the ankle. As we were unwilling to move the patient at this time he was not examined over the buttocks, thighs, etc.

On March 27, 1912, the patient was discharged. He felt distention of the bladder on the introduction of 10 ounces of boric solution but he did not feel less amounts of boric solution or of urine.

As stated at the beginning of the article, eight months after the operation the patient could dispense with the urinal, which he had hitherto worn constantly, for a period of twelve hours, and with the assistance of pressure over the suprapubic region, partial evacuation of the bladder was possible.[1]

NERVE SUPPLY OF THE BLADDER

According to Frankl-Hochwart,[2] whose monograph on the "Nervous Diseases of the Bladder" is among the most reliable and most recent (1906), the bladder has two or three sources of supply. In the first place it has a supply through the sympathetic nervous system. Efferent nerves pass by way of the rami communicantes from the upper lumbar segments of the cord according to Langley and Anderson (at least in the cat). These take their course through the lumbar sympathetic to the inferior mesenteric ganglia. From these inferior mesenteric ganglia three gray hypogastric nerves penetrate the muscles of the bladder. Another sympathetic supply is from the upper sacral segments and roots. These nervi erigentes go to the hypogastric plexus. From this plexus, according to Griffith, the fibers pass in three layers, one to the fundus, another to the anterior part of the bladder and around the neck, and the third to the vesical part of the urethra.

In the human being, according to Frankl-Hochwart and Russian and other authorities with whom he agrees, the somatic nerves to the bladder are from the third and fourth sacral segments and roots.

Kilvington[3] has published the only article on nerve crossing within the spinal canal with which we have become acquainted. In this article he first briefly discusses the fact that regeneration does not take place within the spinal cord, referring to the well-known fact that it seems to be necessary for the primitive sheath to be present in order that such regenerative processes may proceed. He then affirms that such regeneration may occur when nerves are united either intradurally or extradurally within the vertebral canal.

Experiments were made on several dogs in order to test the possibility of bringing about restoration of the functions of the bladder and rectum through nerve crossing and subsequent regeneration. Attention is called to the facts shown by various physiologists, as Langley and Anderson and Sherrington (cited by Schäfer[4]) that in the dog the nerve-supply to the bladder and rectum is chiefly from the second and third sacrals and sometimes from the first sacral and even the seventh lumbar. According to Kilvington the second and third sacral nerves always give bladder contraction sufficient to expel the contents, although the first sacral in a few cases gave bladder contraction, but not enough to cause micturition.

Kilvington's instructive experiments on three large dogs and their results are recorded by him in detail. In his summary of these experiments he concludes that it is shown that the last lumbar, when joined to the second and third sacral roots, on electrical stimulation can produce all the effects which the latter give on the untouched side.

After Kilvington had determined by investigation on the cadaver the feasibility of intraspinal root anastomosis in man, Mr. Bird at his suggestion attempted the operation in one case; this operation proved unsuccessful because of conditions found after the laminectomy.

In his experiments on dogs Kilvington in two instances anastomosed both motor and sensory roots (a mixed nerve in effect) to motor and sensory roots below. In another experiment he crossed the anterior or motor root above with both sensory and motor roots below. In the case recorded in this paper we anastomosed a motor root above with a motor and sensory root below.

Certain disadvantages might arise from mixed anastomoses. It is doubtful whether in the surgical procedure the motor root above could be properly apposed to the motor portion of the mixed nerve below. Again,

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[1] The patient has reported once since the presentation of the paper—in June—that he is now able to retain urine for two and a half hours at a time and that the expulsive power of the bladder seems a little greater than at the last report.

[2] Frankl-Hochwart, V., and Zuckerkandl: Die nervosen Erkrankungen der Harnblase, Wien, 1906.

[3] Kilvington, Basil: An Investigation on the Regeneration of Nerves, with Regard to Surgical Treatment of Certain Paralyses, Brit. Med. Jour., 1907, i, 988.

[4] Schäfer: Physiology, ii, 342.

if an anterior root, as in one of Kilvington's experiments, were crossed with both sensory and motor roots below, the only physiologic result, if the procedure were successful, would be the transfer of motor impulses. A motor root of one distribution might physiologically as well as anatomically unite with a motor root belonging to another segment of the cord, but it is doubtful whether a motor root would physiologically combine with a sensory root even if they were brought into physical union.

A sensory root may be combined anatomically and physiologically with a sensory root of its own sort, but it may be questionable whether a somatic sensory root will serve to take the place of a destroyed visceral sensory nerve.

Our idea in this operation was to perform an experiment in anastomosis for the relief of the paralysis of the walls or sphincter of the bladder, or of both, similar to that which has been performed extravertebrally in cases of poliomyelitis, traumatic severance of peripheral nerves and other paralyses. The bladder is a muscular organ with a motor nerve-supply, which in large part at least is similar to that of muscles everywhere in the body, although it does in part, as has been shown, receive its innervation through the sympathetic nervous system. By uniting a motor root which is a part of a healthy reflex arc with the motor root of a destroyed sensorimotor region of the cord, both the sensory and the motor portions of the intact arc are utilized. In addition the muscles supplied by the first lumbar nerves in the human subject probably have some accessory value in bladder function.

Ventral Root Anastomoses

Cervical	Above			Below				Opposite		
..	Cervical	Dorsal	Lumbar	Cervical	Dorsal	Lumbar	Sacral	Dorsal	Lumbar	Sacral
5	..	....	.....	6*	..	.....	.....	....	....	.....
6	5	....	.....	7‡	..	.....	.....	....	....	.....
7	6	....	.....	8§	..	.....	.....	....	....	.....
8	7	....	.....	..	1†	.....	.....	....	....	.....
Dorsal										
1	7*, 8	....	.....	..	2	.....	.....	1*	....	.....
2	8†	1	.....	..	3	.....	.....	1‡, 2, 3*	....	.....
3	..	1, 2	.....	..	4	.....	.....	1, 2, 3, 4	....	.....
4	..	1, 2, 3	.....	..	5	.....	.....	1*, 2, 3, 4, 5	....	.....
5	..	2, 3, 4	.....	..	6	.....	.....	2, 3, 4, 5, 6*	....	.....
6	..	3, 4, 5	.....	..	7	.....	.....	3, 4, 5, 6, 7*	....	.....
7	..	3, 4, 5, 6	.....	..	..	.....	.....	4, 5, 6, 7	....	.....
8	..	5*, 6, 7	.....	..	..	.....	.....	6, 7, 8	....	.....
9	..	6*, 7, 8	.....	..	..	.....	.....	7, 8, 9	....	.....
10	..	8, 9	.....	..	..	.....	.....	8, 9, 10	....	.....
11	..	9*, 9, 10	.....	..	12	.....	.....	8, 9, 10, 11	....	.....
12	..	8‡, 9, 10, 11	.....	..	..	1	.....	9, 10, 11, 12	1	.....
Lumbar										
1	..	8, 9, 10, 11, 12	.....	..	..	2, 3, 4	.....	10, 11, 12	1, 2, 3, 4,* 5	1, 2
2	..	11, 12	1	..	..	3, 4, 5	1, 2, 3	11, 12	1, 2, 3, 4, 5	1, 2
3	..	11, 12	1, 2	..	..	4, 5	1, 2, 3	11, 12	1, 2, 3, 4, 5	1, 2, 3
4	..	10, 11, 12	1, 2, 3	..	..	5	1, 2, 3	10, 11, 12	1, 2, 3, 4, 5	1, 2, 3
5**	..	9*, 10, 11, 12	1, 2, 3, 4	..	..	.....	1, 2, 3	10, 11, 12	1, 2, 3, 4, 5	1, 2, 3

* Barely.
† Easily.
‡ Just.
§ Readily.
** 11 cm. in length.

PRACTICAL SUGGESTIONS

We have discussed the physiologic problems involved in the reestablishment of innervation to the muscles of the bladder, and the operation as performed has been described. Such features as apply only to matters of technic remain to be considered. There is little doubt as to the advisability of a bilateral laminectomy when the identification of roots requires ample exposure and when, as in future cases, we would expect to effect anastomoses between the roots on both sides. It is often difficult to determine the exact position of an individual vertebra, so that in the future we would make sure of this before the operation by having a radiograph taken with a lead strip over what was believed to be the first lumbar vertebra. This would enable the operator at once to be able without the use of the electrode to identify the first lumbar root which leaves the vertebral canal in the foramen between the bodies of the first and second lumbar vertebrae. Therefore the identification of the third or the fourth sacral root would alone remain, and this could be done with any degree of scientific accuracy only by the use of the electrode, as the massed roots composing the conus could not otherwise be distinguished one from the other. It was suggested by Dr. E. M. Williams at the time of the operation that with the bladder filled with boric solution and a small manometer connected with the catheter, stimulation of the third and fourth sacral roots would be followed by an expulsive effort on the part of the extrusor muscles of the bladder which would readily be recorded on the manometer. This is an excellent practical suggestion and will be taken advantage of at the next operation. No difficulty should therefore be experienced in the future, in promptly recognizing the roots to be used in the anastomosis, and needless to say the anastomosis should be effected on both sides and not on one only, as in the case reported.

The principles involved in suturing the divided roots in no wise differ from those which have been laid down for anastomosis of peripheral nerves; it should always be borne in mind that extreme gentleness, the avoidance of trauma, the employment of proper suture material, absolute hemostasis, and the absence of infection are essential to success.

It would be out of place here to discuss in detail the technic of the preliminary laminectomy. It will be sufficient to emphasize two points which we regard as of importance in minimizing the risks of operation. In the first place, we have found the method of administering the anesthetic by intratracheal insufflation to possess great advantages over the drop method not only for safety but also for convenience. We place the patient in these operations in the prone position with the table elevated to an angle of 45 degrees from the waist to the foot, and with the trunk and head in the reversed Trendelenburg position. This position is convenient for the operator and at the same time through the influence of gravity prevents the continuous outflow of cerebrospinal fluid. It is a well-known fact that in prolonged operations when the patient is in the prone position (face down), the respiratory apparatus seems to wear out more readily, and under ether anesthesia proper oxygenation of the blood is interfered with. The use of intratracheal insufflation entirely overcomes this difficulty and an even state of anesthesia is preserved, with adequate oxygenation whether or not the respiratory function becomes fatigued.

The second point to which we refer has to do with the harmful influence of the manipulation of the roots incidental to their identification, isolation, division and suture. There is no doubt that the mere manipulation of the roots originates afferent impulses which of themselves have a harmful influence on the vasomotor system. To break this influence and thereby prevent shock-producing tendencies, we have been in the habit of establishing a block by applying 4 per cent. stovain solution to the cord just above the site of our manipulations. These two points we feel assured are worthy of consideration in rendering an operation, which we believe should be without fatality, free from any immediate depressing influences.

Leaving aside these essentially practical considerations, we may enter for a moment into the purely speculative field. That physical union between the first lumbar and third sacral roots may be effected within the dural sac has been demonstrated on the living subject, and its application to residual paralyses of the bladder following cord lesions discussed. The question at once suggests itself as to whether or not this operation may not be applicable to paralyses of other groups of muscles and we have determined from observations on the cadaver that those anastomoses may be considered possibilities which are indicated in the accompanying tabulation.

From this table it is readily seen that in the roots which go to make up the brachial plexus it would be possible to effect an anastomosis only between the root immediately above and the root immediately below either the fifth, sixth, seventh or eighth cervical. In the case of the first thoracic root, an anastomosis could be effected with the seventh or eighth cervical above and the first thoracic on the opposite side, and in the case of the second thoracic with the eighth cervical and first thoracic above and with the first, second and third thoracic on the opposite side. In cases of injury to the cord involving the seventh or eighth cervical segments with resulting paralyses it would be possible to innervate the roots from these segments with the first thoracic.

The farther down the cord one goes the longer is the distance from the point the root is given off the cord to its point of exit from the canal, and the more the roots overlap one another. When we come to the lumbosacral region we find that the ventral roots lend themselves to innumerable possibilities of anastomosis with roots above or below and even with roots on the opposite side. It would seem quite within the range of possibility in a case of unilateral infantile palsy of the lower extremity to be able to innervate the root of the paralyzed group with a root that might be spared from the same or the opposite side, as has been suggested earlier in the paper.

In the paralyses of the bladder and rectum following trauma, however, we have perhaps the most important indication for this intradural operation, not only because of the patient's otherwise hopeless condition, but because those so afflicted are utterly miserable and their lives are shortened by the infection of the kidneys which sooner or later follows the inevitable cystitis. If this new plan of procedure had no other application than for the relief of the vesical palsy it would still have a wide and important field. That it is based on a reasonable hypothesis has been proved by experimental observations on the lower animals; that it is a justifiable risk no one will gainsay; that it gives promise of attaining its object has been demonstrated by the fact that our patient has already gained some control of the bladder. Owing to the comparatively short time which has elapsed between the time of the operation and the present, this contribution takes on the nature of a preliminary report. We therefore submit it as such for consideration and discussion.

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PREDEMENTIA PRÆCOX *

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When, in 1907, Jelliffe published his admirable paper on "The Signs of Predementia Præcox: Their Significance and Pedagogic Prophylaxis."[1] he was not directing attention to a newly discovered mental condition. We were all familiar with the fact that dementia præcox frequently developed in a soil which had apparently been prepared to receive it. The chief merit in his paper lay in the great hopefulness with which he treated the subject and I know that he instilled in me a less pessimistic view of early cases of dementia præcox.

It is generally admitted, I think, that dementia præcox may occur in an individual who is predisposed by defective development, or, it may occur in a normal, or even exceptionally brilliant, person after some physical stress, such as typhoid. To denote these conditions De Sanctis has proposed the terms "comitans" and "subsequens." In Dr. Jelliffe's paper the impression is given that for those predisposed to dementia præcox the education must be especially planned to develop, by means of industrial occupation, the senses rather than the intellect, yet this should not be overdone in such a way that the child does not receive what may be termed a normal education.

In a more recent paper[2] he states that when a patient shows an inability to bring himself in touch with the physical world, with a constitutional aversion to dates and a glorification of vague abstractions, it is justifiable to regard the child or youth as a patient, to advance his level and to train him to be interested in his small demands so that he may be saved the necessity of meeting greater demands than his capacity will bear. He also characterizes these patients as being brilliant and interested in inward rather than in outward fields. They lack all manual dexterity; they lack the adaptability to uncongenial environment, not the environment of personal comfort, but the environment of common minds. Fits of abstraction are very common.

Space does not permit further quotation from this excellent paper.

Expressing the same fact in other words we may say that predementia præcox is an early stage of dementia præcox, and it is the time when the possibility of arrest of the disease is greatest.

Usually an "outbreak" of some sort directs the attention of the family to the fact that there is something wrong with the patient and, after a period of care by the family physician, who, as a rule, lacks the necessary

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] Jelliffe: Am. Jour. Med. Sc., 1907, cxxxiv, 157.

[2] Jelliffe: Predementia Præcox: The Hereditary and Constitutional Features of the Dementia Præcox Make-Up, Jour. Nerv. and Ment. Dis., January, 1911.

experience to care for the patient properly, the specialist is called in and institutes proper treatment, but only after valuable time has been lost.

I freely admit that the diagnosis of these cases may be very difficult, and it may be necessary to have a number of examinations of the patient before one can come to a positive conclusion.

It may be of interest to state that I have found a very much abbreviated association test to be of considerable value in making a differential diagnosis. A patient suffering from predementia præcox may show no delay in reaction time to the ordinary interrogatory, but will show an increase to the ten or twenty-five words which I ordinarily use, and the character of the association is usually such as to indicate that the intellectual ability of the patient is less than might be supposed from ordinary conversation. In this abbreviated test I only occasionally interpolate significant words.

Important as this predementia præcox group is from a curative standpoint, I believe that we should go still farther and care for these patients earlier and with better results.

The patients whom we have been discussing have attracted the attention of some one because they have shown a mental symptom. It may have been slight, but it has been positive. If it is possible—and I believe that it may be—to recognize these predisposed persons earlier, then we may lessen the later intellectual deterioration which is bound to occur if mental overwork is allowed.

At the last meeting of the Section on Nervous and Mental Diseases at Los Angeles, Dr. Ross Moore read a very suggestive paper, entitled "The Recognition of the Preneurasthenic and Pre-Insane Condition in the Young."[3] In the beginning he states two problems: First, does neurasthenia develop on a neural soil which should be recognized as such in early life? Second, are there certain types of children that furnish victims of insanities, of the dementia præcox or manic-depressive and hysterical groups which are clear enough to be described and recognized?

He isolates three distinct types which he calls the preneurasthenic, the preemotional and predements. The latter are the mental shut-ins, who, being physically well built, are apparently happy and care-free, yet often carry a hazy and terrifying knowledge of their own apartness from their associates. They have power to follow out their natural aptitudes with brilliancy, thereby covering up defects in their reasoning power and intellect, which may be immense.

The key to the last is internal strife, just as the key to the preneurasthenic type is fatigue and the key to the preemotional type is instability. This last type is the group which he believes is most likely to become cases of manic-depressive insanity. He believes that these three types of children can be studied so that the teachers and family physicians may learn to recognize them as they now do the more grossly abnormal child.

All of us know children who have done well in their studies up to a certain point and have then rather abruptly shown a falling off in their marks, and the more active mental symptoms have followed.

It being generally agreed that dementia præcox frequently occurs as an immediate sequence to mental overwork, the question as to how this may be prevented naturally arises. The person who has the best opportunity to observe that the pupil is not doing as well as his normal and who first sees the various emotional abnormalities which occur at the same time is the teacher.

Under ideal conditions each school should have connected with it a physician and a psychologist who has been especially trained for this sort of work, of which, I regret to say, there are comparatively few at the present time. The duties of these two should be the oversight of the physical and mental welfare of the pupils. The psychologist should test each pupil with the Binet scale as soon after admission as possible to determine his mental status, and so more accurately to place him than is possible for the teacher, who has quite enough duties and responsibilities at present. From time to time these tests should be repeated in order to determine accurately the progress that the child is making. This will afford a fairly positive check on the pupil's advancement, and a conference with his teacher will determine the advisability of letting him advance slowly or rapidly.

It is quite probable, however, that a number of cases may slip by the psychologist. We all know that dementia præcox patients respond to mental tests very well at the time of examination, when under more continuous observation their mental deficiency is apparent. Therefore, when the teacher sees that a pupil is falling behind his standard she should refer the child to the psychologist who may earlier determine the symptoms of mental overstrain than if he waited until he made his usual routine examination.

It is assumed, of course, in this discussion that all physical causes of mental dulness, such as defective eyesight or hearing, hypertrophied adenoids and tonsils, etc., have been eliminated by the school physician.

It has been my good fortune during the past winter to be associated with Dr. E. B. Huey, recently of the Illinois Training-School for Feeble-Minded Children, who is one of the most expert men in the use of the Binet scale in this country. While I have had but little opportunity to familiarize myself with the scale by personally applying it, I have seen a sufficient number of patients tested by Dr. Huey to make me realize what a valuable means of examination it is; giving as accurate a determination of mental ages as is possible. In a number of cases Dr. Huey has tested the patient by the Binet scale and I have tested him by other methods with the result that we have agreed quite closely and I believe that Dr. Huey's results have been more accurate than mine, especially in children. It must be remembered, however, that the Binet scale does not extend beyond thirteen years and that there are a number of cases in which we need to go farther. Perhaps, in time, the scale may be extended. It undoubtedly will be if any such ideal plan as I have sketched ever comes to pass. Yet in the Binet scale we have a means of recognizing mental defect earlier than is possible with most of the methods of mental examination that are in use. By this means the mental strain which so often occurs in the slightly defective cases is checked, thus preventing an attack of dementia præcox.

Probably each one of us knows individuals whom, while we do not class as mentally abnormal, yet we consider as slightly defective. Individuals who are fitted to occupy subordinate positions fairly well, but who are sometimes forced by circumstances to hold unsuccessfully a position of responsibility. And we have all seen such an individual suffer a mental breakdown when responsibility has been thrust on him or his ambition has forced him to strive to attain an intellectual level for which he is unfitted.

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[3] Moore, R.: THE JOURNAL A. M. A., Dec. 23, 1911, p. 2079.

Predementia præcox is a condition which may also be acquired by faulty mental habits, and the close study of the school child which I have advocated will not be half so efficacious if cognizance is not taken of his emotional control and his attitude toward his associates and the world in general.

It seems unnecessary to point out how great a factor in the making of a better nation may be the training of the individual to fit into the place in life which he can most ably fill. A half moment's thought will convince you of it more clearly than I can with half an hour's talk.

The psychiatrist rarely sees these early cases. The teacher is the first one to observe them, the general practitioner comes second, perhaps the neurologist third, and the psychiatrist usually after symptoms are well advanced and the patient is suffering with an acute mental attack. At times, however, a case comes under our care during the prodromal period of an acute attack and we may be so fortunate as to abort it. After the acute attack much may be done by reeducation, especially along the lines of manual training of various sorts, and we are able to make something of the patient, even if less than he would have been had he not suffered his attack. Did time permit I could give numerous case-histories illustrating the value of reeducative methods, but, as it is, I can only refer you to the few objects which are on exhibition to illustrate this point more strikingly.

CYANOSIS IN DEMENTIA PRÆCOX *

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The trend of recent studies in dementia praecox has been toward the physical manifestations of the disease. The earlier writers concerned themselves mostly with the mental sphere and would make their diagnosis chiefly or solely on mental symptoms. But of late, independent of the psycho-analysts and those who urge a more or less strictly psychogenous origin, investigators of another and more material group, working from a physical point of view, have brought to light an array of clinical and objective signs which seem to be of great diagnostic importance, and will eventually, it is felt, assist in determining an etiology in this disease, the frequency and sociologic importance of which is only beginning to be appreciated by the general medical profession.

Omitting the pathologic and biochemical findings, the clinical signs of recognized value are: alteration in the deep tendon reflexes, increased at first, diminished or absent in late stages; irregular pulse, rapid in some instances, in others markedly slowed; excessive salivation, and variations of temperature, subnormal in some cases, elevated often in acute stages. Considerable work has been done on the ocular symptoms, among the most interesting being that of Tyson and Clark,[1] who report an "eye syndrome" peculiar to dementia præcox, embracing concomitant changes in the disks, pupils, visual fields and corneal sensibility. Others have called attention to the pupillary phenomena, consisting of abnormalities in size, outline and light reaction. In acute phases dilatation is frequently seen and in late stages a contracted, sometimes spastic pupil with inequality, irregular outline and ragged edges. Changes in the light reflex are frequently observed, especially in the terminal stages. Still others have described abnormalities in the skin, including hyperhidrosis, subnormal temperature, altered dermatographia and cyanosis. It is with cyanosis in particular that this paper is concerned.

A cutaneous cyanosis occurs in a number of diseases quite distinct and independent of that under consideration. It is observed in apparent health under transitory vasomotor conditions, but its frequent presence in dementia præcox without cardiac involvement would suggest that we have in this a sign but little less than pathognomonic. My interest in cyanosis began in the daily morning clinics at Danvers where patients are presented for diagnosis. The cyanotic hands of dementia præcox patients are in marked contrast to those of patients with other mental diseases, and inspired an investigation which has convinced me that cyanosis is a highly valuable diagnostic sign, especially when taken in connection with other symptoms of the malady.

During the past year 241 patients with dementia præcox, embracing all types and stages, were examined, and 78 per cent. were found to have some grade of cyanosis, from a mild degree to an extreme dusky purple. The distribution varies, being usually most marked over the dependant parts, yet the skin as a whole often has a bluish appearance, more noticeable in the upper back. The relative frequency of involvement of the hands, feet and back is as 9 : 6 : 5. Some patients may show cyanosis of the feet when there is none on the hands, and vice versa. Occasionally the face and lips present the most involvement. Cyanosis varies in the same patient from day to day or week to week. It may be absent one day and quite evident the next; this seems relatively independent of the surrounding temperature and the position assumed. The severest grade of cyanosis has been observed in a patient confined to bed. With respect to the three subgroups, in cases in which it was possible to make a subdivision, the catatonic form showed cyanosis in 90 per cent., the hebephrenic in 75 per cent., and the paranoid in 50 per cent. This was also the relative order of the intensity.

It seems that the grade of cyanosis carries some prognostic significance. The cases deeply cyanosed apparently dement more rapidly and deeply. Acute catatonic excitement with marked cyanosis forecasts grave danger of collapse and death. From the point of view of differential diagnosis, cyanosis offers help when assistance is often badly needed, in differentiating dementia præcox from manic-depressive insanity. It is believed that cyanosis is exceptional in the latter disease, and in thirty cases including depressed, mixed and excited phases only two showed it; in one, a depressed case, it was well marked, and in the other, a hypomaniacal case, fairly so. But without doubt, the skin in a manic-depressive has quite a different appearance from that of a precocious dement. Without having the figures to demonstrate, I also believe that cyanosis is of help in differentiating imbecility from dementia praecox, the skin of the imbecile being clear, except when the two psychoses are combined. Two cases might be cited as instances in which the presence of cyanosis helped to revise an earlier diagnosis. One patient, a woman of 35, at first appeared to be in a depressed phase of manic-depressive insanity, but later other symptoms cast doubt on this, and the additional development of a marked cyanosis pointed the way to a dementia præcox which

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] Tyson and Clark: The Journal A. M. A., May 2, 1908, p. 1415.

the clinical course of the case confirmed. The other case, that of a woman of 37, was provisionlly diagnosed as paresis; the Wassermann reaction in the serum was reported suggestive but the cytologic examination of the spinal fluid was negative. Later the presence of a marked cyanosis combined with impulsivity and other symptoms led to a reconsideration of the case and to a diagnosis of dementia præcox.

What is the nature of this cyanosis? First of all, it does not seem dependent on blood-pressure, as the various investigators of blood-tension in dementia præcox have not reported any departure from normal. In twenty-five cases which I have studied the average systolic pressure was 115 for a sitting position and 95 for a reclining position, the markedly cyanosed cases showing no variance from the average. We know that we are at least dealing with a vasomotor phenomenon. In this respect it is interesting to refer again to Tyson and Clark's paper.[1] Their most frequent finding was a congestion of the disks, due to dilatation of the veins, and this is certainly analogous to the cutaneous phlebostasis. The ocular syndrome of Tyson and Clark seemed to them somewhat similar to the toxic amblyopia of tobacco and alcohol and led them to the opinion that some sort of toxin, metabolic in nature, was the pathogenic agent, and that this toxin was primarily a vascular poison which led slowly to degeneration of the nerve elements. The conclusions of Pighini[2] are somewhat different. He believes that in the acute stages there is a destruction of nucleoproteins induced by some unknown morbid agent, and that it is not a typical toxic or destructive process such as seen in ordinary febrile diseases. To account, furthermore, for the skin condition in dementia præcox, there must be some interference in the skin reflex arc with more or less disturbance of the vasomotor nuclei which Sano[3] locates in the anterior horns of the cord, but which are located elsewhere, chiefly in the sympathetic, by others. The dermatographic reflex would indicate that there is indeed some alteration in the vasomotor innervation, for as a rule this reflex is much diminished and occasionally absent. In fifty-five cases studied for this point 60 per cent. were found to have a diminished reflex.

SUMMARY

A cutaneous cyanosis is found in a large majority of dementia præcox cases most frequently and intensely in the catatonic form, next in order in the hebephrenic and then the paranoid.

It is part of a generalized vasomotor disturbance consisting in a phlebostasis, of unknown origin.

Cyanosis is variable within large limits even in the same patient.

Cyanosis offers a valuable diagnostic sign in differentiating dementia præcox from manic-depressive insanity, imbecility, hysteria, constitutional inferiority and occasionally the organic psychoses.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. DUNTON AND CORNELL

Dr. M. Neustaedter, New York: I have had occasion to examine backward children in New York schools for twelve years. I find that the physical defects in these cases are less numerous than in the very best children in the schools, and they are not prone to have their defects corrected. So far as I remember in over 1,200 cases, 2 per cent. have corrected the physical defects, and yet with a properly corrected diet and elimination of drugs and narcotics, such as tobacco, coffee and tea and alcoholic stimulants, we have achieved very good results. I have followed them in the workshop and I have come to the conclusion that it is not manual labor alone that is required for improvement; it is the geographic and social environment of the child that counts more than anything else. If we could take the child from the busy city into farm and country life and give him different ideal surroundings with proper diet, we could do much more for him than by using all the subtle scientific methods in the public schools exclusively in big cities.

Dr. B. R. Tucker, Richmond, Va.: We see reference to seclusion in the predementia stage, and reference to a child being asocial. We should draw a line of demarcation between a child who wants to play but does not enter into the games and occupations of childhood because of bashfulness, which may not overstep the normal line, and the child who is asocial and primarily does not want to enter into the occupations of childhood. I have seen children who have been suspected of dementia praecox or some other mental disturbance simply because they were bashful.

Dr. L. Harrison Mettler, Chicago: The percentage of dementia praecox cases admitted to the asylums throughout the country has been estimated to vary from 15 to 45. This wide variation cannot be satisfactorily accounted for on the basis of a geographic distribution or a difference of diagnostic ability. It indicates a fundamental weakness in our conception of dementia praecox. It would be of the highest practical value if we could discover and establish some physical signs by which we could recognize, or assume, a definite pathologic change in these individuals. In diagnosing dementia praecox, in all of its forms, I find myself leaning more and more on physical results of psychanalysis. What is a defective child? Apparent and real defectiveness are often hard to differentiate. The distinction may depend on the relative state of the examiner's own intelligence and mental state. Suppose a child is a little backward, unsocial, selfish, and of a quick temper; may this not have been the result of bad training, environment or social injustice? Ignorance, both gross and subtle, is so widespread, it seems to me that it, more than organic defectiveness, can be invoked to explain in many cases the traits that are being given to us by overenthusiastic investigators as evidences of such defectiveness.

Granting that we can, along certain coarse lines, diagnose the defective child, what shall be the mode of its training? Manual training is just now in high vogue for such cases, and for most of them I have no doubt it is the proper thing. Manual training, however, is not a panacea or antidote for mental defectiveness. I have seen instances in which I thought the recommendation of manual training was evidence of more mental defectiveness in the adviser than in the subject. Suppose a child has certain marked and exceptional tendencies of an elementary character along the lines of art, music, literature or mathematics; it is conceivable that such a child might be regarded as a bit defective, and be most unfortunately set to nailing up boxes and constructing peach-baskets by a medical examiner whose thinking, outside of his profession, scarcely ever went beyond golf and bridge whist. In so broad and uncertain a field as the care of the defective child, the physician is liable to find his limitations for making a correct diagnosis and advising a judicious line of treatment more glaringly revealed than in any other branch of his professional work. The class of children first referred to should be saved from incompetent and inadequately educated experimenters. The harm they will do in squelching a mind that is normal, but not developing along old conventional, humdrum lines, will outweigh the little good they may accomplish with their manual teaching when they do have a defective child to care for.

Dr. George H. Moody, San Antonio, Tex.: I have observed that it is very difficult to avoid the tendency to blend vaguely feeble-mindedness in children with dementia praecox. Are we going to allow ourselves to call some of the feeble-minded children dementia praecox patients; or is a dementia praecox a distinct disease separate from feeble-mindedness? Of course, we often see and understand that dementia praecox occurs in children who are constitutionally inferior, and that the latter superimposed condition may be overcome while the original inferiority never can.

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[2] Pighini: Riv. sper. di freniat., 1908, iii-iv, 497.

[3] Sano: Jour. de Neurol., 1910, Nos. 15, 16, 17.

We are frequently asked for a prognosis in cases of dementia praecox. If we are to distinguish dementia praecox from feeblemindedness then we are going to give a different prognosis. If we separate the two conditions when they occur in the same individual, which often happens, it seems to me that we can frequently tell the parents that perhaps the child will regain the condition which has been normal for that child; but if the parents expect a child with dementia praecox to overcome its natural mental inferiority as well, provided it be congenitally inferior, and come up to the normal intellectually, physically and every other way, of course we must tell them that it cannot recover. It is important to avoid the blending of weak-mindedness in children with the beginning of dementia praecox. With this strict avoidance there will be a greater percentage of recoveries in our dementia praecox cases.

Dr. H. A. Cotton, Trenton, N. J.: The variation in the number of dementia praecox cases in the various institutions may be ascribed to two factors: first, errors in diagnosis, which are liable to occur in any institution in which they are not well acquainted with the disease; second, there is a distinct difference in different localities. At Danvers, Mass., we had a pretty large proportion of dementia praecox cases, and I rather favored the diagnosis of manic-depressive insanity. Still, there were many cases diagnosed as dementia praecox. At Trenton, N. J., where the persons of foreign descent are much fewer than in Massachusetts—a large proportion of our patients were of Irish descent of first and second generation—we have perhaps the smallest proportion of dementia praecox cases because the locality, the type of population, etc., have something to do with it.

I agree with what has been said about the necessity for recognizing these other cases, and doing something before the patients come to the institution. We have them as they come into the hospital, when they are from 7 to 10 years old, after the onset of the acute stages of the trouble; and I think we are in the same position now with regard to dementia praecox that we were with tuberculosis some years ago, when the physician, having said "consumption," sounded the death-knell of the patient, while to-day we know that if the symptoms are discovered early a large proportion of the patients recover. So with dementia praecox, when we are able to give symptoms and show conditions which need attention in the early stages, then we will be apt to have more results from the family physician.

Dr. C. B. Burr, Flint, Mich.: I think we should hesitate to exalt into a differential-diagnostic sign something which may be present in a variety of nervous conditions or which may depend on transitory, momentary conditions of muscular activity and perhaps on emotional states. I have not observed the connection of which Dr. Cornell speaks; but, of course, we all recognize cyanosis as an accompaniment of depressed nervous conditions. If it is true that we can by a little more attention to cases discover that this is a sign enabling us to differentiate between manic-depressive conditions and those of dementia praecox, we shall be deeply indebted to Dr. Cornell for bringing the subject to the attention of the Section.

Dr. E. E. Southard, Cambridge, Mass.: Some years ago I undertook an analysis of anatomic material in dementia praecox. To get a list of cases to work with I selected from the autopsy list all cases denominated dementia praecox, and before investigating them anatomically I looked them over clinically to make sure that I had a convincing list. I started with sixty-three. I did not think, however, that I could persuade my professional brethren of the existence of dementia praecox in many of them, and finally I got a selected list of twenty-nine, which I thought were really cases of dementia praecox. The others were possibly affected by alcohol, or by imbecility, or by the probability of an erroneous diagnosis in the direction of manic-depressive insanity; and even in the cases which I finally analyzed anatomically, there were a number of phenomena in the brains which would lead one to think that several of the cases were at least, as we say, on the imbecile basis. There were evidences of hypoplasia or congenital alterations in the brain in some of the cases. The percentages I have forgotten, but the diagnosis was difficult. I rather feel as if we could talk concretely about the catatonic form and the hebephrenic form. Paranoid forms make up statistics on these forms rather than the total group; and there is a large number of cases allied to dementia praecox.

Dr. W. R. Dunton, Jr., Towson, Md.: I do not want Dr. Neustaedter or any one else to understand that I simply advocate manual-training treatment. I speak of that as typical of the sensory training which we want to give these patients; and the geographic and social environment and everything else must be considered very strongly. A bashful child, I think, needs study to discover the cause of the bashfulness. The unsociability of a bashful child is simply a sign, and to my mind those cases should be studied. The personality is a strong element. Certain physicians will not diagnose cases of dementia praecox unless the dementia is extreme, that is, until the terminal stage is practically reached. As for diagnosing the disease in the predementia stage, it never enters their minds. If there is a remission (and we all know that remissions occur frequently) they do not believe that the case is dementia praecox—it must be something else (because the patient has recovered!).

I do not agree with Dr. Moody about the confusion of feebleminded and dementia praecox cases. I think the distinction can ordinarily be made. But we must remember that feebleminded persons occasionally have attacks of dementia praecox. The cyanosis has always suggested to me a faulty metabolism.

"Allied dementia praecox" is an unfortunate term, and the sooner we drop it from our classification the sooner we will come to a more exact understanding of this condition; if every one will remember that the cardinal symptom of dementia praecox, the most important thing to bear in mind in case examination, is apathy, the patient's emotional indifference, I think we will come to a definite understanding sooner than if we use the term, "allied dementia praecox."

Dr. W. B. Cornell, Hathorne, Mass.: Dr. Southard spoke of the difficulty of diagnosis and the personal element connected therewith, but every step toward the establishment of definite clinical signs tends to eliminate the personal element and the resulting errors. I am inclined to lay considerable importance on the physical findings in this disease. Dr. Moody asked regarding the occurrence of cyanosis in weak-mindedness and if dementia praecox bears any relationship to the latter. I think that dementia praecox and imbecility or weak-mindedness are quite distinct, but they may be combined, and in such cases cyanosis may be seen frequently. I am indebted to Dr. Burr for his questioning the value of cyanosis as a symptom in psychiatry. Often I have doubted its value myself, but now I really think that it is of importance, particularly as a diagnostic sign in cases of acute catatonic excitement in which cyanosis is often quite marked and calls attention to the necessity of circulatory stimulation.

I have no data on the occurrence of cyanosis in epileptic cases.

MEDICAL EDUCATION IN SOUTH AMERICA

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Last winter, having contemplated a trip to South America, I was appointed by Dr. A. M. Corwin, chairman of the Chicago Medical Society Council Commission on Medical Education, of which I am a member, to obtain data regarding the medical schools in the countries which I should visit. I also received a similar request from Dr. N. P. Colwell, secretary of the Council on Medical Education of the American Medical Association. It is to record briefly my findings in this direction, as far as I could obtain knowledge of the facts on a hurried visit, that this article is written.

I left New York Jan. 20, 1912, and arrived at Buenos Aires during the height of the Argentine summer, when the colleges were all closed and many of the faculty members away on their vacations. The weather was sweltering, but I was able to find well-informed physicians and through Spanish and Portuguese interpreters obtain information.

I was received with great courtesy by our Southern colleagues, who made every effort to show me their hospitals and schools and to give me all the information that I asked for. They demonstrated that the proverbial reputation of our neighbors of the Latin-American countries for hospitality and courteousness is well founded.

I visited the schools and hospitals of Brazil, Uruguay, Argentina and Chili, and was told about the medical schools of the other countries of South America that I did not visit.

The medical department of the state university at Buenos Aires is the best school in South America and will compare favorably with any school on this continent or in Europe. The city of Buenos Aires is thoroughly cosmopolitan, having 1,350,000 inhabitants and a history dating from the sixteenth century. It is well to remember that the oldest civilization of Europeon origin in the western hemisphere is Latin, and that many cities to our south antedate the oldest in the United States.

The medical university at Bahia is the oldest and one of the most noted institutions in Brazil, having been established by Regent Don João, who visited Bahia in 1808. It will be remembered that the first medical school in the United States was the one at Philadelphia founded by Dr. John Morgan in 1765. The personal physician of the royal family founded the institution at Bahia, which was called the Collegeo Medico-Chirurgico, the first lectures being delivered in the military hospital of Bahia. In 1832 it was installed in a suitable edifice of its own and the course of studies was enlarged. It was not until 1882, however, that it became known as one of the best medical institutions in South America. During that year it was completely reorganized by the emperor. Seven new chairs were created, making the whole number twenty-six. New laboratories were opened, and medical and surgical training was improved. In 1901 a chair of bacteriology was created and an experimental laboratory established in this department.

The curriculum is divided into twelve sections, embracing all branches of medicine, and the course of studies extends over six years, special attention being paid to clinical teaching which is given in the Misericordia and other hospitals as well as in the clinical institute of the faculty, which is comparable to our own dispensaries. The building for this work is lighted by electricity and equipped with many modern conveniences. This is the smaller of the two medical schools of Brazil. The charitable institutions of Bahia, in which the students receive their clinical training, are governed by the central board of health, which has charge of the hospitals, the disinfection department, the city service and the vaccine institute.

The other medical college of Brazil is located at Rio de Janeiro and, though younger, is much larger. It also has a six-year course and has about 1,000 medical students. The population of this city is 850,000. The students of both of these colleges have the privilege of attending either of them in any department. Both institutions are under government patronage, but are subject to proprietary control of the faculty which regulates the curriculum. The salaries of the older professors are still paid by the government, but the newly appointed professors are remunerated from the income of the school itself.

Up to one year ago the grade of both these institutions was decidedly low as compared with our own standards or those in other parts of South America, but within this period a thorough reorganization has been effected on the lines of the medical universities of Germany.

The government, in addition to salary appropriations, allows a considerable sum yearly toward the running expenses. As an entrance requirement all students must know Portuguese, their own language, and in addition any two foreign languages, the preference being given to French and German. The lectures are delivered in Portuguese, but most of the text-books are of French and German authorship. French is preferred by the students.

The medical course is of eight months' duration, from April 1 to December 1. Formerly examinations for degrees were written, but of late all tests are oral, each student being required to discourse for fifteen minutes before the examining board. These innovations seem to prevail in all the colleges of South America, and the reason given is that under the written system "cribbing" could not be controlled.

The resident surgeon of the state hospital (which is similar to our Cook County Hospital) is paid by the government; his assistants receive part pay from the same source and the remainder from the medical faculty. It should be said in justice to the Brazilian medical schools that though they have been of low grade compared to those in Argentina, Uruguay and Chili and the average in our own country, they are now endeavoring to place themselves on a par with the best in South America in equipment, buildings and requirements.

In passing from tropical Rio de Janeiro to temperate Argentina we find a radical change for the better in the status of medical education and practice. There are two schools in the latter country, one at Cordova and one at Buenos Aires, both under national control and management. The proprietary school, therefore, is unknown and not allowed. There are at least from 1,500 to 2,000 students in the medical department of Buenos Aires University. The admission requirement is a secondary school diploma; the medical course extends over seven years, the curriculum being thoroughly graded for each year. The examinations are all oral, and no thesis is necessary. There are thirty-two examinations of half an hour each before a commission of three professors appointed by the dean. The examinations are severe and must be passed in the Spanish language. They take place twice a year, the first for all students and the second for those who did not pass; third, there is a special examination for foreigners, who must present a diploma from their own country viséed by some home authority and by the local Argentine representative from the home country. After this they are admitted to examination, and must pass all the studies included in the curriculum of the seven years; all the examinations are held in Spanish. The fee for examination is $1,000, Argentine money, I think. It is perhaps worthy of note that foreigners are permitted to practice in rural districts provided there are no local Argentine physicians, but permission must be secured from the board of health to practice. This is evidently to encourage medical practitioners in these outlying districts, where I am told handsome rewards are to be had. Quacks are scarce in that country and the examiners are not open to bribery, so rigid is the government regulation.

The profession is not so overcrowded as it is in the United States, though I was unable to secure statistics on this point. French text-books are used and some German, but no English. The English language is not spoken or understood. The text-books in surgery are in French.

There are two rival medical societies in Buenos Aires. There is no characteristic student life; and no medical clubs or fraternities exist. Drinking and dueling among students are unknown. There seems to be a distinct antagonism between Argentine and foreign practitioners, notwithstanding the notable courtesy extended to me.

All interns are chosen from the best among the sixth and seventh year students. The professors are appointed by the minister of education, but as a rule are recommended by the faculty. All are paid for their services.

A good many students finish their education in Paris or Berlin. There are no postgraduate schools in Argentina. The government annually sends certain students to Europe at government expense and I think only one has been sent to the United States recently. American colleges might do well to cultivate this field, not only to bring to the attention of South Americans the superior work done in the United States, but to stimulate better international intercourse between the various Latin-American countries and our own. The late Nicholas Senn did much to encourage Japanese medical students seeking medical education to direct their travels from France and Germany to our own shores. Had he lived it is safe to say that the largest percentage of these would have been in American schools to-day.

I well remember that when I was on my trip around the world with him, about ten years ago, a banquet was given in his honor at Tokio by the government. On a side table was a collection of all the works which were the product of his active and virile pen. The honors accorded him and the attentions shown him were princely, and the eulogies pronounced to his fame as surgeon and teacher far surpassed anything that I have ever listened to.

In response, he dwelt forcibly and at length on the advantage to be gained by Japanese medical students in coming to our country. With him this was a sacred conviction born of his national pride. It would have done your hearts good to listen to the patriotic spirit which he voiced that evening. If to-day we had others of his kind, the United States would soon be the Mecca of our Southern, as well as of our Western neighbors across the seas.

To return to the school at Buenos Aires: the buildings are large, spacious, well lighted and richly equipped with all the modern appliances for comfort and superior work. They are well stocked with apparatus of every description, scrupulously clean and in order, and are patterned after the best in Europe. Laboratories, departments for the specialties, dissecting-rooms, etc., are prodigally planned and lavishly equipped. Good use is evidently made of it all, though I cannot vouch for this because it was in the vacation season when I visited them.

The reason that they can do these things on so great a scale is the government control and the large sums of money that are received for this purpose from racecourses and lotteries which are sanctioned by the government and universally patronized.

Buenos Aires contains hospitals aggregating about 5,000 beds freely accessible to all medical students of the fifth, sixth and seventh years; here the students receive their clinical training.

The other medical school of Argentina is located at Cordova. It is much smaller than the one at Buenos Aires, but the requirements, government control and management are similar. There are no proprietary medical colleges in Argentina. In Uruguay and Chili the system of medical education is substantially like that in Argentina, but in Paraguay, I was informed, medical training is bad.

Venezuela has two medical colleges, one located at Caracas and one in Ciudad Bolivar, the former having only forty or fifty medical students, the latter twenty-five or thirty. The course of medical instruction in these institutions extends over a period of three years. Both faculties are small and inefficient and their curriculums and requirements are far below par. The oldest hospital in South America is the Misericordia at Caracas governed by the Sisters of Charity.

Boys of 16 and 18 years of age are allowed to study medicine in Venezuela. In spite of this evident lack of preliminary education many of them I am told are wonderfully keen, have analytical minds and grasp ideas readily; they can converse on medical affairs fluently and intelligently but do not tend to carry out in practice what they learn.

Cadavers in Venezuela are not preserved as with us. Fresh subjects are taken and worked with as quickly as possible in order that they may be disposed of the same day. This is done because of the heat and moisture of the atmosphere which rapidly disintegrates the bodies. Subjects are numerous and easily procured, as all deceased indigents are turned over to the dissecting-rooms if wanted.

Caracas is a city of 100,000 inhabitants and contains only about 100 physicians. There is a need of good physicians in Venezuela. The native physicians are not prosperous because of the custom among them of allowing patients to pay whatever they wish. Foreign practitioners make specific charges and the people have more faith in them and look up to them as being more highly educated. There is no state medical association, but local societies exist as with us. Suits for malpractice are unheard of among these natives. It is ethical for physicians to advertise in the daily press and give testimonials for patent medicines.

There is a leper hospital of 400 beds in Caracas. The patients go and come as they please. Twice weekly those who are able go about and can be seen begging in the streets. On market days it is a common sight to see them vending vegetables.

A law exists in Venezuela against unlicensed practitioners. Non-graduates can procure licenses on examination but must practice in the rural districts, where they are numerous. Birth-certificates are not compulsory, but death-certificates are. Indian doctors are allowed to practice as they choose and the law does not interfere with them. Love potions to bring lovers together are common prescriptions, and strange to say, as in America, these fakers are patronized by some of the best families.

Generally speaking, in South America schools for nurses are wanting, and, while the Sisters are very charitable, they lack efficient training in the up-to-date, modern, scientific care of the sick. Male patients are universally attended by male orderlies. I was impressed with the fact that everywhere hospital accommodations are below requirements. I saw in almost all the state hospitals many patients lying on the floors, so manifest was the overcrowding. The good sanitary condition, however, which has been established in the sea-coast cities within the past five or six years, is in notable contrast to the former state when the cities were recognized pest-holes. These reforms are in large measure due to the fact that medical men are at the head of many South American municipalities. For example, the mayor of Rio Janeiro is a physician, and is proud of the sanitary measures which he has inaugurated in that city. Well may he be, for it is one of the cleanest cities that I have ever visited.

In conclusion I may suggest that the holding by American physicians of the offices of mayor, alderman, governor and other executive positions is needed to place us on a par with members of our profession in other parts of the world where they are in the van of progress as leaders in politics, and in economic and social affairs. It is for this leadership that our higher medical standards and training fit us.

32 North State Street.

A SERIES OF INFANTS FED ON A HIGH-PERCENTAGE ALBUMIN MILK *

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The work of Finkelstein and his school in the use of *Eiweiss-Milch* in the nutritional disorders of infancy is now too well known to need narration. Many of you have seen this food used at the Berlin Kinderasyl or elsewhere, many personally have tried it, and all have read the growing literature on the subject. That it has a temporary value in selected cases is accepted by most observers. That the dyspeptic stools improve and that with the addition of malt sugar the infants begin to gain in weight is the experience in most cases.

It is my purpose in this paper to record observations on the administration of a milk which is prepared according to the method of Finkelstein but in which the whey-elements have been increased beyond those of the regular albumin milk. The food which I have used is therefore richer in proteids, sugar and salts. This has been attained by using all buttermilk as the diluent for the curds instead of half buttermilk and half water.

The analysis of Finkelstein's albumin milk as published throughout the literature gives the following percentages:

Fat	2.50 per cent.
Albumin	3.00 per cent.
Sugar	1.50 per cent.
Salts	0.50 per cent.

It represents the fat and casein from 1 liter of full milk; casein, sugar and salts from ½ liter of buttermilk and water, ½ liter.

Some have failed to add a half liter of diluent, and as a result there are only 32 ounces of a milk mixture as the finished product, which increases the percentage and caloric content quite materially. The curds from 1 liter of sweet milk add about 250 c.c. or 8 ounces by volume to the liter of buttermilk and water, making 1,250 c.c. or roughly 40 ounces.

Percentages vary in such a complex milk, the ingredients of which are obtained from so many different sources. The fat, proteid and sugar-content of both sweetmilk and buttermilk is not constant, while not always is the same amount of curd precipitated, due to variations in the pepsin, the temperature and the time. Several analyses have been made for me by reliable chemists.[1] The composition varies widely, which coincides with the findings of Birk.[2]

The milk which I have used in the cases reported I have designated "high-percentage albumin milk." The analysis from one specimen gave:

Fat	2.00 per cent.
Protein	3.31 per cent.
Carbohydrate	6.51 per cent.
Ash	0.96 per cent.

Other analyses did not give so high carbohydrate, but the fat has tested as high as 2.9 per cent. and the protein 5 per cent. Therefore, I have found it impossible to state a uniform percentage. Likewise, the caloric estimation must vary somewhat, but the above analysis gives 18.3 calories per ounce, and 585 for 32 ounces. This is an average caloric content for the different analyses that have been made. The composition of high-percentage albumin milk is as follows: Fat and casein from 1 quart full milk. Casein, sugar and salts from 1 quart buttermilk. No water added.[3]

This formula, then, makes a total of 40 ounces, and is made up of a quart of churned artificial buttermilk made with a lactic acid ferment, reenforced by the addition of the precipitated fat and casein from a quart of sweet milk.

The primary object was to obtain a milk that could be used in the transition from Finkelstein's formula or from buttermilk. It has a higher salt-, sugar-, casein- and calorie-content than *Eiweiss-Milch.*

Malt-sugar, cane-sugar or flour have in certain cases been added in from 1 to 4 per cent. This corresponds with the recent work[4] done by Finkelstein's pupils in Berlin.

The infants to whom this mixture was fed and all of whom up to this time are reported herein were under 6 months of age at the time the feeding was begun, ranging from 22 days to 5½ months. All were inmates since birth in the institution and had been continuously observed. Many of them had not gained on breast-milk, and none of them had gained on sweet milk. All of them had shown stationary weight; most of them had had undigested stools, and many had various degrees of atrophy.

REPORT OF CASES

Case 1.—Baby Ar., weighing 3,920 gm. at birth on Sept. 14, 1911, had not regained birth-weight at the end of two weeks when he had to be taken off the breast. The next ten days showed a rapid fall in weight and dyspeptic stools while being fed a simple sweet milk dilution with sugar addition. When the child was 24 days old he was put on Finkelstein's *Eiweiss-Milch* for ten days; the stools were still somewhat green and undigested, the weight remaining stationary at 3,110 gm., which was 800 gm. less than the birth-weight. At the age of 34 days the food was changed to the high-percentage albumin milk. The infant gained 839 gm. in the next twenty-six days. Then followed a period of a month during half of which time sugars were added without any gain at all, the stools for the most of the time being macroscopically good.

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* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] Analyses of buttermilk, *Eiweiss-Milch* and high-percentage albumin milk have been made for me on different occasions by the Kansas City municipal laboratory and the Kansas City testing laboratory.

[2] Birk: Monatsschr. f. Kinderh., 1910, ix, 140.

[3] The technic of preparation is that employed by Finkelstein.

[4] Renfrey: Jahrb. f. Kinderh., March, 1912. The author states that the sugar added should never be less than 3 per cent. and may go up to 6, 7 or 8 per cent. if the bowels remain good.

At the beginning of the infant's fourth month at first 1 per cent. and later 2 per cent. cane-sugar was added, with a subsequent gain of 800 gm. in the next twenty-four days. It was then thought that the child could safely be put on a sweet milk mixture, but he began to lose and to develop green stools. Buttermilk with cane-sugar caused a temporary slight gain, the temperature being normal but constipation marked. February 24, when the child was 5 months old, the high-percentage albumin milk without sugar addition was again begun and during the ensuing month the gain in weight was 1,000 gm., the stools and temperature being normal. The child at this time left the institution in good health.

Case 2.—Baby Wi., weighing 2,845 gm. at birth on Sept. 26, 1911, nursed for two weeks at the end of which he weighed 3,005 gm., after which he was fed on various cow's milk formulas until November 21, maintaining a stationary weight. From November 21 to December 3, he was fed Finkelstein's *Eiweiss-Milch* with no gain. The stools were somewhat constipated. December 3, the infant was put on high-percentage albumin milk, gaining about 500 gm. in seven days. The weight was then stationary for twelve days when 1 per cent. cane-sugar was added; the child gained slowly but constantly. January 11, 2 per cent. malt extract was substituted for the cane-sugar, the weight increasing in the next twenty-seven days from 3,865 to 4,795, nearly a kilogram, when the child left the institution. The stools during this period were from one to four daily and of normal consistence usually; the temperature and general condition were good. Thus this infant was fed for two months on a high-percentage albumin milk, gaining both before and after the addition of sugar for a total of 1,750 gm.

Case 3.—Baby Ol., weighing 3,917 gm. at birth on June 28, 1911, nursed for twelve days with an initial loss of 400 gm. at the twelfth day; he was then fed on various cow's milk mixtures until he was 5½ months old at which time he weighed only 3,740 gm. The first four months of life the infant had frequently dyspeptic stools and showed marked atrophy. A moderate gain on buttermilk with cereal addition occurred from the 4th to 5½ months, at which time was begun the high-percentage albumin milk without sugar addition. For the following three weeks there was a gain of 620 gm. Then 1.5 per cent. malt extract was added, the infant going from 4,280 gm. to 5,700 gm. in the following two months, the weight remaining here for two weeks when a change to malt soup was made. During this time a double infantile glaucoma appeared, but the child continued to gain slowly.

Case 4.—Baby Te., weighing 3,310 gm. at birth on Oct. 10, 1911, nursed for two weeks at the end of which time the weight was 400 gm. below the birth-weight. For the next two weeks the patient was fed on a simple sweet milk dilution and lost weight; had dyspeptic stools but a normal temperature. During the second and third months of the child's life there was a slight gain on buttermilk with cane-sugar, the stools remaining bad and the temperature normal. At the age of 2½ months the food was changed to Finkelstein's *Eiweiss-Milch* for two weeks with improvement in stools, but none in weight. Jan. 11, 1912, when the infant was 3 months old, the high-percentage albumin milk was begun. The weight was only 3,387 gm. Malt extract, 1 per cent., was added and the infant gained 700 gm. in the next thirty days, the stools for the most of the time being in good condition.

Case 5.—Baby Al., weighing at birth 2,720 gm. on Oct. 30, 1911, was fed from the start on a sweet milk mixture with no initial loss of weight, but at the end of the first month weighed 200 gm. less than at birth. The stools had been irregular, some days showing curds and constipation, but in good condition at the time of beginning high-percentage albumin milk on the thirty-sixth day of life. There was an immediate gain of 300 gm. in five days, after which the weight remained stationary and the stools and temperature normal. No further attempt was made with this food.

Case 6.—Baby Har., weighing 4,000 gm. at birth on Oct. 31, 1911, nursed sixteen days; was still 199 gm. below initial weight; continued to lose weight for the next three weeks on a sweet milk formula. Temperature was normal, and stools

RESULTS OF FEEDING HIGH-PERCENTAGE ALBUMIN MILK IN SIXTEEN INFANTS WITH STATIONARY WEIGHT AND VARIOUS DEGREES OF ATROPHY

Number	Name	Birth Weight Gm.	Age (Days) at Time This Food Was Begun	Time (Days) on This Food	Weight (gm.) at Beginning	Weight at End	Total Gain	Carbohydrate		Stools Before Using	Stools During Using	Temperature	General Results	Outcome of Case
								Day When Added	Kind (Percentage)					
1	Ar.	3,920	34	75	3,120	6,210	3,090	34	Cane, 1.5	Dyspep.	Digest.	Normal.	Good.	Left institution normal.
2	Wi.	2,845	67	68	3,045	4,795	1,750	19	Cane, 1.5; later malt.	Green mucus.	Yellow digest.	Normal.	Good.	Left institution normal.
3	Ol.	3,017	160	102	3,660	5,725	2,065	22	Malt, 2	Good.	Good.	Normal.	Good.	Developed infantile glaucoma.
4	Te.	3,310	88	38	3,387	4,065	678	8	Malt, 1	Loose green.	Usually good.	Normal.	Good.	Left institution normal.
5	Al.	2,720	37	15	2,615	2,970	355	..	....	Constip.	Constip.	Normal.	Fair.	Gained slowly on malt soup.
6	Ha.	4,000	50	22	4,052	4,400	348	5	Cane, 1	Good.	Digest.	Normal.	Fair.	Gained slowly on malt soup.
7	Sh.	4,045	34	7	3,825	3,800	—25	..	....	Green.	2 to 4 dyspep.	Normal.	Poor.	Stools became normal when food was changed to malt soup.
8	Ha.	2,800	26	30	3,074	3,240	166	14	Dex-malt, 2.5	Constip.	Constip.	Normal.	Poor.	Stools became normal later on malt soup.
9	Wa.	3,691	22	22	3,795	3,880	85	5	Cane, 1	Green.	Good.	Normal.	Poor.	Left institution.
10	Ma.	3,350	98	23	3,700	4,062	362	4	Malt, 2.5	Loose yellow.	Good.	Normal.	Good.	Developed spinal postural deformity.
11	Ca.	2,572	50	48	2,530	3,450	920	10	Cane, 2.5; later malt.	Dyspep.	Constip.	Subnormal.	Good.	Left institution in good condition.
12	Wil.	3,052	54	28	3,072	3,845	773	4	Malt, 2.5	Irregular.	Loose yellow.	Normal.	Good.	Left institution normal.
13	As.	4,245	30	14	3,640	3,574	—66	3	Malt, 4	Dyspep.	Good.	Subnormal.	Malnutrition.	Later gained on cereal.
14	Da.	3,405	30	9	3,310	3,415	105	7	Dex-malt, 4	Digest.	Loose.	Normal.	Good.	Put on sweet milk.
15	Le.	3,560	27	43	3,398	4,315	917	7	Malt, 4	Constip.	Good.	Normal.	Good.	Put on sweet milk.
16	Gr.	3,405	30	35	3,020	3,348	328	5	Malt, 4	Dyspep.	Good.	Normal.	Good.	Continued good.

good. December 6, weight was 3,639 gm., but a change to buttermilk caused a gain of 500 gm. in 8 days, when weight remained stationary for a week. High-percentage albumin milk with 1 per cent. cane-sugar was then fed for ten days with a gain of nearly 500 gm.; again a stationary weight for five days when a sweet milk formula was begun.

Case 7.—Baby Sh., large infant with stationary weight at 1 month of age was given high-percentage albumin milk for one week without any gain. During this period the infant had a nasal discharge, stools were somewhat dyspeptic, temperature between 99 and 100 F., which became normal by the time this food was stopped.

Case 8.—Baby Ha., aged 2½ months Feb. 2, 1911, who has gained only 300 gm. since birth, gained about 200 gm. in the next twelve days on high-percentage albumin milk, but remained stationary for the following eight days when dextrimaltose was added. Bowels became constipated but temperature was normal.

Case 9.—Baby Wa., aged 3 weeks, weight 3,795 gm., stools loose, green, but only two daily, was fed for eleven days on high-percentage albumin milk with complete improvement in the stools, but a gain of only 200 gm. in weight when 1 per cent. cane-sugar was added.

Case 10.—Baby Ma., aged 3½ months on March 31, 1911, weighed about 400 gm. above birth-weight; stools were usually loose and yellow. There were evidences of moderate amount of malnutrition. The child gained 400 gm. in twelve days at which time he left the institution. To this infant's food was added 3 per cent. malt extract. The stools remained loose but good in color and frequency.

Case 11.—Baby Ca. weighed at first month 2,530 gm., (5¾ pounds) no increase over the initial weight; although the infant was part of this time on the breast, the stools were dyspeptic and the temperature was usually subnormal. He had showed a slight gain for two weeks previously on Finkelstein's formula with an occasional breast-feeding. A change to the high-percentage formula without sugar caused no gain for the next week, but when malt extract was added a gain of 1,000 gm. in the next month and one-half was noted.

Case 12.—Baby Wil., aged 53 days, weight 3,072 gm., had not gained since birth; there was marked constipation in spite of daily administration of olive oil, and the addition of dextrimaltose to the milk. Food was changed to high-percentage albumin milk with from 2.5 to 5 per cent. malt extract added, the patient gaining 800 gm. in the following twenty-seven days; general condition was good.

Case 13.—Baby As., 1 month old, had been feed on various cow's milk mixtures with decreasing weight, with loose and undigested stools. Weight at this time was 600 gm. below birth-weight. From 1 month to 6 weeks of age, the high-percentage albumin milk, with malt extract addition up to a total of 8 per cent., caused a marked improvement in stools, but a slight loss in weight. Child continued to be atrophic.

Case 14.—Baby Da., 1 month old, stationary weight since birth, temperature normal, stools good, was fed for ten days on high-percentage albumin milk with only slight gain, but maintained good stools.

Case 15.—Baby Le., weight at birth 3,560 gm. on Feb. 16, 1911, was fed from the start on a low fat and high sugar formula until twenty-seven days old, with a slight loss in weight, when the high-percentage albumin milk with 4 per cent. of malt extract was begun. The patient gained 800 gm. in the next twenty-eight days; the stools and temperature were normal.

Case 16.—Baby Gr., 1 month old, had lost 400 gm. since birth and had dyspeptic stools. When put on the high-percentage albumin milk with malt extract, 4 per cent., the patient gained 328 gm. in the next month, and continued to gain while in the institution.

RESULTS

Just why the high percentage in this buttermilk mixture which I am using has been easily tolerated as evidenced by the uniformly good stools, frequent gain in weight and absence of fever is hard to say, but the reason probably lies in the increased digestibility from the presence of buttermilk and from the freedom of over-feeding by caloric control, while at the same time the infant is getting sufficient. Heim and John, however, at Budapest, have recently reported good results from the use of a casein-enriched sweet milk.[5]

Nine of the sixteen patients showed good gain in weight, a few of these being quite marked.

Two showed loss and two only slight gain. One of the former was the most atrophic in the series. In all of the cases the good effect on dyspeptic stools occurred. Three infants remained constipated.

As long as the infant continued to gain it was kept on this food. Some gained with or without addition of sugar.

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ABSTRACT OF DISCUSSION

Dr. J. H. Hess, Chicago: Unquestionably, catharsis gives us a great deal of aid in eliminating from the bowels, and, if proper cathartics are used, also from the kidneys, in all intoxications, especially those due to intestinal absorption. I believe, however, that there is danger of going too far. I have never had the courage to give 5 grains of calomel to a young infant. Not many months ago a series of experiments was carried on by Dr. Abt in our clinic at Michael Reese Hospital to note the effect of the various cathartics in infants and young children. We found in all infants that 1 grain of calomel given daily in divided doses over a period of three days produced at least microscopic blood in the stools. The same thing was found when 1 dram of magnesium sulphate was given daily over a period of three days, and also but to a lesser degree when 1 dram of castor oil was given daily for three days. Inasmuch as some of the patients were normal babies, sent to us for feeding because the mothers were sick, these findings were particularly striking. I recall one well baby that was given 1 grain of calomel daily for two days. It had no ailment of any kind, but we almost lost it. It was several weeks before the baby was considered out of danger. Undoubtedly, areas are opened in the intestinal tract, and infection takes place through them.

I believe that one great trouble in this country is that most of us do not know how to make *Eiweiss-Milch*. Finkelstein did not give details for its preparation sufficient for use in the home or in the small clinic. His was made by a large manufacturer with large equipment especially designed for a homogeneous mixture, and without these when making it in our clinic we do not get a fine curd. As a consequence it does not go through the bottle, or we make an error in another direction and do not feed enough carbohydrate with it. Since we have been making it according to later instructions our results have been entirely different. When Dr. Neff says that with the *Eiweiss-Milch* he got no gain but with the higher percentage food he did, I think it was simply due to the fact that he did not follow Finklestein's dictum: if you do not get a gain in weight add more malt-sugar. Dr. Neff says that Finkelstein directs the addition of "one-half liter of water and one-half liter of buttermilk." What Finkelstein really says is "add one-half liter of buttermilk and water to a full liter." So in my experience you only add about 6 ounces of water and not 16.

Dr. J. L. Morse, Boston: We are now in a transition stage as to the question of etiology of diseases of the intestinal tract and therefore as to their classification. The Germans are making at present a little too much of the chemical side. We in Boston are perhaps thinking a little too much of the bacteriologic side; the truth may lie somewhere between. I think almost everybody now feels that a baby from birth up, even a premature baby, is able to digest a reasonable amount of starch; in many instances it is a great advantage to add it. There is no reason to expect any harm to come from the addition of a reasonable amount of starch, whether dextrinized or not. I read a paper last week on maltose in infant-feeding in which I maintained that lactose was the best sugar for the normal baby. It seems to me that one of the greatest things we owe to Finkelstein and his school is his calling attention to the injury sugar may do in the intestinal tracts of babies, especially milk-sugar, and to the substitution of malt-sugar for milk-sugar in the later treatment. When I speak of malt-sugar, of course I mean the various preparations of dextrin and maltose, because nobody uses pure malt-sugar. A large number of intestinal disturbances in infants are due to the fermentation of sugar and its chemical action on the intestine. These patients are relieved by cutting down the sugar to a minimum and feeding a high protein diet, but they improve more rapidly if malto-dextrin mixtures are added instead of lactose. I do not feel quite sure, from my experience whether precipitated casein as used in the *Eiweiss-Milch* has any advantage over the straight casein. I am sure that a high percentage of protein is of advantage. We have to remember not only the chemistry but also the bacteriology of the intestinal tract. Lactose is of advantage in some instances because it is slowly absorbed and maltose is of advantage in other cases because it is rapidly absorbed. Then also lactose favors the growth of the *Bacillus bifidus*, a normal inhabitant of the lower intestine, while maltose favors the development of the *Bacillus acidophilus*, which may do harm. In making Finkelstein's *Eiweiss-Milch* it seems rather inconsistent carefully to take out lactose, which, if it does harm, presumably does so by the formation of lactic acid in the intestinal tract among other things, and then add buttermilk, which is full of lactic acid.

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[5] Heim, P., and John, K. M.: Ztschr. f. Kinderh., Orig., March, 1912, i, Series 4.

We have found, in Boston, a certain number of cases which were undoubtedly meningismus, in which there was increase in the number of mononuclear cells in the spinal fluid, enough to lead to suspicion of tuberculous meningitis. Subsequently, this was disproved. It seems to me that a further knowledge is going to modify materially our judgment regarding the cellular findings in cerebrospinal fluid.

Dr. L. T. Royster, Norfolk: We should differentiate between the institutional case and that in private practice. There are two main reasons why we have had a large number of deaths in institution practice: first, lack of attention; I mean by that, insufficient help. With ten bottle-fed babies to one nurse, it is simply impossible to give them adequate attention. The other is lack of ventilation and fresh air. I have charge of a small institution for foundlings in my city, children who are abandoned from the slums of the city. The children that have come into the institution have usually been doped to such an extent that a bowel movement is impossible for four or five days and they are practically starved. We found that we were not doing quite enough in the matter of attention to these babies, and we have our ward open all around to get as much fresh air as possible. There is one graduate nurse in charge, and a student nurse from each of the two general hospitals and two ward helpers. As nearly as possible I feel that that is giving the children just as good care as is possible in an institution. Babies that are at all sick or young bottle-fed babies are invariably held in the arms while they are nursed. Personal care of each individual baby and plenty of fresh air are a great help.

For the past winter, in some select cases I have been using a preparation of malt-sugar after a formula devised by Dr. Leopold of New York. I have obtained some interesting results from that. I had two babies that were almost completely starved, had almost complete obstipation, having been doped, and weighed almost nothing at 2 or 3 months. They gained somewhat in weight, but did not reach normal, and stopped. The stools, so far as I could see, were normal; the baby was taking the requisite amount of food. The only change I made was to substitute dextrimaltose for whatever form of milk I was using. One baby gained 11 ounces and the other 7 or 8 in the first week, and kept up an average of 6 to 8 ounces a week for six weeks. Then I took a small series of babies in a somewhat similar condition, as nearly as you can compare two or three babies, and used them as an experiment; one was fed with one of the proprietary foods said to be especially rich in malt-sugar, the second on milk-sugar and the other on dextrimaltose. In that particular series, the child on the proprietary food gained about 3 ounces a week, the child on the milk-sugar gained about 5 to 6 ounces a week, and the child on malt-sugar gained about 6 ounces a week. I do not think it wise to keep the child on malt-sugar indefinitely. There comes a time when the child will stop gaining. In many cases the slightest change in the child's food, even putting in a tiny little bit of starch, or as one investigator found, just a little condiment, would start a digestive improvement.

Dr. Herman Schwarz, New York: It has been proved that the addition of malt-sugar in a great many cases does help the children. Finkelstein, if he has done anything, has shown the difference between the normal and the abnormal child as regards sugars, and that is one of the most important points we fail to recognize, that when we are talking of sugar preparations in infant-feeding, we should distinguish between the normal and the abnormal child. For abnormal children milk-sugar is not the best. For the normal child it may possibly be all right. I began about three years ago to use *Eiweiss-Milch*, and it is used extensively in New York. I wanted to find out whether it was the high protein, the absorption of sugar or simply the breaking up of the coagulum which caused fermentation. I gave children *Eiweiss-Milch* and then washed out the stomach, and the returned coagulum was about the same. It seems to me that the results secured with *Eiweiss-Milch* are due to the high percentage of protein. It is not how much you give of any one component part of a food, but the combination. I can give a child a high fat, providing I give a low sugar. I can give a high sugar providing I give a low fat.

Dr. T. S. Southworth, New York: The old idea that the child could not digest preparations of starch in its first year has been thoroughly cleared away by experimentation. Many of us are in the habit of using the preparations of starch. I do not think it is necessary as a routine measure, often using lime-water and plain water, but where there has been intestinal disturbance, children often do better on an admixture of a cereal diluent. The original view taken of this matter was that the addition of the cereal diluent made a looser curd of the casein, and therefore made it more permeable by the gastric and intestinal juices, but it seems to me that there is another use for the polysaccharid carbohydrates. We know that when Keller put out his "malt-soup," he found that if he gave large quantities of the malt-soup extract alone there was too much sugar and the child got diarrhea. He was obliged to add starch to prevent this.

It is my opinion that the starch when given acts to a certain extent in protecting against fatty acids as well as against the irritant effects of sugars, which is a further reason why I think the addition of cereal diluents helps us. Of the three sugars, lactose, saccharose and malt-sugar, the lactose and saccharose are simply disaccharids, but the other which we use under the term "malt-sugar" is really a combination of more or less of the two ingredients, maltose and dextrins. We managed to get along for a good many years, disregarding the presence of these dextrins. We made no particular study of their action. Dextrin and starch have certain things in common. Dextrin is apparently able to protect the intestine in very much the same way starch does. The dextrin is capable of being further split up in the intestine into maltose. If we give part of our sugar in the form of maltose and part in the form of dextrin, which is not fermentable or dialyzable and consequently not so readily absorbed and not so irritating, the latter can be slowly split in the intestine, and furnish further maltose during the time of its gradual absorption.

Dr. H. Lowenburg, Philadelphia: The papers bring up the subject of the relation of the laboratory worker to the physician. I must confess that I am at times completely mystified by advice from the laboratory; it is so frequently contrary to clinical experience and contradicts itself. About eight or nine years ago I heard a paper by a laboratory worker before this Section on the etiology of marasmus, in which the author said that the cure of marasmus consisted in finding the proper food. I also remember another paper before this Section dealing with the etiology of summer diarrhea in which some very eminent authority described the etiologic factor as largely bacteriologic. The Germans deny this. For many years we were taught to look on the protein as the source of our trouble, and then the laboratory worker came along and told us it was not the protein but the fat and the sugar. While I look to the laboratory for advice, I must confess that I have to be shown before I am willing to accept every new idea. In the last few years I have been feeding top-milk mixture with cane-sugar. I see no reason to discontinue, my experience having been successful. During June, July, August and September I pasteurize and try to get a mixture suitable to the child's digestion. I believe that if we combine chemical and bacteriologic study in our search for a proper etiology of digestive troubles, we shall probably reach the correct solution of the whole problem. I have never been able to understand why milk-sugar should be the cause of so many digestive disturbances for which at the present time it is given credit, for the simple reason that it is a natural ingredient of human milk, in which it is present in a large amount. The only reason I can advance is that the commercial product might be impure, contaminated with bacteriologic products, which are not properly destroyed by sterilization.

Dr. Roger H. Dennett, New York: Dr. Schwarz spoke of having much better success with the malt-soup than with the dextrimaltose. I believe that that is because the malt-soup requires superheating of the milk in its preparation. It has been my experience, time after time, that some children cannot take milk that has not been superheated. If you take them off the superheated milk they immediately develop intestinal indigestion.

Dr. Louis Fischer, New York: I do not wish to be misunderstood that I ordered this dose of calomel for a child of a year. I was talking about children in the Willard Hospital aged from 7 to 9. I am willing to admit that calomel might do harm. I did say that the choice of active catharsis was left between magnesium sulphate, Rochelle salt and compound licorice powder. In giving a dose of magnesium sulphate the house staff has a routine method of giving 2, 3 and sometimes 4 drams at one dose on admission, especially when there is a tendency to constipation. In comparing a series of cases in the last ten years in which we allowed intestinal auto-intoxication to occur we had more complications later in the disease. I therefore wish to make one point: we should have free elimination of the gastro-intestinal tract, not necessarily with enormous doses of calomel or anything else, but with free stimulation of the emunctories of the body. This would result in less complication, and perhaps shorten the duration of the disease.

Dr. F. C. Neff, Kansas City, Mo.: In answer to Dr. Hess's question about the probability of some of the patients gaining if malt-sugar had been added a complete analysis of the cases will be printed, in which I show how much sugar was added, and when. Some did not gain at all until malt was added. I had a few patients who did well without any sugar. I wish to repeat that my object in presenting this series of cases was to show the results in feeding a milk which is undoubtedly indicated in certain patients, who are in certain degrees of atrophy. The milder ones might be said to have a persistent stationary weight. We had to find some food which was suitable. I believe some of these foods are better in these cases than the ordinary sweet milk mixtures. I simply offer a suggestion for trial in certain cases in which other foods do not show a gain.

Roast Beef and Hot Water in Exophthalmic Goiter.—In my own experience, patients with pulmonary tuberculosis or intestinal tuberculosis do best on a diet consisting largely of raw or underdone broiled or roast beef and hot water; and I have found the same régime useful in many cases of Graves' disorder. The hot water is sufficiently important to be emphasized by repetition. Given regularly and in sufficient amount, i. e., from 250 to 500 c.c. (one or two tumblerfuls) and preferably the larger quantity, about an hour before food four times daily, and between meals also, *ad libitum*, it keeps the gastro-enteric tract clean and active; and it promotes elimination by the skin, the bowel and the kidneys. Thus it permits a sufficient quantity of beef to be eaten, digested and assimilated, and causes the waste products to be excreted thoroughly.—Cohen in *Am. Jour. Med. Sc.*

RELATION OF THE INFANT WELFARE MOVEMENT TO PEDIATRICS *

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DETROIT

We hear constantly nowadays that this is the era of preventive medicine, and the saying daily becomes more true. The physician is ever more concerned with warding off the ills which once he aimed merely to palliate or cure. As our science has grown, means have been made clear to us whereby the great scourges of humanity might be attacked at the root, and one by one they are being met and conquered. Certain of these evils have been so wide-spread and so obvious that as soon as ways of mitigating them became apparent, the attack was readily converted into a popular movement or crusade of which there are several now in progress, the most conspicuous to-day, perhaps, being the campaign against tuberculosis. In all of these movements the medical profession has been naturally, of right and of necessity, at the head, as it must furnish the knowledge which guides all the work.

THE INFANT WELFARE MOVEMENT

Curiously enough, one of the most fertile of all fields for the practice of preventive medicine has been left almost untouched until recently. No single period of life is so fatal as infancy; no disease ever had so many victims. Nothing probably causes more physical unfitness and wretchedness than the effects of infantile disease in those who survive. Nothing is more appealing than the helpless baby — nothing more important to the world than this future man in the making. No great discoveries were needed to show why infants die. Yet the infant welfare movement is only now well under way. The explanation of this may lie in the rather slow differentiation of pediatrics as a specialty. So long as nobody devoted any special study to the baby, it was perhaps natural enough that the enormous mortality and morbidity of infancy should be considered an incident of that period of life; but it needed only the proof which our rapidly developing specialty soon furnished that this great sacrifice of life and health was not necessary, in order to start a campaign which, young as it is, bids fair in a few years far to outstrip in importance and popular interest any similar movement heretofore inaugurated. Already, indeed, it is progressing so rapidly and being taken up everywhere so enthusiastically that it seems wise for us as pediatrists to consider just how it affects us and our specialty, and what our relations and attitude toward it should be.

This infant welfare movement is of necessity a many-sided one, for the infant is threatened with perils from many directions. In its fulness it involves other specialties than that of pediatrics and other vocations than that of medicine. To give the infant his proper chance for life and health implies the study and practical application of eugenics, the improvement of midwifery, the amelioration of poverty as it affects expectant and nursing mothers, the bettering of housing conditions, and many other things which involve the activity of the sociologist, the lawmaker, the sanitarian and the practical philanthropist. All of these things are of interest to the pediatrist also, as anything which affects the baby must be, and it is essential that he be conversant with the needs and accomplishments in these various lines;

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* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

but the greatest opportunity, the most promising of immediate results, lies directly in his own peculiar field. It has been clearly demonstrated by the efforts put forth within the last few years to cut down infant mortality that an overwhelming proportion of all the sickness and death among infants is due to nothing more than widespread ignorance concerning the feeding, care and hygiene of the baby; and that education of mothers and prospective mothers in these particulars can be successfully carried on in such a way as to bring about almost immediately a reduction of more than one-half in the infant death-rate among those reached. No more glittering opportunity was ever offered to preventive medicine than this, and no specialty ever had a better chance to show what it was capable of doing for the world. This particular phase of the movement, being so much the most immediately practical, is the one which is receiving at present altogether the most attention and being the most rapidly developed. It is almost always the first thing attempted when new work is undertaken in any community, and its success, when properly handled, is likely to be the stimulus to further endeavor along less obvious, but perhaps equally important lines.

TEACHING INFANT-FEEDING

The methods of carrying out this educational work are, or should be, familiar to all of us. The modern development of the *gouttes de lait,* the milk stations, the "mothers' clinics," or most descriptive term of all, the "prophylactic dispensaries," with their visiting nurses to demonstrate to the women in their homes how to carry out the instructions they have received, have been many times described. The "little mothers' classes" in schools and social settlements are a newer, but well-established development. The instructive literature distributed in many cities is no novelty. The only reason for dwelling on the relation of the pediatrist to these things lies in the fact that the movement is so popular, and the work seems so well developed and so simple that there is some danger of its getting out of hand and being attempted without the skilled direction which is essential to the best results. A certain amount of indifference on our part, combined with overzealousness and too great haste on the side of the lay philanthropist and the health authorities, might easily lead to an entire miscarriage of the work undertaken in any community; and we should have another such waste of money and effort as accompanied the work of many of the charities which confined their efforts to the distribution of clean milk, of which so much was once expected, but which accomplished really little more than to help to prove that impure milk plays by no means the most important part in the causation of infant mortality.

It is the right and duty of the pediatrist to guide, direct and develop this educational work, and he cannot afford to delegate it to any one else. He is of course by no means the only one interested. Anything connected with the prevention of disease lies also within the province of the public health authorities, and at a time like the present when the scope of their activities is constantly and rapidly broadening, so conspicuous a movement as this is sure to attract their attention and invite their earnest cooperation; in fact there can be no question that eventually the department of child hygiene will be as much a matter of course in the public health work of any large city as the department of contagious diseases is to-day. The danger, if any, is that this may come too soon. It is only natural that the enterprising health officer, whether from real enthusiasm or from desire to make a showing, should reach out after any such promising and popular cause as this, and endeavor to make it his own. Just when the time is ripe for this in any given city must depend largely on local conditions and on the character of the health officer. It is certainly impossible for any health office to do this work effectively until the public has been sufficiently educated to the need of it to be willing to support it properly. This education probably comes best through demonstration by well-organized private philanthropy. The most satisfactory development is perhaps the gradual assumption by the municipality of this private work.

There may perhaps be some question, according to one's conception of the proper sphere of municipal health work, as to whether the municipality should concern itself with the actual supervision of the babies, or limit itself to the dissemination of knowledge as to the dangers that beset the infant by means of literature and instruction in the schools, and to the collection of facts and statistics regarding infant mortality and its causes; and whether the prophylactic dispensaries would not more logically be connected with the children's hospitals or similar philanthropies. Municipal health work is developing so rapidly that this point could hardly be settled now, except by saying that it seems perfectly proper for any one to undertake work of this character who is in a position to carry it out satisfactorily. However all this may be, the prime essential for any enterprise of this character, municipal or otherwise, is good guidance, especially while the whole movement is still so largely in the formative stage. The municipality or the health officer who for political or any other reason gives this opportunity over into unskilled hands is hindering, not helping, the cause. To attempt wholesale teaching of infant-feeding and hygiene and have this teaching any but the latest and best would be a poor service to the community; and no one can determine just what is best and right to teach but the pediatrist who is fully abreast of the latest developments in his specialty.

Pediatrics is a real science and one which is making tremendous strides, especially in these very matters of feeding and hygiene. The best of the specialists have difficulty enough to analyze, assimilate and pass judgment on all the new work and the changing theories. The really competent pediatrists are none too common and the specialty is so new that it is still cumbered, in America at least, by a large proportion of self-styled specialists with no real training in this field, and no good reason for their title except an interest in babies. To leave the education of the public to any of this class would be worse than a mistake. Furthermore, those who have this work in charge are in a position to acquire information and collect evidence of the greatest importance to pediatrics, provided it is gathered by trained pediatrists. To give this chance into incompetent hands would be a lamentable waste of good material. The same arguments apply of course to enterprises conducted by private philanthropy.

It would seem needless to point out that such work cannot safely be left to the nurses alone, if it were not for the fact that this has actually been attempted. So much stress has been laid in all that has been written regarding the prophylactic dispensaries on the importance of the nurse's part that some enthusiasts have been misled into the supposition that she is the only essential. The nurse's position here is precisely the same as in private practice. She is the physician's invaluable assistant, and she must bear the brunt of the work; but to leave the whole thing to her would be simply to invite, on a large scale, the trouble which we all meet in private practice, when the sole responsibility for the baby's feeding and care has been assumed by the overconfident nurse. It is a tendency to be guarded against rather than encouraged.

The future of the infant welfare movement lies, then, with the pediatrists. It cannot be a real success without their cooperation and guidance, and in proportion as they give it their interest and influence promptly and freely will its healthy advance be rapid or slow. In other hands than theirs it must not only lag behind the progress of pediatrics, but it runs the risk of falling short of promised results and being discredited.

OPPORTUNITIES OF THE MOVEMENT

If the infant welfare movement is so dependent on the pediatrist for success, it cannot be said that it offers nothing in return. Indeed, I think it may be said that it promises to be a most important agent in hastening pediatric progress. First of all, it should do much toward giving the specialty the recognition and prominence which it deserves. By giving wide-spread publicity to the unnecessary loss of infant life and the great need of skilled supervision of every baby, sick or well, and by its demonstrations of what can be done in this way for the children of the poor, it must considerably expand the scope of private pediatric practice and develop a branch of it which is now little enough in evidence. "Welfare work" among the babies of the well-to-do is as legitimate a part of our special field as the treatment of disease, and is really needed. If these babies could be under the same constant, careful observation by competent pediatrists which we insist on for those of the poor in our prophylactic dispensaries, it would redound greatly to their advantage and our credit.

In addition to broadening the field of ordinary pediatric practice, the infant welfare movement is opening up a special branch of pediatrics. Every pediatrist should be acquainted with the general features and tendencies of the movement, but the men who are to direct it in the larger cities, who must of course be pediatrists first of all, and of the best, ought also to have a thorough special knowledge of all the branches and phases of infant welfare work as it is carried on not only in America but also in those continental countries where it was developed earlier and has been more thoroughly elaborated and systematized. It seems quite evident that there will soon be a considerable demand for men who by such training are capable of directing work on a large scale.

Another thing which we may expect from this movement is that it will emphasize the need of better teaching of pediatrics in this country, and of more opportunity for special study. It is no secret that our general practitioners and many of our so-called specialists are deplorably ignorant of pediatrics, especially of that most important part of it, the management of the young baby, and most of our schools offer at present no great opportunity to learn it. Clinics and hospitals for the sick child afford no chance to acquire the necessary knowledge of the handling of the well baby so as to keep it well. The infant welfare movement promises not only to call attention to this need, but also to afford a great chance to correct it by the opportunities afforded in the prophylactic dispensaries for the observation of normal children. Instruction in the management of breast-feeding, which is perhaps more urgently needed than any other, can probably be given better there than elsewhere.

With the bottle-fed baby, the prophylactic dispensary gives us the best opportunity we have ever had to demonstrate what we have so long been preaching — the advantage of simple milk mixtures over complicated formulas and popular proprietary foods, and the utter needlessness of nearly all these. To put the proprietary foods in their proper place is a thing I am sure we have all desired, and good management of our educational campaign should accomplish it. Unskilful management, on the other hand, might have as much the opposite effect as does unskilful feeding in private practice.

We have also in this supervision of the feeding of large numbers of comparatively normal children an unusual opportunity to try out various feeding methods, such as one would hardly get in hospital or private practice. In the large cities, the prophylactic dispensaries under one management have charge of the feeding of thousands of babies and this is usually carried out so far as possible according to a uniform method. Regular observations and weighings are made and good records are, or should be, kept. Such careful compilations of these records as might be made by scientific directors would furnish invaluable material for comparative study of the results of different methods, and might well contribute greatly to progress in infant-feeding.

The prophylactic dispensary is by no means the only phase of the infant welfare movement which is of value to pediatrics. The whole movement involves an intensive study of the causes, immediate and remote, of infant mortality and morbidity, which must not only add considerably to our pediatric knowledge, but must broaden our conception of pediatrics. As it develops, it will give the would-be pediatrist constantly more to learn and make the real pediatrist a fuller man. The tendency of the movement to bring pediatrics into closer touch with all the other specialties and interests concerned in any way with the baby must add fully as much to our knowledge of our subject and be as valuable an incentive to further study and better work on our part as on theirs, and should be welcome to all of us.

SUMMARY

To summarize briefly the points I have tried to make:

The mitigation of the present enormous mortality and morbidity among infants is the most promising field now open to preventive medicine and the infant welfare movement bids fair to become soon the most important of all the wide-spread popular campaigns against disease and its causes.

The whole movement, though it involves many other specialties and vocations than pediatrics, must be of interest to the pediatrist and should be closely followed by him. Its most important phase, however, is directly in his own field. The greatest chance to reduce infant mortality has been shown to lie in educating the public, the mothers and young girls in infant-feeding and hygiene. This work it is the right and duty of the pediatrist to direct and it cannot meet with its full measure of success unless under skilled direction. Whether it be carried on in connection with the health office or the hospital or by independent private philanthropy, the guidance of the thoroughly competent pediatrist is essential to keep it from going wrong. There seems to be some danger of this essential being lost sight of.

The movement offers much to pediatrists. It promises to give the specialty better recognition and to enlarge its field by calling attention to the need of skilled supervision of all babies.

It will demand better teaching of pediatrics.

It offers the pediatrist the chance to demonstrate on a large scale the possibilities of breast-feeding, and when this fails, of simple bottle-feeding without resort to proprietary foods.

It gives an unusual opportunity to try out methods of artificial feeding with the normal child.

It is stimulating a close study of the causes of infant mortality and morbidity which must add much to pediatric knowledge.

It tends to bring the pediatrist into close association with all others concerned with the welfare of the infant, to his benefit as well as theirs.

Finally, it might well be said that the whole infant welfare movement is nothing but the newer and broader form of pediatrics, and should be so considered. Pediatrics, by the nature of the material with which it deals, is better situated than any other specialty for the practice of preventive medicine, and it is at the beginning of life that the systematic application of prophylactic measures can accomplish most and be of the greatest value. We must not neglect our opportunity. Individual pediatrists are taking prominent parts in the movement in many of the cities now, but considering the relative importance of their mutual relations with the movement, the representation of pediatrists in the organizations which are endeavoring to control and guide it is disproportionately small, and there is, so far as I know, no participation by any organization of pediatrists. This condition should not continue. It would seem only natural that every association of pediatrists should be sufficiently alive to the importance of the situation to be formally represented in the National Association for the Study and Prevention of Infant Mortality, and to take a part in its work, as well as in local enterprises, which should lay more emphasis on pediatrics and its essential relation to infant welfare. As it is at present there is in this country no evident connection between two developments which should be inseparable — the growth of pediatrics and the infant welfare movement.

ABSTRACT OF DISCUSSION

Dr. Charles Douglas, Detroit: The pediatrist is the only one who is capable of directing the public on this subject in straightforward lines of truth that will not require to be reversed in two or three years from this time, which is likely to occur if the progress is from any other source than the pediatrist.

Dr. G. R. Pisek, New York: Having been very actively interested in the campaign in New York last winter, I feel that this type of work should not be put into the hands of the health boards of the city too prematurely. Not that they are not the ones to take care of it—logically they are—but we should previously have the work mapped out and organized so that they need only to follow it up and not to develop it. Well-directed philanthropy along these lines is the proper method of procedure. The private organization can show the special need to the city authorities, and then finally help secure an appropriation from the municipality so that the health board can continue the work, and not only keep up the standards set for them, but advance them. I think if that can be done in our cities on a large scale we shall have effective reduction in infant mortality. To do infant welfare work in a small way in a large city is almost a waste. We must have something definite to show at the end of the year, something to prove that we have modified infant mortality.

Dr. H. K. Hill, Philadelphia: The physicians of Philadelphia, principally the pediatrists, presented last week what was called a "baby-saving show" in Horticultural Hall, open for ten days, which was directed toward educating the public. There were 17,000 in attendance in one day. Four subsidiary shows were also held in the poorest districts of the city, the first one in a slum district at Third and Catherine streets. There was an attendance of 23,000 in four days. This movement has been so far very successful. There were special exhibits from the government and from charitable organizations covering eugenics, the care of the baby, a miniature milk show—things which suggest themselves in working among the ignorant of the large cities.

Dr. Collins H. Johnston, Grand Rapids, Mich.: We had a campaign of this kind last summer in Grand Rapids, a city of about 125,000 people, and accomplished a great deal. It was conducted by the authorities of the Blodgett Home for Children. Four or five of the medical men were interested in it and conducted a clinic once a week for babies. We secured from the health office the name of every baby born in the city during the previous year and sent literature to the families. At the end of a year we found that the infant mortality in the city had been reduced 55 per cent. below that of the year before, which, we think, was a very marked showing for the work done. We do not know that it was entirely due to our efforts, as infant mortality varies from year to year. For instance, Dr. Neff has told me that last year was a good one for babies in Philadelphia, but that the year before was a bad one. We do know, however, that our work did a great deal of good.

Dr. LeGrand Kerr, Brooklyn: We as pediatrists must recognize the fact that as a class we are not yet very highly appreciated. It is only within the last few weeks that the New York State Society has recognized pediatrists. The general tendency is to make them subservient to the obstetrician. As a specialty pediatry is not yet generally recognized as it should be. If that is true in the profession, it is more emphasized outside, and it does not need much to have the health officer or health boards criticize the work of any of us who may interfere with their particular line of work, or who are not enthusiastic about the particular way in which they carry it out. Dr. Cooley has rightly emphasized the point that this question should not be relinquished readily to health boards or health officers, but should be under the direct and complete control, for a time at least, of pediatrists, until others are equipped to take up the work. Yet in another portion of his paper, Dr. Cooley states that there are too few pediatrists who are well equipped for this work. I do not agree with him. By such a statement we place in the hands of those who are not in sympathy with the stand we take a tremendous power for dealing us a blow in having this work carried on. If the pediatrists are to be recognized by the profession at large, by the public and by the health officers, they must stick together.

Mr. William A. Howe, Albany, N. Y.: We in New York believe that you who are doing special work in this line are the ones who should assist us in a concerted effort to reduce the alarming infant mortality so extensively prevalent in every community. With that idea in mind, Commissioner Porter has recently appointed, on his consultant staff, one of the leading pediatricians of the state. He is expected to advise and direct our department in public health matters pertaining to children. As soon as appointed, he prepared a booklet on "How to Save the Babies." This deals with the mother before the baby comes, with the mother and the child when the baby comes, and with the mother and the child after the baby comes. It is brief, yet sufficiently comprehensive to teach the expectant mother, as well as the mother, much of practical value to her not only in preparation for motherhood, but in the care of her child and herself. This little book we hope to be able to place in the hands of every expectant mother in the state or every new mother, as quickly as possible before the birth of her child or after its delivery. Its distribution will be made through the local health officer, physicians and registrar; or any person desiring can apply for a copy direct to the Commissioner of Health. Many thousands of copies have been circulated and we regard it as one of the most popular and practical movements of the department in educational work.

Health departments need and must have your cooperation as specialists. With it they can accomplish much more than would otherwise be possible, and is not the same equally true so far as you are concerned? While you are assisting us can we not frequently reciprocate? Does not reciprocity in public health work offer one of the greatest opportunities for accomplishing good, and should not physicians and sanitarians be its strongest advocates? I want to appeal to you to cooperate with your local health authorities along these lines and not, as stated by Dr. Kerr, attempt to assume the full responsibility or the full activity in this important public health question, which is one of the greatest with which we are concerned and one capable of the greatest possibilities.

Dr. H. M. McClanahan, Omaha: There is one statement, which if I heard aright, I think ought not to go unchallenged: that the chief result of the milk propaganda had been to indicate that milk was of much less importance in relation to the infant mortality than we had formerly supposed. This is a surprising statement to come from a man who has shown so much familiarity with infant welfare, as Dr. Cooley. In fact, a considerable portion of the rest of his paper largely nullified that statement. How is one going to feed these babies right if he does not start with good, clean milk? Most of the men in this room would agree that one of the most important things in the promotion of this infant welfare movement has been derived from pure milk movements, beginning with the certified milk movement and other influences that go to the improvement of a pure milk-supply. I believe that Dr. Cooley will agree with me that that sentence was inadvertent, and should not be published.

Mr. W. A. Howe, Albany, N. Y.: Inasmuch as several members of your Section have expressed a wish for a copy of the little booklet on "How to Save the Babies" to which I referred, I might add that Commissioner Porter will be pleased to send a copy of the same to any physician present who may designate his desire by writing for it.

Dr. T. L. Harrington, Milwaukee, Wis.: This is a new line of work, and as a result some mistakes will be made. It will be interesting for the members present to know the experience we have had in Milwaukee. Some time ago the county medical society started work along this line. Shortly after the advent of the social workers among the poor, a movement was started to bring to the city a social worker to take charge of child welfare work. This work was started in August, 1911, and, under the advice of a committee of physicians, has proved effective and successful. In less than a year the death-rate among infants in a portion of the Polish district in Milwaukee was reduced 60 per cent. This social worker when not a physician is necessarily under the advice and guidance of physicians. A nurse was sent into every home in which it was reported that a baby had been born. The columns of the newspapers of the city were thrown open to the child welfare movement, and a short column on child welfare was printed in every newspaper in the city six days in the week. These articles were furnished by the child welfare commission.

It seems to me that this is a work of tremendous importance. At present the work has been taken over by the health department. The social worker who was at the head has another position, and a physician is to be put in charge. I believe that a physician should be at the head of this work for several reasons. It is not only necessary that he should be a trained pediatrist, but also that he should have a training in social work. It is extremely important that the physician who is the guide in this work should have had some sociologic training. If he is not a student of sociologic conditions he is not going to make a success of this work.

Dr. John Zahorsky, St. Louis: I want to point out certain weaknesses of the movement. The first is that pediatrists are not agreed on certain things, especially in connection with feeding. There are general hygienic principles, however, which can be carried out. Second, it will not do to put the work in the hands of pediatrists who are not properly trained in this line of work, because the confidence of the people is gradually lost. The work should go slowly, I think.

Dr. T. B. Cooley, Detroit: In answer to Dr. Kerr, I know that I did not say that pediatrists are none too good, but that they are none too common. As to the effect it might have to have such statements go out: in the first place this paper was written for pediatrists. In the second place, some of those instances have already arisen, and it seems to me that the best place to mention them is before a group of pediatrists.

Perhaps I made the statement regarding milk philanthropies a little too bold, but it is true that philanthropies which do nothing but furnish pure milk do nothing to reduce infant mortality. Some have developed into useful philanthropies, because they found they had been accomplishing nothing, and have gone into welfare work.

THE PROPERTIES, USES AND INDICATIONS OF THE VARIOUS CARBOHYDRATES USED IN INFANT-FEEDING *

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In infant-feeding the term "carbohydrate" is applied to a number of compounds related to starch and sugar, which contain carbon united chemically with hydrogen and oxygen, these elements being present in the proportions of two parts of hydrogen to one of oxygen, as in water, H_2O.

Many carbohydrates are known and their common ultimate chemical composition is shown in Table 1, covering carbohydrates employed in nutrition work.

TABLE 1.—CHEMICAL COMPOSITION OF CARBOHYDRATES USED IN NUTRITION

Carbohydrate	Composition			Formulas
	Carbon	Hydrogen	Oxygen	
Cellulose	6	10	5	$C_6 (H_2O)_5$
Starch	6	10	5	$C_6 (H_2O)_5$
Dextrin	6	10	5	$C_6 (H_2O)_5$
Glycogen	6	10	5	$C_6 (H_2O)_5$
Cane-sugar (saccharose)	12	22	11	$C_{12}(H_2O)_{11}$
Milk-sugar (lactose)	12	22	11	$C_{12}(H_2O)_{11}$
Maltose	12	22	11	$C_{12}(H_2O)_{11}$
Dextrose (synonyms: diabetic sugar, glucose, grape-sugar)	6	12	6	$C_6 (H_2O)_6$

The carbohydrates are used in nutrition for the energy and water they yield on oxidation. As the hydrogen will be satisfied by the oxygen in the compound, all there remains to be oxidized is the carbon. The number of calories a carbohydrate will yield depends, therefore, on its carbon content.

It will also be noticed that the only difference in composition among the various carbohydrates, as shown in the table, is in the amount of water (H_2O) combined with the carbon.

When carbon and oxygen combine, energy and heat are liberated, and as the fate of carbohydrates in nutrition is to be combined with oxygen of the air taken in by the lungs, it is evident that carbohydrates are used to supply energy and heat to the body and are properly classed as energy foods.

The amount of energy a material can supply may be determined directly from the amount of heat evolved when it is burned with oxygen, and it is customary to judge the value of energy foods by the number of calories or heat units a given weight of the food will yield when burned.

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As there is not much difference among the various carbohydrates in carbon content, and as the hydrogen and oxygen satisfy each other, there is little difference among them in the number of calories they will yield, and in practical nutrition work all carbohydrates are assumed to be interchangeable as far as caloric value is concerned.

All carbohydrates used in nutrition have the same nutritive function and about the same caloric value, but they differ in physical properties (some, as starch and glycogen, being insoluble), in the amount of digestive effort they call forth, in the rate of assimilation, and in fermentability.

Care must be exercised not to judge the availability of a carbohydrate for infant-feeding from its most obvious properties, or decidedly erroneous conclusions may be drawn. For instance, cane-sugar is not directly fermentable, but it is apt to cause fermentation; milk-sugar is not fermentable by pure yeast, but there are times when it cannot be used, because of fermentations. Maltose, on the contrary, is exceedingly fermentable, being used in preference to other carbohydrates in the fermentation industries, such as the manufacture of beer, yet it is used most successfully in infant-feeding and is especially recommended in cases of intestinal fermentation. One of the grand contradictions of nutrition is that the more fermentable a carbohydrate is, the better fitted it is for use when poor digestion and assimilation of carbohydrates are present.

To understand the indications for the various carbohydrates in infant-feeding it is necessary to follow them from the time they are ingested until utilized and excreted.

ASSIMILATION OF CARBOHYDRATES

No matter what form of carbohydrate is taken, if it can be digested it is ultimately changed into dextrose before utilization and carried to the liver where it is converted into insoluble glycogen and stored for future use. If the absorption of dextrose or other carbohydrate is too rapid, the liver cannot convert it into glycogen as fast as it is presented and the excess passes into the urine with resulting alimentary glycosuria. There seems to be some regulative apparatus which prevents the blood containing more than a certain amount of sugar. When the amount of carbohydrates assimilated is greater than is needed to maintain the supply of glycogen in the liver, it is converted into fat, which is a more concentrated energy food than glycogen, having a little more than twice the caloric value, the relative values being 28 to 12.

A small amount of glycogen is found in all the cellular tissues and in the muscles, even in embryos. If there is a demand for energy, as when a muscle contracts or the heart beats, the glycogen of the tissues or muscles is converted into dextrin, maltose and dextrose successively; the carbon of the dextrose is then oxidized and the energy is liberated, heat being produced at the same time. The carbon dioxid produced is excreted by the lungs, and the heat passes off by radiation or is converted into latent heat by the evaporation of perspiration, depending on the temperature of the air.

The performance of work rapidly depletes the supply of glycogen in the muscles, and that in the liver is called on to make good the loss. Glycogen is so nearly like starch that it is called animal starch. Both are insoluble and both are acted on by diastatic ferments forming dextrin and maltose, which are converted into dextrose, the sugar found constantly in the blood. When the glycogen of the muscles is used up during work the enzymes of the liver and blood convert the glycogen of the liver into dextrose, which the blood carries to the muscles where it is reconverted into glycogen. This continues as long as there is glycogen in the liver. When the supply of glycogen in the liver is exhausted, the fat is converted into dextrose and carried to the muscles and changed into glycogen. As is shown by studies in metabolism of starvation, the expenditure of energy depends on the presence of glycogen in the muscles, and for this reason glycogen is found in the muscles long after the supply in the liver has been exhausted and to the end of starvation.

PHYSIOLOGIC PROPERTIES

When it is thoroughly understood that the final product to be produced from the carbohydrates taken as food is glycogen, the order of availability of the various carbohydrates will readily be grasped from the following outline of their physiologic properties:

1. Only fermentable sugars form glycogen.
2. Dextrose and maltose when injected subcutaneously are assimilated because the blood contains enzymes that will convert dextrin and maltose into dextrose. Dextrose and maltose are highly fermentable.
3. Cane-sugar and milk-sugar when injected subcutaneously reappear almost entirely in the urine because they are foreign to the blood and cannot produce glycogen until they have been converted into fermentable sugars in the intestines.
4. The relative order in which sugars are available for forming glycogen is: dextrose, maltose, cane-sugar, milk-sugar.

While dextrose has the highest limit of assimilation, too much of it in the food will overtax the liver and cause alimentary glycosuria, as it cannot be converted into glycogen as fast as it is absorbed.

A certain amount of energy is expended in digesting and assimilating carbohydrates, and their relative food value depends on the amount of energy that must be expended in converting them into dextrose. The reason maltose and cane-sugar have greater availability than milk-sugar is shown by the following illustrations of what takes place when they are rendered assimilable:

Maltose + H_2O = dextrose + dextrose
Cane-sugar + H_2O = dextrose + levulose
Milk-sugar + H_2O = dextrose + galactose

Maltose is completely converted into dextrose by the chemical addition of water and is immediately available; cane-sugar when split up is converted half into dextrose and the other half into levulose, which the enzymes of the blood can convert into dextrose, while milk-sugar is converted into half dextrose and half galactose, which must undergo further change before it can be assimilated. The net energy value of maltose is greater than that of cane-sugar, and the net energy value of cane-sugar is greater than that of milk-sugar.

The tendency for fat to be stored after the liver is filled to its capacity with glycogen readily explains why maltose and cane-sugar, which have a higher net energy value, are more apt to cause fattening than milk-sugar, and why a high maltose content in the food is prone to cause diarrhea — it is crowding the liver too much and must be eliminated.

ADAPTATION OF CARBOHYDRATE TO INFANT'S CONDITION

When an infant is strong and vigorous it has a plentiful supply of glycogen in its tissues and liver, and therefore a reserve of energy. Under these conditions milk-sugar, which is slowest to produce glycogen, acts well, as it does not overtax the liver or cause alimentary glycosuria or excessive fat production. When an infant is weak or poorly nourished and its reserve of energy is small, there is a demand for rapid production of glycogen. For such infants dextrose or maltose, which can be taken directly into the blood and converted at once into glycogen in the tissues or muscles, where there is a demand for it, are more effective than milk-sugar or cane-sugar. Maltose is particularly available because it is one of the forms through which all the carbohydrates of the body pass before they are utilized. When absorbed, maltose can be changed into glycogen in the tissues or into glycogen in the liver as conditions warrant. It might be said to turn either to the right or to the left as its presence is needed in either direction.

In this connection it is significant that in the process of adult digestion the first product of the digestive secretions is maltose from the starches by the action of the saliva. Since we know that there is a large expenditure of energy during the digestion of a meal, it is fair to infer that Nature intended this energy to come from the food that was being digested and not from energy stored up from a previous meal, and thus provided that the maltose should come from the food and not from the glycogen of the liver. At any rate, it is well established that thorough chewing of a mixed diet renders digestion easier than if the food is bolted.

There can be no question but that by adding products of starch digestion, such as dextrin and maltose, to an infant's food, the same digestive effect is produced as when an adult thoroughly mixes his food with saliva, and that the energy needed for digesting the food can be obtained from the food itself. This may be of advantage when the infant is called on to digest cow's milk, which requires the expenditure of more energy than does human milk, or when the infant is poorly nourished and therefore has no appreciable reserve of energy in the form of glycogen.

In the artificial feeding of infants there are more factors to be considered than the composition of the food and its calorie value, for it has been shown that all carbohydrates have practically the same caloric value, but that they are not equally available, different amounts of energy being called for to render them suitable for assimilation. While it is possible to determine the energy required to render assimilable the food of individual animals experimented on, no law or rule can be established that will apply to all infants, because of individual differences.

A point that should not be overlooked is that the physical condition of the food has a marked effect on its nutritional value even if it is completely digested. Animal experiments have shown that from 40 to more than 100 per cent. of the energy or caloric value of a meal may be expended in digesting it, and Armsby has pointed out that on certain forms of food an animal will die of starvation sooner than if no food at all were eaten, the explanation being that all the energy of the meal and a considerable portion of the stored-up energy are expended in the work of digesting the food.

When infants are fed cow's milk the problem of energy expenditure in digestion is necessarily different from what it is when human milk is given, because of the differences in the physical properties of the milks after being clotted by the gastric secretion. Clinical experience the world over has shown the advantage of having part of the carbohydrates of the food in quickly assimilable forms.

For nearly twenty years I have practiced and taught this truth,[1] and Keller and Finkelstein have also strongly advocated an application of the same principle, though in a different manner.

All have recognized the necessity of altering the physical properties of the curd of cow's milk in some way; and the addition of alkalies, decalcifiers or antacids for doing this by chemical means or the use of gruels for accomplishing the same thing by mechanical means is almost universally practiced. Finkelstein clots the milk and then passes it through a sieve to obtain the same effect.

All these methods of modifying the character of the curd of milk lessen the demand for energy during digestion. When easily assimilated carbohydrates are added to the food so prepared, energy food is made immediately available and the net value of the feeding is increased.

A SCHEME OF INDICATIONS

Conditions so vary with individual infants that I have always believed that the best method of preparing substitute food for them is to use as a basis milk or top milk diluted with cereal gruels of definite strength for the mechanical effect on the curd of the milk, and then by altering the character of the carbohydrates adapt them to the energy and digestive requirements of the individual infant. As glycogen and starch are essentially the same and undergo the same chemical transformations when acted on by diastase, it becomes a simple matter in practice to prepare food in the home that shall call forth all the digestive powers when there is plenty of reserve energy in the infant; and for infants whose reserve of energy is small, a slight change in the method of preparation of the food will alter the availability of the carbohydrates in such a way that the infants will be supplied with such materials as they would prepare in their tissues if they were normal.

These methods are simple, inexpensive and almost universally applicable, but they must be applied with an understanding of the purposes various carbohydrates serve in nutrition. They consist essentially in using gruels made from various cereals as a starting-point and then by means of diastase converting the starch into soluble starch, dextrin or maltose as may be required. The extent of the conversion of the starch is to be regulated by the digestive ability and needs of the infant. A nearly complete conversion into maltose is indicated when rapid assimilation is desired. To obtain the maximum amount of maltose the conversion should take place at about 150 F., but when soluble starch and dextrins are sought the temperature should be about 165 F.

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ABSTRACT OF DISCUSSION

Dr. Charles Douglas, Detroit: It has been my experience that these children will digest so much curd, irrespective of the addition of the carbohydrate. I have used them both ways, and have been very much impressed with the fact that that subject has received greater prominence than it has deserved. I have watched the effect of increasing the amount of each one alone, and have not been convinced that it is of such great value as is commonly thought. I do not wish to deny that it is beneficial, but I think it is overestimated.

The idea presented by the paper regarding the digestibility or the advantages of digesting starch in different ways brings up very strongly the question of the addition of starch to the dietary in the dry form at as early a date as it is possible to get the child to take it. This brings us back to the old so-called errors which we have been inclined to attribute to mothers when feeding their infants while nursing, giving them always a little taste of bread or cracker or something else from their own food. We are compelled to recognize the fact that these women have been doing a great deal of good as well as some harm, but there is no doubt of the fact that the giving of the starch in this dry form has a very great advantage over the giving of it in a wet form. This occurs continually in all our work, and I have been so impressed with it that for years I have taught mothers to give a piece of crust just as soon as the child nibbles at it. And as rapidly as the child will take the dry starch to reduce the wet form, I have made this a routine practice.

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[1] Studies in Infant-Feeding, New York Med. Jour., Sept. 16, 1893.

Dr. J. P. Crozer Griffith, Philadelphia: I do not think that Dr. Chapin means to exclude the older plan of treatment: the employment of milk-sugar. There is too great a tendency to-day to the abandonment of this in feeding infants, and toward the using only of malted preparations. It is a pity, perhaps, that we medical men tend so much to run to extremes. There is just now a wave of maltose feeding. It has gone over the country in the last year or two, and over other countries as well. I have for years been a great believer in the use of dextrinized starch in certain cases in infant-feeding. I have long used it, and have obtained excellent results, dextrinizing the starch in the nursery as required. But even before that I had excellent results, as we all have had, with food containing no dextrose or maltose but sugar of milk. The matter is an individual one with the infant. The average healthy infant does not need dextrinized starch, but there are many cases in which it fills a very useful place.

Dr. H. D. Chapin, New York: The different elements of milk have assumed great importance in the professional mind at various periods. We remember years ago it was all fat, then all casein and curd, and, in the recent year or so, all sugar. My idea in preparing this paper was simply to clarify our ideas with reference to sugar in the food, how we could utilize it, and when the different sugars should be used. I did not mean in any way to recommend that these other sugars should take the routine place of milk-sugar. In fact, the whole paper was merely intended to show how milk-sugar is normally assimilated under ordinary conditions, and also to show how and when these other sugars could become available and temporarily displace milk-sugar. We must have in our hands the knowledge and a method of utilizing these different varieties of sugar for specific cases. I do not usually recommend dextrose for ordinary cases.

THE PRACTICAL IMPORT OF RECENT WORK ON HYSTERIA *

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Whether hysteria is determined, as Breuer[1] thinks, by the occurrence of peculiar dream-like conscious states with a narrowed association capacity, and whether these are purely due to psychically painful experiences as argued by Freud,[2] or whether, following Janet,[3] hysteria is to be summed up as a weakness of the power of associating impressions; or whether it is an actual splitting of consciousness which more or less divides its victims into the exaggeration of many-sidedness known as multiple personality (Sidis[4]); or whether, with Sollier,[5] we conceive hysteria as an inopportune sleep or numbness of a part of the cerebrum, all clinicians agree with Babinski[6] that the most conspicuous and invariable characteristic of a hysterical patient is suggestibility.

As nothing is more detrimental to the progress of science than to call by the same name phenomena which differ in essence, it would be eminently desirable that students of the psychoneuroses should adopt some least common measure for the study of each group; and as it seems quite evident that there is a group of various symptoms, each of which is "susceptible of being produced by suggestion and removed by suggestion-persuasion,"[7] it is strongly to be desired that differences should be sunk for the time being in order that by use of a common, unique and unequivocal character we may collect examples by the correlation of which we may hope to penetrate more deeply into the origin of pithiatism.[8]

That Babinski has fallen back on a teleologic definition[9] of suggestion is to be deplored; for the sense in which he uses the word, that of an insinuation, that is, something evil, is entirely subversive of the essential psychologic mechanism that is connoted by it, and so long ago made clear by Bernheim.[10] The essence of implantation of ideas by suggestion is not their evil nature but the manner of their reception: the subject receives them unaware of how they have gained entrance to the mind.

Elsewhere[11] I have tried to develop the difference between this process and that which may be called persuasion, in which the subject takes full cognizance of the manner in which his belief is caused to alter. A man persuaded knows why he knows: a person who has received ideas by suggestion merely knows. It is the method in which knowledge is acquired by children, savages, many of the uninstructed and the credulous in general. Examples will make clear the manner in which symptoms are acquired by suggestion.

Case 2.—*Hysterical Obsession and Phobia.*—After an attack of influenza, a woman returning in a crowded car from a shopping expedition began to feel much oppressed and in want of air. The heart, enfeebled by the influenza poison, and we know not what others taken as medicaments and aliments, ceased to respond to the call on it for a more rapid flow of blood so that the aeration could be sufficient and a faint ensued, with the psychic accompaniments of irresistible terror and dread of dissolution. Never since has this woman been able to bring herself to go alone into a car; the very idea of doing so induces the fear of fainting. She is not obsessed by the idea so long as the question of entering a car does not arise; but although she knows her conduct to be unreasonable, she cannot bring herself to act reasonably about going alone into a car.

The suggestibility of children[12] is much more labile than that of adults; for while they are very susceptible, children do not usually hold tenaciously and are easily diverted from their loosely fixed ideas when morbid. For instance, it is perhaps unique for a girl so young as 11 to believe that she is utterly unable to eat, and to believe that strongly enough and long enough to overcome the instinct of hunger to such an extent that she had to be removed for treatment to a hospital; in the Salle Pinel of the Salpêtrière, Professor Déjerine built up her emaciated body by generous feeding, and at the same time undid the false notion she had acquired from her elder sister who had been a patient in the same place.[15]

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* Because of lack of space a case report and a number of footnotes have been omitted in The Journal. The complete article appears in the Transactions of the Section.

1. Breuer and Freud: Studien über Hysterie, 1895.
2. Freud: Sammlung kleiner Schriften zur Neurosenlehre, Vienna, 1906.
3. Janet: Automatisme psychologique, Paris, 1889.
4. Sidis: Multiple Personality, New York, 1900.
5. Sollier: Génèse et nature de l'hystérie, Paris, 1897.
6. Babinski: Compt. rend. Soc. de neurol. de Paris, 1901.
7. Conférence devant l'internat., Paris, 1906.
8. A neologism coined by Babinski from the Greek words πείθω, meaning "persuade," and ἰατός, meaning "curable."
9. Babinski: Compt. rend. Soc. de neurol. de Paris, 1908.
10. Bernheim: Hypnotisme, suggestion, psychothérapie, Paris, 1893.
11. Williams, Tom A.: The Difference Between Suggestion and Persuasion, Alienist and Neurologist, 1909.
12. Williams, Tom A.: Management of Psychogenic States in Childhood, Am. Jour. Med. Sc., December, 1912.

The cases under the heading of "Treatment," show the mechanism also.

THE ALLEGED TROPHIC SYMPTOMS OF HYSTERIA: HYPERTHYROIDISM: EMOTION

This manner of causation so far has not been proved capable of directly producing edema, erythema, urticaria, ulceration, hematemesis, hyperhidrosis, dilatation or inequality of the pupils, tachycardia, muscular atrophy, or any such vasomotor and trophic disturbances which were formerly included in hysteria; and it is now clear that such cases are due to physical causes[16] which are becoming less and less obscure as pathologic data accumulate. Many of these symptoms are angioneuroses[17] which have nothing to do with either suggestibility or other psychic processes, even emotionalism.

Similarly, the best observers believe that hyperthermia cannot be produced by psychic means at all, although it is now quite clear that a rise of temperature often ensues after the psychic excitation of patients suffering from hyperthyroidism.[18] This, however, is due to the suddenly increased secretion of the thyroid gland, which may sometimes even cause death. But if the patient lives, the temperature soon subsides and its rise cannot be considered psychogenetic in the full sense.

Similarly the arrest of digestive secretion induced by bad news occurs in consequence of the emotion aroused and is strictly temporary[19] unless the emotional state is constantly reinforced from without or within. When the modification endures, we have perhaps the only example of a permanent physical modification of a function not under the control of the will of which the source is directly psychogenetic. Although its genesis is emotional, yet as the emotion may be determined through an idea, and the idea may be implanted by suggestion, it may sometimes be legitimate to attribute to hysteria[20] this form of mental anorexia, in spite of its manifestation through a portion of the nervous system which is mainly autonomic. That the autonomy of the gastric secretion is not complete, however, has been clearly shown by the researches of Pawlow[21] and Cannon;[22] and as no such dependence has been shown concerning permanent changes in the skin and mucous membranes, a better type of evidence than heretofore must be brought forward to convince us of the psychogenesis of the cutaneous manifestations at one time described with hysteria.

Simulation and Hysteria.—I do not wish to do more than remind the reader of the large number of cutaneous eruptions, edemas, fevers, etc., which have been produced by simulators, hysterical and non-hysterical. The desire to deceive for the sport it brings or from no apparent motive is a symptom which may have nothing to do with hysteria. Dupré[23] has created the term "mythomania" to characterize this group of abnormality; and every medicolegal expert and many a schoolmaster knows it well.

The number of those cases which "could not possibly have had access to any means of provoking their symptoms" only indicates the looseness with which such negative evidence is accepted, as for instance in a case of alternating mydriasis which I observed in Babinski's clinic; for though the patient's father indignantly repudiated the mere statement of the fact, it was found that his daughter had been placing in her eye drops of an atropin solution filched from her employer. In another case, a man confessed to concealing a syringe in the rectum, and in a moment of excitement an evacuation revealed two.

Of course, mythomania, a type of moral degeneracy or of lack of adaptation by which resort is made to trickery, may be accompanied by suggestibility as it generally is so that academically speaking, a deliberately produced lesion simulating spontaneous disease which the patient is trying to imitate may deserve the term hysteria; for imitation is one of the forms of suggestion. Intermediate in type are the imitations of disease seen so frequently in the more ignorant hospital attendants and patients. These, too, often figure as hysterics; and indeed this symptom may be induced by suggestion, as in the case of nurses and patients who inflict on themselves eruptions, ulcers and swellings, or complain of palsies, contractures, vomiting of blood, etc., by the imitation of those they have seen in the hospital. The mental debility which allows them so puerile an outlet for their activities permits them also to receive suggestions without criticism — that is, to be hyper-suggestible.

The Stigmata are Artefacts.—Unless their methods of examination act by removing the symptoms before they can be found, so to speak, the experience of Bernheim[24] and Babinski[9] clearly shows that both anesthesia and contracted visual fields and other stigmata, as Charcot called them, originate, in the vast majority of cases, in unconscious suggestions of the medical examination. For over twelve years neither observer has found a contracted field in a patient not previously examined. Either explanation is consistent only with extreme suggestibility.

THE GENESIS OF HYSTERICAL SYMPTOMS

The cause of this has not been inquired into very profoundly by either Babinski or Bernheim; but attempts to account for it have been made by others. The explanation which commands the most notice is that of Freud,[2] who ascribes it to a mental conflict which has arisen as a result of painful experiences in early childhood. It is unfortunate that so many of his followers have attributed the significance of this explanation to sexual insults in themselves; for Freud distinctly says:

> I passed a good way beyond my former point of view. . . . Correct the imperfections, displacements and misconceptions. . . . My former meager material gave a great many cases in which sexual seduction played the main rôle; I overestimated the frequency of these. . . . I have since learned to explain many as an attempted defense against the reminiscence of masturbation.

Freud has also disclaimed his conception that passive behavior predisposes to hysteria in these erotic events, while active behavior results in compulsion neurosis. He still believes, however, that the element of constitution and heredity really means "sexual constitution."

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[15] Déjerine: Leçons cliniques, 1907; unpublished.

[16] Medicini Bono. Tr. Congrès de Genève, 1907.

[17] Solis-Cohen, New York Med. Jour., 1910.

[18] Crile: Am. Jour. Surg., 1908.

[19] Williams, Tom A.: Southern Psychologic Society, 1909; Jour. Abnorm. Psychol., June, 1910.

[20] Williams, Tom A.: The Most Frequent Cause of Nervous Indigestion, Jour. Abnorm. Psychol., February, 1909.

[21] Pawlow: The Work of the Digestive Glands, London, 1902; Brit. Med. Jour., 1906.

[22] Cannon: Am. Jour. Med. Sc., 1909.

[23] Dupré: La mythomanie, Paris, 1906.

[24] Bernheim: Comment je comprends le mot "hystérie," Bull. Med., 1907.

Although Freud still attributes the psychosis of obsessions and phobias and also the anxiety neurosis to direct perturbations of the sexual functions, he no longer imputes to this immediate cause what he calls hysteric symptoms, which he agrees are purely psychogenic. He attempts to explain the state of these patients by the subconscious[25] effects of a forgotten circumstance which the patient has been unable to amalgamate with the rest of his mental life, and which he has succeeded in forgetting on account of its painful nature.[26] Its memory can be recalled, however, by his "free association" method, which consists in placing the patient in a tranquil attitude and inducing him to think aloud about the events most nearly connected with his illness, and urging him to push his introspection further back.[27]

Other means of recalling lost memories are the association test of Jung,[28] and the psychogalvanic reaction of Veraguth with which Jung,[29] Petersen[30] and Sidis[31] have largely worked. The last has proved it to be an electromotive muscular change during emotion, occurring only during contraction.

Still better known is the method of hypnosis. The hypnoidization procedure of Sidis[32] seems to me closely similar to that of Freud.

All of these methods have the common property of abstraction from extraneous stimuli, with concentration on the trend of thought required by the physician; in this respect the method of simple anamnestic interrogation is in many cases just as informative when conducted with skill and tact. But it fails in respect to the vividness of the recollections which it recalls. The patient here talks about his experiences. In hypnosis and other distraction methods, the patient reenacts his experiences as he would do in his dreams.[33]

In the treatment of grand hysteria, Sollier[5] has laid great stress since 1892 on the need of the patients in hypnosis to carry themselves further and further back among their infantile experiences. While Freud says, "There is surely something more, think," Sollier urges, "Allez plus loin, plus en arrière." To judge by his early case reports (for he no longer considers it worth while to publish them), the results of his treatment do not show any inferiority which would lend countenance to the assertion of Freud's followers that their method of psychanalysis is a sine qua non in obstinate cases; for these recalcitrant cases are just those which find their way to Sollier.

Now, from these facts it should be apparent that a hysteric symptom is one induced by an idea derived from suggestion, and that empiric methods are worse than futile; for they merely reinforce the patient's belief in bodily sickness.

THE REMOVAL OF SYMPTOMS AND THE TREATMENT OF HYSTERIZABILITY

The search of the pathogen and the discovery and explanation of the causative idea of the patient suffices sometimes to remove the symptom it has caused, but it does not cure the disease. To do this a course of reeducation[34] of the patient's hysterizability is needed. This is not always possible in practice on account of the time and expense required, but we are now in a position to dispense with some of the elements of this expense. I refer to prolonged isolation, overfeeding, massage, electrical applications and special nursing to which so many hystericals have been subjected on account of the secondary "neurasthenic" symptoms they have developed.

I have indicated at length[35] the means of distinguishing this false neurasthenic state from the really primitive asthenia; Bernheim,[36] too, has devoted a recent monograph in part to this distinction, which is, in short, that neurasthenia, a rare condition, is a physical exhaustion either congenital, toxic or other; and that any psychic symptoms a neurasthenic may present are usually secondary and disappear spontaneously as his bodily condition improves; unless, indeed, they are maintained through the reinforcement of their suggestion by the injudicious solicitude of physician or friend.[37]

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[25] The term "subconsciousness" has been much abused, but its consideration here would lead us too far; suffice it to say that the submerged memories which determine so much of our conduct and belief can scarcely be said to act in themselves but rather by the inferences which are drawn from them and of which the subject is more or less aware, although he will not always admit their influence. His denial, however, is largely like that of a woman denying that she seeks a husband or of a politician denying that he is looking for an office. If not merely conventional, the disclaimer is dictated by a feeling of shame or by a dislike for the confession which is so good for the soul. A frequent declaration of my patients is somewhat as follows: "I do not know why I am talking like this to you; I would not dare thus reveal myself to anyone else; not another person knows these things that I am telling you; I hardly know them myself," etc. Now, this confession has not been obtained through hypnosis or other special means. In one sense the patient does not explicitly feel her revelations until they are completed. But could the fact that her ideas require for clear formation their focusing into a definite statement justify us in calling them subconscious? I think not, for the process does not differ from the clarification of thought engendered by writing, speaking or other attempts at precision of ideas which before that may have been only in adumbration. Such was the means by which a patient of Flournoy (Automatisme téléologique contre la suicide, Arch. de psychol,, 1908, reviewed by me, Jour. Abnor. Psychol., 1909), whom some clinicians would have called a hysteric, made clear to herself for her salvation from suicide the thoughts which lingered in the back of her mind but which had been temporarily overshadowed by her despair in having to repulse her child for fear of infecting it. In a dream state she had a vision of a dear friend leading her away from the water into which she was about to throw herself. Now, although the conversation she imagined was purely hallucinatory, it was none the less valid as a representation to herself of ideas which took this method of formulation. The mechanism is commonly used by automatic writers, crystal gazers, etc., who have recourse to a consultation with an oracle which they sometimes believe to be extraneous in source. Others, however, are equally mystical in the way in which they conceive it to be another self, subliminal or subconscious.

[26] But is it really necessary to invoke a specific trauma to explain hypersuggestibility? Is it not a common experience that when the mind is strongly preoccupied by any course of thought, absent-minded acts are the rule? What are these but immediate reactions to stimuli while the reflective processes are occupied by the dominant train of thought? In a sense that which preoccupies the patient is dissociated from the stimulus to which he reacts while absent minded, and indeed from the events of daily life as long as the preoccupied state persists. To this extent hysteria is a phenomenon of psychologic dissociation. This explanation of its mechanism is not especially different from what Freud has called conversion. Psychologically the process is the same as that occurring in suggestion.

[27] It has been alleged that Freud and his followers inevitably guide the revelations of their patients toward the ideas of which they are in search and that they strongly influence the content of the patient's thought. This is tantamount to saying that some at least of the patient's ideas arise from the suggestion of the examining physician. When one remembers the ease with which even physical symptoms are suggested, this objection has *a priori* much force in so delicate a field as psychologic investigation. The controversy can be settled only by impartial and well-trained observers working with Freud's method. At all events, it is becoming more and more clear that sexual traumas of early childhood need not produce a psychoneurosis and that at least the active cause of psychoneurosis in some patients appears quite unrelated to the sexual life. One is tempted to believe that the enthusiasm of discovery has tended to an exaggeration of the weight of this etiologic factor, especially in an age in which a reprehensible prudery has prevented its due consideration by the profession at large. But it is significant that French observers, of whom this fault cannot be alleged, do not attach preponderant importance to the sexual factor in neurotic disturbances.

[28] Jung: Ueber der Psychologie die Dementia Precox, Leipsic, 1906.

[32] Sidis: Boston Med. Jour., 1907.

[33] The free association of thought at which Freud aims during psychanalysis is believed by him to resemble that of the dream-state. But neither during the dreams of sleep, nor still less in day-dreams, is there that complete suspension of autocritical judgment one might suppose were only the fantastic nature of dreams considered. Even the bizarre images of the dream are symbols of a latent psychic content often unsuspected by the patient. In the same way he interprets a hysteric symptom as an unconscious conversion by the patient into a physical symptom of a thought which in its naked form he could not bear, and it is in finding of these that psychanalysis is so useful. The suppressed experiences are particularly active in dreams. Hence analysis of these is most useful as a short cut to an understanding of much of which the patient's waking mind is ignorant.

[34] Williams, Tom A.: The Nature of Hysteria, International Clinics, 1908. See also Psychoprophylaxis in Childhood, Psychotherapeutics, Boston, 1910, and Jour. Abnorm. Psychol., July, 1909; also Requisites for the Treatment of Psychoneuroses, Monthly Cyclo., 1909, etc.

[35] Williams, Tom A.: Arch. Diagnosis, 1909.

[36] Bernheim: Neurasthénie et psychonévroses, Paris, 1908.

On the other hand, the neurasthenic symptoms which are induced by a fixed idea of illness soon disappear when the patient's ideas are rectified as illustrated by my case of traumatic neurosis, and by many a woman who has arisen from a sick-bed, when exigencies or her own temper have demanded, into the full activity of normal life.

ISOLATION UNNECESSARY: A "UNICIST" PSYCHOTHERAPY: MONISM

The fetish into which the Weir Mitchell treatment has been erected has been demolished by the recent work of Levy,[38] who shows that Dubois' way of conceiving the relation of body and mind[39] does not differ from the dualism he imagines he has transcended; and Levy points out how grossly and naively Dubois exaggerates the influence of the psyche over bodily conditions. In this respect, Bernheim has long transcended his former views regarding the power of hypnotism. He has done so by acquiring a clear notion of the difference between psychogenic and somatogenic nervous symptoms.

Now, Levy shows that true isolation is not a physical removal from environment, but a moral subtraction from fears, preoccupations, obsessions, morbid ideas; and this can be done even better in the usual surroundings than during isolation. Even that bugbear of the physician, the patient's friends, can be converted into an aid instead of a hindrance, where intelligent people are concerned. The chief appeal for the method of isolation is the power it gives the physician to "persuade" and reason with his patient. But even this Levy believes of little use unless an opportunity is given the patient to practice the resolutions he forms; and as he cannot do this while isolated in bed, such treatment is injurious; for his best intentions will wither like a hot-house plant in the open when he has to face the stresses of his life. One might as well learn to swim on a couch.

Another fault of the "Weir Mitchell" treatment of psychoneuroses, as often applied, is its stress on details: the really important thing is that the patient thoroughly grasps the principles on which his disorder depends, and that he practice himself under the physician's direction in learning to avoid the pitfalls which life affords. He must learn his own psychology, and the dependence of his bodily health on his mental state; but he must also learn that body and mind are only two sides of one thing, that bodily conditions react on his mental state, and that susceptibility to suggestions may be vastly increased by fatigue, dietetic errors or any cause of toxicosis of the neurons. Even prolonged mental stimulation by the excessive interest which does not know when to stop may be a source of a neuronal state favoring suggestibility.

The method of solicitude and sympathy merely reinforces the patient's belief in the validity of the idea for which sympathy is an implicit acquiescence. Still more injurious is direct medical treatment of the apparent physical disorder which results from ideas. For instance, a hysteric monoplegia (a paralysis of one limb induced by the patient's belief that it is disabled) should not be treated by the application of electricity or massage to that limb, or by the giving of an internal remedy which the patient is led to suppose is capable of removing such conditions. It is bad practice,[37] too, to pretend to perform an operation on the patient who believes, for instance, that she is inhabited by a lizard she has swallowed. Sometimes, it is true, a symptom disappears through the suggestion involved in such procedures; but it does so in a small proportion of cases only, is a pure chance, and does not touch the cause; while by ascertaining and removing the root we can generally cure permanently the present symptoms at least.[40]

An illustration of the method is afforded by one of my cases of traumatic neurosis;[41] for this condition is merely the expression of an induced fixed idea of disability, which is recovered from as soon as the pathogenic idea is disposed of.

CASE 3.—After bruising his back by a fall from a car, a railway brakeman remained for six months very lame, and the sensibility of the lower limbs appeared to be lost. His tint had become sallow, and he was dyspeptic and emaciated; he was sleepless, sad and cried much. The neurologic examination (reported with the case[42]) showed that there was no destruction of the nerve elements. The disability was shown by psychanalysis to be a function of the false fixed idea, induced by the belief derived from his environment that such symptoms as he showed could and should follow such injuries as he had had. One sitting sufficed to begin the correction of this false notion; and he himself completed the persuasion, and was able to return to work in a month, as I had predicted.

Beautiful examples of rational as opposed to empiric methods of treating hysteria are the following:

CASE 4.—A woman, aged 28, whom I saw in February, 1911, with Dr. Hardin, to whom she was referred by Dr. Maphis of Warrenton, Va., in the preceding June, had had a chill after which she cried. The next day she felt very weak, and the next day she had pain in the knees, she thinks only in the left, with hyperesthesia. There was also, she says, tenderness of the lumbar spine, and later on in the groin and hip. She was treated by massage, and for four months was relieved. About Christmas-time these pains recurred when her sister visited her. There were then nausea and persistent dull pain in the knees, which caused her to groan in her sleep.

Examination was negative, except that there was great hyperesthesia of both knees and one arm. Also the right abdominal reflex was absent, and the adductor reflex was exaggerated on the same side. I decided that the case was psychogenic, and that afternoon attempted psychanalysis to seek the origin of the psychalgia. I found two suggestive incidents, one being the visit of a sister on the second occasion, the other being the fact that when first attacked her brother had a severe hysteric spell. He had consumption, which she feared. Another fact perhaps significant was that she had been two weeks in a newspaper office during its change of ownership: alone with the man in charge much of the time.

As she could stay in Washington only a short time, I concluded that it would be better to remove the effects of whatever had been the source of the hysteric symptoms by psychomotor discipline than to try to pursue psychanalysis, which might be unfruitful in the short time at her disposal.

Method.—As the least approach toward the patient's knee would set up a spasm of terror during which adductors, hamstrings and extensors went into spasm, I began a course of gradual habituation, first to the approach of a person's hand toward the knee, later to manipulation of the patellar region, followed by pressure on it. A sister attended her in hospital and helped her to accomplish these exercises several times each day. In this way she taught herself in a few days to control the muscles around the knee-joints so as to prevent them contracting when her knee was touched. The pain ceased when the spasm did, as it was in part maintained by the latter. Then her alarm vanished, as there was no reason for it; and she was satisfied that her pain lay in her own power to control. The dangers of prepossession by a fear, in conjunction with the mental vacuity engendered by lack of occupation, were explained to show the genesis of false fixed ideas regarding disease, and she was told how to avoid them.

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[37] Williams, Tom A.: Le rôle du médecin, etc., Compt. rend. congrès des neurologistes francais à Lille, 1906; Am. Med., August, 1908.

[38] Levy: Neurasthénie et névroses, guérison définitive en cure libre, Paris, 1909.

[39] Dubois: Le traitement psychique de la psychonévrose, Paris, 1904.

[40] Williams, T. A.: Chronic Visceral Pain, Surg., Gynec. and Obst., June, 1912.

[41] Williams, Tom A.: Tr. Congrès international des accidents de travail, Rome, 1909.

[42] Williams, Tom A.: Med. Rec., Oct. 2, 1909.

She returned to Virginia in a week well, and has remained so for nearly two years.

Case 5.—A further case illustrating the effect of proper discipline is that of a barking, roaring and bowing tic removed in one day. The patient was referred to me by Dr. Thomas Charles Martin. He had been treated for rectal ulcer for some months. He had recently removed to North Carolina, but wanted to come back to Washington. It is possible that this had something to do with the development of his condition. I was asked to see him, because when he sat down he would utter a series of barks, while at the same time the trunk would go into a spasmodic flexion. When he was stripped, there were seen strong abdominal muscles and regular bowing of the whole body along with this barking, grunting noise.

Psychanalysis showed that these attacks had begun suddenly in North Carolina at 10 p. m. three months before. The significant fact was that he had eaten sandwiches which had been sent to him by his parents in Washington and that he had been thinking despondently before he went to sleep about how nice it would be to be in Washington. He was also thinking considerably about his intestines having been under treatment by lavage. The exact psychologic mechanism was not discovered, however.

Method.—I thought it better to remove the effects rather than necessarily to discover the details of the genesis of his tic. So I instituted a course of psychomotor discipline. The tic, which at first had come only when he lay down at night, had later occurred whenever he sat down also, and thus made life a burden. So we began by exercising in the sitting position. I placed him in a large chair, reclining, showing him how deliberately to contract the recti abdominis, and made him perform a series of respiratory movements, as well as the series of recti movements. After a few moments he became capable of contracting either the recti or the diaphragm. That being accomplishment enough for one sitting, he was asked to come back the following day. He went home and tried the exercise while recumbent at night. The result was that he came back next morning and said: "Doctor, I am cured. I did not have any spell last night." Two days later, however, he relapsed. But after another discipline, he remained well.

Thus it is simple to remove the effects in this rational way. It is so much better than the rough suggestion often attempted. For example, the last patient had been treated by electricity, which he was assured would remove his spasms. When this failed he was treated by direct suggestion. When this failed he was treated by "the most marvelous remedy known," a drug obtained from some remote country, which was guaranteed to cure. Thus, the most powerful suggestions failed in a case which was in origin suggested and conformed to Babinski's definition of hysteria, "susceptible of production by suggestion." A motor habit had been formed, and the removal of all habits requires reeducation of the patient's volition. Indeed, it is only by its action on the will that suggestion ever succeeds.

Now, although hysteric symptoms are always psychogenetic and have a mechanism the knowledge of which enables the clinician to penetrate to their origin, yet hysterizability varies with bodily states,[43] so that the treatment of hysteria cannot safely be left to those laymen who have arrogated to themselves the title of psychotherapeutists by an assumption which is justifiable only to the minds of dualists and those who attach no validity to the old adage which becomes more and more true as our psychologic knowledge broadens and deepens, *mens sana in corpore sano.*

The application of the principles described in this article is shown in ten cases which I recently reported.[44]

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[43] Williams, Tom A.: The Nature of Hysteria, Internat. Clin., 1908.

[44] Williams, Tom A.: Washington Med. Ann., January, 1912; The Post-Graduate, June, 1912.

THE DIAGNOSIS OF TUBERCULOSIS OF THE KIDNEY IN VERY EARLY AND VERY ADVANCED CASES

PROGNOSIS AND TREATMENT *

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It is generally assumed, and I myself once cherished the conviction, that with every surgical tuberculosis of the kidney — even in the earliest stage — albuminuria must occur, and that one would therefore be justified in excluding the diagnosis of tuberculosis of the kidney when the examination of the urine for albumin gives a negative result. But of late years a series of observations has shown me that this is not the case, as we see some cases in which the albuminuria is intermittent, and others in which it seems to be invariably absent.

Among my cases, about 200 in number, I have established the diagnosis seven times in such circumstances. In reality, cases of this sort are undoubtedly far more frequent, because just the belief of the necessity of albuminuria with tuberculosis of the kidney has surely resulted in most physicians not having thought of or searched for tuberculosis in such cases.

Case 1 is that of a man who, on account of albuminuria, was treated in a medical ward during nine months for chronic nephritis. The albuminuria having ceased, it was thought that the man was cured of the nephritis and he was consequently discharged. A day or two afterward he was admitted to my clinic, without question free from albuminuria, but, as was clearly substantiated, with an enormous tumor on the right side of the abdomen, which proved, at the ensuing operation, to be the right kidney which was completely destroyed by infiltrating tuberculosis, so that literally no kidney tissue was found, this being replaced everywhere by a cheese-like mass. No pus was found; the mucous membrane of the ureter was certainly very inspissated, but there was no sign of obliteration. This is, then, an interesting example of how the urine can, in extremely advanced cases, be free from albumin without closure of the ureter, apparently because all secreting kidney tissue is destroyed. But in most cases the absence of albuminuria has occurred where the tuberculosis of the kidney is of relatively recent date or is strictly limited. It is clear that such patients arrive in the surgeon's hands only when they present other conspicuous symptoms.

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* Read in the Symposium on Renal Surgery and Pathology in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* Because of lack of space this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section.

In a group consisting of three cases (Cases 3, 4 and 5) it was hematuria, with or without pains, which brought them to me. The first case (Case 3) was very interesting, partly because the symptoms had existed during five years, and partly because, even with the removed kidney under our eyes, the diagnosis was doubtful. The patient was a woman of 30 years, who, five years previously, had suddenly begun to suffer from left-sided pains in the loins and from hematuria. The hematuria lasted only for four days, but the pains continued during the following eleven months, the result being that she was daily treated with morphin at the infirmary where she lay. During the following three years she was free from pain, but then the attacks of pain and hematuria recommenced. No trace of albumin was found in the urine, and leukocytes were found only occasionally, while we did not succeed in proving the presence of tubercle bacilli. At the operation on June 3, 1908, I found a whitish-yellow tumor, the size of a nut, protruding from the middle third of the kidney. When the kidney was split, it was seen that the tumor mentioned consisted of pork-like whitish tissue which did not resemble the recognized aspects of tuberculosis, and, furthermore, the upper and lower kidney papillæ were found to be infiltrated with similar tumor tissues. The diagnosis vacillated between carcinoma and gumma, but the microscope revealed typical tuberculosis.

That this tuberculosis which so peculiarly resembled tumor did not involve albuminuria can be explained without any great difficulty. It is more difficult, however, to understand why Cases 4 and 5 showed themselves during a long-lasting examination to be free from albumin, because, in both cases, abscesses and miliary tubercles were found in the kidney at the operation. In Case 4, that of a little girl, 9 years old, the hematuria was severe but painless, and the only symptom left which could be relied on was the discovery of leukocytes in the urine; on the other hand, neither tubercle bacilli nor albumin were found. In Case 5, however, the hematuria was associated with pains in the discharge of the urine, and, as a considerable tuberculosis of the prostate and ulcerations in the bladder were found — though no albumin — it was most natural to think that an ascending genital tuberculosis was in question, but it was not until, on catheterization of the ureter, leukocytes and tubercle bacilli were found in the albumin-free urine from the left kidney that suspicion was centered on this.

In Cases 2 and 7 it was only the attacks of pain occurring in the region of the left kidney which brought the patients to me. All that I had whereon to found my suspicion of tuberculosis in Case 2 was the pus-celled contents of the urine, without my being able simultaneously to prove the presence of microbes of any sort. In Case 7 the diagnosis was rendered still more difficult by finding in the urine of the bladder, in addition to the pus-cells, some Gram-positive coccobacilli. It was only on catheterization of the ureter, when it appeared that the urine from the left kidney contained pus-cells without microbes, that a suspicion of tuberculosis was aroused, and then, by persistent investigations, I succeeded in finding tubercle bacilli. Finally, Patient 6 was one on whom I had several years before performed a right-sided castration for tuberculosis in the testis and epididymis, and who was now admitted with tuberculous left-sided epididymitis. There was no albumin in the urine when he was admitted, but as, later on, a little was occasionally found, I made a cystoscopy, and found a small ulceration in the bladder medially before the orifice of the right ureter, and as, on catheterization of the ureter, leukocytes were found in the urine of the right kidney, an exploratory lumbar incision was made. At the operation I was surprised to find the entire kidney degenerated by small cysts, without there being any macroscopic sign of tuberculosis, while on the other hand, a stricture was found in the ureter.

After the removed kidney had been cut through, only the aspect of a cystic kidney was to be observed macroscopically, but, scattered in this, the microscope revealed small tuberculous foci.

Then there are the cases in which the urine contains visible pus and in which the diagnosis is pyelitis, and the patient is treated with salol, boracic acid or similar remedies. But even the symptoms of cystitis do not by any means always bring the physician onto the right track; the only result is that he often, without a more thorough examination as to what form of cystitis he has here to deal with, blindly attacks, so to speak, the disease with the ordinary cystitis remedies, such as nitrate of silver injection, which is exceedingly painful, entirely useless, and often apparently aggravates the cystitis. These patients are in a still worse plight if, for a short time previously, they have been suffering from gonorrheal urethritis, because the cystitis is then taken to be gonorrheal and treated with protargol or, what is still much worse, with the Janet daily lavage, a solution of permanganate of potash, which appears to have a particularly injurious effect on the mucous membrane of a tuberculous bladder; this treatment, at all events, appears to have had a fatal influence in two of my cases.

All these regrettable errors in diagnosis might be avoided if only physicians fully realized that one ought never to begin the treatment of albuminuria, pyuria or cystitis without first having subjected the urine, sterilely taken from the bladder, not only to a chemical but also to a microscopic and bacteriologic examination.

I am quite aware that it is maintained to be very difficult to prove the presence of tubercle bacilli; even in the newest handbooks, such as Küster's and Wagner's, it is stated that attempts to show the presence of tubercle bacilli in diseases of the urinary tracts are successful in only 10 to 20 per cent. of the cases. With reference to these statements, I can only say that the authors must have adopted unfortunate methods or have not persevered long enough, for when I look over the statistics from all my cases it appears that the assured presence of tubercle bacilli has been successfully shown in 80.7 per cent. of these cases. The method which I have used with such good results is that of Forsell, according to which one lets the aggregate urine of the twenty-four hours precipitate in a separator. The lowest portion of the precipitate which contains the tubercle bacilli is separated, and can then in addition be centrifugally treated before being put under the microscope.

For a practitioner all such circumstantial methods, as a rule, are entirely unnecessary, for simple microscopy with ordinary microbe coloring is sufficient to give him the diagnosis; if he finds pus in the urine but no microbes, the diagnosis of tuberculosis is almost certain; the case is at least so suspicious that the patient must at once be sent to a place where a special examination by experts can be undertaken; for in all other suppurative kidney affections we find numerous easily colored microbes in the urine.

The use of ureter-catheterization, more especially in tuberculosis of the urinary organs, has many enemies, no doubt principally because the art of ureter-catheterization is so difficult to learn, and requires so much time, but also because one is afraid of infecting the possibly sound ureter; and even if we maintain that this risk, as far as experience shows us, is very slight, yet its existence cannot be denied, and it would be desirable if we could manage with cystoscopy alone, or with segregators. According to my experience, this, however, is entirely impossible. Cystoscopy pure and simple is always uncertain; in some cases we can, of course, see undoubtedly purulent urine flow from the orifice of the ureter and thus be tolerably certain of the kidney in question being affected, but we are then left entirely in the dark as to the state of the other kidney, for a macroscopically clear urine is not by any means synonymous with a normal urine. What cystoscopy, generally speaking, should enlighten us about are alterations in the shape of the orifice of the ureter, swellings, miliary tubercles and ulcerations around the diseased orifice of the ureter. But you will find that the tuberculous alterations in the bladder in only a minority of the cases are localized around the diseased ureter. In some cases you will see that the bladder tuberculosis, in a directly misleading manner, has localized exclusively round the orifice of the sound ureter. You will find cases in which both kidneys are affected, but both ureteric orifices are free from alterations, or in which the tuberculosis has localized round the orifice of the one ureter; but in by far the greatest number of cases you will see that bladder tuberculosis in one-sided kidney affection is spread over both sides or halves of the bladder, sometimes over the whole of the mucous membrane of the bladder.

Therefore, this method ought not to be allowed to take the place of, or be put on a level with, ureter-catheterization, which is the only bloodless method which can give us certain knowledge of the state of the kidneys. It is necessary to warn against the use of segregators, which are so tempting because of the technical simplicity of the method, which any one can apply, while ureter-catheterization requires special training and practice.

The examination of the urine taken from each kidney must be undertaken with great care and judgment; it must be subjected to a thorough chemical, microscopic and bacteriologic examination.

At the Congress of Surgeons held in Berlin in April, 1905, I, for the first time, drew attention to the importance of diagnosticating toxic albuminuria, and in my introductory address to the discussion on nephrectomy in kidney tuberculosis, I mentioned five such cases in which, in spite of a fairly pronounced albuminuria from the other kidney, I had extirpated the tuberculous kidney, and had afterward seen the albuminuria disappear in the course of a very short time, the patients being cured. To these, from subsequent personal experience, I can add eight new cases.

The double lumbar-incision has been used by me in thirty of 166 cases, and I have never lost a single patient by this method. In twenty-four cases I ascertained the one-sidedness of the disease, which could not have been ascertained by any other means. I removed the diseased kidney, and in all cases recovery was the result; in one case I found the kidneys healthy; in six cases I ascertained the double-sidedness of the disease; in four of these I closed again without proceeding further; in two cases I undertook ureterostomy to procure relief from pains and to arrest the process of ascending tuberculosis.

One of these cases is of considerable interest. A girl, 26 years of age, was brought to my ward in a very wretched state. The bladder was found to be completely infected by typical tuberculosis, the mucous membrane around both the ureter orifices was ulcerated, and the insertion of the catheter was impossible into either ureter on account of stricture. By palpation the right kidney was distinctly found to be somewhat enlarged; the left kidney could not be felt, but by means of Roentgen rays a big oblong shadow was discovered corresponding to the left kidney. The picture could not decide the question as to whether this was a large calculus or, what I was most inclined to assume, a calcified tuberculous kidney. I decided on exploratory lumbar incision on the right side, whereby I made the following interesting discovery. The appearance of the kidney itself was normal, but the pelvis had expanded to the size of a Tangerine orange; the ureter was distended to the thickness of a finger, the upper serpentine portion of which was thin and transparent, while the ureteric wall from about the middle was found to be at an increasing rate thickened by interstitial ureteritis. I then, in the first instance, brought the ureter forward and formed a ureterostomy by a longitudinal incision on the outer side of the ureter. I carried a drain up into the pelvis and through it drew off a perfectly clear urine, which was free from albumin, and which microscopically contained only a few leukocytes. By sounding the distal portion of the ureter I found an exceedingly narrow stricture, which commenced a few centimeters above its opening into the bladder. The urine was carried through a drain, which had been inserted into the pelvis, down into a glass by the side of the bed, and during the following days it transpired that the other kidney did not yield any urine at all but only some tuberculous pus. In the course of a few weeks I removed the left kidney, which had been completely transformed into a tuberculous putty-like substance. The ureter fistula was kept open until the bladder tuberculosis was cured by phenol (carbolic acid) treatment, of which I shall speak later on. The passage through the ureter was then reestablished, and the kidney has now for six years officiated satisfactorily.

In two cases I punctured an abscess in the kidney as large as a hen's egg.

I have, ever since 1892, systematically undertaken quantitative analyses of urea with all my kidney patients prior to operation, and found that a normal secretion of urea is a safe criterion of a sufficiency of kidney tissue capable of functionating, but that, on the other hand, nothing can be gathered from a reduced secretion, inasmuch as the latter directly or indirectly can be due to the diseased kidney — directly by a purely reflex effect on the secretion of the sound kidney (renorenal reflex), indirectly by the disease actuating the functions of the whole organism. I have shown this in a whole series of cases in which the secretion of urea, after the removal of the tuberculous kidney, from being diminished, quickly rose to normal height. While a normal secretion of urea imparts a very important and satisfactory knowledge, it is, on the other hand, very risky to adduce from a slighter secretion of urea that both kidneys are inadequate; this may serve as a warning to proceed cautiously, but nothing beyond that.

With regard to all the rest of modern kidney-function examinations, I have shown that these are still more unreliable than the urea analysis, for while the latter misleads only by a negative result, both chromocystoscopy (Achard's methylene-blue test, Voelker's indigo-carmin), cryoscopy and the phlorizin method are capable of misleading by positive, as well as negative, results. I have, therefore, entirely given up these artificial and complicated methods in favor of the simple and rational quantitative urea analysis, which I make by the aid of Esbach's ureometer.

In recent years, the conception of the prognosis has become so optimistic that several authors maintain that early cases of kidney tuberculosis ought to be treated conservatively — by dietetic measures and with tuberculin, while nephrectomy should be allowed only in very advanced unilateral cases.

In my opinion this doctrine is wrong and very dangerous. First, because we never know whether the case is early or advanced, malign or benign. Behind the slightest, most veiled symptoms the most advanced, the most malignant tuberculosis may be hid, as recently proved by some of my cases. Second, there exists no convincing case of tuberculous kidney cured by conservative treatment. As now the statistics have established that we, by nephrectomy, can save 75 per cent. of all patients operated on, it seems quite clear that nephrectomy is indicated as soon as we have diagnosed a unilateral kidney tuberculosis. In spending the time on conservative treatment you run the risk of spreading the tuberculosis to the bladder and to the other kidney, and thereby destroy the possibility of a radical cure.

If we should define the position of the question at the present moment, I consider that, generally speaking, I can maintain that the possibility of a radical cure is dependent on two conditions: (1) that the point where the tuberculosis originates within the urogenital organs can be radically removed, and (2) that at least the one kidney is sound.

As far as the descending tuberculosis of the urinary tract is concerned, these two conditions of course go together; if only the one kidney is attacked there are chances for a cure by nephrectomy. With ascending urogenital tuberculosis both conditions have to be reckoned with, inasmuch as the tuberculosis here originates in the genital organs, but often secondarily spreads to the kidneys. This double and complicated state of affairs must at the outset make it probable that the prospects of a cure would be considerably slighter with ascending urogenital tuberculosis. The prognosis for ascending urogenital tuberculosis is much more serious than for descending, and this is partly due to the fact that while primary kidney tuberculosis in the great majority of cases is one-sided, secondary kidney tuberculosis is just about as often double-sided as one-sided, and partly to the hopeless course which a breaking through of the tuberculosis from the prostate to the bladder and urethra most frequently takes, attended by extravasation of urine, fistula formations, etc.

If, on the other hand, only the epididymis, vas deferens, and a single kidney are attacked, there is every prospect of cure through the removal of the epididymis and the diseased kidney, even if the bladder should be also attacked. This latter complication, up to a few years ago, was considered so serious that it was looked on as an absolute contra-indication to operation. We know now, through numerous instances, that a slight bladder tuberculosis is frequently cured spontaneously when the place where the tuberculosis originated is removed, but even with extensive bladder tuberculosis, which excludes a spontaneous cure, there is every chance of bringing about a cure by means of treatment with a 6 per cent. phenol solution, with which up to the present time I have cured thirty-four patients.

In all the cases in which, by means of the diagnostic aids I have just described, I have proved that only the one kidney was attacked, I have removed it by nephrectomy. In all, I have performed 145 nephrectomies for kidney tuberculosis with but seven deaths — that is, 4.8 per cent. mortality. There were two deaths in the first fourteen operations, which were performed in 1901 — a 14.2 per cent. mortality — while there have been only five deaths out of the 131 nephrectomies performed after 1901, that is, 3.8 per cent.

I use a long slanting lumbar incision, open the fat casing of the kidney at the back, loosen with great care by means of my rubber-gloved hand the kidney from its bed and possible adhesions, examine and palpate it minutely in order to verify the diagnosis, then draw the ureter forward on my bent left forefinger, tie it up in two places with strong silk thread in order to burn it slowly through with a red-hot thermocautery between the silk threads about 3 cm. below the entrance into the pelvis. I then isolate this from the vessels in the pedicle, which is tied up with strong formaldehyd catgut, after which the kidney is removed by cutting through the vessels. The peripheral end of the ureter is fastened to the skin 1 cm. from the wound-line, whereby I insure the raw surface of the abdomen against any possibility of infection from tuberculosis. Formerly, when I removed as much of the ureter as possible and lowered the stump, the latter often became the starting-point for an exceedingly dangerous diffused tuberculosis in the retroperitoneal tissue and in the abdomen.

In case one or both the epididymides are attacked, an extirpation of the epididymis is performed at the same or a subsequent operation, with the preservation of the testis if the latter be not attacked. As to the severed vas deferens, it is treated in a similar manner as was the ureter: it is sewed forward to the scrotal skin, where it, when the wound is otherwise healed, is kept open as a safety-valve for the tuberculous secretion, which might be in the peripheral parts and in the vesiculæ seminales. I have adopted this method in connection with nephrectomy in a large number of cases and always with good results. If there is tuberculosis of the bladder I wait some time after the nephrectomy to see whether the bladder tuberculosis will heal spontaneously, which I ascertain by performing cystoscopy every fourteen days.

In fourteen cases spontaneous healing resulted simply in consequence of the source of the infection having been removed with the kidney; but in the remaining thirty-four cases there was no such spontaneous healing. Sometimes, contrary to what is generally the case, quite a small tuberculosis was seen to spread incessantly, assuming a very vicious character, but in these cases the bladder tuberculosis was, as a rule, already far advanced when the patient came into the hospital. It is these cases that I have subjected to local treatment with a 6 per cent. phenol solution. This treatment, which to begin with is undertaken every other day, consists in first washing out the bladder with sterilized water, and then injecting 50 c.c. of freshly made, warm, 6 per cent. phenol solution; this is allowed to remain for two or three minutes and comes away as a perfectly milky fluid. These injections are continued until the phenol lotion comes away fairly clear.

The effect of this treatment, which, as a rule, manifests itself astonishingly quickly, is shown by the cessation of the pus secretion and by the clearing of the urine. By degrees, as the urine becomes clearer, the injections are made at longer and longer intervals, and are discontinued when it has been shown by cystoscopy that the mucous membrane of the bladder is healed. This we can see by the ulcerations in the cystoscopic picture being replaced by smooth mother-of-pearl-like cicatricial areas. With wide-spread tuberculosis a six- or eight-weeks' treatment is, on an average, necessary. If the patient and the physician have the perseverance to carry through the treatment, a cure is certain, subject to two conditions: (1) that the source of infection is removed, and (2) that the tuberculosis is confined to the mucous membrane and has not spread through the walls of the bladder. It is only subject to these conditions that the adoption of this treatment can be at all recommended. The first patient treated in this way, and in whose case the tuberculosis was of an unusually vicious nature and extending over the whole of the bladder, has now been well for five years.

I have of late gone still further in my attempts to save apparently hopeless patients, as, for instance, in the case I have already mentioned while speaking about the diagnosis, in which the double lumbar incision showed me that the tuberculosis had proceeded from the completely destroyed left kidney, traveled through the ureter to the bladder, the mucous membrane of which was completely ulcerated, and from there had again ascended to the right ureter and there produced stricture and distention. In this case I performed extirpation of the left kidney and lumbar ureterostomy on the right side; by doing this I prevented the tuberculosis from ascending to the other kidney, which was still sound. I kept the fistula open until I had cured the bladder tuberculosis by phenol treatment and dilated the ureter stricture. The passage through the ureter was then reestablished, and the patient is still, six years after the operation, living and free from pains of the bladder, the right kidney officiating satisfactorily.

As a palliative operation I use and strongly recommend ureterostomy in cases of double-sided ascending kidney tuberculosis in which stricture with distention of the ureter and pelvis causes great pain. In such cases we not only relieve the patient completely from pain, but, by establishing a free outlet, arrest the upward progress of the tuberculosis, and prolong the patient's life. Neither is it probably altogether out of the question that, at an early stage, an ascending kidney tuberculosis can be cured in this manner. Formerly I used a catheter or drain introduced into and fixed in the ureter, which through the bandaging was carried to a concave-convex bottle which was tied to the lumbar region by a belt, but the frequent escape of the urine by the side of the catheter and the drawbacks resulting therefrom led me to construct a bandage consisting of a small silver capsule fitted with a rubber ring, which, by means of an elastic girdle round the abdomen, is kept tight round the ureter fistula, and from which a small silver tube through a drain leads the urine into a urinal.

I have already mentioned that the group of cases in which tuberculosis is primary in the prostate and from there directly attacks the urogenital organs invading the urethra and the bladder gives an exceedingly bad prognosis, on account of extravasation of urine and the formation of abscess and fistula in the connective tissues of the pelvis. Yet in some cases it is possible to obtain partly curative, partly palliative, results through operative methods.

Where tuberculosis of the prostate has as yet only attacked the urethra, while the bladder is sound, I perform suprapubic cystostomy with insertion of a Pezzer catheter and then extirpate the prostate, removing in connection with the latter the diseased portion of the urethra.

As a palliative measure, I have seen excellent results from suprapubic cystotomy in cases in which a radical operation has no longer been possible.

THE USE OF TUBERCULIN IN THE TREATMENT OF SURGICAL UROGENITAL TUBERCULOSIS *

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My paper is not a didactic or an authoritative scientific exposition of the subject from the point of view of the tuberculin therapist but rather a synopsis of personal experience and opinion from the point of view of the genito-urinary surgeon.

It is sometimes stated that the modern surgeon is so filled with scientific enthusiasm that he loses sight of the human side of his work and only thinks of his patients as cases. I do not believe this is true except in very exceptional instances. I want to emphasize this fact because in tuberculosis, to an extent that is equaled in scarcely any other disease, the social, economic and human factors are of very great importance. This is so because tuberculous patients are, as a rule, young persons who are, or should be, doing each his or her share of the active work of the world. Also because of the often wide-spread destruction of tissues or organs and yet, unlike in cancer, the disease is not necessarily fatal even though total extirpation be proved impossible.

There have recently come to my notice two excellent papers; one by Dr. Paul Thorndike of Boston on renal tuberculosis, and one by Dr. J. D. Barney of Boston on tubercle of the epididymis. Both of these papers are entirely from the point of view of operative surgery. In both the use of tuberculin is mentioned. Dr. Thorndike believes renal tuberculosis should never be temporized with and Dr. Barney only briefly mentions any other than operative treatment. In every other way I entirely agree with the sound, conservative opinions expressed in these papers. It seems ridiculous to believe that tuberculin therapy can heal advanced lesions with considerable breaking down of tissue, nor can it ever be expected to absorb considerable collections of pus. Where there is an abscess or much necrotic material surgical intervention is essential. Where a kidney is a mere sac full of pus it would be a foolish waste of time to do anything but remove it. Where the epididymis or seminal vesicle or prostate is a broken-down mass of purulent necrotic material the knife is the most conservative remedy. Any other course puts the patient's life in jeopardy and is expecting too much resistance to infection of the general organism. On the other hand, there are frequent conditions in which either all the operative surgery has been done which it seems wise to do or in which, for other reasons, operation should be either postponed for a time or is contra-indicated altogether. Perhaps I can best illustrate this by specific instances.

Case 1.—R. B., male, aged 20, in February, 1911, began to have frequency of micturition while at college in Berkeley, Cal. The patient was examined by Dr. E. McConnell, of San Francisco, who found evidence of tuberculosis of the right kidney and bladder. Bacilli were found in the urine. In May, 1911, the patient consulted me in Portland and I began treatment with tuberculin. Immediate and very marked improvement resulted. Koch's Old Tuberculin, as put up by Mulford, serial dilution No. 1, was the preparation used. Very minute doses were administered without any attempt to reach the limit of tolerance. In fact, every effort was directed to give so small a dose that there should never be any specific

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* Read in the Symposium on Renal Surgery and Pathology in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

reaction. I believe this to be of great importance. In August, 1911, the patient returned to college. As it was important for him not to have his course of study interrupted, this was the justification for not at once taking out the offending kidney. Also we were encouraged to continue the tuberculin on account of the extremely favorable result of a few weeks' treatment in the spring and early summer of 1911. On his return to Berkeley he consulted a specialist in pulmonary tuberculosis. I believe that, in the light of later developments in the case, this was a mistake. The patient, however, seemed to have great faith in this specialist and for a time did fairly well. Then the specialist tried the plan of giving him tuberculin in increasing doses up to the limit of tolerance. Occasionally this limit was passed and the boy had fever, chills and other evidences of an overdose. However this method may succeed in pulmonary cases I do not know, but I am convinced it will always make surgical patients worse. I believe the safest guide, as I have repeatedly said before in discussing this subject, is the irritability of the bladder. An overdose is shown by increased pain, frequency and bladder irritability far sooner than the point of the production of constitutional symptoms. Of course, bladder symptoms are not invariably present in renal cases. It soon became evident that the boy was getting worse. In November, 1911, he returned to Portland and I removed the right kidney. Since then his general health has gradually improved. Just after Christmas, 1911, he went to visit his relatives and I have not seen him since. He writes that his condition is good.

I report this case not as evidence of the triumph of the use of tuberculin but because I believe, though I may be mistaken, that the unwise administration of tuberculin by the method of dosage almost or quite up to the limit of tolerance actually precipitated an early nephrectomy which might have been deferred until a more convenient time or possibly avoided altogether.

There is another class of cases which are very troublesome to both physician and patient. In women we frequently see cases of painful and frequent micturition. In those cases in which gonorrhea can be absolutely excluded and in which there is no colon bacillus infection we must seriously consider tuberculosis. We must also exclude traumatism of the urethra from excessive coitus. Modern investigation has led to the conviction that primary bladder tuberculosis is very rare. Many of these cases are undoubtedly dependent on renal tuberculosis, although there are apparently a few exceptions.

Case 2.—In April, 1910, Miss S., aged 30, single, school teacher, consulted me. She said that for years she had had attacks of painful frequency of urination. Latterly they had been of longer duration and much more troublesome. Examination showed a normal urethra except for some injection and great sensitiveness at the inner meatus and this seemed continuous with a neck of the bladder irritation. There was absolutely no evidence of gonorrhea in the past or present history. Cystoscopy showed a normal bladder except for the injection of the vessels at the bladder neck. The ureter orifices were normal. Ureter catheterization brought normal urine from both kidneys. There were no subjective symptoms of kidney disease. The bladder urine, on the contrary, contained a slight amount of pus and tuberculosis was suspected but the bacilli could not be demonstrated. The application of nitrate of silver and dilatation of the urethra proved effective in giving relief for a time. This patient's work is exacting. She teaches the youngest children in a large public school. Her urinary frequency increased daily from Monday to Friday. The Saturday-Sunday holiday gave a chance for slight betterment of symptoms. She is absolutely dependent on her work. She is unfitted for other employment. It is therefore imperative that she continue her work. As I said, no evidence has been brought forward of kidney disease. In January, 1911, tubercle bacilli were demonstrated in the urine. Tuberculin treatment was begun and persisted in since. There has been marked benefit apparently attributable to this treatment. She is very susceptible to an overdose and only 0.005 c.c. of Old Tuberculin No. 1 can be given without bladder reaction. This means, in my opinion, delay. The good results of tuberculin are undoubtedly more quickly apparent in a patient who can take a somewhat larger dose than this. In the course of time, however, her improvement has been quite marked. In what way could operative surgery have been of benefit in this case? Possibly, as Dr. Thorndike says in his monograph above referred to, the condition will remain about the same for years and later a renal disease will show itself and eventually nephrectomy will have to be done. Time alone will tell.

Case 3.—I have previously reported the case of a nurse with a very extensive generalized tuberculosis of the abdominal viscera including the bladder and intestines. After two years treatment with tuberculin (Koch's Old Tuberculin) in very small doses she entirely recovered and now, four years after beginning treatment, she is well, back at her work and showing no discoverable evidence of disease.

Case 4.—The patient, with tuberculosis of the genital tract, was first seen in 1908. At that time he showed very advanced disease and was operated on to eradicate as much disease as possible. Afterwards he was treated for a few weeks with tuberculin. He reported to me in February, 1912. He was apparently perfectly well. There was no evidence of any disease. He felt strong and well and had gained weight.

Another class of cases are those with bilateral renal disease of an advanced type or those showing pulmonary infection in addition to the urinary tuberculosis. These cases are hopeless. Neither operation nor tuberculin nor a combination of the two will cure. If any such patient gets well it is in spite of and not because of treatment. I have never seen such a patient recover. Sometimes one will seem to do well for a time but eventually, in my experience, some fatal lesion develops.

I do not think treatment of any case, in any stage, by tuberculin, is as satisfactory as one could wish it to be. It is just about on a par with bacterin treatment of any other condition. Eventually someone will discover a better method but in the meantime a great deal may be accomplished by using the various preparations of tuberculin. I have tried to show that they are mainly aids to surgical or other treatment and that, even in competent hands, they may be very disappointing. If tuberculins are used without good judgment as to dosage much harm can be done; in fact, often irreparable harm. The exact preparation chosen I believe largely a personal matter. One surgeon will get good results with O. T., another with B. E., and still another with some other preparation. It depends on which the surgeon is most used to working with, because, at all times, in every case, it is necessary to be cautious, patient and watchful and to be guided by the results of personal experience. I have tried the opsonic index as a guide but believe that it merely introduces another element of uncertainty and error without rendering compensating advantages. The symptoms of the patient, carefully observed and properly interpreted, are guide enough. There are almost as many ways of handling tuberculin as there are physicians who use it. It would waste your time if I should tell you any of my tricks of technic because, although they suit me, your own doubtless fit you better and accomplish the same result in the end.

Seventh and Yamhill Streets.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. ROVSING AND WHITESIDE

Dr. William T. Belfield, Chicago: At a clinic given to the American Urological Association in Chicago, in September, 1911, I presented six cases of genital tuberculosis in the male treated with turberculin, as instances of the experience which during the past six years has convinced me that in genital tuberculosis the knife has no place, except to evacuate débris. Following is a report of one of the six cases I showed at that time:

A man, aged 27, had had one testis removed for tuberculosis. The remaining epididymis was three times as large as the testis; the urine was thick, containing pus, blood and tubercle bacilli, and he urinated every half hour day and night. He had lost 18 or 20 pounds in weight. The advice which he had received from excellent surgeons was to have the remaining testicle, the prostate and the seminal vesicles removed. He received simply tuberculin as treatment, being unable even to secure the benefit of outdoor life. When I showed him to the American Urological Association a year later the man was apparently as well as any who inspected him; the urine clear, the fistulas had healed and his weight had increased. The other cases were not so advanced, but the effects of treatment were equally good. These are illustrations of the experience which has convinced me that the knife has no place in the treatment of genital tuberculosis in the male, except for the removal of débris. I would not, with my present experience, substitute tuberculin for the knife in the treatment of tuberculous kidney.

Dr. Hugh H. Young, Baltimore: Dr. Rovsing's method of treating the ureter is somewhat unique. I would like to ask whether he treats the ureter internally at all after the operation, whether it is necessary to treat the ureter while treating the bladder, and whether he attempts to have the fluid from that ureter come out through the wound rather than through the bladder while he is treating the bladder with the phenol (carbolic acid) solution. It seems to me that after excision of a tuberculous epididymis it is extremely important to bring the vas out through the groin, to inject it with phenol or iodoform, and to leave it to drain as long as possible. We have followed Dr. Rovsing's work in regard to the phenol treatment and have not obtained the results he has; I think this is because we have not persisted and done it as frequently as he has. We are perhaps frightened by the pain caused the patient. I do not believe I can report any remarkable results in renal tuberculosis. Certainly in other forms of genito-urinary tuberculosis, particularly if localized, we may sometimes get brilliant results.

Dr. Guy L. Hunner, Baltimore: If we could get the profession at large to appreciate that, if there are a few leukocytes in the urine of a patient with bladder symptoms, and no culture can be grown from the urine, we can almost safely assume that that is a case of tuberculous kidney, it would go a long way toward simplifying the treatment of this disease.

There are a few cases in which there is thickening of both ureters, and with care and patience, we can usually determine which of the ureters is actually tuberculous and which is suffering from interstitial thickening from absorption upward from the bladder. I have had three cases in which I could not catheterize the supposedly good side because of this interstitial ureteritis. I was fortunate enough, however, to be able to catheterize the bad side, and by washing out the bladder thoroughly and collecting the urine I got a fairly good idea of what the supposedly good side was doing, operated in spite of this thickening at the lower end of the ureter, and in each of the cases had a perfect healing of the ureteritis and a disappearance of the cystitis.

Dr. Thorkild Rovsing, Copenhagen: I ought to have said in my paper that I treat the ureter very often by injecting phenol solution through the ureter. In most cases it is astonishing to see how it closes up without any treatment, the walls growing together and the tuberculosis healing with building of fibrous tissue.

I keep the ureter open until the bladder is cured to save the patient the pain involved in voiding urine. The urine would irritate, and it is an enormous relief for the patient to be free from that until the bladder is healed. Therefore, I recommend in hopeless cases in which the patient has dreadful pain from the ulcerations in the bladder a ureterostomy, because it does away with all the pain. There is no more need to pass the water through the bladder, and therefore there are no more pains

DECAPSULATION OF THE KIDNEY *

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During the past few years a great number of decapsulating operations have been performed on the kidneys for the relief of diseases of these organs. The limited resources of medical treatment have called the attention of surgeons to these organs in a special way and have led to surgical procedures which have very little scientific foundation for the undertaking. It therefore follows that the merits of the operation can be determined only by the study of a large number of cases and not by any process of abstract reasoning.

It would not be fair to say that the work has been altogether empirical. The pathologic considerations which have led to decapsulation and incision of the capsule and of the kidney itself have rested on the assumption that freeing the capsule or incising the kidney has a modifying influence on the circulation of the organ and thus brings about an improved nutritive process leading to an ultimate restoration of the kidney to the normal or to relief of the organ from a pressure to the delicate kidney structures whereby its function is resumed and recovery follows, or in less severe and in more chronic conditions the structure of the kidney is saved from damage. It may easily be assumed that considerations like these have influenced surgeons in undertaking decapsulating or decompression operations.

Reginald Harrison of London appears to have been the first to undertake to relieve the intracapsular pressure of the kidneys by a simple incision in albuminuria, hematuria, anuria, pains, etc., of the inflamed kidneys. This was in 1878. His favorable results induced other clinicians to attempt to improve the disturbed functions of the kidneys, improving urination by nephropexy, loosening adhesions, and by ureteroplastic operations.

Le Dentu in 1881 performed a splitting of the capsule of the kidneys to allow the parenchyma of the kidney more expansion.

Following the deliberate clinical work of Harrison and of Le Dentu, other workers undertook to show experimentally what changes actually occurred so far as the kidneys themselves were concerned. N. H. Gifford,[1] in experimental work on decapsulation of normal rabbits and dogs, of dogs with induced nephritis and of dogs with infarcted kidneys but with additional work thrown on them, found the following conditions: In all of his cases the entire thickness of capsule over two-thirds of surface, a certain amount of intracapsular tension in undecapsulated kidneys — normal or nephritic — shown by immediate increase in decapsulated kidneys up to one month after; a decrease to normal complete at six months, congestion of intertubular vessels of cortex, casts three to five days after the operation; no change in renal epithelium after decapsulation, a new capsule very vascular at first two to four times the thickness of the old marked at end of eight days. In six months return to normal new capsule, in part from retroperitoneal connective tissue, also intertubular connective tissue, no new blood-vessels anastomosing with those of the kidney.

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* Read in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* Because of lack of space this article is somewhat abbreviated in The Journal. It appears in full in the Transactions of the Section and in the author's reprints.

[1] Gifford, N. H.: Experimental Decapsulation of the Kidneys, Div. Surg., Med. School Harvard Univ., Boston, 1903-04; Experimental Decapsulation of the Kidneys, Boston Med. and Surg. Jour., 1904, cli, 5[illegible].

G. Herxheimer and W. Hall[2] from animal experiments reach the following conclusions:

> 1. After decapsulation the capsule forms anew and becomes thicker than normal.
> 2. There is no anastomosis with the surrounding tissue.
> 3. Animals stand the decapsulation without any bad effect.
> 4. Anatomically or clinically no bad effects follow decapsulation.

J. H. Zaaijer[3] from animal experiments with decapsulation of the kidneys and consideration of the functional value of the new-formed capsule, concludes:

> Four weeks after decapsulation of the kidneys in rabbits the new capsule anastomoses have a lesser value than in the non-decapsulated kidney, but locally they may have a greater value and especially on those points where the kidney was deeper incised or injured.

Thelemann[4] in a summary on decapsulation of the kidneys made experiments with animals and comes to the following conclusions:

> The decapsulation of the kidney does not effect a pernicious influence on the parenchyma of the kidney. A new capsule is formed in a short time. Whether the vascularization of the new-formed capsule is increased or not cannot be definitely decided. In the milder cases recovery ensues; the serious cases end fatally.

Prof. R. Harrison in his original paper preferred incision to decapsulation, as it appeared to be more rational and was followed by better results. I presented the same views[5] in a later communication on the same subject. In support of this, M. Zondek[6] in discussing decapsulation and scarification of the kidney at its clinical value proposes the scarification as superior to decapsulation. He makes slight incisions in the capsule and cortex and recommends this operation for hematogenous abscesses.

The observers thus far cited in relation to the histologic influence of decapsulation or incision on the kidneys do not find any harmful effect on the kidneys and the evidence furnished by animal experiments seems to show in an affirmative way that results of a beneficial nature may be effected at a time when a decompression of the kidneys may be necessary, even if it is shown histologically that the capsule is restored practically to its former condition.

In opposition to the above citations, Stern[7] of Düsseldorf writes of changes in the kidney after removal of the capsule. From experiments with animals the following are his findings:

> Six or seven days after the decapsulation of the kidneys in rabbits, the connective tissue shows a new growth in a broad layer. Kidneys injured by the operation showed deep scars in the tissue. In two cases at autopsy a strong connective tissue layer was noticed in place of the removed capsule. In serial section, microscopically a transition of capsule into renal vessels, as assumed by Edebohls, could not be found. The primary disease in the one case was interstitial, in the other, probably luetic; nephritis was more developed in the decapsulated kidney than in the non-decapsulated.

Stern considers it his duty to dissuade practitioners from this decapsulation, according to his experiments with clinical subjects, in cases inclining to new formations of connective tissue. In other cases of nephritis the lessening of pressure on the kidney may cause an improvement, but the total decapsulation has yet to be determined. Stern also says that changes occur in the kidney after removal of the tunica propria. He reports from animal experiments that no cure was effected; improvement was observed in three cases, but the animals died in eight weeks and the others two weeks after the operation.

These experimental and pathologic observations are helpful in predicating the class of cases in which a decapsulating operation should be made, but the final determination must be based on clinical results. My own opinion is that we shall find that experimental findings and clinical results will run very close together. To reach some definite conclusions in relation to the value of decapsulation of the kidneys in certain forms of kidney disease, a very voluminous literature was examined. What has been written on this subject was quite beyond my expectations and it is quite possible that not a little has been overlooked, and some perhaps duplicated.

The study of the literature on decapsulation of the kidneys quickly shows that a consideration of the nature of the lesion in the kidney is of the utmost importance in determining the value of decapsulation. The almost uniform failure to produce any good results in chronic degenerative changes of the kidney led me, as far as possible, to classify the diseases under heads which might include affections of the kidneys in relation to which an argument could be offered in favor of the operation.

DECAPSULATION OF THE KIDNEY IN ECLAMPSIA

I have undertaken first to present such arguments as the literature furnishes on decapsulation of the kidney in eclampsia. I feel warranted in bringing this branch of the subject before this Section in view of the fact that there does not appear to be any line of demarcation between the effects of the operation on kidneys of a patient suffering from eclampsia and those of a patient suffering from any acute congestion of these organs, and that, so far as our knowledge goes, the benefit derived is from the immediate relief of congestion.

Sippel[8] concludes that decapsulation does not exert a direct vasodilating effect; it presumably relieves a certain pressure on the veins and thus improves circulation and diuresis. Sippel[9] also says in relation to decapsulation and splitting of the kidney in eclampsia that in toxic kidneys decapsulation alone is sufficient. If the internal pressure be much increased a splitting of the kidney may be necessary, according to the degree of tension. Sippel assumed that the escape of the edematous fluid from decapsulation restores the circulation in these capillaries. Gminder[10] doubts the correctness of this theory because the escape of such a serum has never been observed. Nicholson[11] is also of the opinion that decapsulation drains blood directly from the engorged venous plexuses of the anuric kidney and that this relief in the venous counterpressure promptly starts an influx of more arterial blood. Falgowski found that the relief of intracapsular tension hastened resorption of accumulated inflammatory exudate on account of the resulting arterial hyperemia and restitution of the damaged secreting epithelium with the reestablishment of normal circulatory conditions. Petri[12] is of the opinion that decapsulation relieves an existing congestion and furthers the elimination of detached epithelia or other substances obstructing the canaliculi.

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[2] Herxheimer, G., and Hall, J. W.: Ueber die Entkapselung der Niere, Arch. f. path. Anat. and Physiol., 1905, clxxix, 153.

[3] Zaaijer, J. H.: Nierendekapsulatie, Nederl. Tijdschr., v Geneesk., 1905, 2 r., xli, d. 2, 1528; Untersuchungen über den funktionellen Wert der sich nach Entkapselung neubildenden Nierenkapsel, Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1904-1905, xlv, 311.

[4] Thelemann: Ueber die Entkapselung der Niere, Deutsch. med. Wchnschr., 1904, xxx, 538.

[5] Fairchild, D. S.: Ann. Surg., 1903, xxxvii, 963.

[6] Zondek, M.: Die Topographie der Niere, und ihre Bedeutung für die Nieren-Chirurgie, Berlin, 1903, O. Hirschwald, p. 110; abstr. in the Rev. d. Chir., June, 1911; Die chirurgische Behandlung der chronischen Nephritis nach Edebohls, Mitt. a. d. Grenzgeb. d. Med. u. Chir., Gedenkband. Mikulicz, Jena, 1907, 235; Die Dekapsulation und die Skarifikation der Niere und ihre klinische Bedeutung, Med. Klin., 1911, vii, 79.

[7] Stern: Ueber Veränderungen an der Niere nach Entfernung der Tunica propria, Verhandl. d. deutsch. Gesellsch. f. Chir., 1904, xxxiii, 189; Ueber Veränderungen an der Niere nach Entfernung der Capsula fibrosa (Dekapsulation nach Edebohls), Zentralbl. f. Chir., 1904, xxxi, 133.

[8] Sippel, A.: Die Nierenentkapselung bei puerperaler Eklampsie, Ztschr. f. gynäk. Urol., 1910, ii, 69.

[9] Sippel, A.: Zur Nierenaushülsung oder Nierenspaltung bei Eklampsie, Zentralbl. f. Gynäk., 1907, xxxi, 1586.

[10] Gminder: Ueber Nierendekapsulation bei Eklampsie, Müncher med. Wchnschr., 1908, lv, 2673.

Gavriloff[13] from animal experiments with decapsulation of the kidneys in eclampsia and other affections of the kidneys concludes:

> 1. Diuresis of the decapsulated kidney is increased.
>
> 2. The vesicular circulation in a decapsulated kidney is freer and stronger.
>
> 3. The diuretic action is better in a decapsulated kidney than in a non-decapsulated kidney.

Ehrenfest[14] holds that according to our present physiologic knowledge such a disturbance in the circulatory conditions of the capillary system influences the secretory function chiefly only qualitatively and not quantitatively. At present, however, the assumed value of decapsulation still rests solely on the belief in its specific diuretic effect. Ehrenfest[14] from experiments with dogs concludes that decapsulation of the kidneys in eclampsia does not increase secretion of urine, and that there is no real ground for the belief that decapsulation is of benefit in post-partum anuria. This skeptical attitude does not apply to certain cases of nephritic kidney in which Ehrenfest holds that the operation may create conditions favorable for the final restoration of structural lesions which have not progressed so far that they are beyond the possibility of repair.

Ernst Runge[15] says that a definite conclusion as to the value of decapsulation in eclampsia cannot now be drawn; that the prognosis is not very favorable. In desperate cases the operation may be performed by skilful hands. Sippel[8] agrees that if other means fail and attacks and coma continue after delivery decapsulation is indicated. Zangemeister[16] says that decapsulation of the kidneys in eclampsia is unwarranted.

A. Cordero[17] reports a case of decapsulation of a kidney which was removed a year later for nephralgia. The capsule was completely new formed but contained some thin vessels, which proves that a part of the new-formed vessels exist for some time as a result of the decapsulation, certainly not less than a year. If the newly formed capsule is very thick in the beginning it decreases later.

D. Newman,[18] in a paper on "Increased Vascular Tension in the Kidney as a Cause of Renal Pain, Hematuria and Albuminuria," holds that increased vascular tension is due to two causes, the first of which is mechanical, and the second some morbid processes.

M. Zondek[6] in a paper read before the Berlin Medical Society, Dec. 21, 1910, holds that the capsule covering the kidney is rich in elastic tissue and permits swelling of the kidney under varied conditions of the circulation; also that, if the kidney is decapsulated, the new-formed capsule is of firm connective tissue, capable of stretching, and therefore the kidney may be in serious danger in its future functionating. Zondek believes that all of the immediate advantages of decapsulation can be gained by incision to the capsule without any of the dangers of decapsulation.

I have found reports of ninety-two cases with definite results, given from forty-four different operators. Sixty-two of the ninety-two patients recovered; thirty died, giving a mortality of about 33 per cent. I have been able to ascertain that about 30.8 per cent. of all cases of eclampsia, under any treatment, end fatally. I cannot give any fair comparison of statistics for the reason that only in apparently desperate cases was operation performed and we are left almost entirely to individual experiences for conclusions as to the merits of the procedure; it necessarily follows that no one operator will have any considerable number to report.

Alsberg[19] reports four cases of eclampsia treated by decapsulation. Three of the patients recovered and one died eight days after operation from pneumonia. This latter case was included among the fatal cases, perhaps unfairly. Alsberg states that diuresis was increased in every case after decapsulation.

Aubert[20] reports a case of puerperal eclampsia and kidney decapsulation after normal pregnancy and delivery. On the sixth day of the puerperium the patient was taken with eclampsia without previous symptoms; she had thirteen attacks during twenty hours. Decapsulation of both kidneys was done. The attacks did not recur and the patient recovered. Aubert advises immediate operation before complications occur.

Robert Asch[21] reports the case of a patient who recovered after a decapsulation and says:

> If the eclampsia is severe, expectant treatment is unwarranted. If delivery has not yet taken place we may await the effect of artificial delivery or cesarean section.

Baumm,[22] after a successful decapsulation for eclampsia, thinks favorably of the operation and will repeat it on the next opportunity. Baumm,[23] another observer by the same name, reports four decapsulations for eclampsia and does not think well of it. He says: "This operation does not affect the activity of the kidneys and does not cure eclampsia."

Bollenhagen[24] reports a recovery after decapsulation and observes that the decapsulation was warranted on account of the almost complete anuria.

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[11] Nicholson, H. O.: The Physiologic Basis for Decapsulation of the Kidney in Eclamptic Anuria, Edinburgh Med. Jour., 1909, New Series, ii, 456.

[12] Petri: De la décortication du rein et de le néphrotomie, Ann. de gynéc. et d'obst., May, 1907, p. 257.

[13] Gavriloff, N. G.: Mechanism of the Action of Edebohls' Operation, Decapsulation of the Kidneys in Puerperal Eclampsia and Other Disturbances of the Circulation and Functional Capacity of the Kidneys, Vrach. Gaz., 1909. xvi, 36, 71, 98.

[14] Ehrenfest, H.: Renal Decapsulation in Eclampsia; An Experimental Study, Surg. Gynec. and Obst., 1911, xiii, 296; Renal Decapsulation in Eclampsia; An Experimental Study, Tr. Am. Gynec. Soc., 1911, xxxvi, 453.

[15] Runge, Ernst: Nierendekapsulation bei Eklampsie, Berl. klin. Wchnschr., 1908, xlv, 2068.

[16] Zangemeister, W.: Ueber eklamptische Oligurie, zugleich eine Kritik der Nieren Dekapsulation bei Eklampsie. Ztschr. f. gyn.k. Urol., 1910, ii, 79.

[17] Cordero, A.: Sugli esiti remoti della decapsulazione del rene nel l' uomo. Clin. chir., Milano, 1908 xvi. 758.

[18] Newman, David: Vascular Tension in the Kidney a Cause of Hematuria and Albuminuria, Lancet, London, 1896, ii, 1758.

[19] Alsberg, Paul: Zur Nierendekapsulation bei Eklampsie, Zentralbl. f. Gynäk., 1909, xxxii, 934; Zwei Mitteilungen zum Eklampsiethema, Zentralbl. f. Gynäk., 1910, xxxiv, 6.

[20] Aubert: Puerperaler Eklampsie post partum; Nierendekapsulation; Heilung, Gynäkologia Helvetica, 9 Jahrg. Herbstausgabe, Geneva, 1909.

[21] Asch, Robert: Nierendekapsulation bei puerperaler Eklampsie, Zentralbl. f. Gynäk., 1908, xxxii, 283.

[22] Banmm: Nierendekapsulation bei Eklampsie, Monatschr. f. Geburtsh. u. Gynäk., 1908, xxvii, 260.

[23] Baumm: Zur Indikationsstellung der Nierendekapsulation bei Eklampsie, Zentralbl. f. Gynäk., 1911, xxxv, 752.

[24] Bollenhagen: Nierenenthülsung wegen Eklampsie, Zentralbl. f. Gynäk., 1910, xxxiv, 1530.

S. Cholmogoroff,[25] after a fatal case, observes:

> Another patient was being prepared for decapsulation when the symptoms ceased and the patient recovered without operation; if any operation had been performed with recovery of the patient, the recovery would have been ascribed to the operation.

Essen-Möller[26] appears to think it doubtful whether this operation should be recommended in obstetric therapy.

R. Franz[27] believes that decapsulation for eclampsia is not indicated before delivery is expected, but if coma and attacks continue, the decapsulation must not be delayed.

Vincent,[28] reporting six cases, five recoveries and one death after decapsulation, says that the mortality without decapsulation of the kidneys in eclampsia is not greater than with it, and considers the operation unwarranted.

H. Croom, after reporting a successful case and after citing twenty-six cases with good results, recommends the operation highly.

ABSTRACT OF DISCUSSION

DR. A. C. WOOD, Philadelphia: Although skeptical as to the value of this operation at first, I have become convinced that in certain cases it is of the greatest utility. In this connection I desire to refer particularly to one case. It was that of a boy aged 15, with pronounced nephritis and extreme general edema, under the care of Prof. James Tyson of the University Hospital, Philadelphia. After all medical resources had been exhausted without benefit, at Dr. Tyson's request, I decapsulated both kidneys. The boy was voiding about 6 ounces of urine in twenty-four hours prior to the decapsulation. During the next twenty-four hours the quantity increased to 10 or 12 ounces, and the day after there was another marked increase, and so every day the urine increased in quantity until there was almost a polyuria. The anasarca disappeared, and the boy rapidly recovered; when I heard from him some months ago he was working as a journeyman at the carpenter's trade. Dr. Tyson informs me that while the boy is not entirely free from albumin and a few casts, he is symptomatically well and is doing a full day's work every day. This case was observed with great care and was treated actively and persistently prior to operation without perceptible change, and immediately after the operation improvement began. The case was reported by Dr. Tyson in the *Transactions of the Association of American Physicians* for 1911.

DR. LOUIS E. SCHMIDT, Chicago: I should like to report a case which was demonstrated before the American Urological Association in Chicago a year ago. It was a very marked case of hematuria that had existed for years and had been studied very carefully. No positive diagnosis was made. Dr. Bevan operated on one side and decapsulated. The patient had been cystoscoped and the ureters catheterized previously. It was found following the operation that one side gave off a perfectly clear urine. The patient came under my observation about a year ago. There was a marked hematuria on the side opposite to the kidney operated on. The patient was unable to work on account of the pain, and he was considerably weakened on account of the loss of blood. I kept him under observation for about three months, catheterized both sides frequently, and made all kinds of sufficiency tests. At some future date I shall report the case in detail. I made no positive diagnosis, but operated on the side from which the hematuria continued. I found a kidney comparatively normal in size, but with a great many marked retractions of the capsule. I made a decapsulation in this case, and the result seems almost incredible. The hematuria immediately stopped; that is, hardly any microscopic blood could be found on the first day, and practically none after the third or fourth day, and no blood macroscopically at any time since. There had been no kidney elements in the urine. The patient is still under observation. He has a markedly low blood-pressure. I removed a piece of the kidney large enough for microscopic examination, and it simply showed a chronic interstitial nephritis. It seems strange, however, that there had been no kidney elements present during the course of the bleeding and none since operation.

DR. VICTOR VECKI, San Francisco: My experience with the operation is not very encouraging as to curing any kind of a kidney disease, but I consider it indicated when prolongation of life is desirable. I remember one case in particular: a woman who had had trouble with her husband and was involved in divorce proceedings. There was a matter of a small fortune for a child, and it was really necessary that that woman should live a little longer. The day she was taken to the hospital she passed only 4 ounces of urine. After the decapsulation the amount of urine began to increase considerably. She finally passed 32 ounces of urine, and kept on doing that for several months. Ultimately, she died, as was expected, about four months and seven days after the operation. I am positive that that woman could not have lived another week without the operation. In all the other cases in which I have performed the operation for chronic nephritis or for other nephritic conditions, the improvement has only been of short duration.

DR. D. S. FAIRCHILD, Clinton, Iowa: I have collected reports of all the cases that I could find in the French, German, Italian, English and American literature and have studied them very carefully to determine if it was possible to arrive at a conclusion as to what class of cases should be decapsulated and what should not. This work first came under my observation about ten years ago. During this time I have had four cases of my own in which recovery was complete. They were not cases of Bright's disease; that is, not of the degenerative type.

Examination of the collected reports left me in considerable doubt in many instances whether the case was really a case of degenerative disease of the kidney or whether a case of nephritis, sometimes classified as Bright's disease; whether it was a primary disease of the kidney, an inflammatory or congestive disease of that organ, or whether a degenerative disease associated with cardiovascular changes. As far as I could determine there were no good results from decapsulation in cases in which the kidney had undergone degenerative changes. But the results were good in cases of inflammation of the organ in which the degenerative changes had not gone too far. In some of the parenchymatous cases in which the author said that the kidney had become large and fatty, the operation did no good; the disease may have started out primarily as an infection of the kidney itself, but had gone on so long that degenerative changes had already taken place. I cannot conceive how it would be possible for any decompressing operation to have any influence on kidneys that had undergone degenerative changes, such as a fibrosis, and I have distinctly said so in my observation on this method of treatment.

Mistrust "Migraines" After 45.—A so-called migraine persisting after the age of 45 or 50 is to be looked on with very grave suspicion indeed. In such cases you will examine the urine and the arteries very carefully; or, some indications of a latent cerebral tumor may be hit on. Mistrust "migraines," then, however "paroxysmal" the attacks may be, however typical the affection may appear if they go on after 45 years of age. I am almost disposed to say curtly, that if in a migrainous person the migraine persists in later life, there is probably a screw loose somewhere in his constitution.—T. Clifford Allbutt in *Clin. Jour.*

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[25] Cholmogoroff, S.: Nierendekapsulation bei Eklampsie, Zentralbl. f. Gynäk., 1910, xxxiv, 947.

[26] Essen-Möller: Ein Fall von Nierendekapsulation bei Eklampsie, Zentralbl. f. Gynäk., 1908, xxxii, 499.

[27] Franz, R.: Nierendekapsulation bei Eklampsie, Wien. klin. Wchnschr., 1911 xxiv, 447.

[28] Vincent: Décapsulation du rein comme traitement de l'eclampsie puerpérale, Lyon Med., 1907, cviii, 1090; Décapsulation du rein comme traitement de l'éclampsie puerpérale, Ann. d. mal. d. org. génito-urin., 1907, xxv, 1632.

RECENT ADVANCES IN OUR KNOWLEDGE CONCERNING THE CAUSES OF GLYCOSURIA*

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Our views concerning carbohydrate metabolism in health and disease are constantly changing. New facts are gradually being added to our knowledge of the subject. In attempting to explain the causes of diabetes we have been forced to abandon various theories in succeeding decades. The accumulated results of innumerable investigators may make obsolete to-day a theory which seemed to hold good yesterday. Profiting by this experience, we must ever bear in mind that we should not be carried away by any new theory that is advanced to explain diabetes, even though it may be based on accurate experimental research.

In all cases of diabetes, with the exception of the experimental phlorizin diabetes, it is generally conceded that the appearance of the sugar in the urine is dependent on the existence of a hyperglycemia. It has generally been held that the glucose content of the blood normally ranges between 0.1 and 0.2 per cent., although Jacobson, working under Cushing's direction in the Hunterian Laboratory at the Johns Hopkins University, believes that these figures are too high and that the normal content is approximately 0.08 per cent. Undoubtedly some regulatory mechanism controls the glucose content of the circulating blood, for in the healthy individual it is found that, even after a meal rich in carbohydrates, the percentage of glucose in the circulating blood remains within very narrow limits. The carbohydrates in the food are stored up after a meal in the liver and muscles in the form of glycogen. Glycogen is believed to be gradually reconverted again into glucose and given up to the tissues as they need it for the production of heat and energy. Whenever the glucose content of the circulating blood rises above the physiologic limit a hyperglycemia results and the excess then passes over into the urine and produces either a transitory glycosuria or a permanent glycosuria, as in true diabetes mellitus.

The explanation of a transitory or a permanent glycosuria therefore rests on the determination of the cause or causes of the hyperglycemia. An excess of glucose in the circulating blood may be conceived as occurring in one of two ways. 1. It may be due to an overproduction of glucose from the glycogen of the liver. 2. It may be due to an inability of the tissues, particularly the muscles, to destroy the glucose, or, in other words, to defective oxidation. Each of these theories has been supported by able investigators in the past, but the trend of opinion at the present time is in favor of the overproduction theory.

THE RELATIONSHIPS OF THE DUCTLESS GLANDS TO CARBOHYDRATE METABOLISM

Investigations in recent years have shown that the internal secretions of the ductless glands have a marked influence on carbohydrate metabolism in health and disease. The internal secretions which have been shown up to the present to possess this relationship are those of the pancreas, adrenals, thyroid, parathyroids and pituitary. Strictly speaking, the pancreas is not a ductless gland, but it incorporates within its substance the islands of Langerhans, which are really ductless glands. According to our present knowledge, it is in these islands that the internal secretion of the pancreas which so strongly influences carbohydrate metabolism is produced. It may be shown later that other ductless glands, such as the thymus, ovary, etc., must be added to the list. The function of influencing carbohydrate metabolism is only one of the numerous activities each of these glands is known to possess.

As Cammidge[1] recently said in a most interesting article bearing on this subject, "It is now believed that chemical correlation and chemical control exists between practically every gland and tissue of the body." It has been possible, in some instances, to isolate the specific chemical activator or "hormone" through which one tissue activates another. It has been shown by Bayliss and Starling[2] that the hydrochloric acid secreted by the stomach acts on the mucous membrane of the upper part of the intestine and gives rise to a substance to which they have given the name "secretin." The latter, when absorbed into the blood, travels to the pancreas and stimulates it into functional activity and causes a flow of its secretion. Other similar examples might be cited.

THE INTERRELATIONSHIP OF THE ACTION OF THE DUCTLESS GLANDS

It will be of interest to discuss at this point the noteworthy results of Falta, Eppinger and Rudinger[3] who have devoted special attention to the study of the interrelationship of the action of the internal secretions of the ductless glands. They believe that the removal of a gland with an internal secretion works in two ways. There is, first, the direct result of the absence of its secretion, and secondly, the indirect effect due to the disturbance of metabolism consequent on its relations to other glands. They hold that the ductless glands may be divided into two groups according to the disturbances of the metabolic functions of the body to which alterations in their secretory activities may give rise. They divide them into (1) an accelerator group and (2) an inhibitory group. To the accelerator group belong the thyroid, the adrenals and the hypophysis, since it has been shown that a study of the reactions of the body to injections of preparations from these organs and observations on the result of experimental interference with their functions suggest that all three increase protein exchange; the adrenals cause mobilization of carbohydrates, and the thyroid causes increased fat destruction. To the inhibitory group belong the pancreas and parathyroids, because it has been shown that both retard protein destruction, the pancreas being the more active; further, both restrain the mobilization of carbohydrates, the pancreas again being the more active of the two. The pancreas also causes a decrease in fat consumption. These investigators have correlated their results and have come to the following conclusions:

1. The internal secretions of the thyroid and pancreas mutually retard each other's activities.
2. The internal secretions of the pancreas and chromaffin system mutually retard each other's action.
3. The internal secretions of the thyroid and chromaffin system mutually increase or accelerate each other's action.

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* Read in the Symposium on Genital Pathology and Surgery in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Third Annual Session held at Atlantic City, June, 1912.

* Because of lack of space this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

[1] Cammidge, P. J.: Relation of the Ductless Glands to Glycosuria, Practitioner, London, 1912, lxxxviii, 237.

[2] Bayliss and Starling: Proc. Roy. Soc., 1902, lxix, 352.

[3] Falta, W., Eppinger, H., and Rudinger, C.: Ueber die Wechselwirkungen der Drüsen mit innerer Sekretion, Ztschr. f. klin. Med., 1908, lxvi, 1.

In explanation it may be said that the chromaffin system has reference to those groups of cells which have a particular affinity for the salts of chromic acid. These cells are found chiefly in four situations: (1) they occur in the adrenals, where the largest collection of such cells occurs; (2) they accompany the nerves of the sympathetic system; (3) they occur in abundance in the retroperitoneum; (4) they are grouped together in the pelvis to form the so-called Zuckerkandl organ. For all practical purposes, the word "adrenals" may be substituted for "chromaffin system" in the above classification of the accelerator and inhibitory activities of the internal secretions of the ductless glands.

THE RELATIONSHIP OF THE PANCREAS AND ADRENALS TO CARBOHYDRATE METABOLISM

Owing to the intimate relationships that are now believed to exist between the internal secretions of the pancreas and adrenals and carbohydrate metabolism the functions of these two glands will be considered together.

Although a relationship between the pancreas and carbohydrate metabolism had been suspected for nearly a century, it remained for von Mering and Minkowski[4] to demonstrate in 1889 that complete removal of the gland in dogs was invariably followed by a fatal diabetes, with practically all the features as observed in severe cases in man. They subsequently showed that the diabetes was not dependent on the loss of the external secretion of the glands but rather on the absence of some internal secretion which is poured directly into the blood- or lymph-stream.

Lépine believed that this internal secretion was of the nature of a "glycolytic ferment," whose presence in the circulating blood was necessary for the proper combustion of the glucose of the blood.

In 1900 Opie found that a certain percentage of cases of chronic interstitial pancreatitis were accompanied by diabetes. Histologic examination of the pancreas in all cases in which the gland was sclerosed showed that glycosuria occurred only in those cases in which there was extensive destruction of the islands of Langerhans. Later Opie showed that many cases of diabetes with apparently normal-looking glands macroscopically showed on microscopic examination extensive hyaline degeneration of the islands of Langerhans. This important observation led to two natural inferences: first, that the internal secretion of the pancreas which influenced carbohydrate metabolism was probably produced by the islands of Langerhans; and second, that it might subsequently be shown that many if not all cases of diabetes would probably be found to be due to degenerative changes in the islands of Langerhans. Subsequent investigations have shown that there are many cases of diabetes which cannot be explained in this way, for it has been found that in certain cases of diabetes the islands are intact.

The publication of Cohnheim's[5] experiments in 1903 seemed to afford a satisfactory explanation as to how the carbohydrates are utilized in the body under normal conditions and by inference gave us an explanation of the cause of diabetes. According to his view, in order that carbohydrate metabolism should be properly carried on, it was necessary that some substance in the muscle juice be activated by a hormone contained in the internal secretion of the pancreas. If for any reason this pancreatic hormone be lacking, the glucose would not be utilized in the muscles and would accumulate in the circulating blood, producing a hyperglycemia and a consequent transitory or permanent glycosuria. Although Cohnheim's views were hailed with enthusiasm they have not been universally accepted. It is quite possible that there is some interaction between the internal secretion of the pancreas and muscle juice, which results in the production of a substance which favors the combustion of carbohydrates. More light, however, needs to be shed on this phase of the subject.

Although the influence of the internal secretion of the pancreas on carbohydrate metabolism cannot be questioned, its method of action, as we have already seen, is uncertain. There is a growing belief that the internal secretions of the pancreas and adrenals are complementary to one another and that each exerts its influence on carbohydrate metabolism by regulating the formation of glucose from the glycogen of the liver.

Zuelzer[11] is responsible for the theory, now possessing many adherents, that the internal secretion of the adrenals influences carbohydrate metabolism by "mobilizing" the carbohydrates of the body, particularly of the liver. In other words, unless its action is counteracted, the function of the internal secretion of the adrenals is to set free the carbohydrates of the liver and other tissues, causing a hyperglycemia with consequent glycosuria. Zuelzer further showed that an antagonistic action exists between the adrenal secretion and the internal secretion of the pancreas.

Zuelzer thinks that the internal secretions of the adrenals and pancreas normally react on each other within the liver in such a way as to maintain the normal sugar production from the glycogen and consequently glycosuria is prevented. As Falta, Eppinger and Rudinger[3] have shown, the internal secretions of the pancreas and adrenals mutually retard the action of each other. Thus, when Zuelzer used the liver of a depancreatized dog, the output of sugar in the urine was increased because there was no pancreatic secretion to retard the "mobilizing" action of the adrenal secretion on the glycogen of the liver. In the second experiment, in which the liver from a dog with adrenal diabetes was used, the further increase in the sugar output was due to the "mobilizing" action of the epinephrin that had been used in inducing the adrenal diabetes. He further found that when the function of both the adrenals and pancreas was destroyed glycosuria failed to occur. In the depancreatized dog he found that glycosuria did not occur if the adrenal veins were ligated. In a large number of pancreatectomies performed by Zuelzer, glycosuria always followed except when the adrenal veins were also tied off. He believes that one of the most important functions of epinephrin is its influence on sugar metabolism in the liver.

Accepting for the time being this view of carbohydrate metabolism, the hyperglycemia in pancreatic diabetes is believed to be due to the absence of the restraining hormone normally produced by the pancreas. The "mobilizing" action of the epinephrin consequently causes an overproduction of sugar in the liver with resultant excess of glucose in the circulating blood followed by the inevitable glycosuria.

Undoubtedly the nervous system has a marked influence on carbohydrate metabolism. Owing to the intimate relationship that is known to exist between the sympathetic and autonomic nervous systems and the chromaffin system, it is easy to conceive how psychic disturbances and disturbances particularly of the autonomic system can stimulate the chromaffin system and cause an overproduction of the internal secretion of the adrenal glands, leading to a "mobilization" and overproduction of glucose in the liver and other storehouses for carbohydrates. This would lead to hyperglycemia and glycosuria. It was formerly thought that the glycosuria that resulted from Claude Bernard's puncture of the floor of the fourth ventricle was due to direct stimulation of the liver through its nervous connections. It has been found, however, that if the left adrenal is cut off from the left sympathetic nerve, no sugar appears in the urine after the medulla has been punctured, and it is now believed that the stimulus is transmitted by the left sympathetic nerve to the left adrenal, whence it is passed to the right adrenal by the connecting nerves. As a consequence of the medullary puncture the adrenals secrete more actively and the increased flow of the adrenal secretion in its turn brings about an excessive output of sugar by the liver. A number of toxic influences possibly act in the same way, the glycosuria to which they give rise being partly the result of the action they exert on the diabetic center in the medulla, and partly an effect of their stimulating action on the sympathetic nerves, or on the adrenals directly, thus, in any case, causing hyperfunction of the chromaffin system, with consequent overproduction of sugar by the liver.

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[4] Von Mering and Minkowski: Centralbl. f. klin. Med., 1889, p. 394.

[5] Cohnheim: Ztschr. f. physiol. Chem., 1903, xxxix, 336.

[11] Zuelzer, G., Dohrn, M., and Marxer, A.: Neuere Untersuchungen über den experimentellen Diabetes, Deutsch. med. Wchnschr. 1908, xxxiv, 1380.

THE RELATIONSHIP OF THE THYROID AND PARATHYROIDS TO CARBOHYDRATE METABOLISM

Every observer who has had a wide experience with diseases of the thyroid gland has been impressed with the fact that in hyperthyroidism and hypothyroidism there is a marked disturbance in carbohydrate metabolism. Kraus, Ludwig, Chvostek and many others have observed that spontaneous glycosuria is not uncommon in exophthalmic goiter. Further, it has been shown that the administration of small amounts of carbohydrates in this condition often causes a temporary glycosuria. In other words, in overactivity of the gland the tolerance for carbohydrates is reduced.

On the other hand, in hypothyroidism, myxedema, the occurrence of spontaneous glycosuria is so rare as to practically never occur.

THE RELATIONSHIP OF THE PITUITARY TO CARBOHYDRATE METABOLISM

We are chiefly indebted to Cushing[18] and his associates for the demonstration in the last few years of the fact that the pituitary gland contains in its internal secretion a hormone that has a powerful influence on carbohydrate metabolism. It is thought that one of the functions of the pituitary glands is to preside over the regulation of carbohydrate tolerance. It will be impossible here to give a description of the gross and histologic anatomy of the pituitary gland, but it may be of interest to enumerate the important functions that have been demonstrated to be possessed by its two lobes.

I. FUNCTIONS OF THE ANTERIOR LOBE

1. It influences body growth. If a hypersecretion (hyperpituitarism) occurs during the years of the individual's growth, gigantism results. If the hyperactivity occurs after the individual's full growth has been attained then acromegaly results. If a diminished secretion (hypopituitarism) occurs, a form of infantilism results, to which attention was first drawn by Fröhlich. This condition is known as Fröhlich's syndrome, or "dystrophia adiposa genitalis." It is characterized by small stature, amenorrhea in women, infantile genitalia in both sexes, hypotrichosis, excessive deposition of fat and increased carbohydrate tolerance.
2. Injections of extract of the anterior lobe cause an increase in temperature.
3. Extract of the anterior lobe increases thyroid function.

II. FUNCTIONS OF THE POSTERIOR LOBE

1. Its extract causes an increase in blood-pressure.
2. It is a powerful diuretic.
3. It has a remarkable influence over carbohydrate metabolism.
4. Schaefer and Vincent think it also contains a substance which may lower blood-pressure.
5. Rinon and Delille think that the extract stimulates the function of the adrenals and lessens that of the thyroid.

It is most interesting that the hypophysis, which previous to two decades ago was considered without function, has now been shown to possess so many important properties. Cushing has shown in dogs that the gland is essential to life, for complete removal of the gland invariably results in death. It is believed that it is the anterior lobe that is necessary to life, for its removal alone will produce death. Cushing holds that the secretion of the pituitary passes by way of the infundibulum into the cerebrospinal fluid in the third ventricle, for he has shown that death also occurs if the hypophyseal stalk is excised while the gland is left behind.

It is the influence which the pituitary secretion of the posterior lobe has on carbohydrate metabolism that concerns us most here. It was Cushing and his co-workers who first demonstrated by partial hypophysectomies on dogs that it is the posterior lobe of the pituitary which influences carbohydrate tolerance. It has now been definitely shown that hyperpituitarism, clinically represented by gigantism and acromegaly, is nearly always accompanied by a lowering of the individual's tolerance for carbohydrates resulting frequently in either a transitory or permanent glycosuria. On the other hand, hypopituitarism, clinically represented by the various types of pituitary infantilism, is practically always accompanied by an enormous increase in the tolerance for carbohydrates, so that the patient can ingest from two to five times the amount of glucose and other sugars that a normal individual can without alimentary glycosuria occurring.

It was in 1889 that Marie first pointed out the association of acromegaly with pituitary enlargement, although he had described the disease in 1886. Since 1889 there have been numerous reports of cases in which glycosuria has been found in association with acromegaly. Out of 176 cases of the disease reported in the literature up to 1908, Borchardt found that glycosuria occurred in 35.5 per cent. of the cases. Cushing comments on the discordant results which different observers have found in the study of carbohydrate tolerance in acromegaly. Some observers have found an actual glycosuria, others only a diminished tolerance, and still others a decidedly increased tolerance. Cushing is of the opinion that these discrepancies are entirely dependent on the stage of the disease in which the case comes under observation. He holds that the adenomas or other tumors of the anterior lobe of the pituitary, which cause the characteristic features of acromegaly, also produce hyperplasia and overactivity of the posterior lobe in the early stages (hyperpituitarism), with the result that an excess of the secretion reaches the circulation and a lowered tolerance to carbohydrates ensues. In the later stages a hypoplasia with consequent destruction and lack of secretion of the posterior lobe occurs (hypopituitarism), with the result that there is an increased tolerance to carbohydrates.

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[18] Cushing, Crowe and Howmans: Bull. Johns Hopkins Hosp. 1910, xxii, 127 Cushing, H., Goetsch, E., and Jacobson, C.: Bull. Johns Hopkins Hosp., 1910, xxii, 165

CONCLUSIONS

1. It is unwise, from past experience, to accept as settled any new theory advanced to explain the cause of diabetes mellitus.

2. It must now be accepted as positively proved that not only the pancreas but also the adrenals (chromaffin system), thyroid, parathyroids and pituitary have a very important influence on carbohydrate metabolism.

3. Although lesions of the pancreas have been found in a considerable percentage of cases of diabetes, it is now clear that morbid changes in that organ will not explain all cases, even when alterations in the islands of Langerhans are also taken into account. The essential and primary disturbance may be in one or another of the ductless glands.

4. There is undoubtedly a marked correlation of the internal secretions of the ductless glands. Thus the internal secretions of the adrenals (chromaffin system) and pancreas mutually retard the action of each other. The most recent theory concerning carbohydrate metabolism is that first advanced by Zuelzer and now supported by many physiologists. According to this view, one of the important functions of the adrenals is to "mobilize" or set free the carbohydrates in the liver and possibly in other storehouses also. Under normal conditions, however, this influence is counteracted or exactly balanced by the hormone contained in the internal secretion of the pancreas, and we have a constant normal flow of sugar from the liver. When, however, the chromaffin system is for any reason overstimulated, as it may be through the sympathetic nervous system, there is an overproduction of the "accelerator" hormone of the adrenals; the "retarding" hormone of the internal secretion of the pancreas is more than counterbalanced, the glycogen in the liver is rapidly "mobilized" or set free and a hyperglycemia and glycosuria result. A similar result occurs in the cases of so-called pancreatic diabetes. Here the adrenal hormone may be normal in amount, but owing to the pancreatic disturbance the pancreatic hormone is absent or diminished and again the adrenal hormone is enabled to mobilize the glycogen of the liver.

5. A somewhat analogous explanation may subsequently be found to explain the glycosurias in pituitary and thyroid diseases.

6. The theory that hyperglycemia results from deficient consumption or oxidation of glucose in the tissues has fewer adherents than formerly. It may still be shown, however, that Cohnheim's theory is in part correct. At present the trend of opinion is in favor of the view that the hyperglycemia and glycosuria are dependent on overproduction of sugar in the liver as expressed under Conclusion 4.

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ABSTRACT OF DISCUSSION

Dr. Robert T. Morris, New York: In some cases of "gall-stones without symptoms" glycosuria is the chief symptom. After removal of a gall-stone or drainage of a septic gall-bladder the glycosuria ceases. One of our best-known New York surgeons suffered from lumbago for years and was incapacitated for work a large part of the time by a glycosuria; when gall-stones were removed the lumbago and glycosuria ceased. This relationship between glycosuria and gall-stones we have assumed to be due to influence on the islands of Langerhans by the gall-stones, the reflex irritation causing a congestion of the pancreas to the point of lessened efficiency. Is that the correct view, or is a toxic impression made on the pancreas by an infected gall-bladder neighbor?

Dr. Emil Goetsch, Baltimore: In a paper published together with Drs. Cushing and Jacobson in the *Bulletin of Johns Hopkins Hospital*, June, 1911, some facts were pointed out concerning carbohydrate metabolism in hypophysectomized animals, and its relationship to the posterior lobe secretion. The manner of hitting on these facts was interesting. I was studying the growth of dogs after hypophysectomy, and noticed that in cases of total or "near total" removal of the pituitary body there was produced frequently a transient glycosuria, which appeared almost immediately after the operation and disappeared in two or three days. This was inexplicable until we began to test the carbohydrate tolerance of these animals before and after operation. It was found that after removal of the hypophysis either "near total" or even of the posterior lobe there was found invariably an almost immediate great reduction in the carbohydrate tolerance to a point often of spontaneous glycosuria, to be followed in the course of about ten days by recovery of the normal tolerance and then a gradual increase during a period of a week or two more until the tolerance reached often to double the normal. Cane-sugar and glucose were used both by mouth and intravenously in these tests. It was found also that we could reduce this overtolerance by injecting intravenously or hypodermically extract of hypophysis. A comparable action was found to exist in the thyroid gland indicating a similar influence of these two glands at least on some features of carbohydrate metabolism. It is still an open question as to how the pituitary secretion (posterior lobe) exerts this influence. We felt that it was possibly due to some influence on the pancreas or liver. For example, we found that after hypophysectomy the liver cell was filled with fat; there was an apparent transformation of glycogen into fat with storage of the latter. Oxidative processes in the body were also low. There was frequently subnormal temperature which could be made to rise until a definite febrile response of 3 or 4 degrees could be obtained. Then, also, in a number of clinical cases with hypophyseal disease a hyperglycemia was observed. These are a few of the facts concerning hypophyseal activity which bear very closely on the problems of glycosuria as brought out by Dr. Futcher.

Dr. T. B. Futcher, Baltimore: I am not prepared to give an explanation of the manner in which glycosuria is brought about by an attack of gall-stone colic. Two possible explanations are conceivable. One is that there may be some direct effect on the liver itself, causing it to give up the glycogen in the form of glucose, or it may exert its effect through the sympathetic nervous system, which we know is so intimately associated with the chromophilic system and the adrenals; and there may be at the time a hypersecretion of the adrenals which leads to a mobilization of the carbohydrates in the liver with resultant hyperglycemia. Whether that is the explanation or not, I cannot say.

It was demonstrated in 1859 that puncture of the fourth ventricle led to a temporary glycosuria. Claude Bernard believed that the glycosuria was due to certain impulses sent to the liver. More recent work has shown that that explanation is probably not true. If one severs the nerves going to the left adrenal, a hyperglycemia does not follow the medullary puncture. The latest explanation for the glycosuria that follows certain traumatisms and fractures of the base of the brain is that impulses are sent out by way of the sympathetic system to the left adrenal, and thence to the right adrenal, causing a hypersecretion which mobilizes or sets free the glycogen of the liver producing a hyperglycemia and transitory glycosuria.

Factory Hygiene.—Men think as they are trained to think. Therefore, an educational campaign should precede hygienic changes in factory conditions and processes. Let us make it our business as physicians to teach the cost of the human mechanism, the mechanics of humanity and the extravagance of human waste.—W. Talbot in *Am. Jour. Public Health.*

THE SURGICAL TREATMENT OF CHRONIC SEMINAL VESICULITIS BY VASOSTOMY (BELFIELD OPERATION)*

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In discussing the surgical treatment of chronic seminal vesiculitis it might be well to consider briefly the bacteriology of this condition. The bacteria commonly found producing pathologic changes in the seminal vesicles are the gonococcus, staphylococcus, streptococcus, tubercle bacillus and colon bacillus. Although the gonococcus is by far the commonest cause of seminal vesiculitis, the ordinary pus-producing organisms, namely, the staphylococcus and the streptococcus, not infrequently produce an inflammation of the vesicles. It is in these latter cases that faulty diagnoses are commonly made, especially if they happen to occur in old men, or in those who do not give a history of a recent gonorrhea. The tubercle bacillus may invade the seminal vesicles by way of the blood-stream, by direct extension from the upper part of the genital tract or by extension from the urinary tract.

The part played by the colon bacillus in vesicle infections is not very well known, although this germ has been demonstrated as the causative agent in producing infection of the epididymis.

Three distinct conditions are found in studying the pathology of chronic seminal vesiculitis:

1. Cases in which the vesicle condition is complicated by a complete obstruction of the ejaculatory duct, which is attributable either to a stricture or to the duct being blocked by detritus and exudation. In this class the vesicle is virtually converted into a retention cyst.
2. Cases in which there is a partial occlusion of the duct, due either to stricture or to inflammatory swelling.
3. Cases in which the duct is perfectly patent and the inflammatory process is limited to the vesicle.

Although there is little to be found in the literature on stricture of the ejaculatory ducts, Dr. Belfield found the stricture to be unilateral in two cases and bilateral in one case in the consecutive examination of twenty-five dead-house subjects. He has also demonstrated it in the living.

The patency of the ejaculatory ducts seems to me to be a most important point in the choice of treatment for seminal vesiculitis. The common symptoms of this condition, such as a gleety discharge, pain low down in the pelvis and during ejaculation, are well known, but there are many cases in which these symptoms are not pronounced, and in which the patient has symptoms which we are likely to refer to the bladder or the prostate. Given, for example, a man advanced in years, who complains of frequent and imperative urination, with probably some enlargement of the prostate gland, we not infrequently class him as a prostatic when, in reality, he is suffering more from an inflammatory condition of the seminal vesicles rather than from the prostate gland.

Several times in my limited experience it has been my good fortune to have relieved by vasostomy and lavage of the seminal vesicles patients, who were supposed to be suffering from hypertrophy of the prostate, and on whom prostatectomy had been advised. In certain cases, too, vasostomy has relieved symptoms ascribed to an enlarged prostate, just as did castration years ago. Frequently during the first twenty-four hours after performing a vasostomy, a patient who, before the operation, had been tormented by frequent and imperative urination and the usual so-called colic of the neck of the bladder is completely relieved of his symptoms. I think that the explanation of this prompt relief lies in the fact that, by opening the vas, we place the seminal vesicle at physiologic rest. This also probably explains why improvement was observed in certain cases of hypertrophy of the prostate when castration had been performed; in other words, those patients who improved after castration were suffering from disease of the vesicles rather than from disease of the prostate.

Probably one of the most important points in the treatment of chronic seminal vesiculitis by vasostomy is the proper differentiation of cases. It is obvious that not all cases of vesiculitis require surgical interference; also that drainage of the vesicles by making an opening in the vas deferens is not possible in all cases. From a therapeutic standpoint, it might be well to make the following classification:

Class 1. Cases of chronic seminal vesiculitis in which the ejaculatory ducts are perfectly patent.

Class 2. Cases in which there is an atresia or partial occlusion of the ducts.

Class 3. Cases in which there is a complete obstruction of the ducts.

Class 4. Cases complicated by stricture of the vas deferens high up.

The cases in Class 1, namely, those having patent ejaculatory ducts, can easily be selected, owing to the fact that they can be readily emptied by pressure of the examining finger in the rectum. Most of these cases will respond to stripping and instillations and do not require any operative interference.

The cases in Classes 2 and 3, in which there is either a partial or a complete occlusion of the ducts, are those in which the only hope for cure lies in some operative measure — vasostomy, incision or excision of the affected organ. During the last few years I have completely abandoned the method of stripping the vesicles in all cases in which they do not readily empty on pressure in the rectum over the vesicles. I believe that failure of the vesicles to empty on pressure in the rectum is usually an indication that there is either a partial or a complete occlusion of the ejaculatory ducts, and that stripping of such a vesicle will force the infected contents into the vas, which is commonly followed by an epididymitis.

Vasostomy is also a valuable measure in the prevention of recurring attacks of acute epididymitis. Patients in this condition sometimes feel distress and pain along the inguinal canal and the region of the external ring, even before the epididymis is infected. An opening into the vas at this time may succeed in preventing a subsequent infection of the epididymis.

In cases of Class 4, in which there is a stricture high up in the vas, it is perfectly clear that one could not hope to obtain either drainage or lavage of the vesicle, because the obstruction is proximal to the opening in the vas. These cases, however, are comparatively rare. Aschoff, in the examination of one thousand subjects, found unilateral stricture of the vas deferens in seventeen cases and bilateral in six cases.

The simplicity of technic in vasostomy indicates it as the operation of choice when surgical measures are deemed necessary for vesiculitis. The technic of vasostomy is too well known to require description. There are, however, two points that might be emphasized:

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* Read in the Symposium on Genital Pathology and Surgery in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. The vas should be well fixed against the posterolateral wall of the scrotum before the initial incision is made.

2. The vas should be entirely stripped of its sheaths before incising it.

These precautions will assist one in finding the lumen of the vas for subsequent injections into the vesicles. In cases in which the indications for a vasostomy have been correctly observed, the results are uniformly good. The question as to whether the vas deferens is patent after a vasostomy may arise in the minds of some. There is very little reason why the tube should not remain patent when we reflect that the incision into the vas is a small longitudinal one. I am satisfied that strictures following this operation are rare, as I have had opportunities of examining the semen of five of my patients with bilateral stricture and have found spermatozoa in all of them. I do not believe, however, that the question of sterility should enter into consideration, providing that the indications for the operation previously existed. Knowing that the vast majority of these cases are postgonorrheal and that they refuse to respond to the old method of stripping the vesicles; and knowing, too, that these subjects are a constant menace to every woman with whom they cohabit, who in many instances is the innocent wife, it is my contention that if the vas was blocked in every man on whom vasostomy was performed the operation would still be indicated.

I am satisfied that patients with postgonorrheal vesiculitis are the most common carriers of gonococci to the marriage bed, and I repeat that, if once in a large number of cases we should happen to block the vas of an individual by vasostomy, it would be far better than that he should marry with his seminal vesicles contaminated with gonococci.

This report includes 104 operations on eighty-eight patients, thirty-two of my cases being bilateral; eleven were due to the ordinary pyogenic organisms; seventy-seven were of the postgonorrheal type. The vas was kept open for from seven to twenty-one days. Injections were made daily; in a few instances, twice a day for the first few days after operation. The mild silver salts were first used and were followed by the more astringent salts. Of the eighty-eight cases, fourteen passed from my control before I could ascertain results. Of the eleven cases due to ordinary pus infection, ten are cured; one patient still complains of colic following urination, though he affirms that it is less severe than before the operation.

I was able to control sixty-three of the seventy-seven postgonorrheal cases. The gonococcus was demonstrated in the gleety discharge, in the expressed secretion from the prostate and vesicles or in the ejaculated specimen of semen. In the event that the cases were complicated by a stricture, folliculitis or prostatitis, these conditions were treated before the operation was performed. The duration of the postgonorrheal condition varied from three months to eight years.

Many of the older cases had gone through several acute exacerbations. Forty-one of the sixty-three patients were cured by vasostomy; i. e., their symptoms disappeared and I was unable to demonstrate the gonococcus either in the expressed prostatic and seminal secretion or in the ejaculated seminal discharge. Of the twenty-two cases that did not clear up after the operation, three patients were free from gonococci, but still complained of some pain and frequency of urination. One of these, however, improved after a thorough course of massage of the prostate. Of the nineteen cases in which gonococci were still present after vasostomy and lavage, seven cleared up after massage and instillation into the posterior urethra. In twelve cases I was unable to eliminate the gonococcus. It is my opinion that in some of these the gonococcus was harbored in some of the inaccessible recesses of the prostate gland.

If I may be allowed to eliminate the fourteen cases that passed from my control, in fifty-one of the seventy-four cases the cure may incontestably be attributed to vasostomy, which is a percentage of 67. This may not appear at first sight to be a strikingly high proportion, but if the class of cases be taken into consideration I am certain that most of them would heretofore have been designated as cases of incurable postgonorrheal seminal vesiculitis.

SUMMARY

1. Symptoms referred to the bladder and prostate are frequently relieved by vasostomy.

2. In certain cases vasostomy has relieved symptoms ascribed to an enlarged prostate, just as did castration years ago.

3. Vasostomy is especially indicated in cases in which we have to deal with either a partial or a complete occlusion of the ejaculatory ducts.

4. This operation gives a fairly high percentage of cures in a class of cases which must either be relegated to the incurable heap or be subjected to a far more dangerous and difficult surgical procedure.

I take this opportunity to thank Dr. Belfield for my early instruction in this work, and for his ever-willing consent to the use of the material in our clinics at Rush Medical College and the Chicago Policlinic.

32 North State Street.

PARANOID TYPE OF INSANITY WITH JACKSONIAN CONVULSIONS: SYPHILITIC CEREBRAL PACHYMENINGITIS; THE MICROSCOPIC FINDINGS *

N. S. YAWGER, M.D.
PHILADELPHIA

F. C., a colored man aged 42 years, was arrested Sept. 5, 1910, while sleeping in a new school building, but because of his strange statements he was taken to the psychopathic wards of the Philadelphia General Hospital; from there he was transferred to the Insane Hospital, September 9, where he developed jacksonian convulsions and died about three months later. The cause of his mental state was not determined clinically.

For some time previous to his detention and until he died, certain fixed delusions persisted in the mind of this patient. He stated that the new school building in which he was arrested had been fixed up for him by God's orders and that it was to be called God's Angel's Temple. He drank at times but he had not been drinking for several months previous to his detention at the hospital. About a week after he had stopped drinking, he said he heard God call his name and say: "You are free from sin; you shall live and never die; you shall never go hungry and you shall never go naked." Because of his shouting his friends thought he was crazy from drink and he was arrested; shortly afterward he became quiet and he was released. After this "call" from God he stopped work. He said God talked to him both day and night and told him secrets; but what these were he would not reveal.

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Laboratory of Neuro-Pathology of the University of Pennsylvania and the Philadelphia Hospital for the Insane.

His mental examination at this time showed no disorientation; he had hallucinations of hearing, believing that he heard God's voice; his delusions were shown by his belief that the schoolhouse had been built for him by God's orders and that he was God's angel. He stated that he did not have enemies, was not possessed of much physical strength and was not wealthy; in fact, he talked sanely about all other matters.

The points of interest in his physical condition were: unequal pupils, the left being slightly the larger; slight tremor of the muscles about the mouth; deviation of the tongue slightly to the left; enlargement of the inguinal glands, and several scars over the shins.

While talking to his physician, Jan. 13, 1911, he said: "I am going to have a fit; I had two of these last night;" he then had a seizure. There was involvement of the left side of the face and left arm without any disturbance of consciousness. The convulsions of the night before were his first seizures. After this he had several isolated convulsions and on April 3, was seized by a series of fits, which involved the whole left side of the body. At one time he had 200 convulsions in sixty hours and these were followed by a left-sided exhaustion paralysis. The seizures were for the most part confined to the left side and were clonic in type, but they were never attended by the loss of consciousness. A warning always preceded them and this the patient described as a peculiar sensation in his head. Plantar stimulation at times gave a Babinski response, which was present more frequently on the left side. The ophthalmoscopic examination showed no abnormality, and there were no extra-ocular palsies, no persistent headache and no vomiting. The patient was at no time melancholy or violent, and his fixed delusions persisted until he died. The seizures usually appeared in series and were followed by a slight elevation of temperature; the last series occurred four days before his death; for a few days previous to this his heart action was irregular, his pulse was over 100 and his temperature was subnormal.

Because of the exalted delusions there was at first some thought of the psychosis being dementia paretica; paranoia also was considered. Later, when convulsions developed, it was suspected that the condition had a syphilitic basis; unfortunately the cerebrospinal fluid was not examined nor was a Wassermann test obtained and so no positive mental diagnosis was made.

AUTOPSY REPORT

The general body findings were: heart, chronic interstitial myocarditis; lungs, passive congestion and subacute bronchitis; liver, fatty degeneration, slight perilobular fibrosis and chronic interstitial hepatitis; spleen, chronic interstitial splenitis; kidneys, chronic interstitial and chronic parenchymatous nephritis. These chronic findings were not more than suggestive of syphilis.

Under the calvarium, the dura in the right superior parietal region was adherent to the bone; when separated, the bone was found roughened and reddish in color. There was no evidence of an old fracture. At this site and even extending somewhat below the right parietal region, the dura was adherent to the pia-arachnoid, and the superficial part of the cortex was stripped off with the membranes. The area of most extensive pachymeningitis was about 2½ inches in diameter and one-third inch thick near the center, becoming thinner gradually toward the periphery. There was very slight thickening of the dura for considerable distance beyond this, but the rest of the membrane was of normal thickness and texture. The surface of the lesion was somewhat irregular though not distinctly nodular; its consistency varied, being considerably firmer in some parts than in others. The pia-arachnoid was somewhat congested. Beneath the area of most extensive pachymeningitis, the convolutions were somewhat flattened. The base of the brain and the vessels were normal. There was slight excess of cerebrospinal fluid, especially in the lumbar region of the cord. The weight of the brain and part of the membranes which happened to be attached was 1,372 gm. (48.4 oz.); this is but little less than the weight of the normal adult male caucasian brain, and about 200 gm. (6.1 oz.) heavier than the average weight of the brain of the colored adult in dementia paretica.

HISTOLOGIC FINDINGS

The dura was thickened to perhaps three times its normal diameter but it was difficult to determine just where the dura stopped and the extra development of fibrous tissue began. Many irregularly rounded holes were seen and these probably had resulted from the hardening of edematous tissue. The development of fibrous tissue was very extensive and many of the fibers were markedly swollen. Throughout, there was a rather free leukocytic infiltration with here and there intense localization. Embryonic cells were abundant and increased vascularization was observed. Some masses of granular detritus were seen here and there, and these were probably disintegrated red blood-cells.

The cellular infiltration consisted for the most part of three varieties of cells and these appeared to be lymphocytes, mast cells and plasma cells. The lymphocytes were greatly in preponderance. In some areas there were many large, round or oval, highly granular cells; their diameters ranged from 10 to 18 microns. They mostly contained relatively large, round or slightly lobulated nuclei which were usually eccentrically placed. When stained with theonin, these cells took on an intense blue color but under artificial light they assumed a deep purple tint, while the lymphocytes remained blue and the red blood-cells showed a greenish tinge. These cells conformed more nearly to the type of the mast cell than any other with which I am familiar. The third variety of cells corresponded to the description usually given of plasma cells; they were much less numerous, usually larger and tended to be more angular than the mast cells and they contained finely granular protoplasm. In most of the sections, particularly those stained with hematoxylin, many endothelial cells were observed; these, perhaps, were due to active proliferation, but at no time were such cells found within the lumen of the vessels; often they appeared to be engaged in the formation of new blood-vessels.

The pia-arachnoid was much thickened and densely adherent to the dura. Within the meshes of the membrane there was a diffuse cellular infiltration; the vessels were increased in number with some perivascular cellular areas.

There was subpial neurogliar proliferation amounting to a dense felting, and this accounted for the superficial layers of the cortex being removed with the membranes. These neurogliar cells were very numerous and of gigantic size with many hair-like processes radiating from them. Almost all stains revealed the presence of these bodies, but they were most intensely stained by Mallory's neurogliar stain and Weigert's myelin sheath stain. The cells nearest the pia were so closely interwoven as scarcely to be recognized, but as they extended farther into the cortex, their outlines and processes became clearly visible. In contrast with the commonly seen stellate glia cells, their sectional area was four or five times as great; they were mostly oval and had many exceedingly long processes; they frequently contained two or more nuclei; they were proliferating most rapidly and were seen in all stages of development.

The cortex immediately beneath the involved meninges showed some perivascular cell infiltration, but this probably had extended from the meninges. A most destructive process had gone on in the superficial cortical area. Some of the pyramidal cells were barely recognizable; many were shriveled up; others appeared as a pale blue area in which nothing definite could be observed except the nuclei; the angles of the cells were almost lost and the tigroid bodies in many places had disappeared entirely; sometimes the nuclei were not apparent, frequently they were vesicular, often they were displaced and occasionally they bulged beyond the cell outline.

The most superficial medullated fibers showed some varicosities and attenuation but elsewhere the fibers were normal. The vessels at the base of the brain were normal.

There is no specific character to a syphilitic psychosis; it may partake of the type of dementia, mania, melancholia or paranoia. Of course the same is true of an alcoholic psychosis, and since this patient drank to some extent, it is possible that alcohol played a part in causing his mental condition; but this certainly did not account for his convulsions. As to the pachymeningitis which doubtless was the cause of the convulsions: It has been said that syphilis "never attacks exclusively any small area of the brain or cord, it is never strictly local, but always more or less generalized." There was no history of traumatism in this patient nor was there any evidence of an old injury in the bone over the area involved; still, in a syphilitic subject, the possibility of traumatism causing such a condition is pointed out by Mott[1] who has met such cases following "a blow on the head which has set up an inflammation either in the bone or in the dura mater at a definite spot just as a blow on the shin may cause a periosteal node in a person the subject of syphilis."

In this case a clinical diagnosis had not been made and at necropsy the growth was not sufficiently distinctive to reveal its true nature. Microscopic examination of the meninges and brain showed no distinct abnormality except in the areas described; this ruled out dementia paretica; the excessive weight of the brain was likewise against this condition.

The microscopic findings conformed to those found in syphilitic pachymeningitis.

I am indebted to Dr. J. Allen Jackson of the Philadelphia Hospital for the Insane for the opportunity of studying this brain.

2005 Chestnut Street.

ABSTRACT OF DISCUSSION

Dr. E. E. Southard, Cambridge, Mass.: How would you dianose the case under Kraepelin's classification?

Dr. N. S. Yawger, Philadelphia: I would regard it as a paranoid case in which syphilitic perimeningitis played a part.

GLYCOSURIA AMONG THE INSANE

CLARENCE EMERSON, Ph.D., M.D.
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LINCOLN, NEB.

This investigation into glycosuria of the insane was prompted by my interest in a case of mental aberration marked by melancholia and manifesting sufficient evidence of diabetes to raise the question of dependency of the psychic symptoms on that disease.

While our knowledge of the pathology of diabetes in the nervous system is incomplete it may be well to cite briefly the findings in a general way in order to note the impossibility of establishing a clear relation between glycosuria and mental disease on the basis of anatomic findings.

In the brain a variety of lesions in diverse locations have been associated with glycosuria. Spontaneous lesions as tumors, abscesses, hemorrhages and inflammatory thickenings, especially of the medulla and cerebellum near the place of Claude Bernard's puncture, but also in other parts of the brain, have been noted as causes of glycosuria. Tuberculosis of the hypophysis and the changes resulting in acromegaly are frequently associated with an excretion of sugar. In diabetes we have evidence of disturbed brain action, but we know so little of the cerebral pathology of diabetes and insanity that we cannot correlate these facts satisfactorily.

In the spinal cord, too, certain histologic pictures are undoubtedly dependent on the diabetic process and other lesions which seem to induce glycosuria. In some cases it is difficult to ascertain which is cause and which effect. Thus in diabetes changes occur in the posterior columns similar to those of tabes and there may be symptoms which raise a question of differential diagnosis, especially since it is known that glycosuria is not infrequent in tabes. Spinal cord tumor has been associated with glycosuria and thought to be its cause.

The peripheral nerves are usually the seat of inflammation during the disease, and the neuritic symptoms are common and numerous. Taylor has reported a tumor of the right vagus nerve accompanied by the presence of sugar in the urine. It has been stated in text-books that the cranial nerves are unaffected by the toxins of diabetes, but Merrill[1] has reported a case of nerve deafness due to this. Reference should be made to the theory of Pavy.[2] He has suggested that there is a cerebral influence on the vasomotor supply to the chylopoietic organs; that the nerve filaments from the sympathetic nervous system are connected with areas on the surface of the brain which function as cerebral vasomotor centers. The view which many are inclined to hold at present, that insanity is a functional disturbance of the brain due to toxemia, could fit in well with this theory to explain the frequent association of glycosuria and insanity.

It is the clinical rather than the pathologic findings which have raised the question of the significance of glycosuria in some forms of insanity. The toxins of diabetes undoubtedly have an action on nervous tissue. The neuritis occurring in diabetes manifests itself in numbness, anesthesia, paresthesia, hyperesthesia, cramps in the muscles, neuralgia, especially sciatica, falling nails, glossy fingers, perforating ulcer and gangrene of the toes. Diabetic paraplegia and "diabetic tabes," the complex of steppage gait, girdle sensation, lightning pains and lost reflexes are due to neuritis and cord changes. The loss of vibratory sensation described by Williamson[3] and fibrillary contractions (Pavy[2]) are neuritic. Anginal symptoms have been attributed to pneumogastric neuritis.

The effect of the diabetic toxemia on the cerebral centers is often observed. Mental disturbance of grave import is well known to accompany many cases of the disease. The usual form of aberration is a mild chronic depression with melancholia. Delusions of persecution, sin and ruin are not uncommon. There may be somnolence, confusion, disorientation, dulness of mind, irritability and restlessness. On the other hand, there are many and diverse disturbances of the cerebral function which are associated with a transient or permanent glycosuria. Numerous instances are recorded of the appearance of sugar in the urine following mental shock due to accident, operation, strain of competitive examination, etc. It is common knowledge that diabetes occurs with unusual frequency in families with a neurotic disposition. The frequent occurrence of glycosuria in the insane has been noted by Dawson,[4] Leeper,[5] Halberstadt and Arimoles[6] and others. Melancholia is the type of insanity in which glycosuria is most often found. It is interesting to speculate on the frequency with which a typical melancholic manifests glycosuria and a typical diabetic suffers profound melancholia.

Anatomic diseases of the central nervous system, as acromegaly and focal lesions in various parts of the brain and cord, have been associated with glycosuria.

REPORT OF CASE

Patient.—Mrs. M., housewife, aged 45, married, mother of four children, the youngest 17 years of age, menstruated regularly, and no abnormalities were found by physical examination. After some family trouble the patient worried unduly and manifested depression. She was beset with fears regarding the safety of her son and daughter. A stay of two weeks in a private sanatorium restored her to her usual frame of mind. After her return she complained that she had been unable to get sufficient water at the retreat and to appease her thirst she had drunk from the bath-tub. Six months later without evident cause there was a second attack of mental disturbance in an aggravated form. She was sleepless, cried and prayed continually, and feared that death was soon to befall her son and daughter. She reproached herself for giving so meagerly to the church and the poor, and was greatly concerned about the restraint applied to some patients in the violent ward. Violence was manifested for a day or so when it was necessary to watch her closely to prevent her from choking or otherwise injuring other patients. A delusion was developed in regard to her relationship to another inmate.

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[1] Mott: A System of Syphilis, iv, 81, Oxford University Press, London, 1910.

[1] Merrill: Boston Med. and Surg. Jour., June 15, 1911.
[2] Pavy: The Lancet, London, 1906, i, 1229-1406.
[3] Williamson. Lancet, London, 1905, i, 855.
[4] Dawson: Lancet, London, 1910, i, 1002.
[5] Leeper: Jour. Ment. Sc., 1901, ii, 758.
[6] Halberstadt and Arimoles: Abst. Jour. Nerv. and Ment. Dis., 1911, xxxviii, 633.

Examination and Treatment.—During this time there was no particular evidence of thirst, but urinary examination disclosed a high percentage of sugar. There were no neuritic or infectious manifestations of the disease. Constipation was marked and obstinate to treatment. When the patient was placed on antidiabetic diet, first soup and then carbohydrate-free, sugar ceased to appear in the urine. She became less melancholic, ceased crying and praying, gave up her delusions and later her fears, so that after a period of three weeks there was no evident mental disturbance. The relatives insisted on a return to her home against advice. A promise to employ a nurse and adhere to strict diabetic management under the guidance of a physician was not fulfilled. In four days she was returned because of depression, sleeplessness and a partial return of delusions. After two weeks delusions were again lacking, but she continued to worry and was in a state of melancholy when she eloped assisted by relatives. After an absence of about a month she was again returned. Her mental condition at that time was practically the same as now though her physical condition is somewhat improved. At present she is very depressed, cries a great deal and is possessed of her delusions though she does not manifest them unless questioned. Sugar appears in the urine occasionally, but is not constant with the general ward diet. None of the urinary examinations disclosed diacetic acid and the ammonia output was not increased.

At present I believe that most psychopathists would pronounce the patient a melancholic. When she was first brought to the hospital the large percentage of glycosuria, high specific gravity and polyuria were certainly suggestive of diabetes. The amelioration under treatment strengthened this belief, but the subsequent return of the mental condition without glycosuria, the absence of symptoms of diabetes and polyuria favor the diagnosis of melancholia with associated sugar excretion. This experience serves to emphasize the close relationship symptomatically between this form of insanity and diabetic psychosis, and illustrates the need of time and repeated urinary examination in the differentiation of the two in certain cases. To determine something of the significance of the sugar reaction in the urine of the insane the records of 650 urinalyses made on admission of patients to the Nebraska Hospital for the Insane have been examined. A total of 4.28 per cent. gave a positive sugar test. The table illustrates the division of these cases among the 650 patients according to the type of insanity together with the percentage of cases showing glycosuria in each variety of mental disease. In involutional melancholia 22 per cent. had glycosuria—a much higher percentage than is found in any other variety. Organic dementia comes next with 12 per cent. This tends to corroborate previous observations that various lesions of the brain are frequently associated with glycosuria. There are more cases of glycosuria among the dementia praecox class than among the manic-depressives in this series.

Quite frequently a patient will pass sugar in his urine during the first few days after admission and not again subsequently. Twenty-four-hour specimens were not always taken in earlier records. The quantity of urine was not increased in four cases of temporary glycosuria which I examined.

TABLE COMPARING RELATIVE FREQUENCY OF GLYCOSURIA IN DIFFERENT TYPES OF INSANITY

Type of Insanity	Number of Cases	Per cent. of Cases	Number with Sugar	Per cent. with Sugar
Dementia praecox	253	38.70+	7	2.66+
Manic-depressive insanity	54	8.26+	9	1.62+
Dementia paralytica.....	64	9.79+	2	.34+
Involutional melancholia.	9	1.36+	2	22.00+
Senile dementia	56	8.56	2	.36+
Not insane	18	2.75	1	5.90+
Organic dementia	8	1.22+	1	12.00+
Epileptic insanity	25	3.82+	1	4.00+
Unclassified	32	4.89+	1	3.1
Intoxication psychoses..	60	9.18+	2	3.2
Paranoid states	28	4.28+	..	.....
Defective development ..	32	4.89+	..	.....
Huntington's chorea	1	.15+	..	.....
Total	650	.....	28	4.28∓

The association of permanency of glycosuria with high specific gravity was noted in thirty-two patients. A high percentage of cases with glycosuria among these insane had a low specific gravity. Those with permanent glycosuria for the most part had a specific gravity above 1.030. Occasionally a transient glycosuric urine had a high specific gravity.

An examination of epileptics with reference to glycosuria has not been completed. I may mention that of six taken indiscriminately in which daily urine examination was made for twenty days, five showed a sugar reaction one or more times. In none of these did it occur persistently.

A brief epitome of facts gleaned in this study may be of service. The sugar reaction is frequently obtained in the urine of the insane, especially of melancholics and those with organic brain lesions. The condition is usually a temporary one occurring at more or less frequent intervals or only during the first few days after admission. The case reported illustrates the need of repeated tests to exclude the presence of a diabetic process. The permanency of the glycosuria, specific gravity, polyuria, thirst, neuritides and ammonia output should be considered in differential diagnosis. If the sugar is abundant and present over a considerable period of time antidiabetic management should be instituted. The importance of the sugar test must not be underestimated in view of the resemblance symptomatically of the diabetic psychosis and melancholia.

The discussion of the cause of the frequent appearance of sugar in the urine of the insane can be but speculation. Certain factors of instigation are recognized. The mental agitation and distress experienced by many who have insight into their condition explains the occurrence of glycosuria on admission. The gluttony especially common among epileptics is responsible in all probability for frequent temporary appearance of sugar.

Having Fun with Yourself.—To be able to laugh when the joke is "on you" is to possess a healthy human quality. The man who has this gift will not see himself as playing too large a part in the world's affairs. He is likely to save his self-esteem many buffets and to go about his work a more contented, if a less exalted, being.—*Collier's.*

TWO CASES OF ACUTE PRIMARY CHOLECYSTITIS PRESENTING UNUSUAL FEATURES

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PORTLAND, ORE.

The unusual clinical picture of the following two cases of gall-bladder disease prompts me to report them as examples of acute primary cholecystitis.

Case 1.—*History.*—The patient, a large heavily built Italian of intemperate habits, aged 47, was suddenly seized at 3 p. m., Dec. 21, 1911, while attending to business, with excruciatingly severe cramping pain in the upper abdomen. He was prostrated with it and was soon bathed in cold perspiration. There was no chill or subsequent fever. My father attended the patient at his home shortly afterward, where this condition was noted. Morphin sulphate, one-fourth grain, and atropin sulphate, 1/150 grain, were given hypodermatically. At 9 p. m. the pain was still present in paroxysms and the morphin and atropin were repeated. At this time some delirium was noticed. At 6 a. m. the following morning the patient was still thrashing about the bed in pain and more marked delirium. The morphin and atropin were again repeated, making three-fourths grain of morphin sulphate that was given in fourteen hours. At 11 a. m. I examined the patient, who was lying on his back in semicoma, from which he could with difficulty be aroused. His pupils were small but reacted to light. Breathing was stertorous and the breath was not particularly foul. Deep reflexes were present and not exaggerated. There were no local physical findings. The urine showed no change. The patient sank rapidly into deep coma and died at 1 p. m., twenty-two hours from the time of onset.

The patient's previous history, obtained from his wife, was to the effect that he had suffered a few attacks of pain in the upper abdomen during the previous seven years. There was no history of typhoid. The case had been considered one of gall-stone colic, until the approaching coma pointed to morphin poisoning, although it was not the clinical picture of such.

Necropsy.—This revealed an enlarged, tightly engorged, blackish gall-bladder, projecting free from the under surface of the liver, without the presence of local peritonitis. On firm pressure the contents of the gall-bladder could be slowly expressed into the intestine. When the gall-bladder was opened, a thick black bile escaped, carrying with it six small stones. In four places the wall appeared ready to break through, but nowhere had a gross perforation taken place. The remainder of the body, except the brain, which was not examined, showed no gross lesions. No cultures were taken.

Case 2.—*History.*—Mr. G., a large muscular man, aged 54, had suffered off and on for about two years with periods of irregular stomach distress: attacks of pain, rather frequent vomiting and on several occasions the vomiting of considerable quantities of blood. The patient was imbued with that peculiar spirit of Scotch stoicism which prevented him from speaking of his own ailments, and in consequence but little information could be obtained from his family or friends. He had been a hard, steady drinker for many years. He was subject to small attacks of fever and headache; but gave no history of having had typhoid.

Examination.—Dr. A. D. Walker saw the patient first on Friday, March 2, 1912, at his home in the country. He was then in bed with a fever of 101 F. and was mildly delirious, but could be aroused easily. He was seemingly in some pain. There were no local physical findings of gall-bladder disease; the abdomen, however, was somewhat diffusely tender to pressure, especially along the line of the colon. On Sunday evening the patient became maniacal and it required several men to hold him in bed. Dr. Walker saw him on Monday morning in a state of collapse, quite unconscious, at times mildly maniacal, and with a little fever. From Friday until he became unconscious on Sunday he had not complained of great pain. Monday evening I examined him with Dr. Walker at St. Vincent's Hospital. He was unconscious but still restless. His pupils were of moderate size and reacted to light. The deep reflexes were present but sluggish. The skin was pale and bathed in cold perspiration. There was no jaundice. I thought, however, that a definite degree of rigidity existed over the gall-bladder region.

This fact, together with the rapidly progressing toxemia and coma, the previous history of attacks of abdominal pain and the experience gained from my previous case, which resembled this one in many respects, made me urge the possibility of an acute gangrenous cholecystitis and advise immediate exploration of the upper abdomen. Dr. Walker called in consultation a surgical confrère who could not see a surgical aspect to the case. Death occurred early Tuesday morning, accompanied by a diffuse edema of the lungs.

Necropsy.—This was performed four hours after death and disclosed an enlarged, engorged, black gall-bladder filled with black, moderately thick bile without any stones. The bile by considerable pressure could be slowly expressed into the intestine. The wall was irregularly mottled with gangrenous areas, but there was no gross perforation and no definite peritonitis about the bladder. The peritoneal cavity was quite intact. The stomach mucosa was dull gray, covered with abundant thick mucus, and possessed several areas of old and recent blood-extravasations. The lungs on the cut surface were wet with frothy fluid and had no areas of consolidation in them.

Cultures made on plain agar slants from the contents of the gall-bladder by Dr. Ben Wade remained sterile.

In a fairly extended search through the literature no instances of acute gangrenous cholecystitis in which local symptoms were masked by an active delirium and coma were found. Mellerio[1] reports four cases of acute infectious cholecystitis without stones from the private clinic of Jordan of Heidelburg, in one of which an active delirium occurred later in its course. There were present, however, severe sudden pains in the right upper abdomen, early chills and jaundice.

The bacterial cause of the acute inflammation in the absence of stones has been undiscovered in the majority of instances. Adolf,[2] at the Frankfort clinic, reports a case in which the colon bacillus was found in the discharge from the gall-bladder. The colon bacillus and the *Staphylococcus aureus* were recovered from the contents of the gall-bladder of the fourth patient of Mellerio. Riedel[3] found streptococci in the bile from the gall-bladder from one patient. Six other patients had sterile bile in the presence of acute gangrene. Ross[4] reports five cases of acute gangrene of the gall-bladder without determining a specific infection in any of them. Keyenburg[5] reports three cases of his own of acute cholecystitis without stone and five more from the literature in which the infection is not stated to have been determined. Schwarz[6] failed to discover the infection in one case.

It is quite evident that the clinical picture of both of my cases was dominated by the intense general toxemia arising from the gall-bladder. What determined this intoxication or the type of infection producing it remained hidden. There was nothing new determined in regard to the pathology of the disease. The entire absence of secondary peritonitis, however, was noteworthy.

In the first case the presence of an old cholecystitis was evidenced by the few stones found in the bladder. Whether these in themselves exerted any influence in the production of the severe pain is problematical because the cystic and common ducts were patent to sufficient pressure and did not contain any stones.

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[1] Mellerio, Alfred: Diss. Heidelburg, 1909.

[2] Adolf: Cited by Mellerio, Footnote 1.

[3] Riedel. Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1908, xix, 1.

[4] Ross, James F. W.: Canad. Prac. and Rev., 1907, xxii, 720.

[5] Keyenburg, Wilhelm: Diss. Bonn, 1909.

[6] Schwarz, Wilhelm: Münch. med. Wchnschr., 1908, lv, 2706.

It seems to me that the acute disease of the gall-bladder in the second patient need not necessarily be looked on as secondary to a preexisting chronic cholecystitis, for the reason that there were no stones present and that the severe hemorrhagic gastritis was quite capable of explaining the patient's ill health during the preceding two years. I am quite aware, too, that repeated stomach bleedings do occur because of the probable action of toxins, arising in an infected gall-bladder, on the mucous membrane; but in this instance, a true chronic gastritis existed and also the etiologic factor of chronic alcoholism. It may be possible that the influence of the latter factor, namely, chronic alcoholism, in both cases, determined in a measure the susceptibility of the patient to absorb the toxins formed.

There is present a certain similarity between this type of case and an acutely fulminating infection in any part of the abdominal cavity. The extreme collapse and early delirium is at times seen in appendiceal disease or in acute pancreatitis. It would seem from these cases that the oncoming of an early delirium in association with any acute abdominal condition should be picked out as a tangible and important indication for immediate exploration, whether localizing signs were present or not, for surely the body which shows itself so susceptible to intoxication will not respond to means of elimination until after the focus of infection is removed.

UNILATERAL OPTIC ATROPHY AND CONTRALATERAL HEMIPLEGIA CONSEQUENT ON OCCLUSION OF THE CEREBRAL VESSELS

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Occlusion of one middle cerebral artery producing hemiplegia on the opposite side of the body is an every-day occurrence; furthermore, optic atrophy as a result of obliteration of the retinal vessels on the same side is well known, but the combination of unilateral optic atrophy and contralateral hemiplegia is seldom encountered and might be very confusing.

Cases of this kind have been described by Elschnig,[1] Gowers,[2] Hughlings Jackson,[3] Siegrist,[4] Williamson,[5] Batten and Guthrie,[6] Guthrie and Mayou,[7] Oppenheim,[8] von Monokow[9] and Starr.[10] With the exception of a brief reference in Starr's text-book, I have not been able to find any description of this symptom-complex in American literature; therefore it seemed important to record the following cases.

The first case was seen in the service of Dr. John K. Mitchell at the Orthopedic Hospital and Infirmary for Nervous Diseases, and the second at the University Hospital in the service of Dr. Charles K. Mills. To them I wish to express my thanks for permission to make this report.

Case 1.—*History.*—M. M., a man aged 35, was admitted to the Orthopedic Hospital and Infirmary for Nervous Diseases, in the service of Dr. J. K. Mitchell, Jan. 8, 1911. Syphilis and alcohol were denied. About six weeks previous to admission the patient had had an acute illness, said to have been influenza. During that time, while confined to bed, he suddenly developed a partial loss of consciousness, lasting a few minutes, with weakness of the right side of the body, including the face, arm and leg; there was also dimness of vision in the left eye and aphasia. Previous to this attack the vision had been normal.

Examination.—There was nearly complete motor aphasia, but no evidence of sensory aphasia, marked weakness of the right side of the face, cerebral in type, with spastic paralysis of the right arm and leg. The tendon reflexes were increased and there was ankle-clonus and Babinski sign. Vision of the right eye was normal, but the left eye was totally blind. Sensation was impaired for touch throughout the paralyzed side of the body. The other cranial nerves were normal. The heart was normal in size and regular; the sounds though fairly good were lacking in muscular tone. Dr. Langdon, who repeatedly made examinations of the eyes, reported that the right eye, except for slight grayness of the disk, was normal. This was not the grayness of true atrophy. In the left eye the arteries were cut down to mere threads; indeed, the inferior temporal branch appeared like a fibrous cord. This, with the macular changes, can readily be caused by occlusion of the central artery. The Wassermann reaction was negative.

Except for blindness and optic atrophy on the same side as the vascular lesion, this case differs in no way from the most commonplace embolic apoplexy with resulting hemiplegia. The character of the onset and course of the apoplectic attack itself, as well as the character of the paralysis, were not unusual; the patient, however, immediately after having recovered from the shock of the initial apoplexy complained of dimness of vision on one side, which rapidly progressed to total blindness. At first an explanation was difficult, but an ophthalmoscopic examination revealed optic atrophy, with the characteristic empty, thread-like appearance of the retinal vessels.

The cases of Batten and Guthrie,[6] of Jackson[3] and of Gowers,[2] which were studied at necropsy, have proved that an embolic mass can be carried through the internal carotid artery into the middle cerebral vessel, producing apoplexy and hemiplegia; at the same time a portion can be swept into the ophthalmic artery, as it branches from the internal carotid, or it may even be lodged in the central artery of the retina, and thus produce sudden blindness and atrophy.

In most instances blindness develops suddenly, though in one of the cases described by Batten and Guthrie optic atrophy was probably not completed for nearly three months after the initial apoplexy; a portion of the occluding mass in the internal carotid vessel may have been subsequently swept into the right ophthalmic artery. Singer[11] found, while producing embolic apoplexy experimentally on guinea-pigs, that occlusion of one retinal artery and subsequent optic atrophy almost invariably occurred. Undoubtedly there must be some peculiar arrangement of the central vessels in guinea-pigs, explaining the frequency of this occurrence.

It is not difficult to understand how optic atrophy and hemiplegia can be produced, if we remember the manner in which the terminal branches of the internal carotid vessels are distributed. It divides into the middle cerebral, which supplies the basal ganglia, internal capsule, etc.; close to the point where the middle cerebral is given off the ophthalmic is derived, which divides into two main groups, the orbital and ocular groups. The second group consists of the muscular, anterior ciliary, long and short ciliary and the central artery of the retina, the latter perhaps the smallest of all and possibly more easily occluded than the other branches.

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[1] Elschnig: Arch. f. Augenheilk., 1892, xxiv, 65, Case 2.

[2] Gowers: Lancet, London, 1875, ii, 794.

[3] Jackson, Hughlings: Ophth. Hosp. Rep., London, 1864, i, 360.

[4] Siegrist: 27 Versamml. Ophthalmologisches Gesellschaft, Heidelburg, 1898, p. 10.

[5] Williamson, R. T.: Brit. Med. Jour., 1898, i, 1515.

[6] Batten and Guthrie: Tr. Clin. Soc. Lond., 1903, xxxvi, 52.

[7] Guthrie and Mayou: Proc. Roy. Soc. Med., 1907-1908, i, 180.

[8] Oppenheim: Lehrbuch der Nervenkrankheiten, 1908, ii, 939.

[9] Von Monokow: Gehirnpathologie, Wien, 1897, p. 838.

[10] Starr: Diseases of the Nervous System, 1910, p. 500.

[11] Singer: Ztschr. f. Heilk., 1897, xviii, 105.

Naturally, the position of the occlusion in the ophthalmic artery or in one of its branches has an important bearing on the resulting signs. Unilaterality of visual disturbances is in itself an important indication of a localized vascular lesion. In syphilis bilateral and symmetrical involvement would generally occur, or, at least, if one eye was affected, the other would show some evidence of disease even though relatively insignificant. Williamson has described unilateral retinal changes occurring with cerebral hemorrhage, embolism and thrombosis, in thirteen cases. In eleven the diagnosis was verified by post-mortem examination, and in two the diagnosis seemed correct clinically. In four cases of hemorrhage and one of embolism a large retinal hemorrhage occurred on the same side as the cerebral lesion, while the retina of the other eye was practically normal. In one case the retinal vessels were markedly dilated and tortuous on the side of the lesion.

Oppenheim,[8] in his text-book, speaks of an instance in which there was unilateral optic atrophy with contralateral hemiplegia, accompanied by considerable headache and tenderness on the side of the atrophy. He believed that it was caused by a tumor, but the necropsy revealed cerebral softening. Indeed, tumor might easily be confused, particularly when it is situated in or near the frontal lobe, as in the cases described by Gowers, Horsley and Kennedy.

For diagnostic purposes the appearance of optic atrophy when caused by vascular occlusion is more or less significant. Herbert Parsons[12] says:

> A large mass of evidence has already accumulated to show that of all parts of the ocular circulation the part in the immediate vicinity of the lamina cribrosa is the most liable to be affected by vascular disease in any form. This undoubtedly is true in regard to obstruction of the central artery whether it be due to embolus, endarteritis or endarteritis combined with thrombosis.

Parsons divides the appearance of the various stages of atrophy as follows: at first, the arteries are thread-like from more or less sudden cutting off of the bloodstream; later, there is some refilling from the establishment of a collateral circulation, and finally, the arteries are thread-like and sclerosed, associated with optic atrophy.

Unilateral optic atrophy may occur as the result of localized endarteritis or a combination of arteritis with thrombosis, without hemiplegia; but apoplexy and hemiplegia can develop subsequently, and then examination will show unilateral optic atrophy with contralateral hemiplegia; nevertheless an accurate history of the time of onset of blindness and a careful ophthalmoscopic examination should make the diagnosis possible. This condition is well illustrated by the following case:

Case 2.—*History.*—P. R., a man aged 52, was admitted to the University Hospital, in the service of Dr. Mills, Nov. 15, 1911. Family history was negative. Patient denied syphilitic infection and alcohol. During 1909 and 1910 he had complained of dimness of vision on the left side. In February, 1910, he had a series of general convulsions. Three days later he suddenly lost consciousness. After regaining consciousness he was unable to speak and was paralyzed on the right side of the body.

Examination.—There was typical right hemiplegia with spasticity, increased tendon reflexes, ankle-clonus and Babinski sign and nearly complete motor aphasia. Sensation was not affected. On the left side there was complete blindness. Ophthalmoscopic examination showed optic atrophy with great diminution in the size of the retinal vessels, which were sclerotic. The retinal vessels of the right eye were moderately sclerotic, but vision was not much impaired.

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CERTAIN PHYSICAL SIGNS IN SCOLIOSIS OF LESSER DEGREE

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By scoliosis we mean a deformity characterized by lateral deviation of the spinal column, associated with a rotation of the bodies of the vertebrae around a vertical axis. In this position of rotation the bodies face toward the resulting convexity, while the spines of the vertebrae point in the opposite direction; a slight deviation of the spines does not always indicate an equally slight degree of aberration of the vertebral bodies.

Further, as a result of the rotation, the transverse processes on the side of the convexity are directed backward, and carry with them, in the dorsal region, the ribs, whose angles become more or less prominent according to the degree of deformity.

In scoliosis of slight degree the angulation itself may not be marked; instead, a costal bulging or boss is formed, which becomes more noticeable when compared with the flattened area of the opposite side of the chest. Also, on the side of the spinal convexity the scapula is pushed away from the spinal column and the shoulder raised, while on the concave side the shoulder drops and the scapula approaches the vertebral column.

Often the deformity is so slight as to be overlooked, particularly when the patient attempts to sit erect; hence, it is of much importance, in beginning the inspection of a patient, to permit him to sit at ease, or, even to slouch, if he will.

For our purpose it is necessary to consider the matter of compensation in scoliosis; in moderate cases, even, of scoliosis, a compensatory convexity is produced in the vertebral column. In the thoracic bony structure, also, compensation occurs, as follows:

Diagonally across the chest from the posterior costal angulation or bulging above mentioned, is found a second, less emphasized angulation or bulging, while a flattened area is observed on the opposite side of the chest anteriorly; i. e., on the same side of the chest as the posterior bulging alluded to. For example, given a dextroconvex scoliosis in the upper dorsal region, the greatest angulation or bulging of the thoracic wall will be to the right of the vertebral convexity, while the compensatory angulation will be found to the left of the sternum just below the clavicle. The flattened areas will lie to the left, behind, and to the right in front. Again examining the back, we should logically expect to find further increased angulation of the ribs on the side of the lower vertebral convexity (the left side); this is the case, in lesser degree, however, inasmuch as the floating ribs, not being anchored, are not so much angulated by the rotation of the vertebrae.

In order to detect these slight lateral deviations, the patient should sit in a good light and assume the position most comfortable for him, however stooped and

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12. Parsons, Herbert: The Pathology of the Eye, pp. 1262-1265.

slouchy it may be. The admonition of the physician to sit erect tends to defeat the end aimed at. It may be necessary to allow the patient to sit quietly for some time before he relaxes sufficiently to show the deformity.

It must be remembered that patients may sometimes confuse percussion findings by muscle play; this point is especially of importance when the deformity is slight and physical signs not pronounced.

Note is now made of the relative height of the shoulders, of the position of the scapulae and their distance from the spinal column at their inferior angles; this difference may range from 1 cm. to 5 cm. The presence of a one-sided supraclavicular fossa should receive consideration, while, in women, the difference in the position of the breasts should attract attention.

As the patient continues to relax, the head is often tilted to one side — this in furtherance of compensation. As the physician stands behind the patient and looks downward on the latter, the increased prominence of the one side in front is readily seen, unless the deformity be slight.

In intensity the high-pitched areas rank as follows:

First, posteriorly, opposite superior vertebral convexity.

Second, anteriorly, over the infraclavicular region.

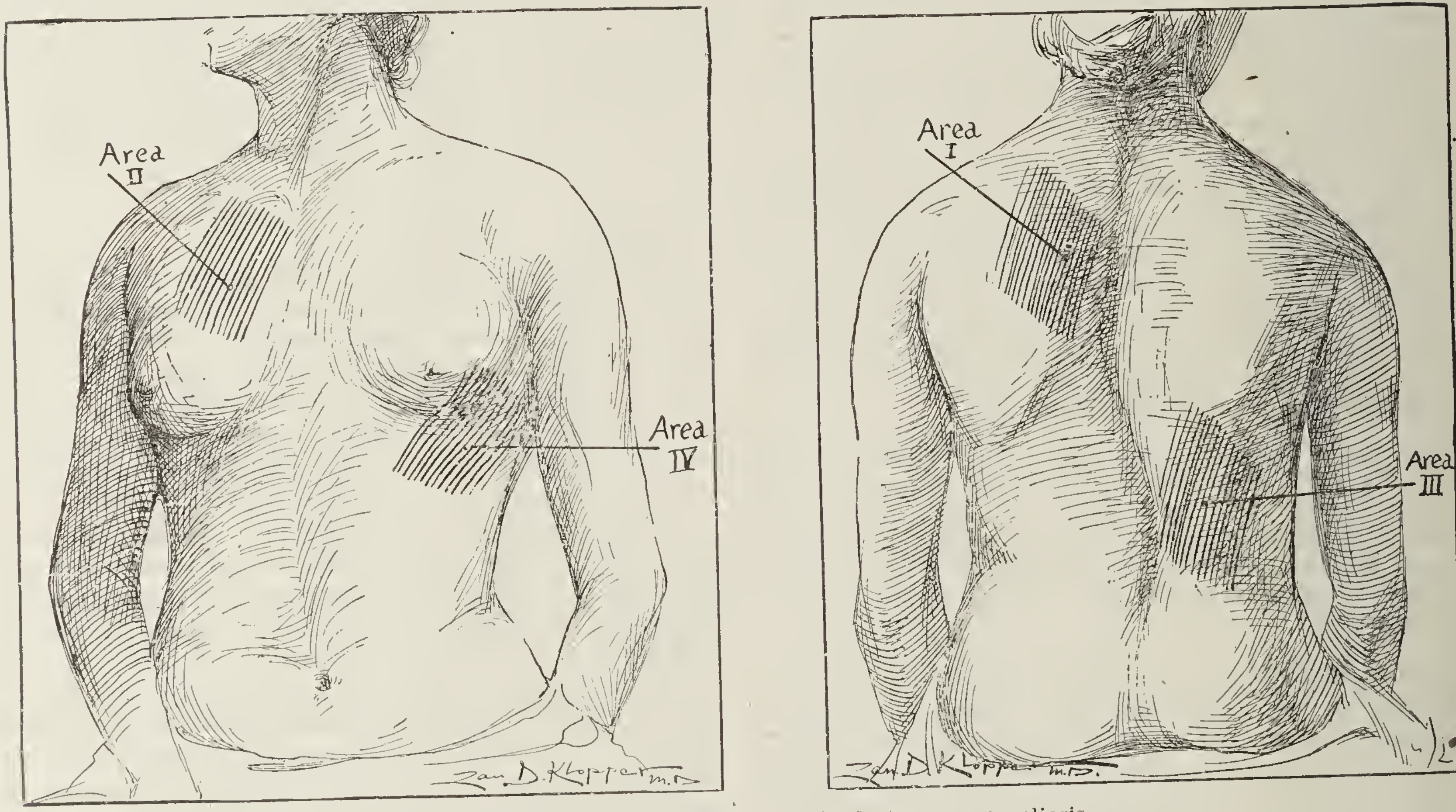
Third, posteriorly, below, opposite lower vertebral convexity.

Fourth (when present), anteriorly, below, diagonally across from superior infraclavicular area.

To exemplify the problem in sound-production here adduced, I have prepared two bars of iron, both of the same length. The straight bar we may use to represent the flattened and resonant areas, while the bent bar may be taken for the angulation areas. Percussion produces a resonant note in the straight bar and a short, high-pitched tone in the arch.

Sahli says:

> Increased convexities of the thorax produce dulness which can be best noted in scoliotics and kyphotics. This dulness occurs because of the increased rigidity of the more convex rib which vibrates less and allows percussion force to be lost. A flattened rib permits of increased vibration under percussion; hence, a somewhat hyperresonant note over the flattened tract.



Areas of high-pitched percussion notes in dextroconvex scoliosis.

Passing now to percussion we find the distinctive changes in physical signs which especially characterize the scoliotic chest, provided, however, that there is no disease of the lungs which has affected their integrity.

Let us percuss first the upper portion of the chest, behind, on the side of the vertebral convexity; we elicit a shorter and higher-pitched note than on the opposite or flattened side; that is, on the side of the spinal concavity, where we often find marked resonance.

Percussing the lower part of the chest, now, we elicit another high-pitched note over the area on the side of the lower vertebral convexity; on the side of the lower vertebral concavity we find another area of resonance.

Anteriorly we percuss the area of compensatory angulation and again obtain a short, high-pitched note as compared with the sound elicited from the flattened chest wall on the opposite side. A fourth, more or less inconstant, high-pitched area is found diagonally across the front of the chest from the infraclavicular area just mentioned.

Bachmann (1899), Bouvier, West, Mosse, Kaminer and Zade, as well as other authors, have called attention to the phenomena under discussion, but the subject has been most thoroughly treated and formulated by Neumann.[1]

Given a case of slight scoliosis minus actual lung disease, the high-pitched areas here described are quite constant. Where, however, thickening of the pleura has occurred, the percussion note may be found over other areas than those presented in our scheme. Differentiation between the signs accompanying empyema or effusion and the schematic signs found in scoliosis should present no difficulties.

Early tuberculous consolidation usually presents an area of dulness in front as well as behind on the same side; this is not true of the scoliotic phenomena. Further, in advanced tuberculosis, even when, as often, it is accompanied by marked scoliosis, the areas of high pitch are practically never schematically demonstrable. The upper areas of high pitch in scoliosis may be, and often are, mistaken for apical tuberculous catarrh; but, in the absence of corroborative physical evidence, front and back, on the same side, such a diagnosis is, at least, doubtful — especially in the absence of other data.

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[1] Neumann, Wilhelm: Beitr. z. Klin. d. Tuberk., xviii, No. 3.

Neumann has called attention to the limited downward excursion of the lung on the side opposite the upper vertebral convexity. Not only is the motion usually limited, but also, in some cases, as I have observed, it is entirely eliminated.

Diagnostic error in early tuberculosis is often on the side of omission; unless we remember that other conditions may influence variations in pitch, the error may be readily transformed into one of commission. Although this error is not fraught with such fatal results as the former, it is capable of producing much distress to those involved.

Two cases which have come to me within the last year demonstrate this point. One, in a lad of 15, was diagnosed as incipient tuberculosis, and change of climate was advised. Examination showed a mitral regurgitation, marked scoliosis, schematic, high-pitched areas; no fever, no tubercle bacilli and no albumin in sputum and no reaction to 5 mg. T. O. The patient has done well since, without treatment. He consulted his physician on account of a "cold."

The second patient, a woman, 40 years of age, came with a diagnosis of moderately advanced tuberculosis; she had no fever, absolutely no sputum, a pulse 68 to 72, no lung signs; she had marked scoliosis with easily demonstrable areas of high pitch. T. O., in doses of 5 and 10 mg. respectively, failed to produce reaction, either general or local.

I have found these high-pitch areas in many other scoliotics who have presented no other discoverable signs which might be considered as being indicative of tuberculosis — and who are, clinically, well. These percussion changes in scoliosis should be borne in mind when tuberculosis is merely suspected but demonstration by classical signs is not possible; they should not be held to be conclusive, nor should their presence militate in any way against a careful search for other pathologic phenomena.

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PLEA FOR EARLY SURGICAL INTERVENTION IN ALL UMBILICAL HERNIAS *

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Some time ago I read a paper entitled "Urgent Conditions in Abdominal Surgery," in which I strongly advised closure of all umbilical hernias before any strangulation takes place. For the past six months I have been asked so often to operate for strangulated umbilical hernia that I again call attention to this urgent condition.

Umbilical hernia is a common condition. In many particulars this hernia is unfavorable for a prolonged operation, and therefore I make a plea for more prophylactic surgery. The patient is as a rule aged between 45 and 60 years, and is a fleshy person with poor resisting powers. The pathology of the umbilical hernia much complicates the condition. That typically honeycombed dissection of the viscera between the fascia and the skin, which is so characteristic of umbilical hernia, makes the operation long and tedious. In this class of cases the strangulation is often incipient in onset; therefore the patient is profoundly or fatally toxic ere any marked symptoms of strangulation reveal themselves.

On account of the gradual onset, extensive involvement of the viscera has taken place before recognition of a serious condition, necessitating major resection or prolonged surgery. Rarely do I see a patient before fecal vomiting has taken place, and at this stage it is too late to save many of these patients. A partial strangulation of the bowel, which may have taken place for weeks, is the probable cause of the fatal toxemia. Absorption of toxins has been taking place from the mucous membrane of the partially obstructed bowel, and the bowel early becomes infected throughout its structure.

The surgical difficulties encountered are ominous. The strangulated structures have been external so long to the true abdominal cavity and have become hypertrophied to such an extent that it is impossible to return the viscera without unduly increasing abdominal tension and thus profoundly or fatally shocking the patient. Again, the viscera have been external so long that when returned to the abdominal cavity they act as a foreign body with a resultant fatality. I have seen the mesentery of the small bowel so elongated from its false position that the intestine could be drawn over a foot above the abdominal incision. The mesentery to the particular loop of bowel which has been external to the abdominal cavity is often so definitely elongated that I call it "a peninsular of the mesentery." This will require extensive resection of the mesentery and bowel if an attempt is made to close the hernia.

If operation is delayed in this class of hernia until operation becomes a necessity, only a small percentage of patients can be saved. In these mammoth hernias the mortality is high even when there is slight or no strangulation. I am positive that the mortality in abdominal surgery is too high all over the world when compared with our real surgical privileges in this age, and that it is our own professional fault. Our mortality in abdominal surgery should not be over 1 per cent.

I cannot agree with the physician who, after giving advice for surgical intervention in some particular condition, continues to treat that patient along medical lines with the idea that he has unburdened his conscience by simply advising surgical intervention. If he continues to treat the patient along lines which he does not approve, he is an accomplice in a professional crime. His attentions should end when his advice is not taken. If we all did this, it is easy to see how much earlier we would meet these fatal conditions. Indeed, if you have washed your hands and properly tied the vessels with reliable materials and review your list of deaths, the simple phrase "too late" should span the mortality.

It is always with the greatest professional apprehension that I think of the untimely death of Joseph Price, that greatest advocate for early surgical intervention. The present physiologic era in abdominal surgery will bury many patients without even a chance of surgical privileges. I grow bitter under it. It does not make much difference what the surgical line of treatment is in these large, strangulated hernias. The bowel may be resected, the gangrenous portions short-circuited, the

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* From the Clinic of the Joseph Price Hospital.

bowel opened and drained without resection, and the abdominal cavity drained or closed, yet the mortality is appalling. The treatment must practically be prophylactic. By this I mean that it must be given not only before there is any strangulation of viscera, but before the hernia becomes of extensive proportions.

241 North Eighteenth Street.

A REPORT OF SOME NEW CHEMICAL ANALYSES OF URINARY CALCULI

WITH INDICATIONS FOR TREATMENT *

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We present in this paper quantitative chemical analyses of twenty-five renal calculi and of two cystic calculi, showing that the true renal calculi were composed almost entirely of calcium salts, while the cystic calculi were composed almost entirely of uric acid. Our series of calculi were all obtained from patients who lived in this country and our results can be compared with those obtained by several workers in England who obtained results similar to our own.

Rowlands[1] in his investigations of twenty-two stones came to the following conclusions: that renal calculi were composed almost entirely of calcium oxalate; that uric acid is usually absent, and if present it is so only in very small traces; that phosphates are commonly present. Mackarell, Moore and Thomas,[2] in a series of twenty-four analyses, corroborated the results of Rowlands.

We have analyzed quantitatively sixteen calculi from patients of various hospitals of New York City. Table 1 gives a report of the percentage composition of the various components of the stones of this series.[3]

TABLE 1.—PERCENTAGE COMPOSITION OF SIXTEEN RENAL CALCULI

No.	Weight, gm.	Moisture, Per Cent.	Calcium Oxalate, Per Cent.	Uric Acid, Per Cent.	Phosphorus Pentoxid, Per Cent.
1	12.0446	6.11	37.4	3.59	51.59
2	0.5114	4.1	94.7	2.1	5.3
3	13.982	2.1	29.5	7.46	56.2
4	0.6009	1.08	63.4	7.3	7.3
5	14.998	0.23	94.1	0.2	6.1
6	2.4505	3.2	72.3	23.6	4.3
7	6.175	1.3	90.5	9.01	0.5
8	4.0349	0.04	98.7	1.01	6.4
9	5.7725	0.02	94.2	1.8	4.6
10	2.8904	0.15	81.6	9.3	9.5
11	15.9125	0.4	73.8	7.5	20.1
12	0.9329	0.43	80.4	10.3	6.5
13	0.1612	0.05	91.3	2.46	5.23
14	1.6064	0.099	70.2	12.1	16.9
15	12.3478	0.3	90.37	3.4	6.21
16	9.7621	3.1	91.3	7.2	2.1

The following conclusions may be drawn from these analyses: 1. The large majority of renal stones are composed of oxalate of lime. 2. Uric acid and the urates are found in all renal concretions, but it is rare to find a renal calculus that is mainly composed of the urates. 3. The shape, color, consistency, etc., of a stone do not form a criterion of its chemical composition.

Recently a series of eleven stones was analyzed by one of us.[4] Very nearly corresponding results were obtained. Nine of the stones were renal and two of them were cystic. The following table records the amounts of the various constituents found:

TABLE 2.—PERCENTAGE COMPOSITION OF NINE RENAL CALCULI

Received From	No.	Moisture, Per Cent.	Calcium Oxalate, Per Cent.	Uric Acid, Per Cent.	Calcium Phosphate, Per Cent.
Dr. MacCallum, New York.	17	3.0	68.1	9.11	1.5
Dr. MacCallum, New York.	18	4.1	21.5	6.3	70.8
Dr. H. Fischer, New York..	19	2.1	81.1	1.9	11.6
Dr. Rosenbloom, New York.	20	4.3	43.2	0.6	45.4
Dr. Kammerer, New York..	21	4.0	30.1	0.0	64.2
Dr. Rosenbloom, Pittsburgh	22	10.3	30.5	0.0	50.6
Dr. Rosenbloom, Pittsburgh	23	8.2	0.0	0.0	0.0
Dr. Sembken, New York...	24	3.1	90.2	1.8	4.3
Dr. Rehling, New York....	25	5.2	70.8	1.2	20.1

Nitrogenous substances were present in stones 16, 17 and 18; a total nitrogen determination of these stones gave 1.3 per cent., 4.6 per cent. and 3.3 per cent. respectively. Nevertheless, by the method used for the direct uric acid determination, negative results for urates were obtained.

TABLE 3.—PERCENTAGE COMPOSITION OF TWO CYSTIC CALCULI

Received From	No.	Moisture, Per Cent.	Calcium Oxalate, Per Cent.	Uric Acid, Per Cent.	Phosphorus Pentoxid, Per Cent.
Dr. MacCallum	26	7.1	0.0	96.3	0.0
Dr. H. Fischer...........	27	6.2	trace	98.0	0.0

We have also examined three gouty tophi and in none of them could we find any uric acid. This would tend to show some relation in the metabolic disturbances of gout and renal lithiasis. Certain principles for the treatment of both of these conditions will now be considered.

SUGGESTIONS FOR THE TREATMENT OF RENAL LITHIASIS

It is quite conventional to recommend alkaline solutions to patients afflicted with stone disease. The salts of lithium have enjoyed a great reputation for their supposed wonderful solvent action on renal concretions. Whyte and Deften considered alkaline solutions as true solvents for renal calculi. Hoffman, Springsfield, Alston, Leger and others recommended alkaline treatment for nephrolithiasis. Morgagni suffered from gravel, and his remedy was half a dram of the potassium carbonate during the day. "The acid of his urine soon became saturated, the pains in his loins diminished, his urine became less loaded and potash was at length found in that fluid in excess." From Pepys' diary we extract the following procedure for the treatment of stones: "And at this season of the year we go to Tunbridge Wells to drink the waters and to get rid of our gravel, to which end we are aided by taking small doses of turpentine." Nowadays it is quite the custom for those who can afford it to go to various bathing and water-drinking resorts, where they ingest alkaline water for the treatment of gout and gravel. We believe it quite absurd to imagine that the amount of alkaline metal that is excreted by the kidneys in the urine is of sufficient concentration to cause any but a theoretical solution of the stony concretion.

The fact that, as has been shown, the majority of renal calculi are composed of insoluble salts of calcium and

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* From the Chemical Laboratories of the Beth Israel and German Hospitals, New York City.

[1] Rowlands: Biochem. Jour., 1908, iii, 346.

[2] Mackarell, Moore and Thomas: Biochem. Jour., 1911, v, 161.

[3] These analyses were conducted in the Biological Chemistry Laboratory, at the College of Physicians and Surgeons, Columbia University, New York City, by Dr. Kahn, at the suggestion and under the direction of Dr. Rosenbloom.

[4] These analyses were carried out by Dr. Rosenbloom at the Chemical Laboratory of the German Hospital.

not of uric acid or urates, forcibly brings to our attention the necessity of changing our therapeutic ends in regard to the treatment of renal calculi. The therapeutic measures for the treatment of insoluble calcium salt concretions are completely different from those employed for uric acid. The usual antacid treatment is just the opposite of what is indicated, because while uric acid and its acid salts are soluble in alkaline mediums and insoluble in acid, the exact opposite holds for calcium oxalate and calcium phosphate, which are deposited in alkali mediums and dissolved by acids.

We therefore conclude that all calculi obtained by operation or otherwise should be subjected to chemical analysis and that if they are found to be composed of calcium salts, no antacid treatment should be advised, as this would lead to a more rapid growth or to increased chance of growth and instead of the non-acid treatment, it would be most advisable to try a course of acid treatment.

COCCIDIOIDAL GRANULOMA

REPORT OF THE NINETEENTH CASE IN CALIFORNIA

F. H. BOWLES, M.D.
OAKLAND, CAL.

Up to this time eighteen cases of coccidioidal granuloma have been reported and traced to California, the seventeenth and eighteenth being reported by Brown[1] of San Francisco, with review of the literature. The first case in California was discovered by Rixford[2] of San Francisco, and later described in conjunction with Gilchrist[3] of the Johns Hopkins Hospital Medical School. Afterward Ophüls[4] of San Francisco described the fungus with certain morphology and characteristics, giving the name of *Oidium coccidioides*, with report of thirteen cases, differentiating the fungus from the closely related *Blastomyces coccidioides* of which much has been written, the latest article being by Hektoen[5] of Chicago.

The mold appears to be of animal origin, though not proved, with occasional infection in man. Most infected persons came from the lower half of the San Joaquin valley, and were men employed in railway construction or in caring for animals. The duration of the disease, so far reported, is from six months to nine years. Most of the patients gave histories of bone lesions, some having accompanying lesions like hypertrophic lupus. Others gave histories of tumors of the skin followed by ulceration without tendency to heal. Early involvement of the lymph-nodes is frequently seen terminating not unlike tuberculosis.

The mode of infection, whether external or internal, has not been determined, but in the forms that produce a skin infection as the first symptom, the skin can in all probability be determined as the primary focus. In internal cases infection is most frequently seen in the lungs. The infection travels by blood- and lymph-streams and in autopsies posted, the internal organs are more or less attacked with lesions and distributions as in tuberculosis. In its predilection for organs the two diseases are rather similar.

Most of the previous patients were treated with potassium iodid accompanied with surgery. All cases recorded are fatal but one, the first symptom of that being a bone lesion of the ankle. The leg was amputated before other lesions developed and the patient is reported alive and well.

REPORT OF CASE

The patient was a Japanese, aged 30 years, a farmer by occupation, who had lived in California since coming from Japan in 1909.

The previous history was negative except for the diseases of childhood, venereal diseases being denied. During the year 1910 he was working in the San Joaquin valley as a teamster in a vineyard. January, 1911, he was taken ill, treated for typhoid fever and was in bed for two months. During the latter part of this time tenderness developed in the right heel with slight swelling. After the fever abated the patient was permitted to be up; the tenderness and swelling remained. During the latter part of March, pain and tenderness developed in the left shoulder and later in the left hip. Work was resumed, but in a few days he was compelled to stop on account of weakness.

In July the patient first came under observation presenting the following symptoms: He was fairly well nourished with the appearance of being ill, with pain, tenderness and swelling at the crest of the left ileum near the sacro-iliac joint and of the right heel, the os calcis and ileum showing bone destruction by the *x*-ray. There were slight swelling and tenderness over the left scapula and in the right hand over the second and third metacarpal bones. Further physical examination proved negative except for a slight tenderness along the colon.

Surgery was resorted to, incisions being made along the crest of the ileum and over the os calcis posteriorly; the necrosed bone was curetted and drained. A great deal of pus-like material escaped with necrotic bone, which at this time gave no growth on agar; smears showed granular material without leukocytes or bacteria. He was in the hospital for six months, during which time similar lesions gradually developed in the left scapula, right metacarpal bones, lower end of the left humerus and left tibia. These received the same operative treatment with no tendency to close in spite of all after-treatment. A small nodule developed on the forehead midway between the hair line and the glabella, which grew to be as large as a hazel-nut without tenderness or tendency to soften, being firmly attached to the bone, but not to the skin. There were occasional slight rises of temperature during the later part of the patient's stay at the hospital.

Fortunately before leaving the hospital Dr. Harry Foster, bacteriologist for the Cutter Laboratories, cultured the lesion and found the causative agent to be a mold, which was passed through animals and classified as an oidium, later being identified by Dr. William Ophüls of San Francisco as *Oidium coccidioides*.

In January, 1912, the patient passed from observation, having left for Japan, where he died two months later.

The Widal reaction was repeatedly negative and the blood-counts showed a slight leukocytosis without increase in the polymorphonuclears. No typhoid bacilli could be found by culturing the urine. The von Pirquet test proved negative, also the Wassermann; but in spite of the latter, salvarsan was given intravenously, followed by inunctions of mercury and long-continued doses of iodids.

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[1] Brown, Philip King: Coccidioidal Granuloma, The Journal A. M. A., March 2, 1907, p. 743.

[2] Rixford, E.: Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-Sixth Annual Session, July, 1905.

[3] Rixford and Gilchrist: Two Cases of Protozoan (Coccidioidal) Infection of the Skin and Other Organs, Johns Hopkins Hosp. Reports, i.

[4] Ophüls, William: Coccidioidal Granuloma, The Journal A. M. A., Oct. 28, 1905, p. 1291.

[5] Hektoen, Ludvig: Systemic Blastomycosis and Coccidioidal Granuloma, The Journal A. M. A., Sept. 28, 1907, p. 1071.

Abuse of Lord Lister.—The opponents of all experiments on animals can only see the pain inflicted on dumb creatures; they seem unable to realize the pain prevented by the experiments. They have even been known to abuse Lord Lister, although he, more than any other man living, has been the means of preventing the greatest suffering and of checkmating for a time our common enemy, death. They see plainly the pain which he deliberately caused to a few rats and rabbits, but they seem incapable of understanding the incalculable amount of misery which he has prevented.—F. M. Sandwith in *Clin. Jour.*

ACUTE REFLEX DISORDERS CAUSED BY THE CINEMATOGRAPH

GEORGE M. GOULD, M.D.
ATLANTIC CITY, N. J.

That the moving-picture shows cause, in many spectators, functional diseases similar to those of eye-strain and ocular labor must have been noticed by every general practitioner and oculist of the cities, and yet, so far as I know, none has publicly directed attention to this important fact. I have had so many patients who have been made sick at these places of amusement that I now ask routine questions to elicit this etiologic factor. Not one had thought of the connection, so unobservant are patients in such things, so uninstructed have they been left as regards the use of the eyes and sequent nervous and gastric disorders. "What were you doing the evening or afternoon previous to your headache or giddiness, or upset stomach?" "O, nothing at all," is the usual answer, "nothing out of the ordinary; I was at the movies for a couple of hours, and went to bed at once, as I was feeling bad." General physicians, oculists, opticians, gastrologists and neurologists should therefore be on their guard as to this new and unsuspected cause of certain acute functional disorders of which patients may complain.

The symptoms do not, in my experience, differ essentially or greatly from those commonly caused by eye-strain of any kind, or from any variety of abuses of the eyes. The most common, of course, are headache, sick headache, migraine—that is, in one or several of its thousand protean forms. A few symptoms that are perhaps more frequent and emphasized than others are intense ocular and cerebral weariness, a sort of dazed, "good-for-nothing" feeling, lack of energy, of appetite, etc., to which almost as frequently may be added, "upset stomach," even vomiting, sleepiness and other similar effects of ametropia, bad spectacles, disuse of good ones, etc.

If by wearing accurate corrections of ametropia the patient has previously been made aware of their power to banish suffering of many kinds and intensities, he (or she) at once may think, "My glasses need changing." This, of course, may be true, but on consultation with the oculist his discriminating questions as to the cinematograph will bring out that especial cause as the chief one to be avoided.

But if "the movies" are not to blame, or not solely to blame, then the good advice will follow that the correcting lenses will possibly enable the patient to go to these shows without the appearance of the distinctive symptoms. With uncorrected ametropia, the cinematograph will more certainly bring about migrainous and nervous symptoms in the patient than when good glasses are worn, because there is no doubt that the cinematograph pictures put a frightful task on even the least defective eyes, whether glassed or not, but the strain is doubled by bad glasses, or by lack of glasses when they are needed.

The retinal and cerebral exhaustion and reflexes at the picture shows have, or may have, several more or less distinctive factors. The expert who has closely observed and analyzed the morbid results in himself will, of course, at once pounce on the chief source of the mischief—the lack of swiftness and accuracy in the sequence and superposition of the individual pictures thrown on the screen or mirror.

The cinematograph has at least four major pathogenic faults:

1. The fixation-point chosen by the eye and attention is, of itself, frequently unstable and tremulous or jerky in movement. This is brought to consciousness by observing attentively a fixed object in the picture, as a post, or tree. Both eye and mind are confused by this utterly unnatural movement.

2. The individual images of the screen-picture are often superposed so slowly that they are separately perceived instead of being fused into a continuum, or flowing unity. There results a swiftly passing series of slightly differing pictures on the retina instead of the desired continuity of one into another. Eye and brain have never had to endure such a series of disconnected stimuli as this unendurable fluttering.

3. There is a ceaseless and exacting conflict between the parts or locations of the individual pictures demanding the attention of the eyes and of sensation which thus dance from one point to another of the ever-moving points of interest.

4. The illumination of the scenes is usually wretched.

Progress in the mechanical and photographic mechanisms may improve some of these faults and difficulties, but it is doubtful if, singly or collectively, they can be entirely avoided. The average rate of exposure of the images or films is about sixteen per second, but if the motions of the scene or objects photographed are rapid, as in galloping horses, for instance, the time of exposure of each image must be of much shorter duration. In any case the time of exposure should be so short as to avoid the exhausting labor of eye and brain by the visualization of individual images. The poor illumination must be improved, and this should be demanded of the companies.

In about a dozen years the business of the cinematograph shows has grown from nothing to its present astonishing capitalization and popularity. In our country alone there are said to be between 12,000 and 20,000 moving-picture theaters, i. e., one to every 8,000 or 5,000 inhabitants, approximately.

The total investment in the business is thought to be about fifty million dollars. It is seriously proposed to carry on a large proportion of school-teaching and of medical, hygienic and scientific instruction by means of the cinematograph. Goods are bought and sold by means of the pictures, and their uses are multiplying in every department of commercial and social life. If it is true that about five million spectators are in daily attendance at the picture-show theaters, the consequent eye-strain injuries and sufferings must be enormous, however conservatively estimated, and there is little likelihood of their exaggeration by hygienists and physicians.

401 Oriental Avenue.

IRRITATION FROM IODIN AND MERCURY ON THE SKIN

S. R. Karpeles, M.D., Washington, D. C.

With the present wide use of tincture of iodin for skin sterilization, the following case and deduction may prove of interest and value:[1]

Mrs. N. applied for treatment for an infected right index-finger, Oct. 3, 1912. The skin covering the finger and over the anterior and posterior surfaces of its metacarpal bone was disinfected with tincture of iodin. A three-quarter-inch incision over the distal phalanx evacuated a little pus; a small drain was inserted into the wound and the finger and hand were covered with gauze soaked in 1:1,000 mercuric chlorid solution. A gauze bandage covered the finger, hand and wrist.

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[1] In this connection, see The Journal, Nov. 2, 1912, Department of Queries and Minor Notes, page 1641.

The patient was directed to pour 1:1,000 mercuric chlorid solution over the entire finger every three hours without disturbing the dressing. Because of the severe burning pain the dressing was renewed the following day. An intense dermatitis with many blisters, some fully an inch in diameter, covered the whole area of iodin sterilization. The relief of this most painful complication consumed about two weeks.

If a test-tube is filled with 1:1,000 watery solution of mercuric chlorid and 2 or 3 drops of tincture of iodin are added, the chemical reaction becomes apparent, red mercuric iodid being formed. The latter according, to Wood, "is a powerful local irritant." In the case cited, the watery solution of mercuric chlorid, which saturated the dressings, reacted with the iodin on the skin, converting it into red mercuric iodid.

I caution against the combined use of tincture of iodin on the skin and the saturation of the dressings with the watery solution of mercuric chlorid.

1120 Fifth Street, N. W.

CHANCRE DEVELOPING FOUR DAYS AFTER SALVARSAN INJECTION

Melvin Rosenthal, M.D., Baltimore

History.—February, 1905, J. B. came to me suffering with an indurated sore on the penis, which had persisted for nearly three weeks. There were a double inguinal adenitis, extensive macular eruption and patches in the mouth and on the tonsils. A diagnosis of syphilis was made and the patient given the inunction treatment. For three years he religiously followed the treatment which consisted of inunctions at first, followed later by mercurial injections and at varying intervals mercury by the mouth.

March, 1910, the patient returned with the history that for two years he had done nothing in the way of treatment for his syphilis. He had been absolutely free from any symptoms and enjoyed good health. He weighed 190 pounds which was 20 pounds more than he weighed before contracting the disease. He consulted me as to the advisability of having a Wassermann test, having read of the infallibility of the reaction. His mind was unduly occupied with matters syphilitic and he was well informed on recent advancements in the study of the disease. The Wassermann report was negative. The combination of events prompted me to assure the patient of freedom from any future complications.

December, 1910, the patient insisted on a confirmatory Wassermann since reading that "a positive Wassermann is proof positive of the existence of syphilis but a negative result may be accidental or transient." The second report gave a similar negative result.

Examination.—November, 1911, the patient, presenting the following symptoms, applied for relief. For several months he had had periodic attacks of intense pain radiating down the legs. He at first attributed them to exertion but since they came on independently of any exercise he abandoned that theory. He had also had irregular abdominal pains at times, followed by nausea and vomiting, but unassociated with the presence of food in the stomach. The knee-jerk was lost on the right side and diminished on the left. A provisional diagnosis of locomotor ataxia was made. Jan. 5, 1912: Since his last visit the patient has consulted Dr. Peterson of New York who confirmed the diagnosis of locomotor ataxia and advised the use of salvarsan.

Treatment.—January 8, an intravenous injection of 0.6 gm. salvarsan was followed by slight discomfort, dizziness and headache for several hours. January 12, the patient showed a small erosion on the glans penis, which looked not unlike an abraded surface after a vesicle has ruptured. Having on a number of occasions seen herpes follow the administration of salvarsan I concluded that the sore was herpetic, and prescribed accordingly. January 18, the sore was distinctly indurated and there was some inguinal adenitis, although spirochetes were not found. I am frank to admit that I was not disappointed at the failure to find the organism, being satisfied that the sore was an infected herpetic eruption. Local treatment of the sore was stopped and on January 22 the edges of the sore were markedly indurated, the inguinal glands were large and a decided macular eruption appeared on the body. An examination of the serum from the sore showed undoubted spirochetes and a Wassermann made on the following day was positive. There has been no change in his tabetic symptoms. A week later the patient left the city and I have been unable to get into communication with him since that time.

The unusual features of this case are, first, the development of a disease, presumably of syphilitic origin, in an individual giving repeated negative Wassermann reactions; second, that a man suffering from the direct effects of syphilis should contract a chancre and, third, that a chancre should develop four days after an intravenous injection of salvarsan. I feel confident that the possibility of faulty technic or other errors in making of the serum reactions may be eliminated, since they were made by a laboratory worker of undoubted skill and ability.

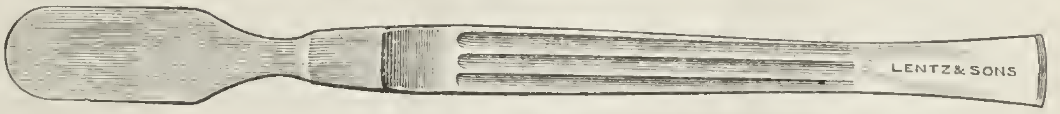
718 North Howard Street.

PROSTATECTOMY KNIFE

E. H. Siter, M.D., Philadelphia

Department of Genito-Urinary Surgery, University of Pennsylvania

The difficulty in incising the capsule of the prostate with the ordinary sharp-pointed knife, and the possibility of hemorrhage from inserting the knife too deeply into the tissue, led me to devise the instrument shown in the illustration.



Prostatectomy knife.

The object was to have the "belly" or cutting edge of the knife on the end instead of on the side. It will be found valuable in dividing the capsule for the suprapubic operation. Being flat it is easily guided, and being pointless it reduces to the minimum the danger of puncturing any blood-vessel.

I find that one incision over each lobe is sufficient to allow me to get the line of cleavage, and I have had no hemorrhage or profuse bleeding since I began its use; I think that the bleeding has been reduced to the oozing, which is of minor importance and need cause the operator no uneasiness.

2038 Locust Street.

Therapeutics

DISTURBANCES OF THE HEART

(Continued from page 2153)

TRICUSPID INSUFFICIENCY

This rarely, if ever, occurs alone; it is generally a sequence of other valvular defects, and represents an overworked, dilated right ventricle. It may, however, occur from lesions of the lungs which impede the blood-flow through them. Such are fibroid changes in the lungs, emphysema, prolonged chronic bronchitis, the last stages of pulmonary tuberculosis, old neglected pleurisies with cirrhosis or fibrosis of the lung, and repeated attacks of asthma — anything, whether valvular defect or pulmonary circulatory disturbance, that increases the pressure ahead and the work of this ventricle.

The symptoms are those of loss of compensation as described under other valvular lesions. There may be jugular pulsation, especially evident in the external jugular on the left side. The liver enlarges and may pulsate. There are edemas, dropsics, ascites and perhaps hemorrhages. The heart is enlarged and there is a soft systolic blow heard at the lower end of the sternum. The dyspnea is sometimes very great, and cyanosis may be present, especially during paroxysms of coughing.

This lesion of the heart is always benefited by digitalis, but the continuance of the improvement and its amount depend, of course, on the cause of the dilatation of the ventricle. Strychnin is often of advantage. These patients should rarely receive vasodilators, and hot baths, overheating, overloading the stomach and vigorous purging should never be allowed. Sometimes improvement will not take place until ascitic or pleuritic fluid, if present, has been removed.

TRICUSPID STENOSIS: TRICUSPID OBSTRUCTION

This is rare and probably always congenital, and is supposed to be due to an inflammation of the endocardium during intra-uterine life. In early childhood it is possible that it may be associated with left-side endocarditis.

A special treatment of the heart, if any is needed, would probably not be indicated unless there was associated tricuspid insufficiency, when digitalis might be used.

PULMONARY INSUFFICIENCY: PULMONARY REGURGITATION

If this rare condition occurs, it is probably congenital. A distinctive murmur of this insufficiency would be diastolic and accentuated in the second intercostal space on the left of the sternum. It should be remembered that aortic murmurs are often more plainly heard at the left of the sternum. Sooner or later, if this lesion is actually present, the right ventricle dilates and cyanosis and dyspnea occur. Digitalis would therefore be indicated.

PULMONARY STENOSIS: PULMONARY OBSTRUCTION

If stenosis is actually present in this location, the lesion is probably congenital. It might occur after a serious acute infectious endocarditis, but then it would be associated with other lesions of the heart. It has been found to be associated with such congenital lesions of the heart as an open foramen ovale or foramen Botalli, or with an imperfect ventricular septum, and perhaps with tricuspid stenosis — in short, a cardiac congenital defect. The right ventricle becomes hypertrophied, if the child lives to overcome the obstruction.

The physical sign is a systolic blow at the second intercostal space on the left; but as just stated, such a murmur must surely be dissociated from an aortic murmur if found to develop after babyhood, and it should also be diagnosed from the frequently occurring hemic, basic and systolic murmurs; that is, if signs of pulmonary lesions are not heard soon after birth or in early babyhood, the diagnosis of pulmonary defects can be made only by exclusion.

Unless the right ventricle is found later to be in trouble, there is no treatment for this condition. If the right ventricle dilates, digitalis may be of benefit.

ACUTE CARDIAC SYMPTOMS: ACUTE HEART ATTACK

It is not proposed here to describe the condition of sudden cardiac failure, or acute dilatation during disease, or after a severe heart strain, but to describe the terrible cardiac agony that occurs, sometimes repeatedly, with many patients who have valvular lesions. These patients may not have the symptoms of loss of compensation. Probably some one or more chambers of the heart become overdistended and act irregularly, or the blood is suddenly dammed up in the lungs, with the oppression and dyspnea caused by such passive congestion, or perhaps it is the right ventricle that is suddenly in serious trouble.

A physician receives an emergency call, and knows, if it is not a patient who has hysteria, that it is his duty to see the patient immediately. The friends of the patient all anxiously await the physician's arrival; front doors are often wide open, and the servants and the whole household are in a great state of excitement and anxiety. The position in which the patient will be found is that which he has learned gives him the greatest comfort. If the physician knows his patient, he will know how he will find him. He may be sitting up in bed; he may be standing, leaning over a chair; he may be sitting in a chair leaning over a table or leaning over the back of another chair; but he is using every auxiliary muscle he possesses to respire. He is generally bathed in cold perspiration; the extremities are often icy cold; he calls for air, and to stop fanning all in one breath; he wishes the perspiration wiped off his brow, and nearly goes frantic while it is being done; there is agony depicted on his face; his eyes stare; his expirations are often groaning. Sometimes there is even incontinence of urine and feces, often hiccup or short coughs, perhaps vomiting, and possibly sharp pangs of pain in the cardiac region. A patient with these symptoms may die at any moment, and the wonder is that so many times one lives through these paroxysms.

The patient can hardly be questioned, can certainly not be carefully examined; and herein lies the advantage of the family physician who knows the patient and his heart, and in whom the patient has confidence. In fact, this confidence which such a patient has in the physician who has more or less frequently aided him in weathering these terrible attacks is alone the greatest boon the patient can have.

The immediate conditions to meet are the rapid, fluttering heart, the nervous excitation and cardiac anxiety, and perhaps the most important of all, the vasomotor spasm that is often so pronounced. Physically we have, then, a heart with leaking or constricted valves; in either case more blood is entering the chambers of the heart than can be expelled in one contraction, while the peripheral resistance due to the spasm of the bloodvessels, because of fear, becomes greater every minute and tends still more to interfere with the peripheral circulation and the complete emptying of the heart of its surplus blood. Owing to the well-known stimulus to distention of hollow muscular organs, the heart contracts faster and faster. Soon, by some disarrangement of the inhibitory apparatus, the pneumogastric nerves, the heart loses its governor, and the beats increase to even 150 a minute, with irregular contractions, the blood being sent through the arteries with irregular force, as evidenced by the varying volume of the pulse. At this time, with or without cardiac pain, which upsets the rhythm of the heart, the patient becomes frightened at the feeling of impending demise, and the cerebral reflexes begin to add to the cardiac difficulty. The breathing becomes nervously rapid, besides that which is due to the rapid heart. The chill of fear is added to the already contracted peripheral vessels, and the surface of the body becomes cold, the extremities sometimes intensely so. Next it seems as if the strongly contracted arterioles begin actually to prevent some of the peripheral circulation, the blood is piled up in the large arteries, and the venous circulation becomes more and more sluggish, while the lips, finger-nails and forehead become cyanotic. Respiration becomes more rapid and deep, the inspiration being as strong as possible with every auxiliary muscle taking part, thus making the negative pressure in the chest aid in bringing the blood back through the veins. Part of the extra respiratory stimulus comes from the imperfectly aerated blood reaching the respiratory center.

Two factors may normally, without treatment, stop these paroxysms, and the "bad heart turn" may be cured spontaneously. The first of these is self-control. If the patient does not lose his head, by an effort of the will he saves himself from becoming nervous or frightened and therefore escapes the result of mental excitement; the increased peripheral blood-pressure from fear does not occur, and in a shorter or longer time the heart quiets down. The physician recognizes this power, and gives his patient immediate assurance that he will soon be all right; the patient who knows his physician immediately feels this assurance and is quickly improved.

The second factor in spontaneous cure of the heart attack is relaxation. The exhaustion from the respiratory muscular efforts together with the drowsy condition caused by the cerebral hyperemia and from the imperfectly aerated blood causes finally a dulling of the mental acuity, and the nervous excitement abates, which, with the exhaustion, gives a relaxation of peripheral arterioles; the resistance to the flow of the blood is removed, the surface of the body becomes warm, the heart quiets down by the equalization of the circulation, and the paroxysm is over.

The part the nervous system plays in this paroxysm is shown by the good result obtained from injections of morphin, even when there is no pain; hence the action of morphin is directly in line with the natural resolution of the symptoms: it quiets the nervous system, causes drowsiness, relaxes spasm, and thus causes increased peripheral circulation; many times this is the only treatment necessary.

During these heart attacks it is more than useless to administer any drug by the stomach, as in this condition there will be no absorption, even if there is no vomiting.

While morphin is generally indicated, as just suggested, a very large dose should not be given, lest the activity of the respiratory center is impaired (it is already in trouble), and undoubtedly death may easily be caused by an overaction of morphin during these heart attacks. The addition of atropin to the morphin will prevent depression from the morphin. Also, atropin sometimes quiets cardiac pain, but it will not steady the heart, may irritate it, and will increase vasomotor tension, although peripheral nerve irritation may be diminished. Hence a fair dose of morphin hypodermatically with a small dose of atropin, if respiratory depression is feared, is a physiologic method of bettering the condition.

In this kind of heart attack a drug that often acts well is nitroglycerin. It may be given hypodermatically in a dose of 1/200 to 1/100 of a grain, or a tablet may be dissolved on the tongue, and the dose be repeated once or twice at fifteen-minute intervals, until there is throbbing in the forehead, which shows that a sufficient amount of the drug has been administered. This headache will generally not last long. In the meantime the peripheral blood-vessels are relaxed, the surface of the body becomes warm, the heart quiets, and the attack is over. To hasten the action of nitroglycerin (that is, to equalize the circulation) a hot foot-bath is often valuable. Amyl nitrite may be inhaled with the same object in view, but the action is very intense, the prostration often severe, and unless there is angina pectoris, nitroglycerin is much better.

The symptoms of a heart attack may not be quite those above described; they may be those of sudden dilatation or semiparalysis of the heart, in which the prostration is intense and the patient is unable to sit up, although he may be leaning against several pillows. There is dyspnea, but the patient cannot aid respiration with the auxiliary muscles by holding the arms and shoulders tense or obtaining support from the arms; in fact, the arms are almost strengthless. The surface of the body may be warm, and the arms may be warm except the hands; the feet, ankles and legs may be cold. There is generally more or less cyanosis, although the face may be pale. The finger-nails often show venous stasis. In these cases the blood-pressure is subnormal, the pulse may be hardly perceptible, and there is none of the tension of the body from fear. The patient may be fearful, but he is completely collapsed. Such an attack may occur suddenly in a heart that is perfectly compensating, or it may accompany general edemas and dropsies.

If the emergency is excessively urgent, the lungs filling up with blood, moist râles beginning to occur, and frothy and blood-tinged sputum being coughed up, venesection may be indicated; combined with proper hypodermatic medication it may save life, and does at times. In fact, a patient who shows every sign of fatal cardiac collapse may be saved.

One of the best drugs to administer to such a patient is an aseptic ergot, injected intramuscularly. The drug of all drugs for future action (as it will not act immediately) is digitalis, and perhaps best, in this condition, in the form of digitalin. (See N. N. R., p. 68.) The dose of German digitalin may be from one-tenth to one-fourth grain, or even more. This dose, or a smaller dose, may be repeated in three or four hours, if deemed advisable. Whether digitalis shall be given at all, or how large the dose shall be depends on whether the patient has been taking digitalis in large quantities or not. He may already be overpowered with digitalis. In that case it would be contra-indicated.

Strophanthin, especially when given intravenously, has been found to be a quickly acting circulatory stimulant. The dose of strophanthin, Merck, ranges from 1/500 to 1/200 grain. The intravenous dose of strophanthin, Thoms, is about 1/130 grain. It should not be repeated within a day or two, if at all.

Atropin in a dose of 1/150 grain, and strychnin in a dose of 1/40 or 1/30 are valuable aids in stimulating the circulation under these conditions. The atropin should not be repeated. The strychnin may be repeated in three, four or five hours, depending on the size of the previous dose.

Of all quickly acting stimulants none is better than camphor in saturated solution in sterile oil as may be obtained in ampules. Alcohol is absolutely contra-indicated in the latter condition. In the former kind of heart attack, vasodilatation from a large dose of whisky or brandy may be of value. The dose should be large to cause immediate increased peripheral circulation, dilatation, and even a little stupefaction of the central nervous system, and it may be effectual in a way not dissimilar to the action of morphin.

(To be continued)

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BARIUM POISONING AND LOCO-WEED DISEASE

Some time ago[1] mention was made in these columns of the investigations of Dr. A. C. Crawford, then pharmacologist in the Bureau of Plant Industry, on the nature of loco-weed disease. This malady is a source of great loss to the stockmen of many of the grazing states of the West. Crawford concluded that, in certain regions at least, the inorganic constituents of the plants, especially barium compounds, are responsible for the symptoms of loco-poisoning. He asserted that the main toxic features described in stock on the range can be reproduced in rabbits by feeding extracts of certain loco-plants, and that a close analogy exists between the clinical symptoms and the pathologic findings in barium poisoning and those resulting from these experiments.

This announcement aroused a wide-spread interest because of its essential novelty. Toxic principles in plants had hitherto usually been looked for in the guise of organic compounds, such as the alkaloids and toxalbumins. Now, however, the inorganic components of the vegetable forms were called on to explain deleterious effects; and the example which was found to represent them was an element, barium, which had not commonly been taken into account in such relationships. If plants readily take up toxic quantities of such elements from soils which yield them, an unexpected and subtle source of danger confronts us.

Dr. Carl L. Alsberg and Mr. O. F. Black, chemical biologists in the U. S. Bureau of Plant Industry, have reinvestigated this important question.[2] They have arrived at the conclusion that the etiologic factor in the loco-weeds which is responsible for the toxicity of these plants in laboratory experiments is not barium. Many kinds of plants from the western states and other regions contain barium in amounts of the same order of magnitude as in loco-plants; yet there is no evidence that such plants injure stock on the range.

In dried loco-plants the barium is contained in almost insoluble form. One might obviously think of the acidity of the gastric juice as an aid to solution; but even extracts prepared by digesting successively with artificial gastric and pancreatic juices contain but slight traces. As for the animal experiments, it was shown that there are usually enough salts of calcium, potassium and metals other than barium in appropriate portions of loco-plant extracts to account for death in the usual toxic dose for rabbits. Furthermore, similar extracts of alfalfa, which no one charges with special toxicity, may also cause the death of animals in similar dosage.

These negative findings of Alsberg and Black are fortified by the newer observations in the field where the conditions pertaining to range animals are met.[3] It is now judged that the symptoms and pathology of barium poisoning differ in a marked degree from those noted in loco-poisoning. Typical loco-poisoning, according to Marsh, is not produced by barium feeding alone. If barium were the cause of loco-poisoning, sulphates which form insoluble compounds of the element would be a logical antidote. It appears, however, that experimental administration of magnesium sulphate (Epsom salts) or sulphuric acid in amounts much greater than those necessary to combine with the barium in the loco eaten had no antidotal effect.

These newer observations all argue against the specific toxic action of barium in loco-plants. The amounts present — rarely more than traces — are too small to prove fatal; and the metal is present in some insoluble form, probably as sulphate or silicate. Loco-weed disease needs renewed investigation.

TYPHUS FEVER

It has been about seventy-five years since Gerhard, an American physician, convincingly demonstrated on clinical and pathologic grounds the non-identity of typhus and typhoid fevers. Up to three years ago our knowledge of the disease stood almost exactly where it was at the time Gerhard first drew attention to its differences from typhoid. In the last three years greater advance has been made in our knowledge of the disease, largely through the work of American investigators, than in the previous three-quarters of a century.

Last week we discussed[1] some of the factors that have contributed to the wonderful recent advances that have been made in our knowledge of the cause and means of transmission of communicable diseases. Reference was made to the fact that without the use of the monkey as an experimental animal our knowledge of typhus would still probably be where it was in Gerhard's time. In July, 1909, Nicolle[2] reported the successful infection of a chimpanzee with typhus by inoculation with blood from a case of the disease in man. A few months later Anderson and Goldberger,[3] of the U. S. Public Health Service, by the successful infection of the rhesus and the capuchin monkeys, and by showing that these were thereafter immune to subsequent infection, not only confirmed this report but further showed what Nicolle's work indicated, that the fever so induced in the monkey was typhus. Following this pioneer work on the disease of Nicolle and his co-workers, and of Anderson and Goldberger, came reports in rapid succession of similar results from Ricketts and Wilder, Gaviño and Girard, and others.

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[1] The Rôle of Barium in Loco Poisoning, The Journal A. M. A., Feb. 8, 1908, p. 458; Barium a Cause of the Loco-Weed Disease, ibid., Oct. 17, 1908, p. 1338.

[2] Alsberg, C. L., and Black, O. F.: Laboratory Studies on the Relation of Barium to the Loco-Weed Disease, U. S. Dept. Agric., Bureau Plant Ind., Bull. 246, 1912

[3] Marsh, C. D.: A Field Study on the Relation of Barium to the Loco-Weed Disease, U. S. Dept. Agric., Bureau Plant. Ind., Bull. 246, 1912.

[1] Factors Contributing to Recent Advances in Our Knowledge of Communicable Diseases, editorial, The Journal A. M. A., Dec. 14, 1912, p. 2157.

[2] Nicolle, C.: Reproduction expérimentale du typhus exanthématique chez le singe, Compt. rend. Acad. d. sc., July 12, 1909, p. 157.

Nicolle, Comte and Conseil[4] were the first to report the successful transmission of the disease by the bites of the body-louse (*Pediculus vestimenti*). Since then this finding has been confirmed by Ricketts and Wilder, and by Goldberger and Anderson, and it may be considered as definitely established that typhus fever is transmissible by the bite of this insect and possibly by the bite of the head-louse. The untimely death of Ricketts put an end to his work, but Nicolle and his associates have continued their work on the disease in Africa and have brought out many points of interest. Gaviño and Girard, from Mexico, have also reported work of importance, especially in regard to the nature of the virus and the susceptibility of the guinea-pig to the disease.

One of the most notable advances in our knowledge of typhus was the demonstration early in the present year by Anderson and Goldberger of the Hygienic Laboratory, that typhus was identical with a disease described by Brill of New York and that, instead of being extinct in the United States as almost universally considered, it has actually been endemic in this country for years.[5] Cases have been reported from Brooklyn, Chicago, New York, Philadelphia, and recently at the Southern Medical Association, Paulin reported cases from Atlanta. Since the report by Anderson and Goldberger of the identity of Brill's disease and typhus, these workers have continued their work on the disease, and in a recent bulletin[6] of the Hygienic Laboratory have brought together all their work on typhus under one cover. The publication is one that will be of the utmost value to students of the disease. The last paper[7] in the bulletin is the only one of the articles not previously published, and is chiefly concerned with the question of immunity and the method of transmission.

In a study of the susceptibility of the monkey to typhus, the authors found that a large proportion (about 22.4 per cent.) of rhesus monkeys possess at least a transient immunity to infection, and that in about 3.5 per cent. of their monkeys the resistance amounted to a permanent natural immunity. A well-marked typhus reaction confers on the rhesus monkey an immunity that may be present after at least two years. It has been found that fever is the only definite clinical index of a typhus reaction in a monkey, but when clearly marked it is ordinarily sufficient to justify a diagnosis of the disease. When the fever was slight or its course atypical, in the opinion of the authors it could not be construed as a typhus reaction unless the immunity test proved the animal resistant to infection; but should the immunity test show that resistance has not been conferred, a diagnosis of previous typhus was not permissible. The incubation period in about 90 per cent. of their monkeys, experimentally infected, varied between six and ten days, and in 103 cases of typhus in the monkey there occurred four deaths. Anderson and Goldberger confirm the reports of Nicolle and his co-workers, and of Gaviño and Girard, as to the susceptibility of the guinea-pig to infection with typhus. It was found that this animal reacts in essentially the same way to an inoculation of typhus blood as does the monkey and that, as with the monkey, one attack confers immunity to a subsequent infection. They found that in a certain proportion of cases rabbits may be infected with typhus by blood inoculation.

Typhus-immune serum obtained between the fifth and the fourteenth days of convalescence has protective value when injected simultaneously with the inoculation of virulent material or within forty-eight hours afterward; but immune serum obtained on the thirtieth day of convalescence probably has no appreciable protective influence. When immune serum and virus are inoculated simultaneously, immunity to subsequent infection does not result; but when the immune serum is injected forty-eight hours after the virus an immunity, probably active in nature, may take place. An attempt to infect a monkey with typhus by means of freshly hatched body-lice, the progeny of presumably infected mothers, was negative. In the opinion of Anderson and Goldberger, satisfactory evidence of hereditary transmission of the virus in the louse has not yet been presented. Attempts to transmit typhus by means of the bites, or by subcutaneous injection of crushed bedbugs that had previously been allowed to feed on infected monkeys were negative. They were also unable to produce typhus in monkeys by the injection of the buccal and pharyngeal secretions from human cases of the disease, and therefore express the opinion that droplet infection plays no part in the transmission of the disease.

While the work of American investigators has added so much to our knowledge of typhus fever, the cost has been great. Of the three different groups of American investigators, composed of two each, two (Ricketts and

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[3] Anderson, J. F., and Goldberger, Joseph: A Note on the Etiology of "Tabardillo," the Typhus Fever of Mexico, Pub. Health Rep., Dec. 24, 1909, p. 1941; The Infectivity of Tabardillo, or Mexican Typhus, for Monkeys and Studies on Its Mode of Transmission, ibid., Feb. 18, 1910, p. 177.

[4] Nicolle, C., Comte, C., and Conseil, E.: Transmission expérimentale du typhus exanthématique par le pou de corps, Compt. rend. Acad. d. sc., Sept. 9, 1909, p. 486.

[5] See Demonstration of the Identity of So-Called Brill's Disease with Typhus Fever, editorial, The Journal A. M. A., Feb. 10, 1912, p. 414.

[6] Collected Studies on Typhus, Hyg. Lab. Bull. 86, 1912.

[7] Anderson, John F., and Goldberger, Joseph: Studies in Immunity and Means of Transmission of Typhus, No. 7, in Hyg. Lab. Bull. 86, 1912.

Conneff) died from the disease contracted in Mexico and one (Goldberger) was seriously ill. This is another instance of the devotion of men of science to their calling and their willingness to expose themselves to disease and possibly to death in hope of furthering our knowledge. Each year sees additions to this roll of martyrs to medical science, a roll including Lazear, Myers, Dutton, Ricketts, Conneff, McClintic and others.

A REWARD FOR COLONEL GORGAS

Bills have recently been introduced into the Senate and House of Representatives looking to the reward of Colonel Goethals by authorizing his appointment as an additional major-general, and, in the discretion of the President, providing for his assignment as chief of engineers. This proposition suggests several comments, the first of which is that it makes no provision for the reward of Colonel Gorgas. It is also defective in that its provisions depend in part on a contingency which Congress cannot control, because the selection of the chief of engineers is a constitutional function of the executive.

It is now recognized by all well-informed persons that the sanitation of the Isthmus was as essential to the success of the canal construction as was the surmounting of the engineering difficulties, and, of the two sets of problems involved, the sanitary problems were newer and along less well-beaten paths than were the engineering ones. While Colonel Goethals is the administrative head of the commission, he and Colonel Gorgas have at present the same military rank. The applications of engineering science to canal construction have no intrinsic precedence over those of medical science to the new and complex questions of tropical sanitation; it would seem, therefore, that there should be little or no difference in the value of the rewards given the two, and it is appropriate that they be provided for in the same act.

There are some other considerations which might well be kept in view when such legislation is under consideration. This work is a great national enterprise which is apart from the usual activities of Army officers, and in no way connected with Army administration. The reward should be in keeping with the national dignity and the magnitude of the enterprise, and should be outside of the routine of Army promotions, so that other officers of the engineering and medical corps who have borne the burden of the routine but important work, without the incentives of increased pay and public applause, may not be called on to give their own ewe lamb of promotion as a contribution to the nation's gift.

Again, the officers of the military service are usually compelled by the requirements of their life to live up to their incomes, and when they die their families are left without decent provision. A major-general's widow receives the munificent pension of $30 a month. It would, therefore, be fitting that there should be added to the military promotion in rank a donation of money, as is the custom of the British government, so that the generosity of the nation could be applied by the recipient to the needs of those who are dearest to him.

A major-generalship with a cash donation would appear, therefore, the most convenient form of reward for each of these distinguished men, and the act should also provide that after their retirement the President should be authorized to place them on active duty with full pay and allowances whenever their advice or assistance is required on engineering and sanitary questions.

URBAN AND RURAL TYPHOID FEVER

There seems to be a wide-spread belief that typhoid fever is peculiarly a disease of small communities. The regular autumnal increase in this disease in most cities is even referred by some writers to infection contracted during a vacation "in the country." Whatever the importance of "vacation typhoid"— and there is reason to think it has been overestimated — there can be no doubt that, contrary to popular opinion, in some localities typhoid is more prevalent in urban communities.

The incidence of typhoid fever in city and country communities in several New England states has been recently studied by Sedgwick, Taylor and MacNutt.[1] These authors conclude that as far as the state of Massachusetts is concerned typhoid could not be said to be a rural disease in the eighteen years prior to 1908, but was on the contrary distinctly more prevalent in urban communities. In Connecticut a similar condition existed, but in New Hampshire it appeared that there was no marked difference in this respect between rural and urban groups. Before 1890, as these authors point out, typhoid deaths in both Massachusetts and Connecticut were more prevalent in proportion to the population in the country than in the city districts.

It is not difficult to understand these results. The death-rate from typhoid fever depends more on other factors than on city and country conditions as such. A large city with polluted water-supply may maintain a constantly higher typhoid fever rate than the adjacent country towns and rural districts. On the other hand a city with a good water-supply, a pasteurized milk-supply and a proper system of disposing of excretal refuse will to-day almost certainly have less typhoid fever than the smaller communities in its immediate neighborhood. Probably few places in the United States, large or small, will have so low a death-rate from typhoid for the year 1912 as Chicago and Cleveland.

Improper methods of disposing of excreta in the country, with the attendant danger of fly infection, would seem to favor the spread of typhoid fever in rural districts, but a counterbalancing factor is the contact with a large number of persons which is characteristic of city life and would tend to increase the opportunities for infection in cities through the agency of carriers or convalescents. There is no reason why a uniform difference between city and country should be expected. In Austria the typhoid death-rate is lowest in communities with less than five hundred population, highest in those with from five hundred to two thousand, and then diminishes progressively until the cities with over twenty thousand population have a death-rate but slightly in excess of the small communities with less than five hundred inhabitants.

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[1] Sedgwick, William T., Taylor, George Rodney, and MacNutt, J. Scott: Is Typhoid Fever a "Rural" Disease? Jour. Infect. Dis., 1912, ii, 141.

In other words, we cannot generalize by asserting that typhoid fever is more prevalent in either the city or the country. In some regions the factors that make for infection are more active in the large communities of those regions than the small communities; in others the reverse is true. Country or city life itself is in no way determinative of typhoid fever infection, and it is confusing to declare that typhoid is to-day either an urban or a rural disease.

ALCOHOL AND RACIAL DEGENERATION

A recent writer on the physiologic rôle of alcohol has well said that most discussions of the subject are frankly partisan and therefore partial. An account may be entirely accurate in all its affirmations and yet fail to be just, because of what it leaves unsaid in a matter so full of complex considerations. In any event propaganda must be preceded by facts, and these must, in turn, be evaluated in a critical spirit of fairness and with due regard to conflicting possibilities.

One of the important and widely discussed phases of the question involves the effect of alcohol on the offspring. Records of degenerates, statistics on insanity and other diseases have been gathered in abundance and contributed as evidence in one way or another. Statistics are proverbially uncertain unless they are collected with due intelligence and interpreted with reasonable precaution. This applies above all to human records; hence it is always gratifying to have observations involving such data substantiated by adequately controlled experiments on lower animals. It is with this end in view that Professor Stockard of the Cornell University Medical College, New York, has undertaken an experimental study of racial degeneration in mammals treated with alcohol.[1]

Alcohol or any other injurious substance may act as a parental poison to affect the offspring in more than one way. Since the quality of the offspring depends on both the perfection of the germ cells from which it arises and the nature of the environment in which the embryo develops, it will be noted that damaging effects may be directed to injure the ovum or spermatozoon before fertilization; or the embryo itself may be affected by being subjected to unusual physical or chemical surroundings. In the latter case a substance may so alter the pregnant female as to modify the resulting structure of the developing embryo. The possibility of damage arising in this way is emphasized by the fact that a passage of alcohol from the blood of the mother to the tissues of the fetus has been clearly demonstrated. The developing embryo or early fetus can show the effects by structural abnormalities of the nervous system, whereas the presence of alcohol in the blood of the later fetus may result in disorders of a mere functional type.

In Stockard's experiments alcoholic treatment was given to guinea-pigs by an inhalation method. A paternal test was applied by mating alcoholic males with normal females. This is obviously the crucial test for an influence on the germ cells; for here a defective offspring must be due to an altered spermatozoon, from which it arose, since the ovum and mother are unimpaired. In the maternal test alcoholic females were paired with untreated males. As Stockard remarks, here the mother has two chances to injure an offspring, either by producing a defective ovum, or by supplying an unfavorable or diseased environment in which the embryo must develop. The greatest chance for impairment lies, of course, in the matings in which both parents are alcoholic.

The outcome of these investigations has been convincing in their demonstration that alcohol may readily affect the offspring through either parent. Though the animals were never completely intoxicated, they may be described as having been in a state of chronic alcoholism. Nine control matings of normal animals in the same group gave nine living litters consisting in all of seventeen vigorous individuals. Out of forty-two matings of alcoholized animals only seven young survived and five of these were runts. In the paternal tests there were abortions, still-born litters and early deaths; the maternal test resulted much the same; when both parents were alcoholic, in most cases the matings resulted in no offspring, very early abortions, or still-born litters. The single offspring born living from fourteen matings of alcoholic parents died in convulsions at an early age. In general the deaths of these unhealthy young followed symptoms of nervous disorders.

Here are data to be reckoned with. In pointing to a specific affinity of alcohol for the developing nervous system these newer observations lead in the direction that has been indicated by statistical studies on defective human beings. They invest the records of degeneracy in relation to alcoholism with a new significance.

SCIENCE AND MEDICINE

In an address[1] delivered at the dedication of the Lane Medical Library of Stanford University the president, Dr. David Starr Jordan, reviews some of the changes which medical science and practice have experienced in the past generation. The points of view of a thinker who has watched this progress from a period when the science of infectious diseases was at its beginning and antiseptics were guesswork deserve a broader recognition, especially as they touch on some of the mooted aspects of modern medicine.

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[1] Stockard, C. R.: An Experimental Study of Racial Degeneration in Mammals Treated with Alcohol, Arch. Int. Med., October, 1912, p. 369.

[1] Reprinted in Science, Dec. 6, 1912, p. 763.

President Jordan has emphasized in a novel way the undeniable dictum that sound medicine must rest on science. As he remarks, science is alike to all men who have grasped its data and its conclusions; art will vary with the personality of those who practice it. An art which is not based on knowledge becomes a mystery or a trade. It is a mystery when practice is based on some theory of therapeutics which goes outside of human experience for its justification; and those who try to heal without knowledge of the actual conditions with which they deal are of necessity impostors.

This is a frank statement, indeed, of the fact that technical knowledge is a fundamental requisite which must be insisted on in those who profess to combat the ills of the human body. If this requirement is fatal to any school of therapeutics, it is time that that particular form of fraud should be done away with. There need be no hesitation about this natural limit of "medical freedom." The basis of so-called schools of theoretical medicine is a prearranged theory of the treatment of disease. They deal with symptoms in default of knowledge of the underlying causes; but when the knowledge is attained all healing methods must rest on the actual conditions rather than the surface indications. The preference for one mode of therapeutics over another should rest on science, on which all can agree, rather than on the varying theories of symptoms which furnish the excuse for the varying schools of medicine.

Dr. Jordan maintains that the form of quackery involved in the "patent medicine" arose out of the notion that a specific disease has a specific cure. He pays his compliment to the business by saying that the aggregate result of the "patent medicine" is the building up of gigantic systems of robbery, on the one hand, and a corresponding damage to public health on the other. The way out of this domination lies in the better training of physicians and the enlightenment of public opinion.

No system of philosophy or cult of religion can help us to find out what is the matter with a disordered organism and thus remove the cause from which the symptoms flow. The proposal of the "healers" not to deal with the body because it does not exist, and to "treat a belief in sickness as you would sin, with sudden dismissal" finds a cold reception at the hands of one who realizes that the whole fabric of modern science and modern civilization is based on the conception of the reality of external things. "It is undoubtedly true," says Jordan, "that a serene spirit is a valuable agency in the recovery from disease. It is likewise true that suggestion has a mighty potency when it is rightly applied. It is a legitimate and recognized branch of therapeutics, which may be destined to have a wide application in the future treatment of disorders of the nervous system. But it is likewise true that suggestion heals no broken bones, a spirit unperturbed gives no safeguard against poisoned mosquitoes and the power of the will and the imagination is potent chiefly against disorders of the imagination and the will. . . . It does not advance science to doubt the things we know to be true in order to give proof to propositions we know to be false. We may, therefore, be certain that progressive medicine will still believe in the reality of the human body and the rational veracity of the world of sense."

Dr. Jordan is a strong believer in the importance of governmental action in eliminating unnecessary disease and thereby contributing to the sum of human welfare. But governments as they are now framed and conducted do not appeal to him as ideally efficient agencies — they are ruled by traditions and prejudices and often inspired by doubtful motives. Perhaps he is somewhat too pessimistic in this direction. We must agree with him, however, in the contention that public opinion, the most effective factor in government, must be based on knowledge and molded by safe and sane leaders. Here lie the opportunity and duty of the modern man of medicine to join in the conduct of the affairs of the community so that the people will have a reliable guidance where governments sometimes fail.

Current Comment

FACTS ABOUT HEROIN

Although heroin (diacetyl-morphin) and its hydrochlorid have been in use but a few years, they have already established themselves among the habit-forming drugs and have become sufficiently conspicuous in this respect to awaken the thinking public to the deplorable results for which they may become responsible. These facts of themselves are sufficient to promote a scientific interest in the physiologic behavior of heroin and its fate within the organism. A comparison is at once suggested between heroin and the closely related alkaloids morphin and codein (methyl morphin). Aside from differences in the pharmacologic effects of these two substances, they apparently pursue a different path in the body. When morphin is introduced subcutaneously it is rapidly excreted into the stomach and, finding its way along the gastro-intestinal canal, may leave the organism to a large extent in the feces. Methyl morphin (codein), on the other hand, differs specifically in being eliminated almost exclusively through the kidneys. A recent study of the behavior of heroin[1] at the Pharmacologic Institute of the University of Berlin indicates that this drug is ordinarily excreted in large measure by the kidneys as is codein, while a smaller fraction may pass out through the bowel precisely as morphin does. There is a pronounced difference between morphin and codein in respect to the development of tolerance; in the case of codein the continued administration of the drug may even lead to hypersensitiveness quite in contrast with its companion alkaloid exhibiting the reverse phenomenon. Numerous familiar clinical experiences have demonstrated the development of "heroinism" in human subjects, so that all analogy with codein fails in this direction. A case has been described in which a daily dose of 2.8 gm. was tolerated. Experimental studies on animals show that an increased tolerance is speedily developed. In dogs, for example, the narcotic effect which may persist for thirty hours or more with an incipient dose of 25 mg. of heroin has been seen to disappear in two hours after five injections of the drug. The explanation of the increased tolerance for morphin has been much debated. One may conceive of a heightened capacity of the organism to destroy such organic compounds as one possibility; and an increased immunity of the body cells, vague though the understanding of this mechanism must be at present, remains as an alternative explanation. Faust has defended the first of these views in the case of morphin; but the fact that toxic doses of the alkaloid have been found in "immunized" animals tends to render such a theory untenable. In the case of heroin it appears that with growing tolerance for the drug it is destroyed in increasing proportion in the body; for after a time heroin can no longer be detected in either the feces or the urine under conditions of dosage in which it is readily detected earlier in the course of its repeated administration.

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[1] Langer, H.: Ueber Heroinausscheidung und -gewöhnung, Biochem. Ztschr., 1912, xlv, 221.

THE SUGAR-CONTENT OF THE BLOOD

In the study of the abnormalities of sugar-formation and utilization in the body the estimation of the sugar-content of the blood has recently come to take its place in experimental work side by side with the observations on the "overflow" of sugar through the kidneys. Indeed, the level of the sugar-supply in the circulation has in some ways become a better index of the mobilization of carbohydrate in the organism than any other determinable factor. A rise in the sugar-content of the blood — hyperglycemia — usually betrays itself, as in diabetes, by an elimination of the surplus carbohydrate in the urine. Poverty of the blood in sugar, on the other hand, cannot be detected in any such indirect way. Blood analysis alone will disclose this condition. It has commonly been believed that the circulating sugar, the physiologic importance of which as a form of transport of energy-furnishing material is universally recognized, is to be found solely in the fluid portion of the blood. Concordant observations by a number of competent investigators,[1] however, have made it certain that the blood-sugar is present not only in the plasma, but in the corpuscles as well. In fact, it now appears that the sugar-content of the corpuscles is as a rule equivalent to that of the circulating fluid in which they are suspended. These findings raise the question whether or not the sugar-content of the corpuscles is subject to the variations commonly found in the total blood incident to pathologic or experimental influences which affect the latter — whether or not, for example, the corpuscles in diabetic blood also become richer in sugar. The correct answer to this query should throw light on the interchange of sugar between corpuscles and plasma. Does the sugar enter into the formed elements of the blood by a simple physical process of diffusion? If so, there should be a parallelism in the sugar content of the two factors. It is conceivable, nevertheless, that the corpuscles exercise a chemical influence on their contents so that the sugar of these cellular masses is regulated as to quantity and disposition quite independently of the soluble carbohydrate in the environmental medium. Recent experiments by Professor Höber[2] in Kiel have shown the latter to be the case. In varied types of glycemia the sugar has not been found to be comparably distributed between plasma and corpuscles. The most likely explanation for the present is that the blood-cells exercise a regulatory influence on the sugar within them, determining the entrance or exit of the carbohydrate in response to local factors which still await elucidation.

EPINEPHRIN FROM THE WHALE

America is a land of large ventures. We have become used to hearing of enterprises conducted on a magnificent scale, and the ideas which are suggested in an industrial way by the word "enormous" are at times found creeping into the modest domain of science. Now we are hearing of investigations of the ductless glands carried out on whales[1] — animals truly affording superb advantages in point of size. Their adrenal glands, for example, each weigh considerably more than a pound, thus being about five hundred times larger than those from sheep and fifty times larger than the glands from cattle. Structurally the adrenals of the whale resemble those of other mammals, as might be expected. The yield of epinephrin is proportional to that hitherto obtained from other animals, so that as much as 1.2 gm. of the typical active principle has been isolated from a single whale adrenal gland. This is, indeed, an American record.

THE CHRISTMAS RED CROSS FILM

Three years ago the Edison Company prepared a special film of a story designed to interest and educate the public in tuberculosis. This film was prepared with the cooperation and advice of the National Association for the Study and Prevention of Tuberculosis. It was released for use in the moving picture theaters of the country a short time before the Christmas season. Many of those interested in the tuberculosis campaign doubted the effectiveness of such a method of publicity, while many persons interested in the moving picture business were skeptical as to whether their patrons would take an interest in a film with so apparent an educational and philanthropic object. Much to the satisfaction of all concerned, however, the film proved exceedingly popular, and was greatly in demand. Each year since, the Edison Company has prepared a film showing some phase of the tuberculosis campaign in a way to arouse both interest and enthusiasm for the work of the prevention of tuberculosis. This year the Red Cross story is entitled "Hope." It tells of a man who does not believe that tuberculosis exists in his county, and who therefore refuses to help in the campaign for its suppression. The girl to whom he is betrothed contracts the disease and goes to a New York hospital for treatment because there is no provision in her own town for proper treatment. This arouses the hitherto indifferent business man to the gravity of the situation, with the result that the town builds and equips a tuberculosis sanatorium. The lesson of the moving picture film is important; the stimulation of the public to interest and increased knowledge in the disease is much more so.

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[1] Compare Lepine and Boulud: Compt. rend. Acad. d. sc., 1905, p. 140. Rona, P., and Michaelis, L.: Biochem. Ztschr., 1909, xvi, 60. Hollinger: Ibid., 1909, xvii, 1. Frank, E.: Ztschr. f. physiol. Chem., 1910, lxx, 129. Other investigators also have published the results of comparable observations.

[2] Höber, R.: Ueber die Vertheilung des Blutzuckers auf Körperchen und Plasma, Biochem. Ztschr., 1912, xlv, 207.

[1] Weidlein, E. R.: Epinephrin from the Whale, Jour. Indust. and Engineer. Chem., 1912, iv, 636.

THE CAMMIDGE REACTION IN THE URINE

Recently we took occasion to question the value of the Cammidge reaction, which has enjoyed considerable vogue as a functional test for disease of the pancreas. The assumed usefulness of this procedure appears to have become so firmly implanted in the minds of many clinicians, especially the surgeons who are less inclined to exercise a severe critique in matters of chemical import, that a further warning may not be amiss. It will be recalled that the reaction is due to the presence in the urine of some unknown substance which yields, on hydrolysis by acid, a compound furnishing a characteristic osazone with phenylhydrazin. It was first described in 1904 and has already been the subject of a voluminous literature.[1] In confirmation of what we have earlier stated Dr. Mayesima of the surgical clinic at the Imperial Japanese University in Kyoto has noted that several substances, such as pentose compounds and glycuronic acid, may be responsible for a positive reaction, the latter being especially concerned in the usual success of the test. There is no uniformity in the character of the crystalline osazones obtained. Therefore the Cammidge reaction is devoid of diagnostic significance for pancreatic disease. It is unfortunate that so promising a reaction must be discarded; but in this respect the test has merely suffered the fate of some of its predecessors. Trustworthy functional tests are among the rarities of chemical clinical diagnosis.

WHAT'S WRONG?

That champion of the nostrum interests, the *Medical Standard,* discusses editorially in its December issue the subject of "patent medicines." It commences:

> Many people are laboring under the impression that the patent-medicine business is being destroyed, thanks to the efforts of *Collier's Weekly*, the *Ladies' Home Journal* and The Journal of the American Medical Association.

But, continues our contemporary, this is not the case; "on the contrary, this business is really increasing." Then it quotes figures from a recent Census Bureau bulletin to prove its contention. From these figures, it reaches this conclusion:

> For every $1,000 paid the doctor, the people pay about $1,500 for "patents." Instead of abusing the druggists or the people who make these more or less "popular" medicines it may be well enough to ask why the people prefer this stuff to our services. Possibly there is something wrong with *us.*

The premises in the case are wrong. While the amount of "patent medicines" *manufactured* in this country during recent years may have increased, the amount *consumed* by the people of the United States has, to a wonderful degree, diminished. Of this, there is not a particle of doubt. Lessened home consumption has driven the American "patent-medicine" manufacturer to seek foreign markets — and with success. As a result, the American "patent medicine" has become an evil abroad, especially in Great Britain and its colonies. While we disagree with the *Medical Standard* on the essential points in its editorial, its closing sentence contains some truth. There *is* something wrong with us — the medical profession. That "something" we believe to be the pernicious habit of prescribing proprietary mixtures, for the public is awaking to the fact that there is very little difference between the secret or semisecret "ethical proprietary" prescribed by the physician and the secret or semisecret "patent medicine" bought over the counter. A further "something" that is "wrong with us" is our easy-going tolerance as a profession, making it commercially profitable for such publications as the *Medical Standard* to exist; for the proprietary evil stands and falls with those medical journals of which the *Medical Standard* is a type. As long as the medical profession will tolerate so-called medical journals owned by commercial interests, operated purely for commercial purposes, whose ethics are those of the counting-house and whose owners have no interest in the medical profession aside from the dollars that they may get from it, just so long will the proprietary evil flourish.

AGRICULTURE AND PUBLIC HEALTH

The educational value of the bulletins issued by the Department of Agriculture has been repeatedly commented on and commended. A list recently received from the Department of Agriculture contains the names of the new publications issued during a single month. The list shows the manifold activities of the department and its intimate contact with the daily lives and needs of our farming population. Among the pamphlets listed in the monthly announcement are advance reports of field operations of the Bureau of Soils. Separate pamphlets contain reports of soil surveys of Jackson County, Ala., Windham County, Conn., Lowndes County, Miss., and Laclede County, Mo. Among the new bulletins are pamphlets on "The Manufacture of Butter For Storage," "Feeding Beef Cattle in Alabama," "The Cowpea Weevil," "Forest Fires, Their Causes, Extent and Effects," "The Weed Factor in the Cultivation of Corn," etc. Circulars on "Chicken Fat," "Hints to Poultry Raisers," "Directions for Constructing Vats and Dipping Cattle to Destroy Ticks," "Insects Injurious to Mushrooms," "Hog Raising in the South," "Cockroaches and Clothes-Moths," all containing the observations and conclusions of experts on these various subjects, are printed by the department and can be had for a few cents by any one interested. The variety of topics covered by the various bureaus and divisions of this department is almost bewildering. No one complains that the government is exceeding its functions or that the preparation and distribution of these pamphlets in any way interfere with religious or civil liberty. Yet the scientific facts on which these pamphlets are based are exactly the same as those which form the foundation of our present knowledge of disease. Chemistry is responsible for our knowledge of the human body and the way in which it works. The same chemistry is the basis of soil analysis and modern methods of fertilizing. Bacteriology, which gives the farmer information regarding cheese, fermentation and the diseases of animal and plant life, is the source of our knowledge regarding preventable diseases of man. If the federal government can analyze the soil of Jackson County, Ala., and issue a report on the conditions which it finds, why can it not inspect the physical condition of the citizens of Jackson County and report on the avoidable diseases which prevail there and the best means of preventing them? If the government can publish a report on the bacteriology of cheddar cheese, why can it not inform the people regarding the bacteriology of typhoid fever or cerebrospinal meningitis? If the preparation of a bulletin on forest fires is a proper government function, why is not a bulletin on epidemics of diphtheria, their causes, extent and prevention also a legitimate activity of the government? Ignorant or prejudiced obstructionists cannot obscure the issue by talking about "schools of medicine" and "personal liberty." There are no "schools" in the domain of science. The dissemination of increased knowledge has always made men free and has never interfered with their liberty.

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[1] This is compiled in a paper by Mayesima, J.: Ueber den Wert und das Wesen der Cammidgeschen Reaktion bei Pankreaserkrankungen, Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1912, xxv, 403.

I HAVE GIVEN YOU MANY VALUABLE PRESENTS IN THE PAST, UNCLE SAM. BUT THIS ONE IS THE MOST BEAUTIFUL AS WELL AS THE MOST VALUABLE PRESENT OF THEM ALL AND YOU CAN HAVE IT IF YOU WILL TAKE IT.
WEALTH
LIBERTY
PROSPERITY
RESPECT OF NATIONS
NATIONAL UNITY
FREEDOM FROM PREVENTABLE DISEASE
CIVILIZATION

AMERICAN MEDICAL ASSOCIATION CARTOON SERIES.

EDUCATIONAL BULLETINS OF STATE BOARDS OF HEALTH

Bulletins issued by many of the state boards of health are being used more and more for the education and enlightenment of the public rather than for the recording of long tables of statistics and formal reports. In no section is the increased activity of state health authorities more marked than in the South. The bulletins of the state boards of health of three Southern states which recently came in the same mail, are interesting evidence on this point. The November *Bulletin of the Mississippi State Board of Health* contains a copy of the proclamation of Governor Brewer, designating November 20 as a health day, and urging the observance of the program of the state board of health on the part of all citizens. The state board, cooperating with the state department of education and the Mississippi Federation of Women's Clubs, presents a program for use in all of the schools in the state, an outline for a course of study on public health by the women's clubs, and a comprehensive article on medical inspection of schools. The November *Bulletin of the Virginia State Board of Health* contains an announcement of a lecture bureau established by the board to furnish speakers on public health topics for any community in Virginia which desires to hold a public meeting. The announcement opens with the statement, "Settled in its conviction that the education of the people is the surest method of bettering the public health, the board, since its reorganization, has endeavored to place before the citizens of Virginia, in popular form, the tested truths of prevention." In this statement lies the summary of the entire public health movement. The December *Bulletin of the North Carolina State Board of Health* is devoted to the discussion of the liquor problem and public health, and the relation of alcohol to public health problems. An article on "The Attitude of the Medical Profession to the Use of Alcohol"; a friendly talk to boys on the subject "Does it Pay to Drink Whisky?" and an article on "The Relation Between Liquor and the Death-Rate" form the bulk of the pamphlet. These three pamphlets are simply selected at random from the copious supply of excellent material which is constantly being placed in the hands of citizens by many of our state boards of health. This work cannot fail to enlighten and strongly influence public sentiment, which must ultimately crystallize in better legislation.

Medical News

ALABAMA

New Hospitals.—Watson Infirmary, Decatur, has been opened by Drs. W. H. Watson and Joseph Greer.——At a meeting of Anniston physicians December 1, the Anniston Hospital Association was formed with Dr. A. N. Steele as president and Dr. T. J. Brothers, secretary. The company has rented a building on Marvin Hill for temporary use. The institution will be opened to receive patients this month.

Medical Staff for Y. M. C. A.—The physical department of the Mobile Young Men's Christian Association has secured agreements from the following eleven physicians of Mobile to serve as members of the staff and to deliver from time to time, during the winter, lectures on matters pertaining to health: Drs. P. O. Chaudron, P. J. Howard, C. A. Mohr, T. H.

Frazer, R. C. Jones, W. C. Gordon, A. E. Maumenee, A. W. Metcalf, F. M. Inge, S. F. Hale and M. T. Ganes.

ILLINOIS

Personal.—Dr. Frank H. Jenks, Rockford, reported seriously ill, is now said to be improving and about to go home.——Dr. E. W. Oliver has been elected secretary of the Peoria Health Service League.——Dr. H. L. Howell, Bloomington, was operated on at the Brokaw Hospital, December 6, for appendicitis.

County Districted for Medical Purposes.—President McCormick of the Cook County Board has arranged to have the county divided into districts, to each of which a physician is to be assigned. A committee of seven, with Mr. Sherman C. Kingsley as chairman, was appointed to take charge and make recommendations.

Illinois' Neglect of Epileptics.—A special committee of fifty, made up of physicians, social workers and others, which has been investigating for several months the condition of epileptics in the state, urges strenuously in its report that the general assembly appropriate sufficient funds to buy about 2,000 acres of unsettled ground suitable for light farming and gardening, where at least 2,000 epileptics might be cared for. Efforts in other states have shown that epileptics improve in health where they can be employed out-of-doors at light work and kept on a carefully selected diet and under scientific care. About 10 per cent. of such patients have been completely cured and the other 90 per cent. have been rendered at least partially self-supporting and have thus ceased to be an economic burden to their homes and communities. Massachusetts, Ohio, New York, New Jersey, Kansas, Connecticut, Texas, Indiana and Virginia all have established epileptic colonies and Illinois thus far has been lagging far behind. A bill is to be introduced providing for such a colony.

Chicago

Quiet Fire in Hospital.—A fire in the Monroe Street Hospital, December 9, did considerable damage, but caused no panic on account of the care taken by the firemen to work silently.

Medical History Society.—At the meeting of the Society of Medical History of Chicago, December 12, Dr. Jesse S. Myer, St. Louis, gave an illustrated lecture on "Dr. William Beaumont."

Benefit for Lynde Hospital.—Friends of Lynde Hospital have arranged a benefit concert to be given at the Blackstone Theater, December 27. Lynde Hospital was formerly the medical department of Gads-Hill Settlement and is in charge of Dr. Katharine B. Rich.

New Hospital Opened.—The South Shore Hospital at Eightieth Street and Luella Avenue, recently opened, is a three-story brick building with accommodation for forty ward patients in addition to a number of private rooms and is located on a site which has a frontage of 600 feet. Drs. Axel F. V. Werelius and Andrew V. Dahlberg are respectively surgeon and physician in charge.

Personal.—Dr. P. J. H. Farrell was operated on for appendicitis December 15, and is reported to be doing well.——Dr. Robert H. Rea has succeeded Dr. Frederick B. Clark as superintendent of the Chicago State Hospital, Dunning.——Dr. Otto F. Warning has been appointed a member of the Board of Education.——Dr. J. N. Thorpe was seriously injured in a collision between his automobile and two street cars, December 9.——Dr. Roy H. Cox, ambulance physician at the Chicago Avenue Police Station, injured his knee in a fall while making an emergency call, December 7.

INDIANA

Personal.—Dr. Roy V. Hannell, Lafayette, has been elected coroner of Tippecanoe County.—Dr. Charles A. Underwood has resigned as health officer of Danville.——Dr. Harry M. Lamberson, Connersville, has been elected coroner of Fayette County and Dr. O. P. M. Ford a member of the health board of Connersville.

Favors State Commission on Preventable Diseases.—The Commercial Club of Indiana, at a meeting December 11, passed resolutions favoring the establishment of a state commission to study the extent of preventable diseases which are said to cost the people of the state not less than $20,000,000 a year, and to make a report with recommendations to the general assembly.

Public Health Week.—Public Health Week was held in Frankfort, beginning December 10. A health exhibit was made in the Carnegie Library and lectures illustrated by moving pictures were given at frequent intervals. The entire proceedings were in charge of Dr. C. A. Zinn, county health officer, Dr. Benson A. Ruddell, health officer of Frankfort, and the county and city superintendents of schools.

Epileptics in Indiana.—The annual report of the Board of State Charities shows an increase of 111 epileptics sent to the state institutions during the past year. There are now 957 epileptics in public institutions in the state, of whom 543 are men and boys and 414 women and girls. Of these, 50 per cent. are classed as feeble-minded and 38 per cent. as insane. Only 12 per cent. have no marked mental deficiency.

Epidemic Diseases.—Dr. R. C. Mackey, health officer of Hobart, on account of the prevalence of scarlet fever, ordered the public and parochial schools and theaters of the town closed for a week, and requested the suspension of worship at all public places and Sunday schools, December 1.——The small-pox situation at Jasonville is said to be under control, almost all of the cards have been taken down, schools have been opened and public meetings are no longer interdicted.

New Laws.—The committee on tuberculosis of the Indiana State Medical Society has prepared a law to be introduced during the next legislature to quarantine all people suffering from tuberculosis. Public health authorities will be given sufficient legal rights to enforce the law. The State Board of Health has had a public hygiene bill written which will be introduced in the legislature at the request of the Travelers' Protective Association. It provides for fine or imprisonment for the proprietor of any public building, such as hotels, cafes, boarding houses, etc., that is maintained in an unsanitary condition. This bill defines what are unsanitary and unhealthy conditions. Other bills have been prepared providing

1. For a civil service for county health officers.
2. For the removal of the pathologic laboratories of the state from the state house.
3. For empowering the state board to pass on all school-house plans.
4. For the establishment of a department of sanitary engineering.
5. For the enlargement of the capacity of the State Pasteur Institute.
6. For the enlargement of the executive offices of the state board at the state house.
7. For the cooperation with other states in work on occupational diseases, bad housing, etc.
8. For the control and eradication of cattle tuberculosis.
9. For the restriction of the use of cocain to physicians and dentists.
10. For the prohibiting of fraudulent advertising of medicinal preparations intended to be used for cure of diseases of man or animals.

IOWA

Small-Pox.—About thirty families of Ponca are in quarantine because of the prevalence of small-pox, which, as is often the case, was at first taken for chicken-pox.

Personal.—Dr. W. O. Smouse, Des Moines, has started for Germany.——Dr. W. H. Newlon, Fort Madison, has gone abroad.——Dr. Charles Ryan, Des Moines, who was operated on for appendicitis at Lakeside Hospital, Cleveland, November 25, is reported to be doing well.——Dr. F. J. Will has resigned as local surgeon to the Chicago and Northwestern System, at Des Moines and has been succeeded by Drs. O. J. Fay and A. C. Page.——Drs. G. B. Little and Bertha McDavitt, Burlington, were thrown from the automobile in which they were riding and painfully injured.——Drs. W. L. Bierring, William Pearson and Erwin Schenk have been appointed as an advisory medical committee to the school board of Des Moines.——Dr. J. C. Powers, Hampton, who is under treatment in a hospital in Chicago for an infected wound of the hand, is reported to be improving.

KENTUCKY

New Officers.—Henderson County Medical Society at Henderson, December 10: president, Dr. R. H. Moss; secretary-treasurer, Dr. P. Ligon.

Explosion in Sanatorium.—A boiler exploded in the laundry and kitchen building of the Hazlewood Sanatorium near Taylor Boulevard, Louisville, November 25, and the building was burned to the ground. No one was injured and it was not necessary to remove the patients from the institution.

Personal.—Dr. John G. Cecil has resigned as a member of the executive committee of the medical department of the University of Louisville, and has been succeeded by Dr. J. Garland Sherrill. The committee is now composed of Drs. W. E. Grant, J. B. Marvin, Clint Kelly, J. M. Ray, W. H. Wathen and J. M. Bodine, besides the new member.

Scovill's Successor.—The trustees of the State University of Kentucky confirmed the selection of Dr. Joseph H. Kastle for director of the Agricultural Experiment Station and dean of the College of Agriculture. Dr. Kastle was formerly in the government employ in the Bureau of Animal Industry and had the unanimous endorsement of the entire force of the experiment station for the position of director to succeed Professor Scovill.

Hospital Notes.—Beginning December 1, Speers Hospital, Dayton, will become the annex hospital for the Chesapeake and Ohio Railroad. Heretofore employees of the company who required treatment have been obliged to go to hospitals at Clifton Forge or Huntington, W. Va.——The Martinsville Sanatorium, Louisville, was damaged by fire to the extent of $10,000, October 30.——The new hospital at Paris, Ky., will be ready for occupancy by December 1.——Highland Hospital, the first hospital to be established in the mountain region of Kentucky, has recently been dedicated. The establishment of this hospital is the result of the efforts of Rev. E. O. Guerrant, mountain evangelist.——Drs. J. N. and A. T. McCormack and Lillian H. South have sold St. Joseph's Hospital, Bowling Green, to Dr. T. O. Helm. This includes the franchise, nurses' training school, operating outfit and the entire equipment of the institution.

MARYLAND

New Officers.—Calvert County Medical Society: president, Dr. O. D. Simmons, Bowens; secretary, Dr. John W. Leitsch, Huntingtown.

Hospital Opened.—The Allegheny Hospital of the Sisters of Charity, Cumberland, with accommodation for one hundred patients, was opened for inspection December 9.

Academy Introduces Inspection.—The Academy of Medicine of Cumberland has formally endorsed the recommendations of Governor Goldsborough at the semi-annual meeting of the Medical and Chirurgical Faculty of Maryland, that a state sanitary and a state dairy inspector be appointed, with deputies in each county.

Personal.—Dr. Ralph W. McDowell, Annapolis, was seriously injured in Philadelphia, November 29, in a collision between the taxicab in which he was riding and a trolley car.——Dr. William P. E. Wyse, Pikesville, has been awarded a verdict for $2,000 on account of injuries sustained by him two years ago in a collision between automobiles.

Baltimore

New Officers.—University of Maryland Medical Society, December 10: president, Dr. Nathan Winslow; secretary, Dr. A. L. Fehsenfeld.

Measles on Steamer.—The North German Lloyd Steamship *Main* arrived at Baltimore, December 7, with thirty-seven cases of measles and twenty-three suspects.

Sanitary Equipment Adopted by Railroad.—The Baltimore and Ohio System has equipped its passenger trains and stations and lavatories with sanitary paper roll towels. It has also abolished the public drinking-glass, replacing it with individual cup service.

Personal.—Dr. John J. Rennington, who was severely injured in a fall from a street car, December 9, has returned home.——Dr. George C. Wegefarth was operated on for appendicitis December 12, at the Church Home and Infirmary.——Drs. Anna D. Abercrombie and John Travers have been appointed medical inspectors under the child labor law.——The following have been appointed as the advisory board by the Home for the Widows and Orphans: Cardinal Gibbons, Hon. Henry Stockbridge and Drs. Lewellys F. Barker, Hugh H. Young, Hon. W. T. Finney, Randolph Winslow, Charles O'Donovan, T. C. Gilchrist, D. W. Cathell and J. G. Jeffers.

MASSACHUSETTS

New Officers.—Somerville Medical Society, December 5: president, Dr. E. D. Pillsbury; secretary-treasurer, Dr. Allen H. Blake, both reelected.

Personal.—Dr. James A. Honeij, Cambridge, has been appointed by the State Board of Charities assistant physician at the Leper Colony, Penikes Island. He will have the use of the laboratory of the Harvard Medical School and will make a study of the fifteen cases of leprosy now on the island.——Dr. Franz L. F. E. Pfaff has resigned as professor of pharmacology and therapeutics in Harvard Medical School and will take a vacation of two years.——Dr. Louis M. Spear has been appointed physician-in-chief of the Peter Bent Brigham Hospital, Dr. Edward P. Richardson, surgeon, and Dr. Charles F. Painter, orthopedic surgeon.

Hospital Notes.—At the annual meeting of the Boston Floating Hospital, November 7, Dr. Samuel H. Durgin was elected a trustee and Dr. Henry C. Marble, resident physician.——Ground was broken recently for the new St. Elizabeth's Hospital, Brighton. The ceremonies were in charge of Cardinal O'Connell, president of the hospital corporation.——A fire in the store room of the Emerson Hospital, Forest Hills, destroyed many valuable medical books.——The new buildings of the Talitha Cumi Maternity Home, Forest Hills, were formally opened, October 29, by Bishop Lawrence. The home is under the management of Drs. J. M. Hastings and E. M. Plummer. Dr. Elizabeth Ritter, Brookline, is resident physician and Dr. William F. Wesselhoeft, consulting physician.——The Pittsfield Antituberculosis Association has awarded the contract for building a new central house on the Roberts Camp at West Pittsfield, to cost $15,000.——At the rummage sale for the benefit of the Boston Babies' Hospital, October 24, more than $4,300 was realized for the institution.——The Women's Charity Hospital Club has voted to change the name of its hospital to the Massachusetts Women's Hospital.——The executive committee of the Burbank Hospital, Fitchburg, has been authorized to build a tuberculosis hospital at a cost of about $28,000.——The new Melrose Hospital was damaged by fire recently to the extent of $1,500.——The new Marlboro General Hospital was opened without formal exercises, December 6. The building, which has cost $57,000, is of concrete construction and consists of an administration building and two wards. The institution will accommodate about thirty-six patients.

MINNESOTA

Personal.—Dr. J. Frank Corbett, city bacteriologist of Minneapolis, has resigned.——Dr. Lattan A. Crandall has been reelected president of the Minneapolis Child Welfare Association.

Norwegian Hospital.—The Hoyme Hospital Association has purchased a site for the institution at Twenty-Sixth Avenue West and Fourth Street, Duluth, on which it proposes to erect a hospital to cost about $50,000. Dr. H. N. Hovde is vice-president of the association and Drs. J. M. O. Tufty and O. E. Heimark are directors.

Free Eye Dispensary.—The University of Minnesota Free Dispensary has created an optical department which will be under the charge of Dr. Frank C. Todd of the medical faculty.

New Officers.—Southwestern Minnesota Medical Association at Luverne, November 12: president, Dr. L. L. Sogge, Windom; secretary-treasurer, Dr. Emil King, Fulda. Windom was selected as the next place of meeting.——Southern Minnesota Medical Association at Mankato, December 4: president, Dr. A. B. Stewart, Owatonna; secretary, Dr. W. T. Adams, Elgin.——Midway Medical Association met for organization December 9, Dr. Frederick E. Leavitt, St. Paul, acting as chairman.

MISSOURI

District Health Society Organized.—Representatives of the health departments of the twenty-six counties and cities of western Missouri designated as the seventh district, met in Springfield, November 21, and organized a district society electing Dr. J. M. Billings, Lebanon, president, and Dr. W. M. West, Monett, secretary.

Personal.—Dr. Harry Czarlinsky, Kansas City, has been elected coroner of Jackson County.—Dr. George P. Pipkin, Kansas City, underwent operation for appendicitis at the Kansas City General Hospital, November 7.——Dr. W. L. Gist, city physician of Kansas City, has been placed in charge of the ambulance corps, National Guard of Missouri, with the rank of captain.

Tuberculosis Hospital Districts.—Buchanan County Tuberculosis Hospital District is the first to be organized on the law passed by the last legislature. The governor has appointed the following as commissioners for the district: Colonel James H. McCord, Mr. George Schneider, Mr. Eugene Westheimer, Dr. Daniel Morton, St. Joseph, and Colonel J. A. Corby. The establishment of the district assures care for those suffering from tuberculosis as soon as the board can get the necessary agencies at work.

St. Louis

Diphtheria.—The local board of health reports at least four hundred cases of diphtheria in addition to a great number of suspected cases.

New Officers.—St. Louis Medical Society, November 25: president, Dr. Louis H. Behrens; secretary, Dr. Frederick C. E. Kuhlman (reelected).

Personal.—Dr. D. F. Rice was slightly injured in a collision between the automobile in which he was riding and a trolley car, December 2.——Dr. Louis R. Padberg has been elected coroner of St. Louis, vice Dr. Jules Baron.

Diphtheria Epidemic.—The discovery of twenty-three cases of diphtheria in the industrial school has caused the isolation of the patients in the contagion hospital, and the prophylactic administration of antitoxin to 318 children.

NEW YORK

Tuberculosis Hospital for Saratoga County.—The application of the supervisors of Saratoga County for permission to establish a hospital for the treatment of tuberculosis in the town of Providence, Saratoga County, has been approved by the State Commissioner of Health.

Personal.—Dr. William T. Pearson has been elected superintendent of the Glenridge Sanatorium to succeed himself.——Dr. and Mrs. George H. Dill, Fort Plain, have started for California.——Dr. Maurice J. Lewi has resigned as secretary of the State Board of Medical Examiners and Dr. Otto Von Huffman of New York City has been appointed in his place.

International Water Pollution.—The November bulletin of the State Department of Health calls attention to the fact that a question has arisen with reference to the extent of the jurisdiction under the treaty between the United States and Canada, whether the International Joint Commission may properly consider pollution of waters on either side of the international boundary line, which by diffusion or otherwise, do not extend over and pollute the waters on the other side of the boundary line. When this question of jurisdiction is settled, the State Commissioner of Health will appear before the commission by invitation at a hearing to be held in Washington and will explain the attitude of the State Department of Health with regard to the pollution of streams, and will present a report showing the action of the state on all applications for permission to discharge sewage into boundary waters between New York and Canada.

New York City

Personal.—Dr. Edgar G. Janeway, who died Feb. 10, 1911, left an estate appraised at $481,500.——Dr. M. Rabinovitz, adjunct gynecologist to the Beth Israel Hospital, has been appointed visiting gynecologist to Sydenham Hospital.——Richard Lake, F.R.C.S., lectured before the Section on Otology of the New York Academy of Medicine December 14 on "The Clinical and Therapeutical Aspects of Vertigo."

To Raise Money for Bronx Hospital.—An industrial exhibit is being held in the Grand Central Palace for the benefit of the Bronx Hospital, to which the admission fee is one dollar. Each ticket entitles the bearer to one dollar's worth of goods. It is said that $500,000 worth of goods will be distributed. The new Bronx Hospital, which is to supplant the present institution, will cost about $350,000 and will contain over 200 free beds. The dispensary will be equipped to treat about 100,000 patients a year.

Letchworth Village Contracts Ready to be Let.—Letchworth Village, an institution for the segregation of epileptics and feeble-minded for which the state has acquired a large tract of land at Thiells near Haverstraw, is to be begun in the near future. The plans for the institution have been completed and the group of buildings to be constructed consists of four dormitories, an attendants' home, a dining-hall, a power plant and a storehouse. At the last session of the legislature $457,000 was appropriated for this purpose. Ultimately the village will consist of six groups of buildings, each consisting of eight dormitories, an industrial building, and a school house. Each group of buildings will have accommodations for 500 inmates.

Endowment for Work Among Defectives.—The new Clearing House for Defectives which was established recently in connection with the Department of Charities has been doing its work with the aid of volunteer surgeons associated with Dr. Max G. Schlapp. Commissioner Drummond presented the needs of this work at a recent meeting of the Woman's Municipal League and as a result an endowment sufficient to secure its permanency and to enable it to open all necessary records and make investigations has been secured through the generosity of Mrs. W. K. Vanderbilt, Mrs. August Belmont, Mrs. Hewitt and Mrs. Seligman. An important part of the work will be the creation for the first time in this country of a systematic record of all defectives known to be at large.

NORTH CAROLINA

Work of the Hookworm Commission.—The hookworm commission, operating under the direction of Dr. J. A. Ferrell, assistant secretary of the State Board of Health, is composed of six physicians, eight microscopists and one stenographer. Up to December 1, 148,993 examinations had been made in the state and 98,730 persons had been treated. The Rockefeller Commission spent in this work $20,000 and the State Board of Health $6,000, while the sixty counties in which the commission has operated have contributed approximately $15,000 to provide accommodation for the hookworm laboratories, advertise the work that is being done and pay for the medicines used. Usually from five to eight dispensaries were established in each county and the work of examinations and treatments occupied about six weeks. Public health pamphlets are distributed and it is believed a great impetus to general sanitation will be the result of the work. Continued observations verify the earlier suggestion of Dr. Stiles that the disease is found much more frequently in sandy districts than in clay subsoil. For instance, the examinations of the suspects in Richmond County show 38 per cent. infection as contrasted with 17 per cent. in Buncombe County.

OHIO

Hospital Notes.—Memorial Hospital, Elyria, will hereafter receive annually an appropriation of $6,000 from the city instead of $5,000, as heretofore.——St. Elizabeth's Hospital, Youngstown, opened to receive patients December 8.

Hoover in Des Moines.—Dr. C. F. Hoover, Cleveland, was the guest of honor of the Des Moines (Ia.) Pathologic Society at its November 15 meeting and delivered an address on "Respiratory Ventilation of the Lungs in Health and Disease."

Small-Pox.—The illness of ten patients in the State Hospital, Toledo, and of five employees, which had been diagnosed as chicken-pox, has been pronounced small-pox and the patients and 100 other patients and employees who had been exposed are in quarantine.——Seven cases of small-pox are reported in Zanesville and a theater and all moving-picture shows have been ordered closed.

Personal.—Dr. J. W. Piper, Bethesda, who has been seriously ill with pneumonia, is reported to be improving.——Dr. C. H. Bailey, East Liverpool, has been appointed tuberculosis inspector with jurisdiction over all potteries in East Liverpool, Wellsville, Chester and Newell.——Dr. J. W. Costolo, superintendent of the District Tuberculosis Hospital, Lima, has resigned and will resume practice in Sidney.——Dr. J. W. McKemy, Dayton, has been elected coroner of Montgomery County.——Dr. G. O. Maskey, Upper Sandusky, has been appointed local surgeon of the Columbus, Hocking Valley and Toledo Railroad.——Dr. W. M. Bucher, Cleveland, has been appointed superintendent of the new tuberculosis hospital, Warrensville, Cleveland, which is to be opened January 1.——Dr. R. H. Grube, Xenia, has been elected dean and Dr. P. R. Madden, Xenia, secretary of the Ohio Soldiers' and Sailors' Orphans' Home.——Dr. A. Delaplane, formerly physician at the State Penitentiary, Columbus, has been appointed assistant medical examiner of the Pennsylvania System between Chicago and Pittsburgh, with headquarters at Fort Wayne, Ind.——Dr. H. T. Phillips, Athens, coroner of Athens County, has been elected probate judge of the county and will take office, February 9, next.

WEST VIRGINIA

Society Honors Governor-Elect.—The Medical Society of McDowell County, at its last annual session, December 11, elected Dr. J. Howard Anderson, Marytown, president, and Dr. S. D. Hatfield, Iaeger, secretary. The society adopted resolutions appreciating the confidence reposed by the people of the state in Dr. H. D. Hatfield, Eckman, a member of the society, in electing him governor—the first time a member of the medical profession in the state has been so honored; congratulating Dr. Hatfield on the distinction conferred on him and on the reflected glory brought on the medical profession of the state and his county society, and pledging him hearty support during his administration, with special reference to state-wide hygiene and sanitation.

GENERAL

Prize Offered for Work on Diabetes.—The local medical society at Carlsbad has offered $1,000 (5,000 crowns) for the best work or works on "Treatment of Diabetes Mellitus with Special Reference to Balneotherapy." Competition is open to physicians of all countries, and any language may be used. All communications should be addressed to the Vereinigung Karlsbader Aertze, Carlsbad, Austria. The jury consists of von Jaksch of Prague, Lüthje of Kiel, Ortner of Vienna, Schmidt of Innsbruck and Dr. Ganz. Articles must be received by Dec. 31, 1913.

American Society for Physicians' Study Travels.—Philadelphia has taken the lead in the organization of a society with this name, patterned after the Deutsches Zentralkomitee für ärztliche Studienreisen. This German organization, it will be remembered, sent a party throughout the United States, in connection with a visit to the International Congress on Hygiene and Demography at Washington. It was the fourteenth annual tour of the kind. The party and its trip were described in The Journal, August 24, page 662, August 31, page 731, September 7, page 812, and in subsequent issues. The success of the trip and the interest taken in the entertainment of the members by members of the medical profession in the various cities visited have awakened a desire for a similar organization in the United States. At a subscription dinner in Philadelphia, December 7, a committee was appointed to organize the American Society for Physicians' Study Travels. Dr. James M. Anders was elected chairman. Speaking for his committee, Dr. Anders asks all American physicians interested in this proposition to correspond with him at 1605 Walnut Street, Philadelphia. Clinics can be arranged in advance, lectures prepared and visits made to the best hospitals and health resorts, with the assurance of a hearty welcome from the leading medical men of the localities visited. Dr. Anders seeks to have this society represent the American medical profession with all the medical centers represented in its membership. So many physicians go abroad each year that the prospect looks bright for a successful organization in this country, and Dr. Anders will be glad to hear from all who are able to consider the matter at all seriously. In this connection it should be stated that tours are being arranged in connection with the International Medical Congress at London, August, 1913, by Dr. Richard Kovacs, New York City, and by Dr. C. W. Fassett, St. Joseph, Mo.

LONDON LETTER

(From Our Regular Correspondent)

London, Dec. 7, 1912.

International Congress of Medicine

The International Congress of Medicine which is to be held in London next August will be one of the largest international gatherings held in this country for many years. It is expected that at least five thousand physicians will be present as delegates. Of those about two thousand will probably come from Great Britain and other English-speaking countries; about one thousand from Germany, one thousand from France and one thousand from other countries. For its largest meetings the congress will assemble in Albert Hall. There are twenty-six sections and subsections, most of which will meet daily; the meeting-places must therefore necessarily be somewhat scattered in various parts of London. The forthcoming congress will probably surpass all its forerunners in numbers. It will certainly show a marked advance on the last meeting in London in 1881, the seventh meeting of the congress, when the delegates numbered about three thousand. The present is the seventeenth meeting. The increasing specialization of medicine is illustrated by the fact that the sections for the discussion of particular branches of medicine have grown from fifteen in 1881 to twenty-six at the forthcoming meeting. The congress of 1881 over which Sir James Paget presided was notable for the presence of Huxley, who spoke on the subject of heredity, and, of Pasteur. While the program of the coming congress does not contain any names so great as these, nearly every distinguished man in British medicine is among the officers, presidents of the sections, or contributors of papers. The congress will be presided over by Sir Thomas Barlow, president of the Royal College of Physicians. The general addresses to the full congress in the Albert Hall will be given by Professor Chauffard of Paris, on medicine; Geheimrat Professor Paul Ehrlich of Frankfurt, on pathology; Mr. John Burns, M.P., on public health; Prof. Harvey Cushing of Harvard University, on surgery, and Mr. W. Bateson, F.R.S., on heredity. The proceedings in the sections will be conducted mainly in English, French, German and Italian; but, with the assistance of interpreters, the delegates may speak in any language. Some of the subjects to be discussed are of more than professional interest, such as the psychology of crime, which is to be considered at a joint meeting of the forensic medicine and psychiatry sections. The causes of epidemic diseases and the effects of dust in producing diseases of the lungs are to be considered in the section of hygiene. The forensic medicine section will discuss the causes and prevention of suicide, and the tropical medicine section the subjects of plague and beriberi. To promote imperial feeling, the British committee has appointed on the various committees representatives of the profession in the oversea dominions. When it was first proposed to hold the meeting in London the invitation was given on behalf of members of the profession in Great Britain only. Many representatives of Canada, Australasia and India have now been nominated, and the whole empire will now play the part of host to the congress. A fund is being raised to meet the expenses of the meeting, which are expected to amount to $40,000.

The National Insurance Act: Decision of the British Medical Association Still in the Balance

Though there are only six weeks before the medical benefits of the national insurance act come into force, the British Medical Association has not yet given its decision whether to work the act or not. The following concessions were made by the Chancellor of the Exchequer, Mr. Lloyd George, in his final interview with the deputation appointed by the British Medical Association. The first point raised was as to the scope of the services which the insured person might demand. The reply is "The insured person cannot demand services beyond those which every member of the panel may reasonably be expected to give. The treatment which the practitioner undertakes to give is that which can properly be undertaken by practitioners of ordinary competence and skill." It was pointed out that a physician may have acquired special skill in some branch and be able to perform an operation which no one without special skill could undertake. The insured person cannot require that as part of his medical benefit. To decide whether any disputed case comes within the agreement it is proposed that the local insurance committee (consisting mainly of laymen) shall, if necessary, refer it for decision to a court of reference set up for the purpose by the government. Certain duties, although coming within what will be required as medical benefit, have been distinguished for some time as "extra." Examples are minor operations, setting fractures, night visits, etc. Payment of these extras depends on the method adopted for distributing among the physicians in each area the amount available for that area. Some districts may decide on a capitation payment, each physician receiving so much per head for all risks, whereas others may set aside a portion of the total amount available to provide a pool out of which the fees for extras would be paid. As a deterrent against unreasonable demands the deputation asked that the physicians should be allowed to make a small charge for night and special visits. This was refused as impossible, but it is proposed to meet the point by giving the insurance committees power to fine insured persons, or in the case of repeated offenses to suspend from medical benefit those who make unreasonable demands on the physicians attending them. On the question of mileage for country physicians (mentioned in a previous letter) the government considers the capitation rate offered sufficient, as these physicians are allowed to dispense their own medicines and thus receive the profits which in the case of the city physicians go to the pharmacists. The government, however, recognizes that in some parts of the country exceptionally sparsely populated the physicians would be at a disadvantage. Parliament will therefore be asked to provide a small fund for such areas. Physicians will be required to keep only such records as will furnish information as to the incidence of disease. It is pointed out that no regulations could be framed to exclude the insurance committee from power to consider complaints against a physician and that for the protection of physicians a provision had been inserted in the regulations: a complaint should not be considered by the insurance committee until it had been sifted in private session by a body in which the physicians and the insured would be equally represented. The government has acceded to the request that the medical members of each insurance committee shall constitute not less than one-tenth of the whole.

THE ACTION OF THE BRITISH MEDICAL ASSOCIATION

The report of this final conference with the Chancellor of the Exchequer has been considered by the council and several protracted sittings, one lasting as long as eleven hours, have been held. As stated in previous letters there are two parties on the council, an extreme and a more moderate one. It seems, therefore, that under the circumstances the council could not give any lead to the association. The intention to send with the report of the final interview with the Chancellor a covering letter to the divisions of the association has therefore been abandoned. Meetings of the divisions are about to be held all over the country to determine finally whether the association will work the act or not. To these all physicians, whether members of the association or not, have been invited.

A DISSENTIENT ORGANIZATION

An organization of physicians to work the act has been formed. There has all along been a minority of the profession, consisting largely of men of socialistic views, in favor of the act. Their number appeared to be very small, but the recent concession of the government has, as anticipated, increased the number of those willing to serve. Moreover, a certain political element exists in the situation. It is quite true that the majority of physicians, whether liberal or conservative, opposed the act on purely professional grounds and some of its most vehement opponents have been prominent liberal supporters of the government. At the same time the conservative press has tried to make as much party capital as possible out of the dissatisfaction of the profession and at the meetings of the association the intensified virulence of those who were opposed to the government on political, as well as professional grounds, was evident. A marked example is the president of the association, Sir James Barr, into whose unmeasured denunciation of the act the political bias so strongly entered that protests have been made by members of the association. On the liberal side there has been little evidence of party feeling entering into the controversy. Dr. Esmonde, an Irish member of Parliament, who was once in general practice, has announced, however, that the government has met the physicians fairly and he has invited communications from those willing to work the act. He claims to have received a large number of responses. In consequence of the Home Rule question the members of the Irish party are strong supporters of the government. While there are no grounds for saying that Dr. Esmonde is not doing what he honestly believes to be in the interests of the profession, one cannot help feeling that the motive of countering the attack made by the conservative party against the act enters into his action. At the eleventh hour there has also been started a new association termed "The National Insurance Practitioners' Association," which has sent a circular to every physician asking if he is willing to serve. This association recognizes the good work which has been done by the British Medical Association in securing better terms from the government, but in consequence of these terms it holds that the undertaking not to work the act except on conditions approved by the British Medical Association is no longer binding. Before issuing this circular they would have waited until the council of the British Medical Association had reported and an opportunity been given them of recording their votes, but a circular sent out to the members of the Westminster provisional medical committee of the association has made this impossible. This circular states that "the number of doctors willing to work the act on any terms must be very few indeed" and that "it is only on matters of detail as to the best method of carrying on a campaign of resistance that differences exist." The founders of the new association say that it is their duty to the public as well as to themselves to take service and that they have formed the new association, not out of any disloyalty to the British Medical Association, but for the protection of their own interests. To say the least, it seems unfortunate that they did not delay their manifesto until the decision of the association has been given. The time for making arrangements for the working of the act, however, is now very short.

PARIS LETTER

(From Our Regular Correspondent)

Paris, Nov. 22, 1912.

The Fight Against the Decrease of Population

A decree has been issued for the formation by the minister of finance, M. Klotz, of an extraparliamentary commission (including several physicians) for the study of national, social and fiscal questions concerning the decrease of population in France, and of seeking the means of remedying the condition. For several years the legislative chambers and successive governments have considered the problem, but up to the present nothing has been accomplished except half-way measures, because the fiscal side of the question has been neglected.

The Lowest Pulmonary Capacity Compatible With Life

At one of the recent meetings of the Académie des Sciences, Drs. Léon Bernard, A. Le Play of Paris and Charles Mantoux of Cannes reported the outcome of their researches on the lowest pulmonary capacity compatible with life. They employed a special technic suggested by the treatment of pulmonary tuberculosis by means of artificial pneumothorax, following the procedure of Forlanini. The principle was to immobilize the lungs in such a way that their movement was restricted to the lowest limit compatible with the maintenance of life. This immobilization was accomplished by means of nitrogen, the resorption of which is negligible. This gas is injected at first into the right pleura to the point of complete immobilization, and then into the left pleura to a certain limit where the experiment stops. Then skiagraphic and fluoroscopic examinations are made. By these means different factors can be determined, such as the quantity of gas injected and the volume and weight of the lungs, which permits by a simple calculation a determination of the lowest capacity of the lungs compatible with life. This has been found to be about one-sixth of the total lung capacity.

The Struggle Against Alcohol

As I have told in a preceding letter, the Chamber of Deputies by a vote of 361 to 155 postponed the passing of the law voted by the senate to limit the number of liquor licenses (The Journal, March 16, 1912, p. 794). This vote has caused much disappointment. The Académie de médecine and a large number of medical societies have protested against the postponement of this reform, the most urgent of all. The Ligue nationale contre l'alcoolisme, presided over by Professor Debove, formerly dean of the Faculté de médecine of Paris, has issued an appeal to French women to initiate one of these movements against which political assemblies can fight only in vain. To combat the distillery, that formidable financial trust supported by 400,000 tavern-keepers, the league invites French women *en masse* to sign a petition which cannot fail to impress the Chamber of Deputies.

Prizes Awarded to Finlay and Agramonte

Among the prizes offered for competition by the Académie des Sciences the most important is the Bréant prize (100,000 francs, $20,000) for the cure of Asiatic cholera. Naturally this prize has not been awarded this year, but from the income from the foundation the academy has awarded a prize of $500 (2,500 francs) to Dr. Carlos J. Finlay of Havana and another of equal value to Dr. A. Agramonte of Havana for their work on the rôle of the mosquito in the propagation of yellow fever.

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, Nov. 22, 1912.

Personal

Professor Gumprecht of Weimar has been appointed to deliver a brief course of lectures on social and economic questions of interest to physicians.

On November 20, Professor Stieda of Königsberg celebrated his fiftieth anniversary as dozent.

Professor Czerny of Strasburg has accepted the call as successor of Heubner.

Practice of Foreign Physicians in German Watering Places

In spite of the fact that persons who are not licensed in Germany are not allowed to call themselves physicians or to use any similar title, for many years foreign physicians, mostly Russian, have been carrying on an extensive practice in Germany, particularly among their own countrymen in Berlin and the cosmopolitan watering-places. On motion of the medical Bezirksverein at Kissingen, the Bavarian medical chambers have taken a stand against this unauthorized competition and asked the Bavarian government to use its influence to forbid the carrying on of practice in any form by physicians who are not licensed in Germany.

The Robert Koch Tuberculosis Foundation

The Robert Koch foundation for the elimination of tuberculosis, which was established five years ago in memory of the discovery of the tubercle bacillus, with a capital fund of 1,250,000 marks ($312,555), has already expended nearly 100,000 marks ($25,000) for promotion of research on tuberculosis. At its last session, early in November, an allowance of 3,000 marks was granted for studies on vital staining and tuberculosis, and 1,500 marks for investigations of tubercle bacilli in the blood-stream.

Expenses of the Prussian Universities

The ordinary expenses for the Prussian universities have increased since 1868 from about 4,000,000 ($1,000,000) to 21,000,000 marks ($5,250,000) in 1911. Corresponding to this, there is also to be noted a marked increase in the number of students. The average registry in the Prussian universities has increased from about 7,500 in 1868-69 to about 28,000 students in 1911-12. Hence, the number of students had increased by about 280 per cent., whereas the expenses have increased by 435 per cent. In 1868 there were expended for the individual student 536 marks, in 1911, 753 marks. About three-fourths of the expenses of the universities are covered at present by the government, the remainder coming from the income of the universities, as well as from foundations and other funds.

Quiet at Health Resorts

The German committee for hygienic arrangements in health resorts and watering places discussed at its last session the important theme "Quiet at Health Resorts." The following resolutions were adopted for regulating public traffic: 1. In the construction of street pavements, noise-suppressing reinforcement should be used according to local conditions. (Wood, asphalt, macadam; stone pavement is to be avoided as much as possible.) 2. Limitation of the street traffic in such a manner as to afford the necessary rest to the guests of health resorts. (Prohibition of fast driving of automobiles and other vehicles; prohibition of unnecessary use of horns and whistles and the cracking of whips; limitation of the use of bells and whistles on local railroads and steamship traffic. Control of the traffic of freight wagons. Practicable limitation of all kinds of noise which disturbs the quiet, with some exceptions which must be approved by the police (such as moving, etc.) 4. Prohibition of noisy plays of children and of noisy calls by street peddlers. 5. Restriction of keeping noisy animals (fowls, cats, dogs, etc.) 6. Permission of only the most necessary bell-ringing; elimination of the striking apparatus of public clocks. 7. Limitation of the construction of buildings to the slack season at the resorts.

For the houses the following resolutions were passed: 1. The greatest possible deadening of walls and ceilings in the lodging-houses. 2. The kitchens, water closets, bathrooms, rooms with machinery and rooms for amusement must be arranged so that those living in the house may not be annoyed by the noise produced in such rooms. 3. Establishment of certain hours for the beating of rugs, furniture and bedding. 4. Restriction of noisy plays of children in the courts, halls and gardens. 5. Training the house-servants to perform all their duties with the least possible noise. 6. The greatest possible limitation of playing on musical instruments and singing with open windows and in buildings which are not sound-proof.

Population of the German Empire According to Age

The age relations of the population of Germany, according to the census of 1910, may be summed up in the following table:

	Males	Females	Total
Population in 1910......	32,040,166	32,885,827	64,925,993
15 years old and under..	.. ..	....	22,107,930 *
Born before 1851.......	2,271,366	2,842,838	5,114,204
Aged 15 to 60.........	18,660,908	19,042,951	.... †

* 34.1 per cent. † 58 per cent.

Marriages

Beulah B. Richmond, M.D., Skelton, W. Va., to Miss Florence Josephine Ballard of Long Beach, Cal., November 20.

John A. Froelich, M.D., Princeton, Wis., to Miss Emma Williams of Palmyra, Wis., at Milwaukee, November 27.

John Charles Norton, M.D., Hagerstown, Md., to Miss Ruth Cleveland Atkinson of Baltimore, December 3.

Herman H. Tuttle, M.D., Springfield, Ill., to Miss May L. Suddick of Joliet, Ill., at Ottawa, Ill.; December 5.

Henry Hopson Wilcox, M.D., Springfield, Mass., to Miss Emily Jane Wagner of Brooklyn, December 5.

George H. Scott, M.D., U. S. Army, to Miss Margaret Eleanore Pillow, at Butler, Pa., December 5.

Thomas B. Kern, M.D., Allentown, Pa., to Miss Frances Middleton of Philadelphia, November 28.

John M. Dickson, M.D., to Miss Florence L. Williamson, both of Cambridge, Mass., recently.

Esmond Austin Childs, Geneva, O., to Miss Mary Summers, at Toronto, Ont., November 26.

Elmer Lee Cox, M.D., Salem, Ia., to Miss Winnifred Childs of Ottumwa, Ia., November 21.

C. Clayton Koons, M.D., to Mrs. Grace Roberts, both of arned, Kan., November 27.

Joseph B. Unsell, M.D., to Miss Willella Stark, both of ouisiana, Mo., December 4.

Camden B. Eddy, M.D., to Miss Mary L. Harris, both of ouisville, November 28.

Calvin Edgar Brown, M.D., to Miss Leila Haerther, both of hicago, December 6.

Deaths

Henry Moore, M.D. Kentucky School of Medicine, Louisville, 1864; a veteran of the Civil War; for many years superintendent of the Midland Railroad Company; formerly a member of the board of trustees of the Indiana State School for the Deaf; chairman of the original commission appointed by the Indiana legislature to investigate the practicability of establishing a State Tuberculosis Hospital, and later chairman of the board of trustees of the State Tuberculosis Hospital, Rockville, Ind.; state organizer of the National Red Cross Anti-tuberculosis Campaign; died in his office in the State House, Indianapolis, December 2, from cerebral hemorrhage, aged 72.

George Clinton Crandall, M.D. University of Michigan, Ann Arbor, 1890; a member of the American Medical Association; professor of medicine in the St. Louis University; formerly a member of the medical staff of the Northwestern Michigan State Hospital, Traverse City, Mich.; president of the consulting staff of the St. Louis City Hospital; consulting physician to St. Ann's Lying-In Hospital, and medical director of the St. Louis Society for the Prevention and Relief of Tuberculosis; died at his home in St. Louis, December 5, from nephritis, aged 47.

Rem Lefferts Disbrow, M.D. College of Physicians and Surgeons, New York City, 1862; a member of the Medical Society of New Jersey; first president of Ocean County Medical Society; surgeon of the Fourteenth New York Volunteer Infantry during the Civil War; for several years a president and director of local banking and trust companies; a member of the board of freeholders and county board of election; died at his home in Tom's River, November 11, from senile debility, aged 77.

Nathan Gideon Ward, M.D. Jefferson Medical College, 1893; a member of the American Medical Association; president of the Philadelphia Chemical Association; clinical professor of laryngology and rhinology in Temple University, Philadelphia; aurist and laryngologist to St. Agnes Hospital; ophthalmologist to Charity Hospital and also a member of the staff of the Samaritan and Garretson hospitals, Philadelphia; died at the home of his parents in Elizabeth City, N. C., December 3, aged 47.

William B. Crum, M.D. Howard University, Washington, D. C., 1880; a prominent colored practitioner of Charleston, S. C.; once surgeon in the National Guard of the state, and visiting physician to the Charleston Negro Hospital; appointed collector of the Port of Charleston in 1902, and minister-resident to Liberia and consul-general at Monrovia in 1909; died in Charleston, December 7, from fever contracted at his post of duty in West Africa, aged 53.

Ellsworth Eliot, M.D. College of Physicians and Surgeons, New York City, 1852; trustee and registrar of his alma mater for several years; a member of the American Medical Association and New York Academy of Medicine, and president of the Medical Society of the County of New York in 1872; also president of the Society for the Relief of Widows and Orphans of Medical Men; died at his home in New York City, December 9, from bronchitis, aged 85.

Elizabeth Simpson Mitchell, M.D. Queens University, Kingston, Ont., 1888; L. R. C. S., L. R. C. P. Edinburgh, L. F. P. S. Glasgow, L. S. A. London, 1888; the first woman to receive a license to practice in the Province of Quebec; a practitioner of Montreal until 1909 when she moved to Bournemouth, England; died in Nashua, N. H., November 30, aged 48.

Cornelius P. Meredith, M.D. Pulte Medical College, Cincinnati, 1881; of Louisville, Ky.; formerly president of the Southwestern Homeopathic Medical College and at one time a member of the Kentucky State Board of Health; a Confederate veteran; died in the home of his son in Louisville, December 2, from uremia, aged 73.

Charles Henry Thompson, M.D. College of Physicians and Surgeons, New York City, 1868; a member of the Medical Society of New Jersey; mayor of Belmar, N. J., from 1891 to 1893; for two terms a member of the borough commission of Ocean Beach; died at his home in Belmar, December 3, from disease of the intestines, aged 69.

Henry Sayre Orme, M.D. New York University, New York City, 1861; a member of the American Medical Association; of Los Angeles; emeritus professor of hygiene and state medicine in the University of Southern California; a pioneer practitioner of Los Angeles; died in the Angelus Hospital, November 29, aged 76.

George Edwin Jones, M.D. Medical College of Ohio, Cincinnati, 1859; a member of the American Medical Association; formerly of Evansville, Ind.; acting assistant surgeon, U. S. Navy, during the Civil War; died at his winter home in St. Augustine, Fla., November 29, from cerebral hemorrhage, aged 77.

John Young, M.D. University of Michigan, Ann Arbor, 1874; a member of the American Medical Association; a pioneer practitioner of Presque Isle County, Michigan, and for more than twenty years chairman of the county board of supervisors; died at his home in Onaway, December 3, from heart disease, aged 66.

Albert E. Johnson, M.D. George Washington University, Washington, D. C., 1869; formerly a member of the American Medical Association; a member of the Medical Society of the District of Columbia; at one time city physician of Washington; died at his home in that city, about November 5, aged 72.

John Rogers Merrill, M.D. College of Physicians and Surgeons, New York City, 1886; a member of the Medical Society of New Jersey; a practitioner of Paterson, N. J., until October last, when he moved to Pasadena, Cal., on account of his health; died at his home in that place, December 1, aged 51.

Charles Emory Rogers, M.D. Bellevue Hospital Medical College, 1880; a member of the American Medical Association; local surgeon of the Milwaukee System at Montevideo, Minn., and founder of the Montevideo Hospital; died suddenly at his home, December 3, from angina pectoris, aged 62.

Edgar D. York (license, Kansas, years of practice, 1901); a practitioner of Rawlins County since 1881; representative in the legislature in 1887-1888 and 1891-1892; a veteran of the Civil War; first mayor of Atwood, Kan.; died in the State Hospital, Ingleside. Neb., November 5, aged 75.

Lee C. George, M.D. Tulane University, New Orleans, 1896; of Monroe, La.; a member of the American Medical Association; local surgeon for the Queen and Crescent System; died in the Gulf Coast Health Resort, Biloxi, Miss., December 3, from nephritis, aged 43.

John Richardson Hoffman, M.D. Jefferson Medical College, 1868; a member of the Medical Association of the State of Alabama; surgeon in the Confederate service throughout the Civil War; died at his home near Athens, December 3, from senile debility, aged 82.

Isaac N. Cohen, M.D. Friedrich Wilhelm University, Berlin, Germany, 1872; a surgeon in the German Army until 1890; of La Crosse, Wis.; died in the La Crosse Hospital, December 1, from acute peritonitis, for which operation was performed without avail, aged 62.

Arthur MacCabe, M.D. Baltimore University, 1897; Queens University, Kingston, Ont., 1903; a member of the American Medical Association; formerly chairman of the Board of Health of Gloucester, Mass.; died at his home in that city, November 12, aged 45.

William J. Kennedy, M.D. Minnesota College of Physicians and Surgeons, Minneapolis. 1903; formerly local surgeon at Enderlin, N. Dak., for the Minneapolis, St. Paul and Sault Ste. Marie Railway; died at his home in Olga, N. Dak., recently, aged 35.

Daniel Stanislaus Harkins, M.D. Harvard Medical School, 1888; a member of the Massachusetts Medical Society; for two terms a member of the Boston School Board and quarantine physician; died at his home in Boston, December 8, aged 48.

Harry C. Guillot, M.D. Detroit College of Medicine, 1891; for five terms mayor of Pontiac, Mich.; formerly a member of the staff of Eastern Michigan State Hospital in that city; died at his home December 3, from valvular heart disease, aged 45.

Simon S. Wilcox (license, years of practice, Illinois, 1877); a veteran of the Civil War; for half a century a practitioner of Hutton Township, Vermilion County; died in the Soldiers' Home, Danville, Ill., November 27, from senile debility, aged 87.

William D. Humphrey, M.D. Northwestern University Medical School, Chicago, 1899; of Virginia, Ill.; who was injured five weeks ago in a runaway accident, sustaining a fracture of the skull; died in a hospital in Jacksonville, December 5, aged 48.

Robert A. Gunn, M.D. University of Buffalo, N. Y., 1866; of New York City; died in Bellevue Hospital, December 7, from the effects of morphin, aged 68.

William K. Flatt, M.D. Hahnemann Medical College, Chicago, 1869; died at his home in St. Paul, Minn., December 5, from cerebral hemorrhage, aged 82.

Francis Duffy, M.D. University of Virginia, Charlottesville, 1868; College of Physicians and Surgeons, New York City, 1875; a member of the Medical Society of the State of North Carolina; died at his home in Newbern, N. C., November 5.

J. Hartridge Kennedy, M.D. Medical College of Georgia, Augusta, 1892; was found dead at his home in Lew, Ga., December 2, from the effects of chloroform, believed to have been self-administered, with suicidal intent, aged about 43.

John Thomas Jennings, M.D. University of Louisville, Ky., 1891; died at his home in Ramona, Okla., November 29, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent, while despondent, aged 40.

Benjamin F. Hamell, M.D. University of Pennsylvania, Philadelphia, 1863; of Oakland, Cal.; was found dead in his sleeping-car berth, on an eastbound Southern Pacific train at Ogden, Utah, December 2, from heart disease, aged about 70.

William H. Haynes, M.D. Medical College of Ohio, Cincinnati, 1889; of Aurora, Ind.; a member of the Indiana State Medical Association; died at the home of his sister in Wilmington, Ind., December 4, from pneumonia, aged 53.

Alexander Bailey, M.D. University of Louisville, Ky., 1881; for several years superintendent of the State Feeble-Minded Institute, Frankfort, Ky.; died at his home near Frankfort, November 24, from pneumonia, aged 62.

Albert P. Harrison, M.D. College of Physicians and Surgeons, Kansas City, Kan., 1902; of Coldwater, Kan.; a member of the Kansas Medical Society; died in the Wichita Hospital, November 21, from heart disease, aged 39.

Henry Gastineau, M.D. Central College of Physicians and Surgeons, Indianapolis, 1895; of Howesville, Ind.; at one time treasurer of Greene County; died at the home of his son in Howesville, December 3, aged 68.

Joseph McCann, M.D. Starling Medical College, Columbus, Ohio, 1854; died at his home in Delaware, Ohio, December 1, from cerebral hemorrhage, following a fall from a ladder, eleven days before, aged 88.

Edward F. Schwedler, M.D. University of Leipzig, Germany, 1848; for many years a member of the visiting staff of the German Hospital, New York City; died at his home, December 7, from pneumonia, aged 90.

Samuel J. Tilden Ritter, M.D. Eclectic Medical Institute, Cincinnati, 1897; a director of the Bethlehem (Pa.) Trust Company; died at his home in Bethlehem, December 4, from pneumonia, aged 36.

William M. Cooley, M.D. Hahnemann Medical College, Chicago, 1868; a pioneer practitioner and clergyman of Dickinson County, Kan.; died at his home in Herington, December 3, aged about 78.

William P. Townsend (license, Texas, Fifth Judicial District Board, 1891); a member of the State Medical Association of Texas; was found dead in a well at his home in Mattinburg, December 2.

Monroe L. Vansant, M.D. Hahnemann Medical College, Philadelphia, 1857; a physician and dentist of Philadelphia; died at his home, September 22, from senile debility, aged 90.

David Alexander Kittle, M.D., Washington University, St. Louis, 1853; since 1865 a practitioner of Kansas City, Mo.; died at his home, December 1, from senile debility, aged 92.

Charles Billon Gratiot, M.D. Missouri Medical College, St. Louis, 1849; one of the oldest practitioners of St. Louis; died at his home, December 11, from senile debility, aged 84.

Lemuel S. Lawson, M.D. University of Maryland, Baltimore, 1867; for forty-three years a practitioner of Dallastown, Pa.; died at his home, December 5, from uremia, aged 75.

Andrew James Boman, (license, Michigan, years of practice, 1900); for nearly thirty years a practitioner of Alpena; died at his home in that city, November 30, aged 76.

Russell H. Sparks, M.D. Medical College of Ohio, Cincinnati, 1871; of Stamping Ground, Ky.; died recently at the home of his sister in Pleasureville, aged 80.

William E. Moon, M.D. Keokuk (Iowa) Medical College, 1892; died at his home in Traverse City, Mich., December 9, from carcinoma of the stomach, aged 49.

William Minser, M.D Cincinnati College of Medicine and Surgery, 1882; formerly of Versailles, Ohio; died suddenly in Greenville, Ohio, December 1, aged 52.

George Mays (license, Texas, 1907), a practitioner of Houston since 1869; died at the home of his daughter in that city, December 2, aged 65.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

ADVANCED MEDICAL SCIENCE INSTITUTE, A NOTORIOUS QUACK CONCERN, RUN OUT OF KENTUCKY

About Sept. 20, 1912, a quack concern styling itself variously the "Advanced Medical Science Institute," "Radio-Electric Company," "Witman Medical Company" and "Delish-Etts Manufacturing Company," with an alleged capital stock for each of these concerns of from $25,000 to $2,000,000, and claiming to be a part of the State Land Company of Oklahoma, with branches in a dozen or more states, began operations in one of the principal office buildings in Louisville. Flaming advertisements in the newspapers announced that it had expert diagnosticians and scientific apparatus too costly and accurate for the medical profession to possess or appreciate, and in a few days reported cures so numerous and miraculous as to attract a large clientele. The State Board of Health put the machinery of the law in operation and its special agents, male and female, reported in a few days that X. W. Witman, the head of the concern and its expert diagnostician, was not a physician, and that the only medical man in it was one who had failed as a practitioner and was employed in an attempt to legalize its practice at a salary of $15 a week. The scientific apparatus—a fake worthy of the operators—consisted of a cheap fluoroscope. Witman, pretending to look through the body into a blind box, would declare that he saw handfuls of gall-stones, and stomach, lung and kidney lesions, and thus found it easy to relieve the unfortunates of any surplus cash they had or could obtain.

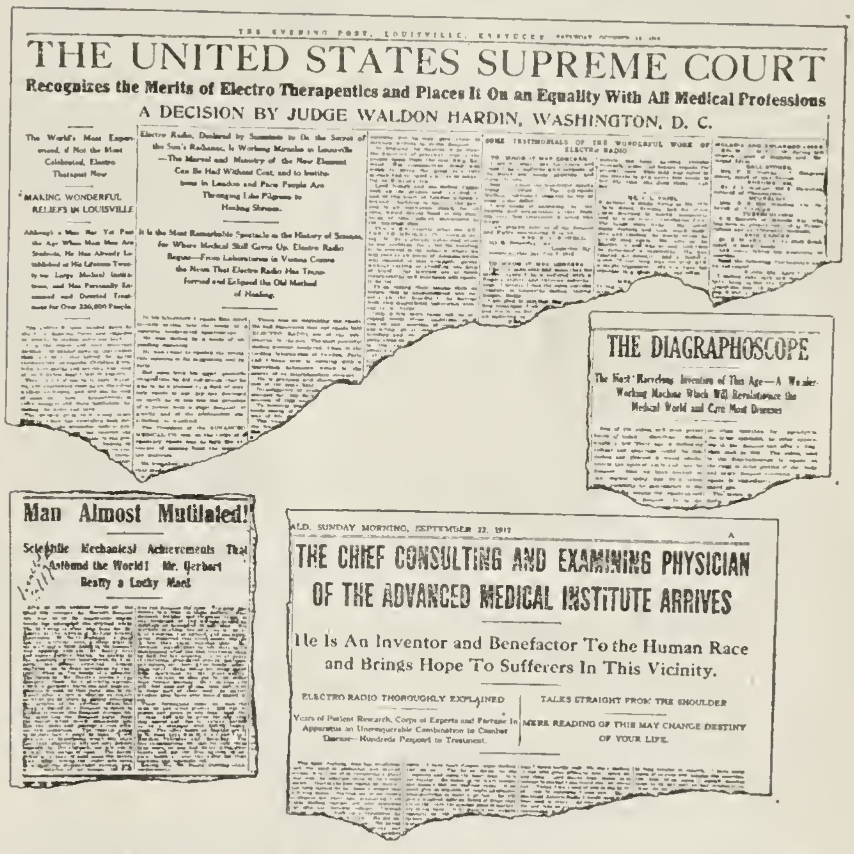
Twenty indictments were secured at the next sitting of the grand jury (most of them not for violations of the medical law, it should be observed) and warrants were taken out from day to day as evidence could be secured. One woman, it is alleged, furnished $3,000 to finance the concern and its defense, able attorneys were employed by it, a virulent crusade was begun in the press against the State Board of Health, the State Medical Association and the American Medical Association, and women were employed in broad and systematic efforts to blackmail and intimidate leading members of the profession, especially those connected with the prosecution or summoned as witnesses. All of this was of no avail. The attorney of the board, to whom chief credit is due for the freedom of Kentucky from open quackery for the last twenty years, had prepared the cases with such care and ability that the woman in the concern who had been used in the efforts to discredit members of the profession, turned state's evidence.

ADMIT GUILT

Nine of the indictments were against the Delish-Etts Manufacturing Company, Dr. George W. Foreman, X. W. Witman, W. M. Foreman and Frances Holst for failure to file a certificate. One was against the Advanced Medical Science Institute and the persons named for unlawfully practicing medicine, and nine against the same institute and persons for failing to file a certificate. The failure to file a certificate refers to the engaging in business under an assumed name as in the cases of the Delish-Etts Manufacturing Company and the Advanced Medical Science Institute, without having filed a certificate giving the names, places and residences of all persons actually interested in and conducting the business, and the nature of the business. There were eighteen counts of this sort. The other two were for practicing medicine illegally. On the eighteen charges, by agreement, Witman was fined $25 each and $50 each on the two latter, making, together with costs, nearly $700, which Witman paid. Dr. Foreman pleaded guilty to one charge of doing business under an assumed name, the Advanced Medical Science Institute, and a fine of $50 was imposed, which is included in the above sum. Frances Holst filed a statement in court as to her connection with the business and agreed to cease having any future connection with such business. The cases against her and W. M. Foreman were dismissed. Witman admitted that the business had been illegally conducted, that the offices would be immediately closed and that he would not in future engage in similar business in the state of Kentucky. This is all a matter of record in the criminal courts of that state. The concern closed its offices within an hour and notices were at once issued for Dr. George W. Foreman to appear before the State Board of Health at its next meeting to show cause why his certificate to practice medicine should not be revoked "for gross unprofessional and dishonorable conduct of a character likely to deceive and defraud the public." Foreman graduated from the Kentucky School of Medicine in 1902, his name being given as George Forman. He was licensed in Kentucky in 1903 under the name of George W. Foreman.

NEWSPAPER RESPONSIBILITY

This, for the time being at least, ends the career of one of the crudest and most brazen examples of advertising quackery which the daily papers of Louisville aided and abetted by printing large reading notice advertisements with flaming headlines. It is a matter of astonishment that in this day and age reputable newspapers should lend themselves to such gross forms of swindling. In effect they make themselves partners in a crude confidence game in which their own patrons are not only swindled out of their money but are doubtless, many of them, irreparably harmed by the treatment, or by the lack of the proper treatment they require. Many of the statements made in these advertisements are so extravagant and absurd as to be laughable and really should not deceive any layman of average intelligence. Yet these quacks must have done a large business in Louisville, else they could not have paid for the extensive advertising space purchased by them in these newspapers.



THE EVENING POST, LOUISVILLE, KENTUCKY

THE UNITED STATES SUPREME COURT

Recognizes the Merits of Electro Therapeutics and Places It On an Equality With All Medical Professions

A DECISION BY JUDGE WALDON HARDIN, WASHINGTON, D. C.

MAKING WONDERFUL RELIEFS IN LOUISVILLE

THE DIAGRAPHOSCOPE

Man Almost Mutilated!

Scientific Mechanical Achievements That Astound the World! Mr. Herbert Beatty a Lucky Man!

SUNDAY MORNING, SEPTEMBER 22, 1912

THE CHIEF CONSULTING AND EXAMINING PHYSICIAN OF THE ADVANCED MEDICAL INSTITUTE ARRIVES

He Is An Inventor and Benefactor To the Human Race and Brings Hope To Sufferers In This Vicinity.

ELECTRO RADIO THOROUGHLY EXPLAINED

TALKS STRAIGHT FROM THE SHOULDER

MERE READING OF THIS MAY CHANGE DESTINY OF YOUR LIFE

Photographic reproduction (much reduced) of portions of some of the advertisements put out by the Advanced Medical Science Institute fraud.

A few examples of statements from these advertisements are given below.

The following appeared in the Louisville *Times* October 17:

"MAN ALMOST MUTILATED! SCIENTIFIC MECHANICAL ACHIEVEMENTS THAT ASTOUND THE WORLD! MR. HERBERT BEATTY A LUCKY MAN!

"After an automobile accident which all but killed him outright, Mr. Herbert Beatty's life was saved by mechanical means which has

> astounded the civilized world. The following is what was done for Mr. Beatty at the Advanced Medical Science Institution, 708 Realty Building: A glass eye, an artificial nose, a silver plate in his skull and a false lining in his stomach was inserted, and yet Mr. Beatty lives and enjoys perfect health. In answer to the question when interviewed by a reporter the doctor explained: 'Almost anything can be done nowadays by electricity when in the hands of a scientist. The lining of Mr. Beatty's stomach was deposited there by a powerful current which is perfectly harmless and painless; bismuth is used, as that metal can be removed after a cure is effected as readily as when placed there by simply reversing the polarity of the current. When this lining is placed in a diseased stomach or bladder it coats the diseased mucous lining protecting the diseased parts from the matter which would constantly irritate the parts and prevent a cure without this protection. . . . This great discovery is a boon to those sufferers from stomach trouble and intestinal canal, or any irritation of the kidneys caused by stricture or ulceration of any kind. The multiple machine, the only one in the U. S. of America, was applied and one application dissolved that troublesome malady in less than three minutes' time.' "

Equally interesting with the "multiple machine," described above, which cured a "stricture or ulceration" in three minutes, is the "Diagraphoscope" which is stated in the Louisville *Herald* of September 20, to be "The Most Marvelous Invention of This Age—A Wonder-Working Machine Which Will Revolutionize the Medical World and Cure Most Diseases." In the absurd description of the "diagraphoscope" which is called "the eighth wonder of the world," it is said that it is:

> "Doing more for diseases than an ocean of drugs or a forest of surgeons' knives. . . . It gives a diagnosis that is absolutely true—not guess-work. This is accomplished by showing to the naked eye every organ in the patient's body. By means of this phenomenal machine's powers one can see the heart in action, the rise and fall of the diaphragm, a spoonful of bismuth passing down the throat. Any constriction is as visible as the light of day, as are kidney stones, or in fact any abnormal condition. It will show gall-stones so often believed to be cirrhosis of the liver. You can see right past the appendix, often observing the kidney stones so often mistaken for appendicitis. . . . Any enlargement of the joints is immediately revealed, and taking it all in all, makes the formerly much-vaunted *x*-ray look like a toy."

In another reading notice in the Sunday *Herald* of Sept. 22, 1912, it is announced in great headlines that the chief consulting and examining physician of the Advanced Medical Institute has arrived. He is described as the "great scientist who has revolutionized the medical profession and startled science" with his electro-radio. The important announcement is made that he had brought his auto and had engaged beautiful apartments in the fashionable part of town. But the most wonderful part of this advertisement is the description of the way in which they examine the patient in the Advanced Medical Science Institute. It is as follows:

> "The first thing we do with a patient who insists he has heart trouble is to take a drop of blood from his finger. My celebrated bacteriologist examines that blood with his microscope, which magnifies 4,000 times, and separates every blood-corpuscle, the red from the white. We measure them, count them, watch the activity in life, the color of them and their shape. We then place the instrument, imported from London, under the patient's arm. It tests the blood-pressure through the heart. The urine is analyzed by electricity. The heart is looked at. It can be seen pulsating as plainly as looking through an open window. We look through the body to see if there are any abnormal conditions. That tells the story. In nine cases out of ten we find the patient suffering from an effect, and not the supposed cause."

The brazen assurance of these quacks is illustrated still further in an advertisement in one of the Louisville daily papers in which is quoted almost completely an article by a prominent surgeon in one of the popular magazines concerning medical ethics. The surgeon's name is signed to the article, and the article is used in an attempt to show why regular physicians are not worthy of confidence and that faith should be placed in the electro-radio treatment of these quacks.

MORE LYING

A still more flagrant example of the sheer nerve of these swindlers is found in a half-page advertisement in the Louisville *Evening Post*, Oct. 12, 1912, in which it is said in headlines extending across the whole page that "The United States Supreme Court Recognizes the Merits of Electrotherapeutics and Places It On an Equality with All Medical Professions. A Decision by Judge Waldon Hardin, Washington, D. C." Then it pretends to quote from and comment on the Collins decision by the United States Supreme Court. It quotes Judge Hardin as having delivered himself of the following brilliantly expressed thought presumably from the Collins case: "The allopathic doctors dug their own pits in the Collins case. They never realized they had hold of a live wire until it was too late."

There is no Judge Waldon Hardin on the bench of the United States Supreme Court or in the district courts. The Collins case was a case from Texas involving the reregistration of an osteopath who had a license under a previous medical act, and had nothing to do with electrotherapeutics. The decision of the Supreme Court in that case sustained the new Texas law requiring the osteopath to register anew. This serves only to illustrate the brazen effrontery of this quack concern which swindled the people of Louisville and vicinity probably out of many thousands of dollars in a few months. The fine of about $700 amounted really only to a cheap license fee for these swindlers and they can afford to go somewhere else and do the same thing, which they probably will. While the people of Louisville are to be congratulated on having been saved from further exploitation by this bald form of quackery through the activity of the profession and the state board of health when they once got in action, yet they have no reason to feel proud of their neighbors and friends, the proprietors of the newspapers who published the advertisements of these fake concerns and thus made possible their swindling operations.

Correspondence

Failure of Christian Scientists to Differentiate Dropsy and Pregnancy

To the Editor:—Apropos of the wonderful cure (?) of Mabel Hite by the Christian Scientists as reported in The Journal (Nov. 23, 1912, p. 1896), I think that the report of a case in which I was called last month will be of interest. I was engaged by a man to attend his wife during her confinement, which was expected to occur in a few weeks. He said that they were Christian Scientists and gave me to understand that I would be called when labor began. In answer to my questions, he stated that his wife was feeling well and that all of the functions were normal. In due time I was hurriedly called, as the woman was said to be in labor. When I arrived at the house I was greatly shocked to find the patient sitting up but in a dying condition. On each side was a sister "healer" assuring her that she was just nervous, when in fact she was almost pulseless, lips blue, cold to knees and elbows and gasping for breath.

As soon as I saw the conditions I had counsel called. We found that the patient was not pregnant, but had general dropsy. She died within two hours. A post-mortem was refused, so we are unable to say what caused the dropsy. Oh, Religion, what fearful things are done in thy name!

B. N. Stevens, M.D., Chillicothe, Mo.

Danger of Infection from the Cigar-Clipper

To the Editor:—An incident which recently occurred forcibly called to mind the danger from the use of certain public articles, in this case the cigar-clipper. I was standing in a restaurant talking to a friend when a man came in who, as I knew, was afflicted with syphilis of rather recent inoculation. He had mucous patches in his mouth at the time. He bought a cigar and put it in his mouth. He then remembered that he had forgotten to clip the end of the cigar, so he took the cigar from his mouth and clipped it in the clipper standing near. The next man after him might easily contract the disease. It is needless to say that I have never since cut off the end of a cigar in a public cigar-clipper.

Frank C. Walch, M.D., Mukwonago, Wis.

Queries and Minor Notes

Anonymous Communications will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PROTECTION OF OTHER MEMBERS OF THE FAMILY FROM INFECTIOUS COLDS

To the Editor:—I am interested in the problem of protecting other members of the family in cases of influenza and infectious colds. It is often impossible to isolate the patient. I am having fairly good success with partial isolation, together with gargles, formaldehyd and eucalyptus inhalation, etc. I think it would be of interest not only to me but to many others who have the same problem if you would outline the best methods of protecting the well from the infection.
E. P.

Answer.—The problem of protecting persons against infectious colds is quite similar to that of protecting them against the other infectious diseases. Isolation is a measure of chief importance. It is very doubtful if the infections which give rise to the symptoms of a cold are spread to any extent by means of fomites. The infecting agent appears to be the living patient, frequently a convalescent one, who still throws out from the mouth a fine spray laden with infectious germs. This is more particularly the case in loud speaking, in which it has been shown that such germs can be carried to a distance of several feet. When complete isolation is impracticable the patient can limit his infectiveness by the use of some form of sputum-receiver and by special care not to soil with nasal or oral secretions his own hands or clothing, and not to come too close to other persons. His dishes, table napkins and handkerchiefs might well be kept carefully separate so that no one else will use or handle them until time to wash them. One need have little fear of the infectious matter that might possibly persist through a thorough washing, but boiling would be a sure disinfectant.

Ordinary cleanliness on the part of the other members of the household, especially frequent washing of hands, will probably be a sufficient means of protection in place of any extensive means of disinfection. An important measure in preventing the reception of such germs is to secure the healthy condition of the mucous membrane of the nose and pharynx. The fact should be remembered that the nasal mucous membrane is affected by conditions in other organs, particularly the skin, the digestive organs and the sexual apparatus. The local treatment of the nasopharynx with antiseptics is probably of slight value, except when there is present some viscid secretion to be removed. Too extensive spraying of the throat may even be prejudicial by removing a layer of protecting mucus and leaving the mucous membrane perhaps more accessible to the invasion of pathogenic germs.

BLOOD TRANSFUSION—SALINE SOLUTION—ALYPIN—ARISTOL—BOVININE

To the Editor:—1. What is the simplest practical method of determining whether a donor is suitable for blood transfusion? 2. What strength saline solution would you recommend for intravenous administration? 3. What is Alypin? What is its therapeutic value? 4. What is Aristol? 5. What is Bovinine? M. Y. D.

Answer.—1. The donor should be free from disease. If sufficient time is allowable it would be well to perform the Wassermann test. It is preferable that the donor should be a blood relative, as the blood of strangers is sometimes hemolyzed by the blood of the recipient. It might be well to determine beforehand whether the blood of the recipient exercises a hemolytic action on the blood of the proposed donor.

2. Sodium chlorid, 0.9 per cent., gives a solution which is isotonic with the blood plasma and hyperosmotic in sodium chlorid. A better solution would be one containing 0.6 per cent. sodium chlorid and 0.3 per cent. other salts, especially sodium bicarbonate. A solution containing 0.7 per cent. sodium chlorid is usually near enough to the molecular concentration of the blood-plasma for ordinary use.

3. See New and Nonofficial Remedies, 1912, p. 27.

4. Aristol is a trade-name for thymol iodid. See New and Nonofficial Remedies, 1912, p. 243.

5. Bovinine is a nostrum claimed to be a preparation from beef blood. It was investigated by the Council on Pharmacy and Chemistry and the results were published in The Journal, Nov. 20, 1909, p. 1756. The report has also been published in the "Reports of the Council on Pharmacy and Chemistry" for 1909, pp. 137 and 142, and in the "Propaganda for Reform in Proprietary Medicines," p. 28. Bovinine was rejected by the Council.

NEOSALVARSAN IN RHEUMATISM AND ANEMIA

To the Editor:—Please advise me with reference to the use of neosalvarsan in the treatment of rheumatism and anemia.
James Ross, M.D., Moline, Ill.

Answer.—Salvarsan has been used with apparently good results in some cases of pernicious anemia. A similar use of neosalvarsan is reasonable, but we do not know that it has been applied in this way.

DENTAL ANESTHETICS

To the Editor:—What is most effective to prevent pain in the extraction of teeth? S. T.

Answer.—The sensibility of the gums can be reduced by rubbing them with a solution of cocain or one of the many proprietary cocain substitutes, so that the prick of the hypodermic needle will not give pain. In some cases a merely psychic influence may be sufficient to secure an almost painless extraction. Rubbing a remedy on the gums might secure this psychic effect in a considerable number of cases.

Local anesthetics and obtundents are agents to produce insensibility to pain in a circumscribed area of tissue. They are used to act at once on nerve-endings in a given locality especially in the extraction of teeth. Local anesthetics are divided into (A) soluble local anesthetics, (B) insoluble local anesthetics and (C) refrigerant local anesthetics.

A. The best known soluble local anesthetic is cocain hydrochlorid. According to Preyer's conception, local anesthesia is produced as follows: Cocain possesses a distinct affinity for the living protoplasm of the nerve cell; it enters with it into a labile union, thus producing local anesthesia, which lasts until its temporary union is broken up by releasing the chemical—not as the original cocain, however, but as an inert compound of a simpler structure. In other words, the living tissues rid themselves of the poison in some unknown manner.

Some of the formulas for local anesthetic solutions of cocain are:

℞.

	gm. or c.c.		
Cocainae hydrochloridi.....	|32		gr. v
Sodii chloridi............	|25	or	gr. iv
Aquae destillatae	30|		fl. ℥j

M. Sig.: Cocain injection for dental purposes. To each cubic centimeter add 1 drop of epinephrin solution when used (Prinz).

Following are two formulas for local obtundents:

℞.

	gm. or c.c.		
Cocainae hydrochloridi.....	1|		gr. xv
Phenolis liquefacti.........	4|	or	ʒj

M. Sig.: Apply the heated solution to hypersensitive dentin (Jenkins).

℞.

	gm. or c.c.		
Cocain (alkaloid).........	1|3		gr. xx
Chloroform	8|	or	fl. ʒij
Ether	30|		fl. ℥j

M. Sig.: Apply to the cavity on a small pledget of cotton and evaporate to dryness (Buckley).

Novocain is one of several cocain substitutes (see New and Nonofficial Remedies, 1912, p. 152). It is said to have the same action on the peripheral nerves as cocain, with an equal amount of anesthetic potency. Applied locally, it has no side- or after-effects, and is non-irritating to the soft tissues. A formula commonly used is:

℞.

	gm. or c.c.		
Novocain	|6		gr. x
Sodii chloridi............	|25	or	gr. iv
Aquae destillatae	30|		fl. ℥j

M. Sig.: To each cubic centimeter add 1 drop of epinephrin solution when used (Prinz).

B. Among insoluble local anesthetics are comprised a number of synthetic compounds introduced within recent years which possess marked analgesic power when applied in substance on painful mucous membranes or abraded surfaces. Anesthesin, Orthoform-New and Propaesin are illustrations. The following anesthetic mixtures may be used:

℞.

	gm.		
Anesthesin	|		
Corn starch ....āā	4|	or	āā ʒj

M. Sig.: Dusting powder (Prinz).

℞.

	gm.		
Orthoform-New............	4|	or	ʒj
Lanolin	30|		℥j

M. f. unguentum. Sig.: Orthoform ointment (Prinz).

C. Refrigerant local anesthetics are local applications which abstract blood from the tissues. They lower the temperature, diminish sensation, and reduce the volume of the parts to which they are applied. When continuously applied in due time they produce definite anesthesia. These freezing agents are restricted to small areas especially around the roots or root of the tooth to be removed. Ether and ethyl chlorid are used for this purpose.

LITERATURE ON INDURATIVE HEADACHE

To the Editor:—Please give me the literature on indurative headache (*musculäre Kopfschmerz* or *cephalée musculaire*).

A. M., ———, Texas.

Answer.—Following are some of the articles on the subject:

Reidel: Der Kopfschmerz und seine physikalische Behandlung, *Berl. klin. Wchnschr.*, 1907, xliv, 338.

Kleen: Handbook of Massage, P. Blakiston's Son & Co., Philadelphia, 1892.

Edinger: In Diseases of the Nervous System, translated from Die Deutsche Klinik, Appleton & Co., New York, 1908.

Yawger, N. S.: Indurative Headache, The Journal, April 24, 1909, p. 1316.

Rose, F.: Headache from Nodules in the Muscles, *Semaine méd.*, Paris, March 29, 1911, xxxi, No. 13; abstr. in The Journal, May 6, 1911, p. 1365.

Norström, G.: Chronic Headache and Its Treatment by Massage, A. R. Elliott Publishing Company, New York, 1905.

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ORYZANIN

To the Editor:—Somewhere recently I saw an article referring to an article by a Japanese investigator on the active principle in rice-polishings, which he had named "Oryzanin." I thought it was in an editorial in The Journal, but cannot find it. Please refer me to the article, if you did publish it, and also to the original article.

W. L. Beecher, M.D., Chicago.

Answer.—The editorial was published in The Journal, Sept. 14, 1912, page 883. The original article, Ueber Oryzanin, ein Bestandtheil der Reiskleie und seine physiologische Bedeutung, was published by V. Suzuki, T. Shimamura and S. Odake, in the *Biochemische Zeitschrift*, 1912, xliii, 89.

A REQUEST FOR MATERIAL ON LEUKOCYTIC INCLUSIONS IN SCARLATINAL BLOOD

To the Editor:—In order to arrive at a definite conclusion as soon as possible regarding the diagnostic value of the leukocytic inclusions which have been described in the blood of scarlatinal cases, I would deem it a personal favor if physicians having such patients would send me a few blood-smears, on slides or cover-glasses, from every case observed within the next few months, together with a note stating the day of the disease, the existence of eruption, run of temperature and apparent severity of the case.

Charles E. Simon, Baltimore.

1302 Madison Avenue.

CONDENSED ANSWERS

[Summarized here because of general interest or because the questions are asked by other correspondents.]

RUSSO TYPHOID REACTION

Dr. J. W. Crenshaw, Cadiz, Ky.: Described in The Journal, Aug. 10, 1912, page 465.

FOLIN'S ESTIMATION OF CONSTITUENTS OF URINE

Dr. A. L. Green, Milford, Ill.: See text-books on clinical diagnosis by Simon, Wood or Webster.

RHEUMATISM PHYLACOGEN

Dr. W. W. Pretts, Platteville, Wis.: Discussed in The Journal, Aug. 10, 1912, page 464.

PREVENTIVE OF VENEREAL INFECTION

Dr. O. A. Grantham, Johnstown, Colo.: The formula and the method used by some army surgeons are given in an original article in The Journal, April 15, 1911, p. 1098. See also an abstract, Dec. 24, 1910, page 2257.

Medical Economics

This Department Embodies the Subjects of Post-graduate Work, Contract Practice, Legislation, Medical Defense, and Other Medicolegal and Economic Questions of Interest to Physicians

A NATIONAL DEPARTMENT OF HEALTH

Last week we commented on the interest which is being taken by the lay press with reference to the national Department of Health and the changed views in regard to it. Another evidence is an article by Dr. John A. Wyeth of New York entitled "Why a National Department of Health is Needed," which appeared in the Sunday edition of a group of daily newspapers. Following are a few paragraphs from Dr. Wyeth's article:

"There is, in the President's cabinet, a Secretary of Agriculture, one of whose duties is to look after the welfare of our domestic animals, but there is no voice in the cabinet to speak out for the welfare of the women and children—and surely no one will gainsay that these are more valuable than our hogs, horses and cows.

"I am not in favor of the Owen bill, for the reason that it is a compromise. The Department of Health should not be a secondary bureau in any other department—nothing but a special department with a Secretary of Health, as a member of the cabinet, should be accepted by the American people and by that powerful organization, the American Medical Association, which, representing 130,000 busy practitioners of medicine in the United States, is working earnestly and effectively in the campaign of education to accomplish this end.

"The question of states' rights is not involved—without interference in any way with the prerogatives of the various state boards, these can be employed in successful cooperation for the general welfare. No single state, or group of states, should be made to bear alone the expense of fighting an epidemic—it is not fair to the state, or to its neighbors who are threatened. Epidemics do not respect interstate boundary lines, and a stream vilely polluted in one community may flow on and on through a dozen other states, carrying its poison to the helpless people who are compelled to use its waters. . . .

"The world was never more under obligations to the self-sacrificing work of the medical profession than now. Its members are giving not only their time and energy and means, but their lives in this warfare against disease and death. The young, the brilliant Ricketts, who discovered the cause and the cure of that fatal endemic, the 'Rocky Mountain fever,' died in Mexico while studying the cause of typhus, himself a victim to this malady. Lazear and Carroll laid down their lives after being bitten by yellow fever mosquitoes in testing their then theory—now no longer a theory but a fact, which their death proved—that this dread epidemic disease was carried from man to man by this insect. With the knowledge thus gained, Dr. Gorgas banished yellow fever from Havana after a century of its presence there. Think of what all this means to life, happiness and to commercial prosperity! . . .

"Turn to another fatal disease, typhoid fever. It is no longer dreaded. In the Spanish-American war our men died like sheep with 'the rot.' Twelve years later an equal number of troops, subjected to the identical conditions of climate and location and time in camp, did not lose a single life, as compared to the thousands that died and were ill in 1898 and 1899 in Florida and at the Chickamauga camp. Medical science had won another great victory and typhoid fever was ranked with the preventable diseases.

"I could extend this list for many columns, but these should suffice to show what progress has been made and is being made, and what can be done to save life and assure health and happiness, provided always that proper authority and power are given to enforce obedience to the requisitions of scientific sanitation. Colonel Gorgas could never have driven yellow fever from Havana without the discipline and power which General Wood lent him. He failed at Panama at first, because red tape hampered him. No sooner had these restrictions been removed in answer to the powerful protest of the American Medical Association than the death-rate began to go down and down until within a year the Canal Zone was fever-free and had become the white man's home.

"What is true of yellow fever and typhoid fever and malarial disease is true of tuberculosis and all the other wide-spread diseases. It is up to the American people to secure the maximum of health and usefulness for themselves by cooperating with the medical profession in its humane work. It can best be done by a national Department of Health and a Secretary of Health in the President's cabinet."

A RELIGIOUS JOURNAL ON PUBLIC HEALTH

An interesting editorial comment, as showing the growing interest of religious publications in health matters, appears in a recent issue of the *Congregationalist*. Under the heading of "The Public and the Doctors," the editor says:

> "The private and individual activity of public-spirited physicians in matters of the common weal has always been a source of strength to the community. But the time has come, we think, for a more corporate activity and sense of duty. Take the marriage question, for example. The public would pay far more attention to the voice of associated doctors and surgeons than they do the words of the clergy. Some of our advanced ministers are claiming the assistance of physicians in determining whether they have a right to bind men and women together in wedded life. It would be well if the physicians could meet this demand by formulating a basis for certificates of fitness for marriage resting on something more than the individual doctor's opinion.
>
> "There are great reforms that bear directly on the prevention of disease and the lowering of the health standard in certain trades and employment of the physically unfit. The question of vocational poisonings, such as the lead poisoning of the painters' and potters' trades and the phosphorus poisoning of the match trade, is one in which we need the voice of that profession which deals with health. We have a right to claim its corporate leadership toward reform. The lowering of the stamina of the race by child labor, by overwork in bad surroundings and the employment of women in unfit trades—are not these matters which concern a medical congress as intimately as the grafting of bone on bone, the replacement of tissue and the clean and healing use of the knife?
>
> "In a word, we hope for the time when the preventive and prophetic work of the medical profession will be at least as large as its effort for recovering lost ground of health. If the doctors will safeguard our health and keep us from illness as individuals and as a people, we can afford to subsidize them. From the point of view of their own pride and satisfaction, we think it would be better to keep people well rather than to cure them. Perhaps, when they have perfected their organization for the public responsibilities that offer, they will petition us to pay them on the Chinese plan of a salary so long as we are well, and a ceasing of pay while we are ill and they are working at our cure."

Society Proceedings

COMING MEETINGS

American Association of Anatomists, Cleveland, Dec. 31-Jan. 2.
American Physiological Society, Cleveland, Dec. 26-28.

PHILADELPHIA COUNTY MEDICAL SOCIETY

Meeting held Oct. 23, 1912

The President, Dr. L. Jay Hammond, in the Chair

Occurrence of Bence-Jones Protein in Conditions Other Than Those of Characteristic Myeloma

Drs. C. G. Guthrie and Thomas R. Boggs, Baltimore: Although the great majority of cases of multiple myeloma show Bence-Jones proteinuria, carefully studied instances of the disease have been reported without the excretion of this unusual body in the urine. In others it has been absent either early or late in the disease. Clearly established Bence-Jones proteinuria has occurred in diseases other than multiple myeloma, among others, leukemia, injury, and in one case of metastatic carcinoma of the bones. In our case the original tumor was in the breast with wide-spread metastatic involvement of the bony skeleton. The condition was diagnosed clinically *intra vitam* and confirmed by the examination of a portion of the femur after death. The Bence-Jones protein was present in the urine during the period of examination, and its identity was clearly established by chemical tests. From this observation and from a study of the literature, we conclude that Bence-Jones proteinuria bears neither a constant nor a specific relation to myelomatosis, but may be associated with any one of a variety of disease processes involving the bone-marrow.

DISCUSSION

Dr. Alexander Randall: That the mere calling of attention to this matter in Baltimore brought to notice four cases in a year is suggestive that all cases of obscure bone-marrow disease, anemia and leukemia should be examined for this body. From Dr. Boggs' deductions I think we can say that with the finding of this body in the urine we have a case of bone-marrow disease. The substance has been found in a variety of conditions and in many parts of the body, and it is to be regarded as an entity. I should like to ask Dr. Boggs whether the bone-marrow has any characteristic appearance. When we realize that the kidneys have to do with all the metabolic processes of the body, and when we have a test that will tell us the function of the kidney, we shall have a wide sphere of activity in working out these processes.

Dr. James M. Anders: It is an interesting fact that, following the discovery of this protein body in the urine by Bence-Jones in 1847, the subject received scanty attention for twenty-two years. Other observations were reported in 1864 and in 1870. In 1902, Dr. Napoleon Boston and I reported three cases, and at that time made a review of the literature. A number of cases were found coming under the head of Dr. Boggs' paper. We also found two cases recorded in literature in which the body was associated with the clinical picture of pernicious anemia. There was a total of thirty-three cases due to all causes. While there are many conditions in which this body may be found in the urine, yet in any case in which we have clinical symptoms referable to multiple myelomas, the presence of this body in the urine should be regarded as a diagnostic feature. On the other hand, we cannot assume to-day that the presence of this protein body in the urine, in any case in which there are no symptoms pointing to multiple myelomas, has any diagnostic significance. I believe with Dr. Boggs that we are justified in assuming that protein urine is absolutely diagnostic of disease of the marrow of the bones, and perhaps we can go no further. That there are associated with most of the cases well-marked and progressive phenomena, as asserted by a number of writers, does not seem to have been true of the cases of Dr. Boggs or of Dr. Boston's and mine. With Dr. Boggs, I believe that routine examinations of the urine would reveal not only the protein body, but also other rare morphologic elements, more frequently than at the present time are observed.

Dr. G. J. Saxon: The discovery of the Bence-Jones protein in 1847 and the failure to attach any clinical significance to it until 1889, when Kahler and Huppert reported a case of multiple myeloma from clinical and chemical aspects, respectively, is a sad illustration of the degree of enthusiasm which often greets the efforts of the laboratory worker. Moreover, not until 1903 was any systematic effort made to collect the cases exhibiting this protein. This was done by Anders and Boston. Dr. Boggs' advice to suspect the presence of this body in bone conditions should be kept in mind. Two years ago I examined the urine of a patient having carcinomatous metastases of the ribs, vertebrae and both femurs from a primary involvement of the mammary gland, and while I did not find it, I am not discouraged at not having done so. I might mention certain differentiating features of this substance. Unlike heteroproteoses, it is soluble in water. Unlike other proteoses, it is controvertible into metaproteins, is coagulated at low temperatures, yields protoproteose on gastric digestion and is not acted on by erepsin; unlike all soluble proteoses, it does not dialyze through parchment paper.

Dr. Thomas R. Boggs: Answering Dr. Randall, I will say that there is confusion in the description of the characteristic multiple myelomas. In effect, what is found in this type of tumor, which is most frequently associated with this protein body, is a loosely arranged sarcomatous tissue of stroma cells which contains also more or less evidence of abnormal growth of the elements of the blood, that is, the ancestral types of leukocytes and red cells.

The inquiry concerning the normal kidney and the excretion of this body touches one of the most interesting physiologic questions, which is, however, too large to be entered into in detail. Why a kidney will permit the passage of this body with all the characteristics of a heavy protein molecule, and hold back the albumin and globulin of the blood is interesting, but cannot at present be definitely explained. The relation of nephritis to this particular substance is not settled, but it is significant that large proportions of the cases coming to autopsy have not shown any characteristic nephritis. In our cases we are dealing with something different from the ordinary associations of the disease, that is, a different kind of tumor process, and the urine of our patient had not only this peculiar protein substance, but the serum albumin as well. We did not have an opportunity to study the kidneys. I believe that they would have shown the pathology of nephritis. Dr. Anders asked about the blood-count. The leukocyte-count was 9,000, with only a mild grade of anemia.

Gastric Dyspepsia Due to Intestinal Diseases, and Intestinal Indigestion of Gastric Origin

Dr. Thomas R. Brown, Baltimore: I studied a series of cases of achylia gastrica with symptoms entirely intestinal, notably, diarrhea; and a series of cases of duodenal ulcer, and eighteen cases of chronic appendicitis, in each of which groups the symptoms were entirely gastric. It is of great importance to examine the gastric contents after the test meal in chronic intestinal cases, in considering the possibility of duodenal ulcer, and to examine gastric contents and stool carefully in cases regarded as gastric dyspepsia, and also in such cases to make a careful examination of the blood and careful temperature observations to determine if the basis of the condition is not some inflammatory process in the region of the appendix.

DISCUSSION

Dr. Alfred Stengel: Just as cases of achylia gastrica often give rise to intestinal symptoms, I have found that gastric ptosis sometimes causes periodic attacks of diarrhea similar to those which occur in achylia gastrica and are relieved in some cases by a proper measure of support, by a reduction of irritation which takes place in these cases of marked gastric ptosis. Many cases of gastritis are due not to the condition of the stomach, but to the condition of the colon; these are benefited by treatment directed to the intestinal tract rather than to the stomach. Cases in which it has been shown that there is no gastric or duodenal ulcer demonstrate the fact that the hunger pain has not the absolute importance attributed to it. The pointing out of this important symptom is a distinct advance in diagnosis which has been given to us by the surgeons, but it is not so diagnostic as maintained by Moynihan and many other surgeons following him.

Dr. William E. Robertson: Achylia gastrica is one of the few gastric diseases that give striking and positive laboratory findings. The difference between benign achylia and the achylia of gastric carcinoma occurred to me some years ago, and in thinking over sections of carcinoma that I have seen I was struck by the numbers of polynuclear cells found about the periphery of the growth. This led me to believe that we might find them in the gastric contents and afterward, after lifting a test meal and washing out the stomach, I found pus cells even where there was no ulceration of the growth. I had an opportunity of proving this five years ago in an operation on a woman. There was a small non-ulcerative growth on the lesser curvature near the anterior wall. This was sectioned, and great numbers of polynuclear leukocytes were found in the periphery. Partial gastrectomy was done and the woman is still living.

Diagnosis and Treatment of Obscure Cases of Pyelitis and Hydronephrosis

Dr. Guy L. Hunner, Baltimore: Many cases are overlooked and recover spontaneously. From this fact we may infer that the treatment should usually begin along medical and hygienic lines. Many cases are not diagnosed, and the patients continue in ill health. Too often the physician fails to examine a catheterized specimen of urine or fails to attribute sufficient importance to the finding of bacteria and leukocytes in such specimens. A marked infection of the kidney pelvis may be present without albuminuria and without pyuria. On the other hand, a marked pyuria may exist for years without apparent injury to the patient's health. Many cases are diagnosed and treated as some other disease, particularly as typhoid fever and malaria. Certain cases of pyelitis are diagnosed and treated as such when the pyelitis is secondary to appendicitis. Pyelitis secondary to ureter stone and particularly cases secondary to ureter stricture are sometimes treated as pyelitis without attention to the cause. Kidney pain may be due to hydronephrosis in cases with normal urine, the hydronephrosis being due to ureter stone or stricture. The literature ascribes a congenital origin for too many of these cases. Gonorrheal periureteritis is probably the cause of a few, and the former presence of a stone undoubtedly accounts for some cases of stricture. Some cases of stone and many cases of ureter stricture may be traced back to infections elsewhere in the body, as in the tonsils.

After the failure of medical and hygienic measures I would recommend the semisurgical methods of pelvic lavage for the pyelitis cases and of dilatation of the ureter for most of the ureter stricture cases and for some cases of ureter stone. All of my cases of colon bacillus infection of the kidney pelvis have been cured by lavage with silver nitrate solution. I use a 1:500 solution of silver nitrate without appreciable ill effects. I am convinced that the silver nitrate solutions are not efficient in the cases of *Staphylococcus aureus* infections. For these I am now using a solution of formaldehyd in 1:2,000 strength, using the commercial formaldehyd as the standard. Many patients do not break down the hexamethylenamin preparations sufficiently to cause antiseptic quantities of formaldehyd in the urine. For dilating ureter strictures I prepare a renal catheter with different-sized bulbs of wax placed about 5 cm. back of the tip of the catheter. These bulbs are eventually made as large as 5 mm. diameter if the stricture shows a tendency to contract.

DISCUSSION

Dr. Norman B. Gwyn: Once the suspicion of pyelitis has arisen we should at once start vigorous medical treatment, and move the patient to some place where the ureters can be catheterized carefully. While catheterization is being done, the other essential feature of diagnosis should be carried out. Skiagrams of the distended pelvis of the kidney should be taken. A vaccine can be prepared from the urine and a careful bacteriologic culture made, and if we suspect tuberculosis an inoculation can be done.

Dr. Damon Pfieffer: Medical measures, in the majority of cases, are more or less futile. This is supported by a great number of the cases which Dr. Hunner has cited to-night. I believe that free drainage is the essential cause of the recovery of most of these cases. The question of diagnosis is of supreme importance.

Hygiene, Business and Government.—That health is the basis of all wealth, power and happiness is plain to any one. That business and government have for so long neglected to place hygiene in the front of all practical agencies for good, simply declares that those in charge of business and government have not yet risen to a full understanding of the situation they are trying to control. John Fiske remarked, "It takes a thousand years to raise the human family a single notch." In view of the tardiness of business men and those in control of government to grasp the business and governmental importance of hygiene, it would seem that Fiske much underestimates the time. Münsterburg said, "Hygiene can prevent more crime than any law." Disraeli, the practical statesman and empire builder, said, "The care of the public health is the first duty of the statesman."—J. N. Hurty in *Am. Jour. Public Health.*

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, January 14. Chairman, Dr. W. H. Sanders.

Arizona: Phoenix, January 6-7. Sec., Dr. John Wix Thomas.

Colorado: State House, Denver, January 7. Sec., Dr. David A. Strickler, 612 Empire Building.

District of Columbia: Washington, January 14. Sec., Dr. George C. Ober, 125 B Street, S.-E.

Illinois: Coliseum Annex, Chicago, January 22-24. Sec., Dr. James A. Egan, Springfield.

Indiana: Room 57, State House, Indianapolis, January 14-16. Sec., Dr. W. T. Gott, State House.

Minnesota: Pathological Institute, University of Minnesota, Minneapolis, January 7. Sec., Dr. Thomas S. McDavitt, Lowry Building, St. Paul.

New Mexico: Santa Fé, January 13. Sec., Dr. W. E. Kaser, East Las Vegas.

New York: January 28-31. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

North Dakota: Grand Forks, January 7. Sec., Dr. G. M. Williamson.

Oklahoma: Oklahoma City, January 14. Sec., Dr. John W. Duke, Guthrie.

Oregon: Portland, January 7. Sec., Dr. E. B. McDaniel, 702 Electric Building.

Rhode Island: State House, Providence, January 2. Sec., Dr. Gardner T. Swarts, State House.

South Dakota: Watertown, January 8. Sec., Dr. L. G. Hill.

Utah: Salt Lake City, January 6-7. Sec., Dr. G. F. Harding, 310 Templeton Building.

Vermont: Montpelier, January 14-16. Sec., Dr. W. Scott Nay, Underhill.

Washington: Spokane, January 7-12. Sec., Dr. F. P. Witter, Traders' Block.

Wisconsin: Milwaukee, January 7-9. Sec., Dr. John M. Beffel, 3200 Clybourn Street.

A MEDICAL COLLEGE IN VENEZUELA

Since the last publication of the list of foreign medical schools, the Council on Medical Education has received word from two different sources, regarding the medical school located at Caracas, Venezuela. One of the accounts is in the article on "Medical Education in South America" by Dr. Jacob Frank which appears in this issue. The following is the account received from Dr. Rawson J. Pickard, of the Colon Hospital, Canal Zone.

"The Universidad Central de Venezuela is one of the oldest universities of the western hemisphere—that at Lima, Peru, is the oldest—but the medical school was not organized until 1800 by Dr. Vargas, the 'Father of Medicine in Venezuela,' to whom a statue is erected in the Plaza Vargas in La Guayra, his birthplace, and another in the patio in the university building in Caracas, about which are the medical lecture-rooms.

"The course takes five years, the first two spent on the fundamental sciences, the second two on anatomy, bacteriology, pathology and clinics, leading to the degree of 'Bachiller.' The last two years of the course are spent as extern and intern in the Hospital Vargas, services being chosen by competitive examination. The hospital, reached by a trolley line, is on a foothill of the wooded mountain-chain which lies between Caracas and the Caribbean Sea. The wards are in pavilions at right angles behind the offices and dispensary forming the facade. Flower gardens lie between; the windows scarcely ever need be shut, and convalescents can look out from the veranda connecting the pavilions over the red-roofed city to the mountains that hem in the green valley of the Guayre.

"The laboratories are well equipped. The director, Dr. Henriquez, demonstrated *Spirochæta pertenuis* from some cases of yaws in the wards. There is a plague laboratory, with a glass cabinet containing rubber sleeves for dissections, etc. In the museum is much material, especially for the study of tropical pathology. The hospital is of 350 beds, charity, with about 3,400 yearly admissions. These, as well as the dispensary clinics, draw from the country for considerable distances, besides from the 80,000 population of Caracas. Necropsies are optional. Nursing is done under the direction of French nuns; it is not at all of American standard.

"The chief surgeon, Dr. Acosta-Ortiz, invited me to see a hysterectomy, done with a rapid technic and neatness. Several things were at variance with American custom. Instead of a laparotomy sheet and many towels, the field of operation was narrowly bordered by gauze. The instruments were kept in a metal dish and sterilized by burning alcohol on them. Gloves were not used, owing to a prohibitive tariff.

"Fifteen or twenty students who were crowded about the operating-table courteously made room for me next the operator, pressing so close that I momentarily expected to be touched by him. There was a 'new' woman present, a senior, certainly a great rarity in Spanish-America. She spoke English and intended to take the year of foreign study, which adds so to prestige in New York.

"Spinal anesthesia was used here commonly long before Jonnesco's tour through the States. The Spanish are almost too ready to try the new. Statistics from tropical writers, however, are quite favorable to this anesthesia, and it is used freely. Several articles appeared in *El Tiempo*, a daily, by Dr. Yanes, explaining the use of stovain, and the simplicity of carrying this anesthetic which enables one to be operator and anesthetist. He used the spinal fluid withdrawn as the solvent in several minor operations which I saw, 'to obtain an isotonic solvent.'

"Text-books were chiefly in French, with some in English and German, on account of the lack of good authors in Spanish. The similarity of the language to Spanish and the lucidity and simplicity, especially of medical French, give that language the preference. They read, translated into Spanish, with the speed of their own language; besides, languages are not taught here as mental exercises merely.

"The medical students publish a small monthly review, *Revista de la Sociedad Vargas de Estudiantes de Medicina*. Several presented me by Dr. Ascanio-Rodríguez contained articles by him on 'Las Pascuas Azules,' a morning glory, as a delicate indicator. Other articles were on bronchitis in cattle caused by *Strongylus micrurus*, by Señor Rángel, and there were book reviews. There was a marked tendency to philosophical discussion and to oratory.

"The university building is of Gothic design, resembling, in plaster, some of the buildings of the University of Chicago, and somewhat incongruous beside the wide tree-lined boulevard, in which trolley-cars ran past long burro-trains. Besides writing a thesis, graduates deliver an oration in an imposing room, the *paraninfo*, gorgeous with red velvet hangings. Here in the presence of classmates, faculty and friends, he reads into life the ideals that in Spanish-America are all the nobler for the sordid contrast to the practical life without. Good luck to them. Their lives, efforts and brilliant intellects are terribly wasted by struggling with the uncertainties of their social fabric."

Louisiana November Report

Dr. A. B. Brown, secretary of the Louisiana State Board of Medical Examiners, reports the written examination held at New Orleans, Nov. 4-6, 1912. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 49 of whom 33 passed and 16 failed. One candidate was licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
University of Alabama	(1912)	88.1
University of Arkansas	(1895)	75
American Medical Missionary College	(1900)	80.7
University of Louisville (1908) 76.1; (1909) 75.8; (1910) 78; (1912) 88.2.		
Tulane University of Louisiana (1909) 84.2; (1912) 78.5, 80.6, 84.1, 84.2, 84.5, 85.8, 86.2, 87, 87.3, 88.1, 89.1, 89.3, 90.1, 91.1, 92.2, 92.6.		
Woman's Medical College of Pennsylvania	(1912)	88.2
Meharry Medical College	(1912)	75.9, 81.8
Memphis Hospital Medical College	(1912)	84.4
Vanderbilt University	(1912)	84.2, 86.3
University of Nashville	(1904)	*68.2
University of Texas	(1911)	87.2
University of Virginia	(1907)	85.1
FAILED		
University of Arkansas	(1912)	69.1
University of Louisville	(1912)	68.9, 74.4

Memphis Hospital Medical College	(1908) 52.4, 62.5; (1910) 73.1; (1911) 66.7; (1912) 32, 51.9, 64.6, 66.6, 66.9.	
College of Physicians and Surgeons, Memphis	(1911)	49.6
University of Tennessee	(1912)	55.7, 74.6
Fort Worth School of Medicine	(1911)	65.9

* Allowed 8 per cent. for years of practice.

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University Medical College, Kansas City	(1896)	Missouri

ANATOMY

1. Name the muscles that move the eyeball; give their nerve-supply. 2. Give origin, course and distribution of right recurrent laryngeal nerve. 3. Give relations of brachial artery and name its branches. 4. Name arteries which supply the thyroid gland. 5. What are the two kinds of bone tissue and where is each found? 6. What muscles connect the scapula with the trunk? 7. What tends to prevent anterior displacement of the elbow-joint? 8. Describe briefly the circle of Willis. 9. Name muscles of gluteal region and give their origin and insertion. 10. Describe the radius and its muscular attachments.

CHEMISTRY

1. Define atomic weight; (b) molecular weight; (c) explain the terms reaction and reagent. 2. What elements belong to the halogen group, and why are they so called? 3. What is starch; (b) properties; (c) by what test can it be recognized? 4. Explain the phenomenon of respiration from a chemical standpoint. 5. What is the specific gravity of healthy urine? (b) How is the total amount of solids approximately estimated from the specific gravity? 6. Describe a test by which urea may be determined quantitatively in the urine. 7. What is the chemical antidote for corrosive sublimate; (b) sulphuric acid; (c) caustic potash? 8. What are enzymes? (b) Name the proteid-hydrolyzing and starch-hydrolyzing enzymes. 9. Name the several tests for sugar in the urine and state the one you consider the most reliable, and why. 10. Give a chemical test for blood.

PATHOLOGY

1. What is the difference between (a) anemic infarct and (b) hemorrhagic infarct? 2. Differentiate pathologically between (a) lobar pneumonia and (b) lobular pneumonia, as seen under the microscope. 3. Describe the microscopic changes occurring in the kidney in acute diffuse nephritis. 4. Describe the mode of action of the phagocytes. 5. What are the characters of tumors in general? 6. Describe the healing of a compound fracture of a long bone. 7. What part of the spine is affected by Pott's disease? Describe the pathologic changes taking place in the bone in Pott's disease. 8. What pathologic changes occur in acute suppurative arthritis (metastatic, not traumatic)? 9. Describe the tubercle bacillus and give a method for determining its presence in sputum. 10. What is an "autogenous vaccine"? On what principle or principles is vaccine therapy based?

PHYSIOLOGY

1. Define anabolism and give examples of anabolic changes. 2. What are the functions respectively of (a) the mouth, (b) the stomach, (c) the small intestines, (d) the large intestines, in the alimentary process of absorption? 3. Describe briefly the physical and morphologic characters of the leukocytes (white blood-corpuscles). 4. What is a polynuclear leukocytosis and what is its physiologic and pathologic significance? 5. State briefly the causes of the first and second sounds of the normal heart. 6. What is the distinction between secretion and excretion? Give examples of each. 7. What are the constituents of sweat? 8. What are the constituents of the intestinal juice and what is their action in digestion? 9. What are the functions of the spinal cord? 10. Give the distribution and the function of the glossopharyngeal nerve.

THERAPEUTICS

1. What are the therapeutic uses of iodin and the iodids, and how are they administered? 2. When and how should iron be administered? 3. For what medicinal purposes are mercuric chlorid and mercurous chlorid used? 4. What are the indications for the use of chloral hydrate and how is it administered? 5. What ammonium salts are used as expectorants, and what is their action? 6. How would you treat a case of acute opium poisoning? 7. What are the indications for the administration of nitroglycerin and how is it administered? 8. What are the uses of cinchona and its alkaloids? 9. When and how would you administer amyl nitrite? 10. In what conditions and how would you administer potassium bromid?

PHYSICAL DIAGNOSIS

1. How would you differentiate between an abscess of the liver and acute hepatitis? 2. Define vocal resonance and state its significance in pulmonary diseases. 3. What are the physical signs of pericarditis, with and without pericardial effusion? 4. Differentiate between inguinal hernia and hydrocele of the cord. 5. Name the commonest causes of true dyspnea, and what are the physical signs of progressive dyspnea? 6. Give the differential diagnosis between paralysis agitans and tabes dorsalis. 7. What are the commonest causes of and how would you diagnose unilateral facial paralysis? 8. Differentiate enlargement of the cervical glands (cervical adenitis) due to: (a) tuberculosis; (b) syphilis; (c) malignant disease; (d) Hodgkin's disease. 9. What are the physical signs of mitral regurgitation when compensation is established? 10. How would you differentiate: (a) biliary colic; (b) renal colic; (c) floating kidney?

SURGERY

1. What are the causes of gangrene? 2. Differentiate between typhoid fever and appendicitis. 3. What is coxalgia? Give treatment. 4. Give treatment of an acute infection of the hand. 5. Describe and give treatment of Colles' fracture. 6. Diagnosis and treatment of strangulated inguinal hernia. 7. What is a carbuncle? Give treatment. 8. Give the different forms of dislocation of the shoulder. Describe how you would reduce the dislocation. 9. What is hyperthyroidism? What operation may be indicated in such a case? 10. Diagnose pleuritic effusion, purulent and non-purulent.

OBSTETRICS

1. Name the joints of the obstetric pelvis. 2. What is the perineal body and what are its functions? 3. What conditions justify the irrigation of the puerperal uterus? 4. How would you manage a breech presentation? 5. What is version? (b) State two conditions that would require it. 6. What signs in delayed labor are indications for the use of forceps? 7. What conditions, maternal and fetal, would justify the induction of premature labor? 8. Treat a case of puerperal eclampsia. 9. What is involution and when is it completed? (b) Subinvolution and its treatment? 10. What are the signs of fetal death *in utero* and what treatment is necessary when such a condition exists?

GYNECOLOGY

1. Distinguish symptomatically between uterine carcinoma and uterine fibromyoma. (b) On what does the possibility of permanent operative cure in cancer depend? 2. What essentials are to be followed in operating for secondary repair of the completely lacerated perineum? 3. What are the principal causes of pelvic peritonitis? 4. Describe the blood-supply of the uterus. 5. What are the principal causes of dysmenorrhea? 6. Of what pathologic significance is the retroverted uterus in the virgin female? 7. Describe the mechanism of uterine prolapse. What surgical treatment will you apply in cases of complete procidentia complicated with cystocele and rectocele? 8. Differentiate between uterine polypus and inversion of the uterus. 9. Why is gonorrhea in women so difficult to cure? 10. Describe the vulvovaginal (Bartholin's) glands.

HYGIENE

1. At what temperature would you keep a sick-room and how would you ventilate it for a person with pneumonia? 2. In dormitories, what should be the minimum of air-space for each occupant? 3. How would you disinfect typhoid excreta? 4. How would you disinfect a room after a case of scarlatina? 5. Give hygiene and general care of a case of pulmonary tuberculosis to prevent infection of others. 6. Give general directions for the care of public schools and care and inspection of school children. 7. What diseases are propagated by drinking-water? How may impurities in water be detected? 8. Name four diseases that may be transmitted by milk. 9. What is an epidemic disease; an endemic disease; a sporadic disease? 10. What deleterious gases accumulate in ill-ventilated rooms?

Book Notices

Handbuch der Gesamten Medizinischen Anwendungen der Elektrizität, Einschliesslich der Röntgenlehre. Herausgegeben von Prof. Dr. Med. H. Boruttau, Privatdozent für Physiologie an den Universität Berlin, und Prof. Dr. Med. L. Mann, Privatdozent für Nervenheilkunde an der Universität Breslau. Volume 2, Part 2. Paper. Price, 30 marks. Pp. 1102, with illustrations. Leipzig: Werner Klinkhardt, 1911.

The first volume of this work was reviewed in these columns when it appeared, some months ago. In this, the second volume, the therapeutic uses of electricity are discussed.

In considering the therapeutic value of electricity one must distinguish clearly between the effects of electricity as a physical agent and the effects of electricity *per se*, as for instance in the use of the ordinary galvanic or faradic current or the so-called franklinization. That distinct local effects of a physiochemical nature may be produced by electricity is unquestioned; but it is doubtful if any such things exist as intangible and mysterious therapeutic effects in general conditions or even in local conditions. On this phase of the subject some of the contributors to this volume at times are quite frank. Thus, in a chapter devoted to the factors which have a beneficial influence, it is stated, concerning the beneficial effects of the electric bath, that the bath itself is the great therapeutic factor and probably of much greater importance than the electricity. Under electric massage it is stated that a scientific foundation for such a procedure has not yet come to hand.

"Suggestion may be regarded as an important curative factor in the different electrotherapeutic methods." The suggestion may be intentional or unintentional. When in a hysterical paralysis, contracture or anesthesia, the paralyzed limb is treated with the static spark or with the faradic brush or with the four-celled bath, it is not electrotherapy but intentional suggestion." That the author himself doubts the therapeutic value of electricity is well shown by the following sentence: "In the discussion of the effects of electricity I have shown in what manner one must *imagine* the curative effect of the electricity *in case such an effect really exists*." These quotations indicate that one must not place too much confidence in the use of electricity, or expect too much from it, as a therapeutic agent.

Part 3 of the volume treats of electric lighting, electric heating and electric motors as used by the physician, and of electrolysis, cataphoresis and phototherapy. These chapters, although very technical, are of great scientific and practical interest. The work as a whole deals with the subject of electricity in a most thorough and comprehensive manner.

STUDIES IN CANCER AND ALLIED SUBJECTS: PATHOLOGY. Conducted under the George Crocker Special Research Fund at Columbia University. Volume II. Boards. Price, $5 net. Pp. 267. New York: The Columbia University Press, 1912.

This book consists of twenty-seven articles by Isaac Levin, M. J. Sittenfeld, Robert A. Lambert, Frederic M. Hanes, Robert T. Frank and A. Unger, previously published in such easily accessible journals as the *Journal of Experimental Medicine*, *Surgery, Gynecology and Obstetrics*, etc., and all dealing with the results of investigation into some phase or other of "the cancer problem." Prof. W. G. MacCallum writes an introduction. The collection in this way of the articles published from one laboratory or institute is of some convenience to active workers in the same field, and it also forms a more or less imposing monument, in appearance at least, to the institution from which it is issued; yet there is occasion for the question whether in view of the expense and the increased labor on the part of libraries such republication really is worth while. In the United States this kind of republication is prevalent at present. In many cases it is feared that the chief result is accumulation of books that are not consulted. No doubt the great value of the investigative work represented in the volume under consideration is such as to warrant republication, but no matter how epochal the work, it would not justify publication in the form selected in this instance. The volume is so large as to be unwieldy; many book-shelves will not receive it standing; and the blank margins are of such unusual width that considerably less than half of each page is occupied by print; hence more than one-half of the book is unused paper. That the Columbia University Press could become responsible for such an example of pure waste and lack of judgment in book-making passes understanding.

A SECOND STUDY OF EXTREME ALCOHOLISM IN ADULTS, with Special Reference to the Home-Office Inebriate Reformatory Data. By David Heron, D.Sc. University of London, Francis Galton Laboratory for National Eugenics. Eugenics Laboratory Memoirs, XVII. Paper. Price, 5 shillings. Pp. 95. London: Dulau & Co., 1912.

As social questions are to be solved not by opinion but by statistical facts, the data collected by Dr. R. Welsh Branthwaite, inspector under the British inebriates acts, marked an advance in the study of inebriety. A detailed account was given of 166 men and 865 women inebriates. Heron's memoir is based on a consideration of these women inebriates in view of their larger number and because the problems of extreme alcoholism concern women to a greater extent than men inebriates. Figures showing the relative intensity of drunkenness in men and women prove that

> . . . men, at most, differ as Heaven and Earth,
> But women, worst and best, as Heaven and Hell.

After an exposition of the material, Heron compares the various characteristics of inebriates as a whole, as modified by different intensities of alcoholism, and as contrasted with mental defects in the general population. He has taken pains to avoid the pitfalls in the path of interpreters of statistics, and his presentation of the subject will interest students of the social questions. He concludes with a survey of the results of reformatory treatment, and makes practical recommendations for further inebriety legislation.

THE BUSINESS OF MINING. A Brief, Non-Technical Exposition of the Principles Involved in the Profitable Operation of Mines. By Arthur J. Hoskin, M.E. Cloth. Price, $1.50. Pp. 224, with illustrations. Philadelphia: J. B. Lippincott Company, 1912.

Those physicians, who are inclined to invest rashly in mining stocks and enterprises, might find it advantageous to read this little book on "The Business of Mining." After describing in a more or less non-technical way the varieties of mines and methods of mining, the author devotes considerable space to a sensible discussion of mining as an investment, giving some needed attention to the genus "promoter," a study of whose methods may be of interest and value to the would-be investor.

Miscellany

Supervision of Communicable Diseases in New York

The sanitary and public health control of the 5,100,000 persons comprising the population of New York City must of necessity furnish not only much information of general interest but also many object lessons of success and failure which can well receive wide attention from public health officers and sanitarians. The October bulletin of the New York Department of Health reviews the organization and work of its division of communicable diseases, a division instituted in 1892 as a defensive measure against a threatened invasion of cholera. When this danger had passed, the division undertook the study and control of diphtheria and made bacteriologic examinations for tubercle bacilli for private physicians, together with routine laboratory reports on suspected cases of typhoid, malaria and meningitis. The sanitary supervision of these diseases followed naturally.

In 1905 the division was put on its present basis. Its functions now include (1) the sanitary supervision of tuberculosis, typhoid, cerebrospinal meningitis, pneumonia, malaria, puerperal septicemia, abortion, erysipelas, poliomyelitis and venereal disease; (2) the direction of tuberculosis camps and clinics; (3) the administration of diphtheria antitoxin and intubation; (4) the direction of the diagnosis laboratory and collection of specimens throughout the city.

The administration of diphtheria antitoxin for curative and prophylactic purposes and the practice of intubation have been maintained since 1895. In 1911, 6,167 patients were injected with antitoxin. Tuberculosis is reportable and the registration and supervision of this disease are facilitated by a system of health department clinics for tuberculous patients. In these tuberculosis dispensaries a total of 28,570 persons received treatment in 1911, of whom 16,562 were new cases. In 1906 an original and effective line of work was begun by fitting out an abandoned ferry-boat as a day-camp for tuberculous patients living at home. This work has since been extended to include two other camps under the department and several connected with hospitals. In these camps a hot dinner is provided at noon, and lunches of milk and eggs in the morning and afternoon Open-air classes are conducted for the children, the equipment being provided by the Department of Education. The Department of Health conducts a tuberculosis sanatorium at Otisville, N. Y., for admission to which there is always a long waiting list.

The sanitary supervision of typhoid includes the investigation of all cases by inspectors, who visit both the patient and his physician, more complete reports from the physician on the termination of the disease and a thorough investigation of the possible sources of infection in each case, whether by contact or through the food-supply. Pin-maps of each borough show any unusual grouping of cases and may point out the source of infection. Also a tabulated record is kept of the date of onset and the milk-supply in each case. The division is preparing to make prophylactic typhoid vaccinations on request or in local epidemics, and it is expected that in the near future removal to hospital will be required when conditions at home preclude proper preventive measures. In 1911, 3,686 cases of typhoid were reported and 13,521 inspections were made.

A similar and even more rigid supervision is maintained in cerebrospinal meningitis and anterior poliomyelitis. Reports are required of all cases of malaria, pneumonia, erysipelas, abortion and puerperal septicemia, but patients are not visited. Cases of malaria reported are investigated to determine the validity of the diagnosis and whether it is supported by laboratory findings. Reports of venereal disease have only recently (1912) been required. These reports are filed but are not open to the public. The laboratory will soon be prepared to make all examinations requisite in connection with these diseases. The work of the diagnosis laboratory in 1911 included 40,048 sputum examinations, 68,868 throat cultures, 10,549 examinations of typhoid blood, 2,376 of malarial blood, 2.926 of typhoid urine, besides numerous examinations of pus and spinal fluid specimens and miscellaneous preparations.

The budget of the division of communicable diseases for 1912 was $435,397.00.

Sterilization of Drinking-Water with Minimal Amounts of Calcium Hypochlorite.—The method of sterilizing water according to Dserschgowski's technic has recently been tested at Cronstadt, Russia, and Antonowsky reports the results in the *Ztschr. f. Hygiene*, 1912, lxxii, 421. His aim was to determine the relative resistance of cholera and typhoid germs and the colon bacillus to amounts of chlorinated lime in the water too small to affect its taste. His experiments demonstrated, he states, that the effectual agent in sterilization of water by neutral solutions of chlorinated lime is the oxygen. The effect consequently depends on the oxidizableness of the water rather than on the proportion of chlorinated lime. With addition of catalyzers, such as hydrogen or manganese dioxid, the bactericidal action of chlorinated lime is increased. With a proportion of 0.0025 gm. active chlorin to the liter, ten minutes are required for partial destruction of the germs and checking of the growth of the others; this interval is necessary on account of the slowness of the chemical changes involved, the gradual release of hypochlorous acid in the solution of chlorinated lime. He regards the method on the whole as a good help in combination with mechanical measures for purification of drinking-water.

The Dangers of Uterine Fibroids.—It has been the custom in past times to consider fibroid tumors of the uterus as harmless neoplasms, to be put up with, lived with and finally to be buried with. Further, we have been taught to believe that the latter supposition is in no way hastened by the presence of a fibroid tumor. So ingrained was this view that even quite recently an eminent authority stated in a paper that death from uterine fibroids was the rarest occurrence. The more, however, we see of gynecologic and obstetric practice, the more, in my opinion, we must recognize that uterine fibroids bring in their train very serious disabilities, lead to much chronic invalidism, and play a by no means small part in hastening the demise of many individuals.—Thomas G. Stevens in *Clin. Jour.*, London.

Medicolegal

Validity of Act Giving State Board of Health Authority Over Water-Supplies

(State Board of Health vs. City of Greenville (Ohio), 98 N. E. R. 1019)

The Supreme Court of Ohio holds that the act of the General Assembly passed April 7, 1908, entitled "An act to authorize the State Board of Health to require the purification of sewage and public water-supplies and protect streams against pollution," now being Section 1249 et seq. of the General Code of Ohio, is a valid and constitutional exercise of the police power of the state. The court says, among other things, that this legislation is designed to preserve and protect the public health and comfort, and therefore falls directly within the police power of the state. This power includes anything which is reasonable and necessary to secure the peace, safety, health, morals and best interests of the public.

In granting to a municipality certain powers to be exercised for the benefit of the public health of that municipality, the state has not relinquished its authority and control in this important particular over any of the territory comprised within the limits of the state. The duties and powers of the State Board of Health extend throughout the state irrespective of political divisions or territories embraced within municipalities. The general provisions for the preservation of the life and health of the people of the state are no more suspended in the territory comprised within a municipality than are the criminal laws of the state, and this case would illustrate the folly of a state delegating to any municipality full and complete control of matters pertaining to the public health. A municipality might then in the preservation of sanitary conditions in its own territory work incalculable mischief to the health and comfort of people living in adjacent territory. To prevent this being done, it is primarily necessary that there should be one central authority clothed with the power of affording equal protection to all.

The state does not seek to control the discretion of the municipal authorities in this matter, but, on the contrary, refuses to commit to them any discretion touching the particular matters committed to the care and control of the State Board of Health. In so far as they are charged with any duty in reference to the carrying out of the orders and directions of the State Board of Health, they are ministerial officers only, and it is fully settled that a public officer may be required to perform a ministerial act, and that a failure or refusal by such officer to perform a ministerial act may be made a criminal offense and punished as a misdemeanor.

The provision in this legislation by which a municipality may challenge the judgment of a State Board of Health and submit the question to a board of arbitration composed of men skilled in sanitary work is a most liberal provision so far as municipalities are concerned, and far more liberal than many of the statutes relating to the powers of a State Board of Health. There is no theory on which a mere agency of the state has a right to litigate the right of the state to enforce, through any agency it pleases, sanitary rules and regulations for the preservation of the health and comfort of all the people of the state.

Nor is this legislation unconstitutional because it delegates the taxing power of the city to the State Board of Health.

If the city possessed the absolute right to discharge its sewage into a living stream of water, thereby polluting the same and destroying all riparian rights below and creating a menace to the health and comfort of those living on the banks of this stream below the point of discharge, then it might be said that any change in the manner of sewage-disposal would not be for the benefit of the city, but for those citizens of the state residing below the outlet of the city sewers. But the city has no such absolute right, and whenever this condition of affairs exists it is right and proper for the state to interfere and prevent it from a further continuance of this nuisance; and, the city then having no other means for the disposal of its sewage, it is primarily for its benefit that such disposal plant must be established.

The health of the inhabitants of the city is still a matter of concern to the state, and of such vital concern that the General Assembly has not thought proper to commit it exclusively to the control and discretion of men who may or may not have any particular ability or experience in sanitary affairs. The loss of a single life is a direct economic loss to the state, and therefore it wisely refrains from committing to inexperienced people final discretion as to the means and methods of preserving the life and health of its citizens; but, aside from the concern of the state for the health and comfort of the residents of any one city, its vigilance seeks to serve a larger purpose. Cities are no longer inclosed by stone walls and separate and apart from the balance of the state. The sanitary condition existing in any one city of the state is of vast importance to all the people of the state, for, if one city is permitted to maintain insanitary conditions that will breed contagious and infectious diseases, its business and social relation with all other parts of the state will necessarily expose other citizens to the same diseases. But with the wisdom or folly of withholding from the local authorities final discretion over these matters, the court is not concerned. It is beyond question the right of the General Assembly to do so, and the court need not, and ought not, to inquire what motives moved it in withholding such power.

The disposal plant is for the benefit of the residents of the city. It is primary duty of the city to provide for sanitary disposal of its sewage, and it is not in violation of any provision of the constitution that it should bear the entire cost of erecting and maintaining a purification plant, and to require it to do so is not an arbitrary, unreasonable, or unfair exercise of the police power of the state.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, New York

November, II, No. 11, pp. 825-895

1 *Cold Storage and Public Health. W. T. Sedgwick, Boston.
2 *Physics of Refrigeration. P. H. Bryce, Ottawa, Canada.
3 Bacteriology of Fermentation and Putrefaction in Relation to the Conservation of Foods. S. C. Prescott, Boston.
4 Hygienic and Economic Results of Refrigeration in the Conservation of Poultry and Eggs. M. E. Pennington, Washington, D. C.
5 *Hygienic Results of Refrigeration in the Conservation of Fish and Mollusks. H. D. Pease, New York.
6 *Cold Storage in Relation to the Food-Supply. H. E. Barnard, Washington, D. C.
7 Effects of Temperature and Humidity on Fatigue. F. S. Lee, New York.
8 Public Health—Past and Future. H. W. Hill, Minneapolis.
9 The Trend of Medico-Social Effort in Child Welfare Work. W. C. Phillips, New York.
10 Recent Typhoid Outbreaks in Kona, Hawaii. E. S. Goodhue, Hawaii.

1. **Cold Storage and Public Health.**—Sedgwick believes that, by cold storage to-day, rightly supervised by boards of health, as it should be, the public health has been and will be immensely promoted. The public health will also be promoted indirectly through the cheapening of cost of food in two ways: first, by saving what would have been lost at one season and keeping it over to another, when prices would have been much dearer than if it had not been kept and the supply at the later period increased; and second, by encouraging production.

2. **Physics of Refrigeration.**—Successful refrigeration, Bryce points out, involves that goods shall be taken from cold storage in the pink of condition; hence, this demands that perfectly fresh, matured products shall at the beginning be placed in the cold storage and when so placed given the most skilful treatment possible during their detention there. Being essentially an economic proposition, it means the most careful attention by the engineer in charge of the temperature and relative humidity of the cold-storage room, assuring that such be neither too high nor too low. The more delicate the thermometer, the greater the success in maintaining evenness of temperature. While the perfection of any product placed in cold storage is a *sine qua non* to highest success, whether hygienic or commercial, yet permanent results must depend on how economically and yet efficiently the mechanical and physical appliances involved perform their work.

5. **Refrigeration of Fish.**—From the sanitary standpoint, at least, says Pease, the problems in the refrigeration or freezer storage of fish and oysters relate almost without exception to the conditions under which the food or oysters have been caught or gathered and prepared for refrigeration, and to the methods of handling these food products after they have been moved from the influence of processes of refrigeration.

6. **Cold Storage and Food-Supply.**—In order to promote uniformity of legislation by the several states, a thing greatly to be desired in all regulative legislation, the National Association of Food Officials in 1911 gave to a committee of its members the task of drafting a model cold-storage bill. Barnard is chairman of that committee. The committee recognizes the need for legislation: first, to protect the public health against the sale of unfit food; second, to prevent cornering of the food-supply and consequent unfair prices to the consumer, and third, to insure both to the consumer and to the producer the sale of goods properly labeled. The committee defines cold storage as a warehouse for the holding of food products at or below a temperature of 40 F. It holds that a cold-storage warehouse is an establishment employing refrigerating machinery or ice for the purpose of refrigeration where food products are stored for thirty days or more at a temperature of 40 F. It assumes that the states have already at hand machinery for the sanitary control of food-producing establishments, and it provides that the operators of cold-storage warehouses shall obtain a license from the state board of health for conducting the business after a sanitary inspection has shown the warehouse to be in satisfactory condition. In the event a warehouse so licensed becomes unsanitary, it is made the duty of the state board of health to revoke the license. The bill provides that a complete record shall be kept of all goods entering storage and that a quarterly report of such facts shall be presented to the state board of health. It is believed that such reports will prevent the cornering of the food-supply. It provides that no article of food shall be placed in storage if not sound and in good condition, or unless it has been prepared in accordance with the pure food and sanitary laws. The committee is unanimous in its belief that cold-storage legislation should not antedate pure food and sanitary food legislation, but rather should follow and supplement it. When food is placed in storage the date of entry is plainly marked on the container, and when removed it is again marked. No goods shall be held in cold storage for a longer period than twelve calendar months, except under certain conditions referable to the state board of health. It provides that goods which have been in storage must be labeled "Cold Storage" in such manner that the consumer knows when he purchases his eggs, for instance, that they are storage eggs. It provides that the state board of health may make all necessary rules and regulations to secure a proper enforcement of the law.

American Journal of Neurology, New York

November, VIII, No. 11, pp. 567-602

11 *Renal Hematuria. H. L. Elsner, New York.
12 Hematuria with Case Reports. C. M. Harpster, Toledo, Ohio.
13 Relation of Proctology to Urology. G. B. Evans, Dayton, Ohio.
14 Gonorrhea in an Artificial Urethra. G. F. Lydston, Chicago.
15 A Topographic Cysto-Urethroscope. J. London, New York.
16 Case of Congenital Double Urethra. W. Lenehan, Nashville, Tenn.
17 Infantile Kidney and Occlusion of Ureter with Nephrolithiasis on the Opposite Side. J. S. Lewis and C. W. Bethune, Buffalo, N. Y.
18 Survival After Several Operations in Spite of Unusually Low Phenolsulphonephthalein Output. E. L. Keyes, New York.

11. **Hematuria.**—Elsner says that many cases of renal hemorrhage, whether associated with pain or not, will remain unexplained. In reaching conclusions, however, it will be wise to extend the search beyond the kidneys themselves; to take urine, heart, blood-vessels, blood-pressure and the background of the eye into consideration and wherever possible couple the knowledge gained from a thorough consideration of these organs with that which is revealed by the cystoscope, though we are not to be disappointed if occasionally cystoscopy and segregation of the urine fail to supply convincing data.

Archives of Diagnosis, New York

October, V, No. 4, pp. 309-408

19 Errors in Clinical Diagnosis of Mental Disorders Associated with Cerebral Syphilis. F. M. Barnes, Washington, D. C.
20 New Method of Duodenal Intubation. A. Abrams, San Francisco, and G. O. Jarvis, Philadelphia.
21 Duodenal Intubation for Diagnosis. F. B. Turck, New York.
22 Atony of Cecum; Procedure Facilitating Its Recognition. H. Stern, New York.
23 Avulsion of Mesentery with Report of Case. H. B. Delatour, Brooklyn.
24 Hysterical Paralysis of Intestine (Paralysis Intestinalis) of Somewhat Rare Form. H. Illoway, New York.
25 Present Value of Serodiagnosis of Visceral, Malignant Neoplasms and Plea for a Universal Technic. B. G. R. Williams, Paris, Ill.
26 *Dome-Like Appearance of Abdomen; Point in Differential Diagnosis of Extra-Uterine Pregnancy. A. Shulman, New York.
27 Practical Points in Diagnosis of Some Important Eye Conditions. C. Graef, New York

26. **Dome-Like Appearance of Abdomen.**—A sign and symptom of extra-uterine pregnancy, which Shulman says, is pathognomonic and still unmentioned in the text-books on gynecology, is the dome-like appearance of the abdominal wall in ruptured extra-uterine pregnancy caused by the large accumulation of blood in the pelvic and abdominal cavities in sufficient quantity to force the overlying structures, the peritoneum, muscles, fasciae, areolar tissue and skin of the abdominal wall in the median line upward and outward in the direction of least resistance. This hemispherical or cup-shaped roof, as a rule, makes its appearance suddenly, the patient being overcome with severe, sharp, lancinating pain, falls to the floor in a fainting spell and presents at once all the signs of

acute anemia. In exceptional cases there is a sudden loss of a large amount of blood into the peritoneal cavity. In such a case the symptoms are striking and urgent. The patient's face is blanched, her nose, forehead and fingers are cold, the pulse is rapid and weak and failing, a cold sweat appears on the face, respiration is short and labored, and over all is the intense pain which is due to the blood spreading over the peritoneal cavity and of which the patient complains as long as she has sufficient strength.

Archives of Internal Medicine, Chicago

November 15, X, No. 5, pp. 405-520

28 *Influence of Radium and Its Decomposition Products on Ferments. T. R. Brown, Baltimore.
29 Pathologic Deviations in Chemistry of Uremic Blood. N. B. Foster, New York.
30 *Effect of Intraspinal Injections of Ringer's Solution in Different Amounts Under Varying Pressures. W. S. Carter, Galveston, Texas.
31 Two Cases of Anaphylactic Serum Disease Over Six Years After Primary Injection of Horse-Serum (Yersin's Antipest Serum). S. T. Darling, Canal Zone.
32 *Pathogenesis of Purpura Hemorrhagica with Special Reference to Part Played by Blood-Platelets. W. W. Duke, Kansas City, Mo.
33 Wassermann Test in Tropics. L. B. Bates, Canal Zone.
34 Poisoning by Nitric Oxid Fumes. F. C. Wood, New York.
35 *Organic Iodin Preparations; Their Pharmacology and Therapeutic Value. F. C. McLean, Portland, Ore.

28. **Influence of Radium on Ferments.**—None of the radium preparations used by Brown seemed to have any effect on the autolytic ferment of the liver, although saturated lead chlorid solution appeared to activate it; with diastase the very radio-active radium possessed an inhibiting effect, while the less active radium emanations had a stimulating effect, this increasing with the length of time and the amount of fluid used, while this ferment is also markedly activated by the salts in evaporated tap water; with pepsin Brown found a slight inhibiting effect, more marked with very radio-active radium, although slight in comparison with the inhibiting effect of saturated lead chlorid solution.

30. **Intraspinal Injections of Ringer's Solution.**—An experimental inquiry was made by Carter into the cause of the severe shock which sometimes follows the injection of serum into the subarachnoid space of the spinal cord. The sole object of his investigation has been to determine the mechanical effect on the spinal and medullary centers, of increasing the amount and pressure of fluid in the spinal subarachnoid space. For this purpose Ringer's solution has been used, as this contains the different inorganic salts of a real physiologic salt solution, and is therefore preferable to the isotonic solution of sodium chlorid commonly called by that name. He found that no definite limit can be fixed to which the intraspinal pressure may be increased with safety. In some animals serious symptoms developed when it was increased to 10 mm. of mercury, while in others this only occurred with a pressure of 50 or 60 mm. of mercury. The normal intraspinal pressure in dogs varies from 3 to 10 mm. of mercury, or 40 to 135 mm. of water. A sudden increase of pressure, even though a small amount be given, is more dangerous than a larger amount given gradually by gravity. The first mechanical effect of increasing the intraspinal pressure from injections made by lumbar puncture is the cessation of respiration; quickly following it, or coincidently with it, there is profound cardiac inhibition, which causes a tremendous and sudden fall of blood-pressure. The fall of pressure is often so abrupt that it frequently drops from normal to zero within a half minute. Atropin removes the cardiac inhibition and restores blood-pressure by its paralyzant effect on the cardio-inhibitory nerve center. Atropin fails to stimulate the respiratory center, while cocain is the most valuable respiratory stimulant for such an emergency.

Carter says that these drugs should be given together in full dose before making a spinal puncture or intraspinal injection. The injection at the site of spinal puncture would also produce local anesthesia. The condition could thus be prevented more easily than it can be remedied after alarming symptoms suddenly develop. This is particularly true if chloroform is used as an anesthetic, as the inhalation of chloroform in concentrated vapor produces similar effects and thus makes the condition more serious. The fall of pressure is not due to a vasomotor disturbance. There is, therefore, no indication for the administration of epinephrin. On the contrary, it is positively contra-indicated on account of its well-known action in producing cardiac inhibition. Lowering the intraspinal pressure by allowing fluid to escape from the needle, after the characteristic symptoms develop, fails to relieve the condition. The advantage of using atropin and cocain before intraspinal injections consists not only in lessening the dangers of sudden death, but it enables a larger amount of fluid to be injected without producing dangerous symptoms from the mechanical effect. This is a great advantage in administering antimeningococcus serum, as its action is chiefly a direct, local one on the living bacteria and the benefits are in proportion to the amount administered.

32. **Pathogenesis of Purpura Hemorrhagica.**—By comparing symptoms and blood findings in all patients observed during a period of three years, who displayed a pathologic tendency to bleed, Duke succeeded in picking out a certain group of cases which presents a characteristic clinical picture, which is due wholly or in part, it is believed, to an enormous reduction in the number of blood-platelets. The disease in its severer form almost constantly presents the following symptom-complex: 1. Purpura of one or two types—petechias or ecchymoses. 2. Hemorrhage from mucous membranes. 3. A tendency to bleed from every vascular lesion, no matter how produced. In consequence of this tendency, the bleeding time is very greatly prolonged, often exceeding two hours. 4. A normal coagulation time. 5. A firm blood-clot. 6. In consequence of the absence of platelets, a clot which does not retract and extrude serum. In all cases (seven) seen by Duke showing the above picture, the number of platelets was reduced almost to a point of absence. Counts were all below 10,000, and as a rule, below 1,000. (The normal platelet count varies from 200,000 to 400,000.)

The disease in its milder form presents a different picture. The most common symptoms in the milder cases are ecchymoses following slight injury and epistaxis. Sometimes neither purpura nor bleeding from normal mucous membranes appears and the only evidence of hemorrhagic diathesis in severe hemorrhage accounted for to a greater or less extent by local causes; for example, continued bleeding from intestinal ulcers, from esophageal varices, profuse and prolonged menstruation, etc. The bleeding time in the mild cases is sometimes normal and sometimes slightly or moderately prolonged. The coagulation time is normal, the clot firm, retractility diminished. The diagnosis rests on the finding of a reduced platelet count. It varied, in Duke's cases (six), from 20,000 to 65,000.

Hemorrhagic diathesis can be followed best in this disease by determining the bleeding time at frequent intervals. The simple observation of purpura, spontaneous hemorrhage, etc., may lead to false conclusions in regard to the general condition, for these symptoms are often due to general and local causes combined. When there was opportunity to make such observations it was noted that the disease appeared when the platelet count fell to an extremely low level, persisted so long as the count remained low and disappeared as soon as the count rose. The disease was relieved immediately in two cases by direct transfusion of blood. The relief was coincident with an increase in the platelet count, evidently a direct result of the transfusion. Symptoms returned when the platelet count fell again.

The disease was produced in rabbits by reducing the platelet count with diphtheria toxin. This disease appeared the day the platelet count descended to a point of almost complete absence and persisted until the platelet count rose. Hemorrhagic diathesis in mild form was brought about with repeated injections of benzol. In the latter experiments the count did not descend to such a low level as in the former. In a series of thirty-eight animal experiments, in which the platelet count was enormously changed with subcutaneous injections of benzol, diphtheria toxin and tuberculin, and also in a large series of cases in humans in which routine platelet counts were made, only those having extremely low counts gave the complete symptom-complex described above. Several platelet counts between 40,000 and 75,000 were observed in patients who had no marked tendency to bleed. This seems to be the level at which patients may or may not have an abnormal tendency to bleed. No counts lower than these were observed in patients not subject to hemorrhage. The disease has been observed complicating a varied set of diseases—in severe form in lymphocytic leukemia, hemorrhagic small-pox, tuberculosis, nephritis, benzol poisoning, aplastic anemia and diphtheria. The one feature in common in these cases was the low platelet count and the modification of the clot dependent on it; i. e., absence of retractility. Purpura hemorrhagica of the type described would seem, therefore, a symptom, not a disease. It is caused apparently by any agent which reduces the platelet count to a sufficient degree.

35. **Organic Iodin Preparations.**—From evidence presented as to chemical nature, absorption and excretion, distribution, physiologic action and clinical results, McLean draws the following conclusions with regard to the therapeutic uses of the organic iodin compounds: Up to the present it has not been shown that the organic iodin preparations, with the exception of preparations of thyroid, have any specific action in pathologic conditions, except the action of iodin after separation from the molecule. The iodized proteins seem to be of advantage for therapeutic use only in so far as they avoid gastric irritation. The more stable compounds are apparently not entirely split in the body and are therefore not well utilized, while the less stable compounds have no advantages over the alkaline iodids, either as to local effects, or as to rapidity of absorption and excretion. The iodized fats and fatty acids appear to have some advantage when the continuous action of small amounts of iodin is desired. They are more slowly and evenly split, and the amount of available iodin in the blood does not vary from time to time to the extent that it does when the alkaline iodids are administered. The use of the iodized fats in such conditions as arteriosclerosis, bronchial asthma, lead-poisoning, etc., probably has some rational basis, therefore, on physiologic grounds. These substances are also as a rule non-irritant to the stomach. The difference in frequency of iodism is probably due to the difference in the amount of available iodin present in the body at any one time. When large amounts of iodin are desired, as in cerebrospinal syphilis, avoiding the danger of iodism would be at the sacrifice of therapeutic efficiency. The use of organic iodid preparations with toxic side actions, due to the molecule or its splitting products, should of course be discouraged. The products of iodin with the higher fats and fatty acids are generally free from toxic actions.

Boston Medical and Surgical Journal

December 5, CLXVII, No. 23, pp. 791-826

36 Heredity: with Special Reference to Law of Gregor Johann Mendel, O.S.A. J. M. Connolly, Boston.
37 Teeth and Their Relation to Body. G. H. Wright, Boston.
38 *Treatment of Pulmonary Tuberculosis by Artificial Pneumothorax, According to Method of Forlanini: Report of Twenty-One Cases. (To be continued.) G. M. Balboni, Boston.
39 Blood in Case of Severe Hemorrhage. J. E. Ash, Boston.
40 Fatal Endocarditis Due to Capsulated Gram-Staining Diplococcus, Occurring in Chains. W. H. Smith, Boston.

38. **Artificial Pneumothorax in Lung Tuberculosis.**—The ighteen months' experience Balboni has had in the treatment f pulmonary tuberculosis in its different stages by artificial neumothorax has convinced him of its place in the treatment f this disease. He says that any one who has had any xperience whatever with present methods of treatment for ulmonary tuberculosis must feel a moral obligation to try very new method that promises any degree of success at all, nd it becomes a duty to do so when a method of treatment is resented by which good results have been obtained in advanced ases of phthisis.

It is to be hoped that with the necessary wisdom, the method ill be applied on a larger scale and earlier in cases in which he spontaneous evolution shows a progressive and destructive ndency. Phthisiology is not so rich in resources as to justify verlooking a method of treatment that has given such good sults.

Delaware State Medical Journal, Wilmington

November, III, No. 12, pp. 1-26

41 Homeopathy: Old and Modern. What Is Left of It. A. Robin, Wilmington.

Journal of Indiana State Medical Association, Fort Wayne

November 15, V, No. 11, pp. 465-504

42 *Tuberculosis in Children. T. V. Keene, Indianapolis.
43 *Tuberculin Treatment. T. Potter, Indianapolis.
44 *Home Treatment of Tuberculosis. W. T. S. Dodds, Indianapolis.
45 Brill's Disease. E. Charles, Summitville.

42, 43 and 44. Abstracted in THE JOURNAL, November 2, p. 1644.

Journal of Infectious Diseases, Chicago

November, II, No. 3, pp. 295-504

46 *Experimental Studies on Milk. E. H. Schorer, Boston.
47 *Study of Streptococci from Milk and from Epidemic Sore Throat, and the Effect of Milk on Streptococci. E. C. Rosenow, Chicago.
48 *Content in Antibodies of Normal Human Colostrum and Milk. R. Tunnicliff, Chicago.
49 *Studies on the Biochemistry and Chemotherapy of Tuberculosis. I. The Permeability of Tubercle for Iodid Compounds and Proteins. H. G. Wells and O. F. Hedenburg, Chicago.
50 *Id. II. Intravitam Staining of Tuberculous Guinea-Pigs with Fat-Soluble Dyes. H. J. Corper, Chicago.
51 Id. III. The Lipase of Bacillus Tuberculosis and Other Bacteria. H. G. Wells and H. J. Corper, Chicago.
52 *Production of Antirabic Immunity by Intraspinal Injections of Virus. D. L. Harris, St. Louis.
53 Natural and Induced Immunity to Typhus Fever. J. F. Anderson and J. Goldberger, Washington, D. C.
54 Immunization by Means of Cultures of Trypanosoma Lewisi. F. G. Novy, W. A. Perkins and R. Chambers, Ann Arbor, Mich.
55 *Influence of Certain Oxidizing Agents (Sodium Iodosobenzoate and Sodium Iodoxybenzoate) on Phagocytosis. A. Arkin, Chicago.
56 Application of the Complement-Fixation Reaction to the Diphtheria Group of Organisms. M. E. Morse, Boston.
57 Studies on Hog Cholera. Experimental Hyperimmunization. W. E. King and R. H. Wilson, Detroit.
58 Production in Vitro in the Normal Brain of Structures Simulating Certain Forms of Negri Bodies. E. Steinhardt, D. W. Poor and R. A. Lambert, New York.
59 Bovine Infectious Abortion, Epizootic Among Guinea-Pigs. F. M. Surface, Lexington, Ky.
60 *Intraleukocytic Bodies in Scarlet Fever. D. J. Glomset, Chicago.
61 Phagocytic Activity of the Leukocytes in Measles. R. Tunnicliff, Chicago.
62 *Action on Dogs of Toxic Substances Obtained from Virulent Pneumococci and Pneumonic Lungs. E. C. Rosenow and A. Arkin, Chicago.

46. **Experimental Studies on Milk.**—The results of Schorer's extensive and detailed studies on milk may be summarized as follows: Better classes of milk contain little sediment, market milks contain more dirt but fewer cells than certified milks. The Tromsdorff tube is a convenient method of examining for dirt and cells. It is relatively easy to produce milk of low bacterial content, but the greatest care must be constantly exercised to prevent occasional high counts. Increase in bacterial content was more rapid at the higher temperatures, and at a temperature just above freezing there was little bacterial multiplication until after the seventh day, but from that time on the increase was rapid. Cream on rising carries with it a large portion of the bacteria in milk. Separator cream does not take with it as large a portion of the bacteria as does gravity cream. When milk was stored and the cream and skimmed milk were not remixed, bacterial multiplication was not as great during the same period of storage as when the milk was mixed repeatedly. Of the bacteria in good milks about 30 per cent. were acid-producers, while 20 per cent. of those in inspected and 30 per cent. of those in certified and pasteurized milks were protein-digesters. At the higher temperatures fermenting organisms increased more rapidly in certified milk, but at the lower temperatures the most marked increase was observed in pasteurized milk. The percentage of peptonizing types increased only at low temperatures. Apparently gravity cream contains the larger portion of peptonizing forms, while the skimmed milk below contains most of the fermenting forms when milk has been refrigerated.

On long storage butyric acid and putrefactive odors became marked. When milk was stored at low temperatures the development of putrefactive odors may not have been preceded by acid odors. If milk is stored for a long time the protein of certified and pasteurized milks may be entirely broken down. Protein decomposition without coagulation occurred principally at a temperature near the freezing point. Adding an equal part of 68 per cent. alcohol to milk is an easy and reliable test for the detection of beginning acidification. The fear of putrefying organisms in pasteurized milk is not warranted as far as market milk pasteurized by the holding method is concerned. While predominance of putrefying bacteria is not the only objection to pasteurized milk, it has been an important one. Certified milk, because it contains but little cow manure, is infected principally with spore-bearing organisms, it is always well refrigerated, and contains as large a percentage of protein-digesting and no more acid-forming bacteria than does pasteurized milk. The cleanliness necessary to produce certified milk is so imperative and the variation in the production and pasteurization of ordinary market milk is so marked, that certified and pasteurized milks are most variable. Inspected milk is apparently more uniform in numbers and kinds of bacteria.

47. **Milk Streptococci.**—Streptococci, virulent for animals, but which differ from typical *Streptococcus pyogenes* in a more abundant growth, in being encapsulated and not forming chains and in causing but little hemolysis, Rosenow says occur in predominating numbers in epidemic sore throat of milk-borne origin. On artificial cultivation these strains sooner or later assume the characteristics of *Streptococcus pyogenes.* By placing *Streptococcus pyogenes* in unheated milk it becomes modified so as to correspond to the streptococci in epidemic sore throat. The modifications may be accentuated by passage through guinea-pigs, and in some cases cultures like those of streptococcus mucosus may result. The fact that milk so modifies streptococci is an additional indication of the important part it may play in epidemic sore throat. It is not possible to determine whether the streptococci in such epidemics are of exclusively bovine or human origin; they may be of both. Milk drawn in a sterile way from normal cows may contain virulent streptococci and pneumococci; hence, "certified milk," while surely less contaminated than ordinary milk, may contain pathogenic bacteria, and the advisability of pasteurization even in this case should be considered, especially during seasons when sore throat is common. Butter and cream may contain virulent streptococci.

48. **Antibodies in Colostrum and Milk.**—From her experiments, Tunnicliff concludes that normal human colostrum-milk contains more opsonins for the streptococcus, staphylococcus and tubercle bacillus than does the later milk, but less than the blood-serum. Since this is true, it would seem of great importance that the newly born infant should receive colostrum-milk.

49. **Biochemistry of Tuberculosis.**—The authors' systematic consideration of the chemotherapy of tuberculosis rests on an investigation of the permeability of both the tubercle bacillus and the tuberculous lesion for chemical substances of different characters. It is shown that compounds of iodin injected into tuberculous animals enter glandular tubercles with readiness, so that the proportion of iodin in such tubercles is usually greater than it is in most other tissues except the kidney; furthermore, it is greater in the caseous contents than in the cellular peripheries of the tubercles. Tuberculous eyes usually contain much more iodin than their normal mates. This property is shown not to depend on any specific character of the tubercle itself, for other necrotic tissues also take up more iodin than normal tissues. The explanation offered is that normal cells are not perfectly permeable to iodids (except perhaps kidney cells) and lose this impermeability or semi-permeability when killed or injured, thus becoming entirely permeable for crystalloids present in the surrounding fluids. As the iodin content of the blood increases and decreases with absorption and elimination, so the iodin in the necrotic area, whether tuberculous or otherwise, varies, indicating an absence of any chemical or physical binding of the iodin in such areas. A simple, inert, colloid agar, implanted in the tissues, behaves in quite the same way. Egg albumin injected into tuberculous pigs is found, by means of the anaphylaxis reaction, to penetrate the avascular tubercules but little if at all, even when present in the blood in large amounts. This agrees with the hypothesis that the passage of iodin from the blood into the tubercles is a purely physical matter, the crystalloidal iodin compounds diffusing through the inert colloidal solution of a necrotic area practically unimpeded, while the colloidal egg albumin, according to the law of colloidal diffusion, is practically unable to diffuse through such a colloidal solution. No evidence could be found of any tendency for iodin compounds of whatever nature to accumulate in tubercles or other necrotic areas, or to persist in such areas when disappearing from the normal tissues and the blood.

50. **Tuberculous Guinea-Pigs and Fat-Soluble Dyes.**—Fat dyes administered by Corper under various conditions to guinea-pigs with tuberculosis never were found within the tubercles. This is in favor of the view that the fats of the tubercle are derived from the intracellular fats of the tissues forming the tubercle, and not from food fats or transported depot fats. Tubercle bacilli within tubercles in such animals do not become stained with the fat stains. Saturation of the animal with common fat dyes has no noticeable influence on the course of a tuberculous infection in the guinea-pig. The fat stains employed in these experiments (Sudan III, scarlet R., Sudan yellow, Sudan brown, Nile blue sulfate) were never found to stain any but depot fats, not being present in the parenchymatous cells whether normal or diseased. They caused no apparent harm to the guinea-pigs even after being fed to them over 200 days. Subcutaneous or intraperitoneal injection of fat dyes dissolved in fats and oils is much less effective in staining the depot fats, than is feeding the stained fats. Fat dyes do not pass through the guinea-pig placenta to the fetus, or at least the fat of embryo pigs from stained mothers is not stained (corroborating the result of the Gages, Mendel and Daniels). The embryos often show extremely fatty but unstained livers. Fat dyes were never observed to pass into the milk of lactating guinea-pigs, although positive results have been obtained by others.

52. **Antirabic Immunity.**—Harris' experiments seem to show that it is comparatively easy to immunize rabbits against rabies by a single intraspinal injection of non-infective desiccated "virus," and that the resulting immunity is acquired with surprising rapidity, and is not followed by any ill results.

55. **Oxidizing Agents and Phagocytosis.**—Sodium iodoxybenzoate, which contains 11.43 per cent. of physiologically active oxygen, Arkin found, has a markedly stimulating action on the phagocytosis of streptococcus and staphylococcus by human leukocytes in the presence of human serum, *in vitro.* Sodium iodbenzoate, which contains no oxygen, has no such effect. This stimulating effect on phagocytosis is related to its germicidal action, which is also dependent on the oxygen combined with the iodin in the molecule. Arkin ventures to express the opinion that the opsonin of the serum is probably rendered more active by the oxygen-containing substance, for the stimulating effect is exerted only in the presence of serum. Therefore, sodium iodoxybenzoate may be of value in some infections because of its stimulating effect on the production of antibodies and on phagocytosis, as well as its bactericidal action. Furthermore, a relationship is suggested between oxidation and the process of phagocytosis, for a substance which liberates oxygen readily stimulates phagocytosis, whereas a substance which prevents oxidation reduces phagocytosis.

60. **Intraleukocytic Bodies in Scarlet Fever.**—Glomset claims that bodies in the leukocytes like those described by Döhle occur in many febrile diseases, and in smaller numbers in other diseases, and even in health. The larger part of these bodies are of nuclear origin, and may be produced by shaking the blood. He does not believe that it is justifiable to regard them as having any etiologic significance.

62. **Toxic Substances from Pneumonic Lungs.**—The action of the toxic substances obtainable from pneumococci and pneumococcus exudates on the blood-pressure and respiration in normal dogs is said by the authors to be identical and strikingly like that which is observed in immediate anaphylaxis in dogs. Pneumococcus anaphylaxis in dogs does not essentially differ from protein anaphylaxis in general. The lesions are also similar. The hemorrhages, the effect on the respiration,

the extreme grade of cyanosis, especially in the fatal cases, the delayed coagulation of the blood and the presence of carbon dioxid in the stomach indicate that one of the chief effects of the toxic substances is an interference with the normal oxidative processes. The toxic substances concerned are probably of the same general nature because the lesions and the effect on the circulation and respiration are so similar, and it makes no essential difference whether they are formed *in vitro*, in the consolidated lung in man, at once in sensitized dogs, or at a later period in normal dogs.

Kentucky Medical Journal, Bowling Green

November 1, X, No. 21, pp. 833-852

63 Medicine and the Profession in Kentucky. O. Hancock, Henderson.
64 Tuberculosis Work in Europe. J. W. Pettit, Ottawa, Ill.
65 Constipation. J. C. McCreary, Cave City.
66 Rheumatism in Children. J. F. Dunn, Arlington.

November 15, X, No. 22, pp. 853-884

67 Use of Rheumatism Phylacogen in Chronic Rheumatism. E. B. Richey, Louisville.
68 Treatment of Erysipelas with Phylacogens. W. A. Jenkins, Louisville.
69 Mixed Infection Phylacogen. E. S. Allen, Louisville.

Medical Record, New York

December 7, LXXXII, No. 23, pp. 1017-1062

70 Sanitary Conquest of Philippines. L. M. Maus, U. S. Army.
71 Chest and Abdominal Measurements in Relation to Build. F. S. Weisse, New York.
72 Appendicitis in Infancy and Early Childhood. C. G. Cumston, Boston.
73 After-Treatment of Syphilis. E. G. Ballenger and O. F. Elder, Atlanta, Ga.
74 Le Charlatanisme de L'Exactitude. W. B. Konkle, Montoursville, Pa.
75 Paralysis of Right Recurrent Laryngeal Nerve from Accidental Trauma. D. B. Delavan, New York.
76 Case of Acute Bulbar Palsy, with Autopsy and Histologic Findings; Type: Anterior Poliomyelitis. A. Wiener, New York.
77 Psoriasis: a Neurosis. W. P. Cunningham, New York.

New Mexico Medical Journal, Las Cruces

November, IX, No. 2, pp. 31-50

78 Medicophysicolegal Question. C. F. Beeson, Roswell.
79 An Ideal Medical Practice Act. H. B. Kauffman, Albuquerque.
80 Dilatation of Stomach. F. D. Garratt, El Paso, Texas.
81 Ileus. J. H. Wroth, Albuquerque.

New York Medical Journal

December 7, XCVI, No. 23, pp. 1153-1204

82 Tendencies of Modern Physiologic Discipline in Medical Schools. J. C. Hemmeter, Baltimore.
83 Spinal Ataxia in Aged. C. W. Burr, Philadelphia.
84 Ocular Manifestations of Angiosclerosis. D. F. Harbridge, Philadelphia.
85 Newer Teachings of Diseases of Alimentary Canal. M. I. Knapp, New York.
86 Gonorrheal Arthritis. G. A. Holliday, Pittsburgh.
87 Residual Ear. D. G. Yates, New York.
88 Intestinal Obstruction and Volvulus Complicating Pregnancy. M. A. Flower, New York.
89 Relations Between Doctor and Patient. H. Rabinowitsch, New York.
90 Education and Training of Feeble-Minded Children in Public Schools. A. W. Edson, New York.

Ophthalmic Record, Chicago

November, XXI, No. 11, pp. 577-638

91 Case of Juvenile Form of Family Amaurotic Idiocy. H. Gifford, Omaha, Neb.
92 Modification of Prince Advancement Forceps. F. Allport, Chicago.

Pennsylvania Medical Journal, Athens

November, XVI, No. 2, pp. 85-170

93 *Physiology of Heart. C. C. Guthrie, Pittsburgh.
94 Instruments of Precision. H. G. Schleiter, Pittsburgh.
95 *Auricular Fibrillation. J. E. Talley, Philadelphia.
96 *Infectious Febrile Heart. G. W. Norris, Philadelphia.
97 *Digitalis. M. H. Fussell, Philadelphia.
98 History of Digitalis. J. W. Boyce, Pittsburgh.
99 Present Status of Cataract Operation. S. D. Risley, Philadelphia.
100 Present Status of Arsenic Treatment of Syphilis. E. Martin, Philadelphia.
101 *Medical Expert Testimony from Legal Standpoint. F. F. Kane, Philadelphia.
102 *Medical Expert Testimony from Medical Standpoint. F. X. Dercum, Philadelphia.
103 Cervical Adenitis, with Special Reference to Roentgen-Ray Method of Treatment. G. M. Dorrance, Philadelphia.

93, 95, 96, 97, 101 and 102. Abstracted in THE JOURNAL, October 26, pp. 1565 and 1566.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

November 23, II, No. 2708, pp. 1429-1504

1 *Avenues of Rheumatic Infection, Based on Examination of Seventy-Five Cases of Sydenham's Chorea. W. P. S. Branson.
2 *Possible Test in Differentiation Between Human and Bovine Types of Tubercle Bacillus. J. Fraser.
3 Soil and Seed in Tuberculosis. H. Sutherland.
4 Rat-Bite Fever, with Report of Case. R. W. Cruickshank.
5 Ruling Habit Strong in Death. C. H. W. Parkinson.
6 Diagnosis and Treatment of Compression Paraplegia. E. S. Reynolds.
7 Tumor of Anterior Part of Corpus Callosum Extending Into Left Frontal Lobe: Motor Apraxia. J. M. Clarke.
8 Nature and Treatment of Epilepsy. W. Alexander.
9 Use of Brain Extract in Treatment of Various Forms of Insanity. W. M. Smith.
10 Results of Wassermann Reaction in 150 Cases of Mental Disease. D. Nabarro.
11 Nature of Dementia Praecox. I. McKenzie.
12 Reeducation of Attentive Control. H. C. Miller.
13 Nuclei of Neutrophil Cell in Acute Insanity. C. McDowall.
14 Operation for Webbed Fingers. A. H. Tubby.
15 Some Principles in Treatment of Lateral Curvature of Spine by Exercise. J. S. Smith.
16 Psychasthenia. A. T. Schofield and R. M. Leslie.

1. **Avenues of Rheumatic Infection.**—Sydenham's chorea and rheumatic fever in Branson's opinion are due to one and the same infecting agent. The action of the rheumatic poison on a specifically predisposed central nervous system, he says, produces a characteristic nervous instability which may precede the appearance of choreic movements by some weeks, and may in other cases itself constitute the sole evidence of the choreic tendency, the phase of movements never becoming developed at all. The emergence of choreic movements is determined by emotional stimuli acting on a central nervous system thus previously disequilibrated. The commonest avenue of rheumatic infection is the tonsil, and next to it the nose. The first essential of rational treatment, of rheumatic infection is restoration of the upper air passages to a healthy condition. Irrigation and thorough cleansing of the nasal passages, combined with antiseptic treatment of the nose and pharynx, should be a routine item of antirheumatic treatment; and the operation of enucleation should be performed without delay on all rheumatic children who exhibit chronic enlargement of the tonsils or of the tonsillar lymphatic glands. Chorea is a common sequel of scarlet fever, but the appearance of movements is usually postponed until the patient has left the fever hospital.

2. **Human and Bovine Tuberculosis.**—The most reliable test which we possess in the process of differentiation between human and bovine tubercle bacilli is the inoculation of certain animals (most commonly the rabbit or the calf) with a small known quantity of the organism under investigation. If the infection results in a rapid dissemination of the disease and the speedy death of the animal, Fraser says it may be affirmed that the bovine bacillus is the organism present. If, on the other hand, the resulting lesions are few and tending to be retrogressive and death ensues after a very considerable interval of time, or from some intercurrent disease, the infection may be classified as human. A distinction can be drawn between human and bovine bacilli by the local reaction, as well as by the general reaction produced in these animals. The difficulty lies in appreciating the degree of local reaction.

Fraser has found that the ideal situation in which to demonstrate such is the synovial membrane, and more especially the synovial membrane of the knee-joint of the rabbit. By the degree of reaction, clinical and pathologic, consequent on inoculation of the joint with a small quantity of bacillary emulsion he can differentiate between the human and the bovine types of tubercle bacilli. The test is best demonstrated when an emulsion of the bacilli is injected into the part, but it may be carried out with pus or other pathogenic fluid; it is essential, however, that no mixed infection be present. The sequelae are distinct. If the human bacillus is introduced, there are few resulting changes; the synovial membrane becomes slightly thickened, and there is some excess of fluid in the joint, there is no degree of stiffness and no joint pain; the animal continues to put on weight or remains constant. If the joint is examined three or four months later, there is found to be a chronic synovial tubercle. It is rare to find any degree of disease in the bones or articular cartilages or throughout the body. When, on the other hand, the bovine bacillus is injected, the changes are rapid and acute. About ten days after inoculation the animal becomes crippled, the joint becomes swollen and painful, the limb takes up a permanently flexed position; there is a progressive and continuous loss of weight. Examination of the joint three to four weeks after inoculation shows the presence of acute synovial tubercle; the interior of the joint is full of caseous debris, the articular cartilages are eroded; there are foci in the neighboring bones and throughout the body; the lungs, spleen and kidneys are diseased. The results of fifteen applications of the test are given.

Journal of Obstetrics and Gynecology of British Empire, London

October, XXII, No. 4, pp. 191-244

17 *Gelatinous Glandular Cysts of Ovary and So-Called Pseudomyxoma of Peritoneum. T. Wilson.
18 Artificial Feeding of Small and Premature Infants. J. Wyatt.
19 Traumatic Rupture of Uterus with Prolapse of Intestines Into Vagina Followed by Chronic Intestinal Obstruction; Operations; Recovery. C. Noon.
20 Dermoid Tumor of Both Fallopian Tubes. J. N. Stark.
21 *Case in Which Torsion of a Hydatid of Morgagni During Pregnancy, Without Torsion of Tube or Ovary, Caused Urgent Symptoms. H. R. Andrews.

17. **Pseudomyxoma Peritonei.**—Wilson has met with six typical cases of pseudomyxoma of the peritoneum. To the end of 1911 he had operated on 331 patients with tumors of the ovary, among which were included 144 glandular pseudomucinous cysts. In addition to the six cases of typical pseudomyxoma there have been among the 144 glandular cysts five others in which the contents have been gelatinous, although there has been no extensive effusion into the peritoneal cavity. There was a marked difference from the class of patient in whom pseudomyxomatous peritonitis was found. In most of the cases a certain quantity, usually small, of free soapy exudation was present in the peritoneum, although no rupture or perforation of the cyst could be made out. One of the cases is of peculiar interest, in that after removal of a right-sided cyst, a second one grew in the left ovary to the weight of three pounds within five months; the left ovary had been observed at the first operation to be shriveled and senile in appearance. The second cyst had burst, discharging a large quantity of mucoid fluid into the peritoneal cavity. Both cysts were proved by the microscope to be simple glandular in structure. This case was further of interest in that the patient had a fibromyoma and later developed carcinoma of the body of the uterus, of which the first symptom appeared within a year of the second ovariotomy, the patient dying about six years later. The removal of the two ovaries caused regression of the fibroid, but did not prevent the subsequent malignant development in the uterus, an important condemnation of the operation of double oöphorectomy for uterine fibroid.

21. **Torsion of Hydatid of Morgagni.**—Tenderness just above and internal to the right anterior superior spine, pain and abdomen distention were the subjective symptoms in Andrew's case. On opening the abdomen and exploring the right iliac fossa a small purple body came into view, which was at first thought to be a gangrenous appendix, but was found to be attached to the fimbriated extremity of the right fallopian tube. It was about 2 inches long, ¾ of an inch thick and was constricted in the middle of its length. It had the appearance of being some soft structure which had become deeply congested and then become practically solid as the result of thrombosis. The tube, ovary and appendix were healthy and normal. The small purple body was removed after its attachment to the fimbriated extremity of the fallopian tube had been ligatured with catgut. Nothing abnormal was found in the abdomen except that the uterine wall appeared to be very thin. Under the microscope the piece of tissue was found to consist of a thin-walled cyst with some lymph on its surface, the interior filled up with blood-clot. It was apparently a twisted hydatid of Morgagni, which could not have been larger than a small grape before torsion occurred.

Lancet, London

November 23, II. No. 4656, pp. 1415-1484

22 *Cardiovascular System in Pulmonary Tuberculosis. R. D. Powell.
23 Clinical Significance of Different Forms of Regular Tachycardia. T. Lewis.
24 Occurrence of Cholera Vibrio in Biliary Passages. E. D. W. Greig.
25 Major Leonard Roger's Method of Treatment of Asiatic Cholera. J. W. D. Megaw.
26 Erythremia. J. Parkinson.
27 Varieties and Treatment of Lateral Curvature of Spine. R. C. Elmslie.
28 Purpura Fulminans. J. A. M. Cameron.
29 *Jejunostomy in Combination with Anterior Gastro-Enterostomy in Treatment of Chronic Gastric Ulcer. E. T. Tatlow.
30 Dangers of Electricity from Clinical, Forensic and Hygienic Points of View. S. Jellinek.

22. **Pulmonary Tuberculosis.**—In Powell's opinion consumptives on the whole have a much better circulation than they are given credit for, their hearts are relatively good, and a low blood-pressure in them is mainly attributable to depressed cardiac function from excessive absorption of bacterial products. It is very rare, even in acute cases, to meet with anything approaching the heart failure so often observed in enteric fever or diphtheria, although it may be witnessed after excessive doses of tuberculin. In some cases of advanced but quiescent phthisis one meets with great irritability of the heart, with attacks of palpitation or disturbed action easily provoked by exertion, emotion, or dyspepsia, disturbances attended with great distress, sometimes with almost anginal suffering. These, Powell says, are cases of one-sided disease, usually the left side, in which the lung has become extremely damaged, with considerable cavitation, and has then in the healing process become fibroid and contracted, with dense thickening of the pleura. The margin of the lung recedes from the surface of the heart, leaving the pericardium exposed directly beneath the flattened chest wall. The chest wall is drawn in, the diaphragm drawn up; the heart, displaced to the left and upward, is closely surrounded on three sides by dense unyielding structures; while the opposite healthy lung is compensatorily enlarged and extends beyond the median line. In right-sided cases the heart assumes a more vertical position than natural, and is drawn to the right and upwards. The heart is thus cramped on all sides in a restricted chamber with rigid parietes, instead of being surrounded by resilient structures whose peripheral influence is aspiratory to its cavities.

The marginal zone surrounding the tuberculous caseous center of a tubercle contains tubercle bacilli which are active or sluggish according to the activity of the disease. In chronic and quiescent cases they are still there, secreting toxins in a more or less languid manner, and an area of bacillary infiltration surrounding each focus may thus be regarded as charged with stagnant bacterial products which may not get at all into the general circulation, or so gradually and in such small quantities as to cause little or no constitutional disturbance. But if in such patients one replaces quietude by activity, or moderate activity by harder labor, two things are accomplished: (1) the circulatory activity and blood-pressure in these perifocal zones is raised, hastening the blood-currents and the lymph streams, and so bring about increased absorption of the bacillary products; and (2) increased disturbance in these areas is further caused by increased movement of the lungs from the hurried breathing. It is by these mechanisms combined, but principally the vascular disturbance, that auto-inoculation is brought about in tuberculosis and it was after this fashion that Paterson explained what he had previously found by careful observation, that by graduated labor in the sanatorium at Frimley he could bring about certain regulated degrees of auto-inoculation, and so obtain gradual immunity in tuberculosis by progressive stimulation of phagocytic action and of other agencies antagonistic to the bacillus.

29. **Jejunostomy in Chronic Gastric Ulcer.**—The following are the steps of the procedure carried out by Tatlow. The stomach is clamped as in the ordinary operation, a loop of 18 inches of jejunum is then picked up and an anterior vertical anastomosis performed. The proximal loop of jejunum is then divided near the anastomosis and implanted into the portion of the jejunum leaving the gastro-enterostomy, the distal cut end near the anastomosis being first closed, thus completing

the modified anterior gastro-enterostomy in Y. The loop of jejunum coming from the duodeno-jejunal flexure to form one limb of the Y is now taken, and at a point two or three inches above the Y, on the side of bowel remote from the mesentery, a small longitudinal incision is made into the lumen of the gut, and a No. 14 rubber catheter is introduced. This is fixed in position by a 000 catgut suture, taking in all the coats of the bowel and the catheter, which is then passed well down into the jejunum beyond the anastomosis. Then a series of interrupted Pagenstecher sutures is used so as to enfold the catheter in a trough of jejunum as in a Witzel gastrostomy, care being taken not to stenose the anastomosis. The line of suture is then fixed to the anterior abdominal wall by a single stitch at each end, and the abdominal wound is closed tightly round the catheter, which projects about 5 or 6 inches.

Quarterly Journal of Medicine, London

October, VI, No. 21, pp. 1-124

31 *Catarrhal Jaundice, Sporadic and Epidemic, and Its Relation to Acute Yellow Atrophy of Liver. E. A. Cockayne.
32 *Action of Diastase in Diabetes Mellitus. O. T. Williams and P. M. Powell.
33 *Action of Vagus on Human Heart. W. T. Ritchie.
34 *Investigations on Gastric Juice in Malignant Diseases of Stomach and Duodenum. S. B. Schryver and C. Singer.
35 *Influence of High Temperature on Protein Metabolism with Reference to Fever. G. Graham and E. P. Poulton.

31. **Catarrhal Jaundice, Sporadic and Epidemic.**—Most epidemics of jaundice, in which the possibility of yellow fever, relapsing fever, and malaria have been excluded, according to Cockayne, are due to infectious jaundice or epidemic catarrhal jaundice. Infectious jaundice or Weil's disease is in all probability due to the ingestion of contaminated water or food, but may be due to some biting insect. Epidemic catarrhal jaundice is air-borne. Epidemic catarrhal jaundice is much the commoner disease and is of almost world-wide distribution; infectious jaundice is met with chiefly round the Mediterranean Sea, and does not extend to the British Isles. Simple catarrhal jaundice, usually attributed to gastro-duodenal catarrh, of varying origin, is the sporadic or endemic form of epidemic catarrhal jaundice, except in a comparatively small number of cases. Acute yellow atrophy of the liver in the great majority of instances is due to the same organism acting on a liver weakened by some temporary strain, such as pregnancy, or having some inherent weakness. A similar condition may be produced by syphilis, infectious jaundice, and other infections, but much less often. Sporadic and epidemic catarrhal jaundice and acute yellow atrophy of the liver are due in the great majority of cases to the same cause, a specific organism of unknown nature.

32. **Action of Diastase in Diabetes Mellitus.**—In the prolonged daily study of cases of diabetes treated with diastase Williams and Powell have been unable to observe any beneficial effects which could be attributed to it. In cases which responded markedly to a course of oatmeal given as advocated by von Noorden, no such effect can be obtained by any preparation of diastase they used. If there is any specific body in oatmeal which has an effect on carbohydrate metabolism, they are convinced that it is not a diastase ferment.

33. **Action of Vagus on Human Heart.**—The action of the vagi on the human heart, Ritchie says, is closely comparable to that of the vagi on the heart of other mammals. Compression of the right vagus may depress the rate and strength of the auricular beats, may prolong auricular systole, and may depress the conductivity of the auriculo-ventricular bundle system. The inhibitory effects of the vagus on the human auricles ensue gradually, and usually pass off gradually while the compression is still being maintained. Compression of the right vagus has not depressed the excitability of the human auricular muscle when in fibrillar contraction or in flutter. Depression of conductivity is probably an important factor in the production of fibrillation in the human heart. In three cases of complete auriculo-ventricular dissociation the vagi had no apparent influence on the ventricles. In hearts with a normal rhythm and good conductivity in the auriculo-ventricular bundle system, vagus compression may depress the rate and contractility of the ventricles, and less frequently may prolong the duration of ventricular systole. The depression of ventricular rate is usually proportionate to the degree of auricular retardation. In some instances the auricles escape from vagus inhibition before the ventricles; in others ventricular standstill may perhaps terminate by the occurrence of idio-ventricular contractions. Extra-systoles may occur during the escape of the heart from vagus inhibition. The inhibitory effects of left vagus compression are as a rule less effective than those of right vagus compression, and the latter are almost uniformly the reverse of those induced by atropin.

34. **Gastric Juice in Malignant and Non-Malignant Diseases.**—The authors found that in about 6½ per cent. of cases of grave gastric disorder a ferment is present in the gastric juice capable of hydrolysing Witte's peptone. This abnormal ferment is of unknown origin. Apparently, however, it is derived neither from the duodenal secretion nor from the saliva, but from the stomach itself. It has been detected only in cases with severe dyspeptic symptoms. The gastric juices in which the ferment has been detected have been uniformly characterized by their poor hydrochloric acid content and low or absent peptic power. In most of the cases, moreover, an extremely low gastric secretory power has been suggested by the small amount of chlorids present. The abnormal ferment is neither peculiar to nor characteristic of gastric carcinoma. In the majority of cases in which carcinoma was undoubtedly present the peptolytic ferment was absent. The commonest condition associated with the ferment appears to be gastric dilatation with atrophy of the walls of the stomach and thinning of the mucous membrane. This condition was present in at least seven of thirteen cases and in two that came to postmortem.

35. **Influence of Temperature on Protein Metabolism.**—A rise of body temperature to 104.3 F. (40.2 C.) did not, in the authors' experiments, by itself cause any breakdown of the proteins of the body. If a diet of very high calorie value is taken, which contains a large excess of carbohydrate but a minimal quantity of protein, non-nitrogenous substances supply the whole of the increased energy production set up by the high temperature. If a diet of ample calorie value is taken, which contains practically no carbohydrates but a large excess of protein, the fat metabolism is increased, but it is probable that the protein metabolism also takes a small share in the increased energy production set up by the high temperature. If a diet of insufficient calorie value is taken, which contains practically no carbohydrates but a fair amount of protein, the fat metabolism is probably greatly increased, but the protein metabolism takes no share in the increased energy production set up by the high temperature.

Annales de Médecine et Chirurgie Infantiles, Paris

October 15, XVI, No. 20, pp. 609-640

36 *Anemia of Alimentary Origin. A. Czerny.

November 1, No. 21, pp. 641-672

37 Anemia in Infants. L. Tixier. Commenced in No. 20.

36. **Anemia of Alimentary Origin in Infants.**—Summarized in the Paris Letter, Nov. 30, 1912, p. 1986.

Archives des Maladies de l'App. Digestif, Paris

October, VI, No. 10, pp. 541-600

38 Liver Abscess in Amebic Dysentery. (Les abcès du foie dans la dysentérie amibienne autochtone.) A. Cade, L. Thévenot and Roubier.
39 Serodiagnosis of Gastric Cancer. (Le diagnostic biologique du cancer de l'estomac par les méthodes récentes.) E. Enriquez and M. P. Weil.

Archives de Médecine des Enfants, Paris

November, XV, No. 11, pp. 801-880

40 Marbling of the Skin in Children. (La livedo chez les enfants.) J. Comby.
41 Urea in the Cerebrospinal Fluid in Infants. Nobécourt, Sévestre and Bidot.

Bulletin de l'Académie de Médecine, Paris

November 5, LXXVI, No. 37, pp. 357-376

42 Direct Transfusion of Blood for Hemorrhage from Gastric Ulcer. A. Netter, Desclaux and Gullbaut.
43 Orthopedic Inspection of School Children. (Prophylaxie des difformités physiques chez les enfants. L'inspection orthopédique scolaire de la ville de Bordeaux.) E. Kirmisson.

Journal de Chirurgie, Paris

September, IX, No. 3, pp. 273-428

44 *The Thymus in Exophthalmic Goiter. (Le thymus des basedowiens.) C. Lenormant.

44. **The Thymus in Exophthalmic Goiter.**—Lenormant does not agree with those who regard hypertrophy of the thymus as in itself a special danger in exophthalmic goiter. The thymus is frequently unduly large in all forms of exophthalmic goiter, but this is not a constant occurrence. When hypertrophy of the thymus is associated with hypoplasia of the adrenals, the resulting instability of the cardiovascular system may be a dangerous feature of the clinical picture. The general principles for operative treatment of exophthalmic goiter need not be modified on discovery of hypertrophy of the thymus. The thymus is of far less importance than the thyroid from every point of view in exophthalmic goiter.

Journal de Médecine de Bordeaux

October 20, XLII, No. 42, pp. 661-676

45 Chronic Adrenal Insufficiency; Three Cases. (Maladie d'Addison.) C. Mongour.

October 27, No. 43, pp. 677-692

46 Retro-Uterine Hematocele from Rupture of Ovarian Hematoma. A. Charrier.
47 *Congenital Varices. C.-Boisse.

47. **Congenital Varices.**—One of the patients was an infant, the other a girl of 18. The congenital dilatation of the veins in the latter case had grown more pronounced in time and finally induced pain as actual small angiomatous tumors developed. The right leg was involved and an elastic stocking kept the condition stationary. The infant's trouble was more a diffuse angioma of the entire right arm.

Lyon Médical, Paris

November 10, XLIV, No. 45, pp. 761-808

48 Estimation of Arterial Pressure. (Pression systolique oscillatoire ou palpatoire.) L. Gallavardin.

Presse Médicale, Paris

November 9, XX, No. 92, pp. 929-940

49 Neurotomy to Relieve Pain in Laryngeal Tuberculosis. (La neurotomie du nerf laryngé supérieur dans la dysphagie des tuberculeux.) A. Challier and P. Bonnet.
50 Ozena and Tuberculosis. R. Leroux.

November 16, No. 94, pp. 949-960

51 Polyuria with Chronic Nephritis. (La polyurie paradoxale de la néphrite interstitielle; diagnostic de la sclérose rénale.) A. Martinet.

Semaine Médicale, Paris

November 20, XXXII, No. 47, pp. 553-564

52 Excessive Tonus of the Vagus System. (La vagotonie.) L. Cheinisse

Archiv für klinische Chirurgie, Berlin

XCIX, No. 3, pp. 597-877. Last indexed November 9, p. 1751

53 *Resection of Cancerous Stomach. (Mittheilung zur Technik der Magenresection beim Carcinom.) G. Kelling.
54 Operative Treatment of Fractures. E. W. H. Groves.
55 *Operative Treatment of Elephantiasis. (Lymphangioplastik bei Elephantiasis.) W. N. Rosanow.
56 Fracture of Distal End of Tibia. (Ueber Absprengungsfracturen am vorderen und hinteren Abschnitt des distalen Endes der Tibia, mit Berücksichtigung der Rissfracturen.) S. König.
57 *Operative Treatment of Ankylosis of the Knee. (Operative Behandlung von Kniegelenksankylosen.) E. Payr. (Experimentelle Beiträge zu operativen Mobilisirung ankylosirter Gelenke.) M. Sumita.
58 Causes of Recurrence After Operative Treatment of Inguinal Hernia. (Ursachen der Recidive nach Radicaloperation des Leistenbruches.) E. Polya.

53. **Resection of Cancerous Stomach.**—Kelling has long been preaching that the experiences to date show that infection of the tissues around from the infectious contents of the cancerous stomach is by far the most important factor in development of complications afterward, whether they take the form of pneumonia, sepsis, peritonitis or tearing out of the sutures. Progress therefore must be along the lines of preventing this operative infection. He refrains from taking any suture in the mucosa and summarizes seventy-two cases in which he applied the technic he advocates. Eleven patients succumbed to the results of the operative infection and in two-thirds of these the stomach wall proved to be too friable to hold the button. In most of these infectious cases the cancer was unusually high in the fundus and the whole stomach high and inaccessible behind the ribs so that compresses did not work well. The unusual friability of the stomach walls is probably the result of arteriosclerosis, and he is inclined to regard this as a predisposing factor for gastric cancer. In the four cases of fatal infection after a clean operation, the probable source for it was in some adjacent lymph-nodes sheltering virulent bacteria, and this possibility should be borne in mind in debating whether to remove them or not. About 42 per cent. of the patients operated on before 1910 have developed recurrence, but fourteen are in good health for two or more years. Small carcinomas developing in a callous ulcer offer the best prospects for a permanent cure, but the ultimate outcome depends after all on the patient's resisting powers. He has found that conditions guarantee better nourishment when the gastro-enterostomy is supplemented by an entero-anastomosis, as he describes in detail. He does not approve of operating in two sittings unless the patient is too weak to stand the resection at once.

55. **Treatment of Elephantiasis.**—Rosanow reports a case in which he restored the patient to active life by a combination and modification of Lanz and Oppel's methods for diverting the course of the lymph by anastomosis between the superficial and deep lymphatics. The photographs show the extreme improvement. Diamond-shaped patches of skin, 15 or 11 cm. across, were cut out of the thigh and calf. The subcutaneous tissue and aponeurosis were cut across on the short diameter of the diamond and then cut along one side line down to the muscle. This produced two triangular flaps; each was turned over and pushed into the space below between the layers of the muscle separated for the purpose with a blunt instrument. The flaps were held with a few catgut stitches in the muscles and periosteum. The skin was drawn together and sutured along the long diameter of the diamond, thus exerting compression on the lymphatics below. The results surpassed all anticipations.

57. **Operative Treatment of Ankylosis of the Knee, Etc.**—Sumita gives a long report of the experimental research on which Payr's operative treatment is based. The principle of interposing a pedunculated flap of soft tissue can be applied not only in ankylosis of the jaws and elbow but also of the knee, restoring function in a manner unattainable by any other means. The interposed flaps soon undergo a fibrous change and grow larger and develop into a kind of bursa which permits the joint to be used naturally. Payr devotes seventy-four pages and forty-one illustrations to his experiences in this line. He does not attempt the operation unless the patient is young, healthy and strong, with the extensor muscle apparatus still capable of some functioning, and the patient's will power guarantees active cooperation and he can spare the time necessary for the after-treatment. He has applied the method to three young women and a girl of 12 and to seven young men and one boy of 11. The ankylosis was of tuberculous or gonorrheal origin in two cases each. In three cases a free auto-flap of soft tissue was interposed; in the others a large flap from the fascia lata above was drawn down to hold the end of the femur in its loop. The outcome was extremely satisfactory in eight cases and conditions will probably improve in all as time passes. The interval since has been less than a year in all but two.

Beiträge zur klinischen Chirurgie, Tübingen

October, LXXX, No. 3, pp. 431-601

59 *Thymol for Sterilization of Mucosa During Operations. (Zur Schnelldesinfektion der Schleimhaut bei Operationen mit Eröffnung des Magen-Darmtractus.) A. Hoffmann.
60 Experimental Traumatic Hemorrhage in the Appendix. R. Rubesch and K. Sugi.
61 *Epidermoids of Unusual Location. H. Simon.
62 Traumatic Epithelial Cysts. F. A. Hesse.
63 Spontaneous Healing of Acute Suppurative Liver Disease After Appendicitis. N. Hellström.
64 Primary Cancer of Kidney Pelvis. (Primäre epitheliale Neubildungen des Nierenbeckens.) F. Stüsser.
65 Suture of Blood-Vessels. (Zur Technik der Gefässnaht.) R. Eden.

59. **Sterilization of the Mucosa During Operations Exposing It.**—Hoffmann refers particularly to rapid sterilization of the mucous membrane during operations on the stomach or intestines, and reports research on dogs which has demonstrated that a 5 per cent. alcoholic solution of thymol is effectual in rapid sterilization of the skin and mucous membranes wherever

exposed. After wiping the surface of the mucosa with a dry sponge as it is exposed in the stump of the stomach or intestine below where it is being held by a clamp, he dabs the mucosa with the 5 per cent. thymol spirits, repeating the procedure with a second sponge after a few seconds. This does not irritate the tissues while it practically sterilizes the mucosa, materially reducing the number of germs. He warns against letting the thymol come unnecessarily in contact with the serosa as liable to invite adhesions, warning further that thymol irritates and entails necrosis when it is left too long in contact with living tissue; one minute, or two minutes at most, seemed to be the limit in his experiments on dogs. With contact longer than this, the tissues always showed microscopic or visible signs of injury. In applying the method to man, he never allows the thymol in contact for more than a few seconds. He has been using this disinfectant in all kinds of operations during the last eighteen months and always with highly satisfactory results.

61. **Epidermoid Cysts of Unusual Location.**—Simon has compiled from the records twenty-five cases of epidermoid tumors on the toes, penis, arm, leg, ear, scalp, over the clavicle or on the buttocks or abdomen. The cysts are liable to rupture and become infected as in the personal case described.

Centralblatt für die Grenzgebiete der Med. und Chirurgie, Jena

November 9, XVI, No. 1, pp. 1-36

66 *Bronchiectasia from Surgical Standpoint. E. Batzdorff.
67 Partial Giant Growth. (Ueber den reinen partiellen Riesenwuchs.) E. Hahn.

66. **Operative Treatment of Bronchiectasia.**—Batzdorff analyzes eighty-nine publications on this subject, stating that in the fifty-three cases of pneumotomy a cure was realized in only 9.4 per cent.; 62 per cent. of the patients died. The principal reason for this unfavorable result was that the bronchiectasia was chronic and multiple; with numerous foci it is impossible to reach them all and operative treatment is of little use. A good result may be anticipated only with a large bronchiectasia single cavity, obliteration of which may lead to a complete cure. Mild operative measures are futile; resection of the lung seems to be the only effectual measure.

Correspondenz-Blatt für Schweizer Aerzte, Basel

November 10, XLII, No. 32, pp. 1209-1256

68 Multilocular Echinococcus Cysts; Three Cases. E. Clerc.

Deutsche medizinische Wochenschrift, Berlin

November 14, XXXVIII, No. 46, pp. 2153-2200

69 *Modern Surgery. (Die Aufgaben der modernen Chirurgie.) E. Sonnenburg.
70 *Treatment of Pernicious Anemia. (Kombinationstherapie bei perniziöser Anämie.) L. Brieger.
71 Electrocardiography and Its Interpretation. (Zur Erklärung des Elektrokardiograms und seiner klinischen Verwertung.) H. E. Hering.
72 *Serodiagnosis of Pregnancy. (Serodiagnostik der Schwangerschaft.) E. Abderhalden.
73 Leukocyte Inclusions in Scarlet Fever. (Ueber die Döhleschen Leukozyteneinschlüsse bei Scharlach.) M. Kretschmer.
74 *Motor Functioning of the Stomach with Duodenal Ulcer. S. Kreuzfuchs.
75 *Sunlight as Factor in Pellagra and Test Based Thereon. (Zur Frage einer spezifisch-diagnostischen Reaktion bei Pellagra.) H. Raubitschek.
76 *Indicator Method for Study of Urine. (Verwendung der Indikatorenmethode beim Studium der Harnreaktion.) G. Quagliariello and E. d'Agostino.
77 Spread of Diphtheria and Leprosy by Human Stools. (Verbreitung der Diphtherie und Lepra durch die Faeces.) E. Delbanco.
78 Serodiagnosis of Cancer. (Serodiagnostik der Geschwülste mittels Komplementalblenkungsreaktion nach v. Dungern.) J. Lindenschatt.
79 Training of Nurses for Sick Infants. (Ausbildung von Säuglingskrankenpflegerinnen nach einheitlichen Grundsätzen.) J. Ibrahim.

69. **Modern Surgery.**—Sonnenburg remarks that the surgeon must no longer place his entire reliance on the knife but must utilize every possible means to aid the organism in its struggle against disease. He must strive to avert all the injurious influence caused by and on account of the operation, to prevent the natural protective forces from becoming exhausted and the resistance enfeebled. Complex disease processes can never be cured by exclusively operative measures. The surgeons have receded a few steps in the last few years; they no longer trephine idiots, etc., and only occasionally an epileptic, and they no longer expect to cure exophthalmic goiter by an operation on the sympathetic alone. In ileus the mechanical factors have been too much regarded in the past and the functioning of the intestines too little. Tuberculous processes in joints are operated on less and less.

70. **Pernicious Anemia.**—Brieger calls attention to the discovery of the frequently high antitrypsin content in the serum of persons with cancer and the remarkable effect of pancreatin in bringing the antitrypsin titer down to the normal figure, while the general health improved. These and other experiences have suggested that there is a connection between the condition in regard to immunity and the condition in regard to protective ferments. He found that diphtheria antitoxin contains increasing amounts of antitrypsin with increasing immunizing power—all of which confirms the importance of an unusually high antiferment content in exhausting diseases and the possibility of restoring conditions in this respect approximately to normal by pancreatin. He has applied these principles in treatment of pernicious anemia, and reports three cases in which he gave Fowler's solution, by the usual dosage after meals and pancreatin before the meals. The rapid improvement in all three patients under this combined treatment was remarkable; neither alone proved effectual. A permanent cure was not realized, two of the patients dying later after they had given up treatment, but the third has been under supervision for three years; treatment is resumed whenever the blood findings show recurrence of alarming symptoms. A striking feature of the cases was the rapid drop of the antitrypsin content of the blood to within the normal range. He has had similar improvement, although of brief duration, in several cases of cancer. He is now investigating to determine whether pancreatin will not prove a useful adjuvant in other affections. It is possible that pancreatin may have catalytic powers in addition to its effect on the digestion and assimilation.

72. **The Blood Test for Pregnancy.**—Abderhalden here reviews the results of his research which were described in The Journal, Sept. 14, 1912, p. 881, and December 7, p. 2073. The dialysis method and the optic method speedily distinguish the serum from gravid and non-gravid women and animals. Some of the experiences suggest that the placenta in different species of animals contains biologically identical or closely allied protective enzymes or ferments. The methods described seem to open a field for research in several branches of pathology. When the blood-serum is mixed with the peptone derived from a placenta and the rotation of the plane of polarized light is determined, by this optic method it is possible to differentiate the serum from the gravid and the non-gravid. In all his experience he never obtained a negative result with serum from pregnant women or animals. He found that the findings became positive when placenta material was injected subcutaneously or intravenously, even into a male. The dialysis method is even simpler. The placenta tissue is mixed with serum in a dialyzing tube and is suspended in a jar containing 20 c.c. of distilled water. After sixteen hours' incubation, 10 c.c. of the dialysate is transferred to a test-tube and tested for the products of proteolysis. A positive color reaction shows that the serum has digested the placenta tissue. Positive findings show that the serum comes from a person with a placenta but this does not tell whether there is a living fetus present or not. If the reaction is positive and there has been recent uterine hemorrhage, even in the absence of other signs of pregnancy, an abortion is suggested. The 300 cases tested to date have not yet fully settled whether the reaction is specific for pregnancy alone. The reaction generally grows weaker towards the end of the pregnancy and increases again during the puerperium. It has not failed to date in any instance of pregnancy. He urges clinicians in general to test the method and also to determine the action of the undiluted serum in different conditions on the plane of polarized light. The serum can be utilized afterward for other tests. In diabetes it might prove useful to test the rotatory action of the serum on different diets. He found that the rotatory action of the serum of the fetus sometimes differed from that of the mother's serum. In cattle only about 50 per cent. of the calves

examined displayed the same action on polarized light as the mother's serum. This confirms the biologic independence of the maternal and fetal blood.

74. **Hypermotility of the Stomach with Duodenal Ulcer.**—Kreuzfuchs found that the motor functioning of the stomach differed according as the stomach was empty or not before the test bismuth was given. Achylia and incipient cancer of the pylorus may present a radioscopic picture exactly like that of duodenal ulcer, so that the stomach content should be tested at the same time to avoid error. Hyperchlorhydria plus the duodenal gastric motility testify strongly to duodenal ulcer.

75. **Origin and Diagnosis of Pellagra.**—Raubitschek presents a further array of arguments to sustain his view that pellagra is the result of a restricted diet supplemented by the injurious action of the sunlight. It is thus a dietetic-photodynamic disease, and in prophylaxis and treatment neither of these factors should be neglected.

76. **Indicator Method Applied to Study of the Urine.**—The changes in tint with the varying thickness of the fluid to be examined form the basis of Friedenthal's indicator method of studying various fluids. The technic has been further elaborated and applied to the study of the urine, with considerable simplification of the original method. It is commended as simple and practical, while the findings are said to be reliable.

Jahrbuch für Kinderheilkunde, Berlin

November, LVI, No. 5, pp. 507-644

80 Experimental Research on Infantile Scorbutus. (Moeller-Barlowsche Krankheit.) C. Hart.
81 *Duodenal Ulcer in Infants. (Zur Diagnose und Pathogenese des Duodenalgeschwürs im Säuglingsalter.) H. Flesch.
82 Softening of Entire Brain in Infant. (Fall von totaler Erweichung beider Grosshirnhemisphären bei einem 5 Monate alten Kinde.) E. Meier.
83 Displacement of Genital Organs in Little Girls. (Dystopie der inneren Genitalien bei Mädchen im frühen Kindesalter.) J. Vas.
84 *Abdominal Purpura (Henoch). A. Gara.
85 Congenital Myatonia. M. Bernhardt.

81. **Duodenal Ulcer in Infancy.**—In recent years duodenal ulcer has been reported much more frequently in proportion to gastric ulcer. In infants a considerable number of cases has been reported. Entz reported eleven cases in 364 autopsies at the Budapest Children's Hospital in 1908. The ages were from six weeks to six months. It is seldom diagnosed during life Flesch gives the history of a case diagnosed during life from the profound anemia and bloody stools. The child had been fed first milk and gruel, then the milk had been given up entirely. The lack of salts and the inanition caused by the improper feeding led to injury and finally to autodigestion of the duodenal mucous membrane.

84. **Henoch's Purpura.**—Gara reports two cases from his own experience and cites from the literature seventeen, all in children. The characteristic symptoms are the appearance of purpuric spots, pains in the joints, gastric and intestinal disturbances, with colic and vomiting. He concludes from the necropsy findings that purpura abdominalis is frequently associated with intussusception, whether as cause or effect is still undetermined.

Medizinische Klinik, Berlin

November 10, VIII, No. 45, pp. 1815-1852

86 Traumatic Disease of Heart or Vessels. (Zur Begutachtung und Behandlung der traumatischen Herz- und Gefässerkrankungen.) T. Rumpf.
87 Atony of the Prostate. M. Marcuse.
88 Tuberculin Treatment in Tuberculosis. (Erfahrungen und Gedanken über Tuberkulose und Tuberkulin.) L. Heine. Commenced in No. 44.
89 Pancreas Cysts. C. Decker.
90 Local Application of Heat in Urogenital Disease. Kyaw and O. Simmonds.
91 Acute Gout a Neuralgia or Neuritis. (Pathogenese des akuten Gichtanfalls.) A. Adler.
92 The Wassermann Reaction in Internal Medicine. E. Steinitz.
93 Action of Dyes in Combination with Poisons and Medicines. (Wirkung der Farbstoffe in Verbindung mit Giften und Arzneimitteln.) J. Sellei.

November 17, No. 46, pp. 1853-1892

94 *Early Diagnosis of Active Pulmonary Tuberculosis. A. Hoffmann.
95 *Gynecology and Psychiatry. J. Peretti.
96 Prophylaxis and Treatment of Puerperal Mastitis. E. Nohl.
97 Necessity for Necropsy After Fatal Trauma in Patients with Heart Disease. (Feststellung der Unfalltatsache durch die Obduktion bei Erkrankungen der Gefässe.) L. Feilchenfeld.
98 *Distant Reaction of Degeneration. (Klinische Bedeutung der "Fernreaktion auf Entartung" von Ghilarducci.) V. Forli.
99 *Treatment of Flat-Foot. (Plattfussbehandlung.) J. A. L. Stephan.
100 Powder Treatment of Vaginal Disease. (Die Pulverbehandlung beim Aussfluss aus der Scheide.) M. Nassauer.
101 Recent Research on Heredity. (Die neueren Forschungen auf dem Gebiete der Descendenztheorie.) A. Jacobsohn.
102 *Minor Practical Points. (Praktische Winke.) R. Niewerth.

94. **Early Diagnosis of Pulmonary Tuberculosis.**—Hoffmann is in charge of the observation station with eighteen beds to which candidates for the public sanatoriums are referred for selection of the cases promising recovery under institutional care. During the last year 500 patients were thus examined. The outcome of the cases is compared with the presumptive diagnosis made in the observation station. He has found percussion of the apices of little use for detection of incipient tuberculosis, as also the finer modifications in the breathing sounds. To avoid disturbing muscle sounds, he gives the patient the evening before 1 gm. sodium iodid and a sedative, sometimes repeating the sedative early the next morning. The skin and eye tuberculin tests are useless in adults, but radiography is of the greatest help. In many cases in which the clinical examination was dubious, the radiograms settled the question for or against tuberculosis. Of his 700 roentgen-ray plates, 200 were examined for disease on both sides, and it was found bilateral in 114; in all some connection with the hilus was evident. The foci are not always at the apex, but may spread sideways from the hilus in triangular shape. This connection with the hilus is an important aid in dubious cases. Radiography was of the least use in cases with initial hemoptysis. Other cases of tuberculosis in the family were known in only 18 per cent. of the total material. Pains in the back, chest, side, abdomen or sacral region were more common than cough in the patients examined. Among those who proved not to be tuberculous—although sent in with this diagnosis—were some with diabetes, nephritis, tapeworm or cervical ribs, and 15 per cent. of them had acute bronchitis; others were debilitated from defective food or alcoholism. His experiences show that it is impossible to diagnose or exclude incipient pulmonary tuberculosis by office examination. Photograph records of the roentgen-ray findings are indispensable, he thinks, and reexamination after two and four months on a presumptive negative diagnosis. Another point emphasized by his experience is that pulmonary tuberculosis often reaches an advanced stage without the patient having ever consulted a physician.

95. **Gynecology and Psychiatry.**—Peretti protests energetically against Bossi's demand that women with mental disease should be sent first to a gynecologic clinic and gynecologic morbid conditions corrected before being taken to the insane asylum. He presents a number of arguments to show the inadvisability of such a measure. He has had a number of patients in the institution in his charge in which the mental disease was not modified by thorough gynecologic treatment.

98. **The Distant Reaction of Degeneration.**—Forli calls attention anew to Ghilarducci's distant reaction, that is, placing the electrodes at a distance from the muscle to be tested, in such a way that the muscle lies between the poles. A distinct contraction can be felt in the muscle when the current is closed. He reports three cases to show the value of this reaction, both in diagnosis and prognosis. Hope need not be given up as long as this distant reaction occurs, even when all other electric tests give a negative response.

99. **Treatment of Flat-Foot.**—Stephan uses a kind of stilt to bring the bones of the foot into proper position. It differs from ordinary stilts only in that the foot-piece rests on the floor, and slopes upward to its outer edge, so that the scaphoid bone is raised, thus restoring the arch of the foot. The foot is placed in the stilt with its outer edge against the shaft. He has his patients walk with the stilt once or twice a day in their room until the bones stay in the proper position. Children with flat-foot find these stilts a pleasant diversion.

102. **Some Improvised Helps.**—Niewerth calls attention to the coffee-pot as useful for an improvised inhalation apparatus. The patient takes the spout in his mouth.——A handy thermophor can be made of a stout linen bag holding two pounds of

oats or bran, heating the bag in the oven.——In case of a boil in the axilla or on the arm or a felon, the arm can be comfortably supported as the patient reclines, by placing a board under the arm, the end under the axilla resting on the bed, the other end held up at an angle of 45 degrees by a rope fastened to a nail in the wall at the head of the bed.——In suturing the perineum after delivery, he is careful not to cut the threads but to leave the ends long and tie them together in a bunch about 5 cm. from the skin before cutting the ends. By this means one is sure of not overlooking any of the threads later.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

November, XXXVI, No. 5, pp. 515-636

103 Abortions at Bremen Maternity in Four Years. (692 Fälle von Fehlgeburt.) O. Schmidt.
104 *Stroganoff's Prophylactic Treatment of Eclampsia. C. Holste.
105 *Enucleation of Uterine Myomas. P. Schöpp.
106 Changes in Fallopian Tube During Pregnancy. (Schwangerschaftsveränderungen der Tube.) J. Wallart.

104. **Stroganoff's Prophylactic Treatment for Eclampsia.**—As The Journal has repeatedly mentioned, the essential feature of Stroganoff's treatment is the long continued administration of morphin and chloral hydrate and the absolute avoidance of external irritation by quiet, darkening of the room, and in some cases chloroform, with delivery by version or forceps in extreme cases. (For literature on the subject see The Journal, Nov. 30, 1912, p. 1992.) His dosage may be summarized as follows: immediately 0.01 or 0.02 gm. morphin; one hour later, 1.5 or 2.5 gm. chloral hydrate; the third hour, 0.015 gm. morphin; the seventh hour, 2 gm. chloral, and the thirteenth and twenty-first hour, 1.5 gm. chloral. Holste has treated fifteen women satisfactorily by Stroganoff's method with some modifications. He does not hesitate to induce labor more freely by means of bags, and he does not continue the medication after delivery for fear of secondary lung complications. He discontinues the drugs as soon as marked improvement is noted. He advocates the giving of morphin at the first sign of prodromal symptoms, and thinks that convulsions may often be avoided in this way. He mentions as a possibility in treatment, the administration of serum from a pregnant woman. This serotherapy has been tried in a few cases. On the whole he regards Stroganoff's treatment as preferable to immediate delivery by vaginal or cesarean section, although the method is far from ideal.

105. **Enucleation of Myomas.**—On the basis of sixty operations performed by him, Schöpp discusses the value of enucleating myomas as compared with the radical removal of the uterus. The conservative operation presents greater technical difficulties than the radical one, yet the mortality was only 5 per cent.; not greater than is common in hysterectomies. The great advantage of the enucleation technic is that it leaves the patient capable of bearing children; 10 per cent. of his patients bore children after the operation. In two cases the operation was performed on a gravid uterus with happy results for mother and child. The point commonly urged against enucleation is the danger of recurrence. In 70 per cent. of his cases there was no sign of recurrence. Moreover, at the present time roentgenotherapy offers a valuable adjuvant measure in the treatment of small myomatous nodules which may have escaped detection at the operation.

Münchener medizinische Wochenschrift

November 12, LIX, No. 46, pp. 2489-2544

107 Salvarsan in Treatment of Oriental Sore. (Salvarsanbehandlung der Leishmaniose.) O. v. Petersen.
108 *Improved Technic for Proteolytic Test. (Neue Methode der Darstellung und Registrierung der Wirkung proteolytischer Fermente.) A. Kantorowicz.
109 Resistance of Peritoneum to Infection. (Ueber anatomisch nachweisbare Unterschiede in der Widerstandskraft der Bauchhöhle gegen eine eindringende Infektion.) A. Mayer.
110 Roentgenoscopy of Stomach and Intestines. (Zur Röntgenuntersuchung von Magen und Darm.) A. Hoffmann.
111 Operative Treatment for Sterility. ((Chirurgie der Sterilität.) A. F. Kehrer.
112 *Bone Marrow Grafting. (Knochenmarkstransplantation.) O. M. Chiari.
113 *Prophylactic Appendectomy. (Notwendigkeit der prophylaktischen Appendektomie bei gynäkologischen Operationen, zugleich ein Beitrag zur Frage der sogenannten Appendixkarzinome.) A. Hörrmann.
114 Plastic Operation on Finger. (Fingerplastik.) A. W. Meyer.
115 Acute Amblyopia from Ethyl Alcohol. Kaiser.
116 When to Drain the Common Bile Duct. (Indikationen für die Hepatikusdrainage.) B. Riedel.
117 Excretion of Urea Through the Skin in Nephritis. Portig.

108. **Improved Technic for the Antitrypsin Test.**—The original technic for the test of the action of the proteolytic ferments was with a Loeffler plate to which loopfuls of the solution of the ferment were transferred. Kantorowicz has improved on this by using sheets of gelatin instead of the plate; the gelatin sheets keep indefinitely and the record is thus permanent. He uses fine gelatin, such as comes for culture mediums, dissolving 6 gm. in 100 c.c. of physiologic salt solution stained deep red with fuchsin and rendered sterile by addition of 0.5 gm. of phenol. He pours 10 c.c. into rectangular shallow dishes. They can be made out of old photograph plates by running a strip of gelatin around the edge to form a wall, pouring the gelatine inside this wall as it hardens. The normal serum digests a circular patch of the gelatine; the presence of the antitrypsin ferment is shown by the smallness of the resulting hole. After twenty-four hours at 22 C., a little lake is seen where each drop has been deposited. The sheet of gelatine is then rinsed in water and the holes in the gelatine look as if punched out with a circular punch, as he shows by two illustrations. The hard sheets of gelatine can be kept indefinitely.

112. **Transplantation of Bone Marrow.**—Chiari reports successful transplantation into the spleen of a rabbit of a small lump of bone marrow. It had retained its vitality and was found to have increased materially in size when the animal was killed five months later.

113. **Necessity for Prophylactic Appendectomy.**—Hörrmann insists on the advantages of removing the appendix when the abdomen is opened for a gynecologic operation, reporting instances in which the macroscopically sound appendix was found diseased and a tendency to cancer in some. Of course, after the age of 60 he would not remove the appendix without special cause, nor with cancer, nor in emergency operations.

Wiener klinische Wochenschrift, Vienna

November 14, XXV, No. 46, pp. 1817-1856

118 Specific Extracts of Parasites in Treatment of Trichophytosis. R. O. Stein.
119 *Serodiagnosis of Cancer. (Verwertbarkeit der Freund-Kaminerschen Reaktion.) L. Arzt and W. Kerl.
120 Nodular Syphilitic Meningitis. K. Sugi.
121 Nystagmus in Fever. O. Beck and P. Biach.
122 *Foreign Bodies in Bladder of Girl Infants. (Ueber Harnblasenerkrankungen bei kleinen Mädchen durch bisher nicht beobachtete Fremdkörper.) H. Abels.

119. **Serodiagnosis of Cancer.**—The findings on examination of 250 serums from different sources are tabulated. In seventy-four cases the diagnosis on the basis of the serum findings was confirmed by necropsy or histologic findings. In fifty-eight of these all the findings corroborated each other. In sixteen some were contradictory. In 118 cases with only clinical confirmation of the diagnosis there was a contradiction only in seventeen cases. In some of the dubious cases the findings classed as doubtful might really be listed as positive. The table shows that the meiostagmin reaction gave positive findings in 82.8 per cent. of 399 cases of cancer while the reaction was positive only in 9.5 per cent. of 548 persons healthy or with other affections, as reported by eleven research workers. Ascoli obtained a positive reaction in 93 per cent. of his 100 cases. With the Freund-Kaminer technic a positive reaction was obtained in 83 per cent. of fifty-three cases of known cancer, and only in 12.5 per cent. of sixteen patients with other affections. Freund and Kaminer comment on the above report that it is suggestive that two patients with tuberculosis and three with gall-stone trouble are in the list of contradictory findings. In one such case in their experience the gall-stone trouble masked a cancer. They warn further that the state of the blood during digestion is liable to interfere with the test for serodiagnosis; the blood should be taken during a fasting period. Another source of possible error is the presence of red corpuscles in the serum; the more limpid the serum the better the findings. Addition of a little phenol keeps the serum in good condition for two weeks, and when the cell material is thoroughly rinsed

with salt solution they found it active for five months. They state that by using smaller amounts of serum for the test, it is possible to repeat the procedure several times with a given amount of blood. Tests with only a drop or two of serum on the slide have given characteristic results.

122. **Bladder Affections of Unusual Origin in Girl Infants.**—Abels reports two cases in which severe cystitis in children 9 and 17 months old was explained by discovery of paper and a hair in the bladder, and Blum has recently reported a somewhat similar case in a girl of 4. In the latter case threads from the child's clothing were found in the bladder, and it was learned that she had a habit of pressing her clothes on the urethra to control micturition. In the cases of the infants, paper had evidently been rolled up and wound with a hair and introduced like a catheter into the bladder by another person.

Zeitschrift für Geburtshülfe und Gynäkologie, Stuttgart

LXXII, No. 1, pp. 1-251. Last indexed Oct. 26, p. 1584

123 Development of Uterus. (Zur Entwicklung der Form und Lage des Uterus und seiner Ligamente.) C. H. Stratz.
124 Changes in Tubal Pregnancy During Menstruation. (Veränderungen der Eileiterschwangerschaft während der Menstruation.) B. H. Jägerroos.
125 Training of Obstetrical Nurses and Midwives in Prophylaxis of Puerperal Fever. F. Ahlfeld.
126 We Have Outgrown Drainage After Abdominal Operations. (Wert der Bauchhöhlendrainage.) H. Schlimpert.
127 No Warning Symptoms of Thrombosis or Embolism. (Gibt es prämonitorische Symptome der Thrombose und Embolie?) W. Nacke.
128 *Puerperal Tetanus; Three Cases. H. Freund.
129 Sugar Metabolism in Pregnancy and the Puerperium. (Der Zuckerstoffwechsel in der Schwangerschaft und im Wochenbett—Schwangerschaftsleber.) E. Bergsma.
130 Biologic Tests to Determine Sex of Fetus Before Birth; Negative Findings. (Versuch der intrauterinen Geschlechtsdifferenzierung.) T. Petri.
131 *Anesthesia by Epidural Injections. (Hohe und tiefe extradurale Anästhesien.) B. Strauss.

128. **Puerperal Tetanus.**—Freund has encountered three cases at intervals of years and is convinced that the infection occurred from the anus through some laceration of the perineum, as all other causes seemed to be excluded. His experiences teach that women approaching term should be very careful in eating green vegetables and uncooked berries, as these are liable to be contaminated with tetanus germs and thus may infect the obstetric wounds through the stools. His experience further confirms the value of the traditional practice of giving an active and thorough purge at the beginning of labor and a cleansing enema during the second stage of labor, with careful cleansing afterward. He warns further that no obstetric operation should be undertaken without thorough cleansing and sterilization of the skin and protection against infection from the anus. He uses for the purpose a large gauze compress pressed between the buttocks, fastened with plaster, and a towel over the whole, firmly fastened in place. He thinks that a vaginal douche before the first internal examination and before every obstetric intervention is the best protection against infection from without. The alleged harm from changing the chemistry of the vaginal secretions by the douches is far outbalanced by the benefit from mechanically washing out the germs and the material in which the germs find conditions favorable for their development. Freund adds further that a prophylactic dose of tetanus antitoxin should be given in every case of criminal abortion in which a wooden instrument was used or its use suspected. If the tetanus has developed, antitoxin treatment has little prospect of success unless the bacilli are in evidence. In his three cases he was not able to find the bacilli as the period of incubation had been so long before the tetanus developed. In the first case a healthy woman convalescing from a well managed childbirth developed fatal tetanus, the first symptoms appearing the ninth day and no source for the infection could be discovered except the possible infection from the stools. He adds a case of tetanus from infection of the umbilicus which he traced to the custom of dressing the umbilicus with the sawdust resulting from the boring of the wood beetle in the banisters—this *Holzpulver* being a favorite family remedy in some districts of Germany. Freund refers to the Prague epidemic of puerperal tetanus in 1898 in which twenty-eight women died in the course of eighteen months

131. **Epidural Anesthesia.**—Strauss reviews his experiences with eighty cases in which operations were performed under extradural sacral injection of the anesthetic. The chief advantage of the method is the total absence of complications on the part of the air passages. No headache followed the injections, such as is frequent with spinal anesthesia. He tabulates the details of the various cases but adds at a later date the case of a woman of 27 who succumbed during an operation for uterine cancer six weeks after a childbirth and necropsy revealed chronic nephritis, tuberculosis of the kidney and metastasis in the liver which, he thinks, is sufficient to explain the fatality without incriminating the method of anesthesia. Otherwise he had no by-effects except, in a few cases, transient pallor and acceleration of the pulse.

Zeitschrift für Urologie, Berlin

November, VI, No. 11, pp. 887-996

132 Blunders Liable in Interpretation of Cystoscope Findings. (Cystoskopische Irrtümer.) F. Weisz.
133 Congenital Displacement of the Kidney. (Fall von Nierendystopie.) A. G. Lukina.

Gazzetta degli Ospedali e delle Cliniche, Milan

November 10, XXXIII, No. 135, pp. 1409-1424

134 Can Spirochetes Penetrate Intact Skin and Mocosa? (La penetrazione dell'agente sifilitico in ispecie, degli spirocheti patogeni in genere si puo fare attraverso a pelle e mucose integre?) E. Bertarelli.

November 12, No. 136, pp. 1425-1432

135 Iodin Exposed to Roentgen Rays Before Administration in Tuberculosis. (L'iodo ed i raggi x.) C. Sighicelli.

November 14, No. 137, pp. 1433-1440

136 Salvarsan Not Effectual in Malaria. (Il 606 nella infezione malarica.) V. Fusco.

November 17, No. 138, pp. 1441-1456

137 *Moist Heat in External Treatment of Infant's Diseases. (La termoterapia nelle malattie dell'infanzia.) P. Bueri.

137. **External Local Heat in Treatment of Infants' Diseases.**—Hot compresses applied to the chest or abdomen are regarded by Bueri as a most valuable adjuvant in treatment of sick infants. They aid in promoting and regulating the circulation, combating congestion and stimulating the internal organs to better functioning. Especially for gastro-intestinal disturbances, peritonitis and inflammation in the mesenteric glands, this thermotherapy is one of the best measures at our disposal, as he demonstrates anew by a few instances of remarkable benefit from hot fomentations in such cases.

Policlinico, Rome

November 17, XIX, No. 47, pp. 1705-1740

138 Treatment of Non-Consolidating Fracture. C. Bartolotti.

Riforma Medica, Naples

November 9, XXVIII, No. 45, pp. 1233-1260

139 Biologic Research on Cholera Germs. (Antagonismo tra microorganismi isolati dalle feci ed il vibrione di Koch. Virulenza del vibrione di Koch isolato da portatori. Un vibrione acquatile.) D. Pane.
140 Sarcoma of the Scapula. (Considerazioni anatomo-patologiche e contributo clinico sui sarcomi della scapula operati con resezione totale e subtotale.) M. Dardanelli. Commenced in No. 44.

Semana Medica, Buenos Aires

October 24, XIX, No. 43, pp. 809-868

141 Somnambulism in Hysteric Girl of 16. (Desdoblamiento de la personalidad.) C. Dominguez.

Norsk Magazin for Lægevidenskaben, Christiania

November, LXXIII, No. 11, pp. 1557-1692

142 Transient Amaurosis Following Abortion. H. Gjessing.
143 Transplantation in Surgery. (Om transplantationer og deres praktiske anvendelse.) S. Widerøe.
144 Ischemic Contracture. E. F. Lindboe.
145 Two Cases of Amaurotic Idiocy. V. Magnus.
146 Operative Case of Tardy Traumatic Cerebral Apoplexy. (Traumatisk sen-apoplexi.) V. Magnus.
147 Phases of Tuberculosis in Relation to Immunity; Prevalence, etc. (Tuberkulosens stadier og immunitetsforhold.) K. F. Andvord.

Ugeskrift for Læger, Copenhagen

November 14, LXXIV, No. 46, pp. 1673-1710

148 *Color Test for Quantitative Determination of Albumin in the Sputum. (Kolorimetrisk kvantitativ Bestemmelse af Albumin i Opløsninger.) M. Claudius.

148. **Quantitative Color Test for Albumin.**—Already summarized in The Journal, Nov. 16, 1912, p. 1833.

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DIAGNOSTIC PITFALLS IDENTIFIED DURING A STUDY OF THREE THOUSAND AUTOPSIES *

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I wish in this paper to make three points: 1. A goodly number of "classic" time-honored mistakes in diagnosis are familiar to all experienced physicians because we make them again and again. Some of these we can avoid; others are almost inevitable, but all should be borne in mind and marked on medical maps by a danger-signal of some kind: "In this vicinity look out for hidden rocks," or "Dangerous turn here, run slow." I shall enumerate some of these danger points presently.

2. Some common diseases are relatively inaccessible to diagnosis, no matter how carefully we are on the watch for them. From the study of 3,000 autopsies, I have begun to work out a percentage or ratio of accessibility for the commoner diseases (shown in the accompanying chart).

3. Besides the classic and well-known pitfalls there are some less familiar to the profession and needing all the more, therefore, to be marked "dangerous."

FREQUENT AND WELL-RECOGNIZED PITFALLS

I shall first enumerate without discussion some of the commoner mistakes:

"Acute gastritis" is a rare disease in adults. As a rule appendicitis or gall-stones is the correct diagnosis.

"Chronic indigestion" is usually a mistaken diagnosis, the actual condition being peptic ulcer, pulmonary tuberculosis, constipation or cancer of the colon.

"Bronchitis" usually proves to be phthisis, bronchiectasis or bronchopneumonia at autopsy or in the outcome.

"Asthma" beginning after middle life is usually symptomatic of cardiac or renal disease.

"Unresolved pneumonia" is frequently a mistaken diagnosis, the real disease being interlobar empyema.

"Malaria" is often given as the diagnosis in cases of phthisis, hepatic syphilis, hepatic abscess and urinary infections.

"Typhoid fever" in a patient's history may mean tuberculosis or latent sepsis (septic endocarditis, suppurative nephritis, etc.).

"Rheumatism" has sometimes turned out in my experience to mean: aortic aneurysm, cancer of the pleura, tabes dorsalis, osteomyelitis, spondylitis deformans, bone-tuberculosis, syphilitic periostitis, lead-poisoning, morphin habit, alcoholic neuritis, trichiniasis and gonorrheal infection. "Rheumatism" is one of the most dangerous of all diagnoses to the conscientious physician.

"Cystitis" is usually a symptom, not a disease. It points to disease below the bladder (stricture, obstructing prostate, etc.), or above it (renal tuberculosis and other renal infections) as its cause.

"Hemorrhoids" often mask cancer of the rectum.

"Neurasthenia." The real disease almost always shows itself in youth on the basis of congenital tendencies, though like tuberculosis it may be roused into active progress by any prolonged strain, mental or physical. When it appears after middle age it is almost always a symptom of organic disease such as dementia paralytica, chronic nephritis, arteriosclerosis, myxedema, hyperthyroidism or phthisis.

The incipient stages of the disease mentioned in the last sentence are rarely recognized. The same is true of gastric ulcer, pernicious anemia, leukemia, cirrhosis of the liver, congenital renal cysts, renal tuberculosis and many other diseases.

All this is trite and obvious, but I mention it to avoid the reproach of ignoring it.

As one looks at the accompanying chart of diagnoses one naturally asks: Whose success or failure does this represent? Where Smith and Jones have failed, could you and I have done better? I doubt it. The study of the details in these cases before and after death convinces me that, for the present and under the present limitations of diagnostic method, few of the mistakes tabulated above could have been avoided. The table represents the success-and-failure ratio of certain methods rather than of certain men. Admitting that the man behind the gun (or the method) makes a vast difference, I do not believe that these figures depend to any considerable degree on the possession or lack of special virtuosity in diagnosis. They mirror the methods of an average up-to-date American hospital.

But the figures are undoubtedly modified by the great difference between terminal lesions (such as acute endocarditis, pericarditis and nephritis) and insidious slowly developing lesions like those of typhoid infection or pernicious anemia. In the latter we succeed; in the former we fail frequently.

Again, diseases which kill so quickly that the period of observation is very brief and the history often faulty or lacking altogether will always show a large percentage of diagnostic failures. Cases of cerebral hemorrhage or coronary occlusion exemplify this.

At the successful end of this table I might have inserted (did space permit) pernicious anemia, leukemia, malaria, diphtheria, puerperal eclampsia, dementia paralytica, amebic dysentery and other diseases which are easily recognized as a rule by the routine application of modern diagnostic methods.

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* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

At the other and more humiliating end of the scale I could add acute pancreatitis, hemorrhagic pachymeningitis, hypernephroma (in its early stages) and many others.

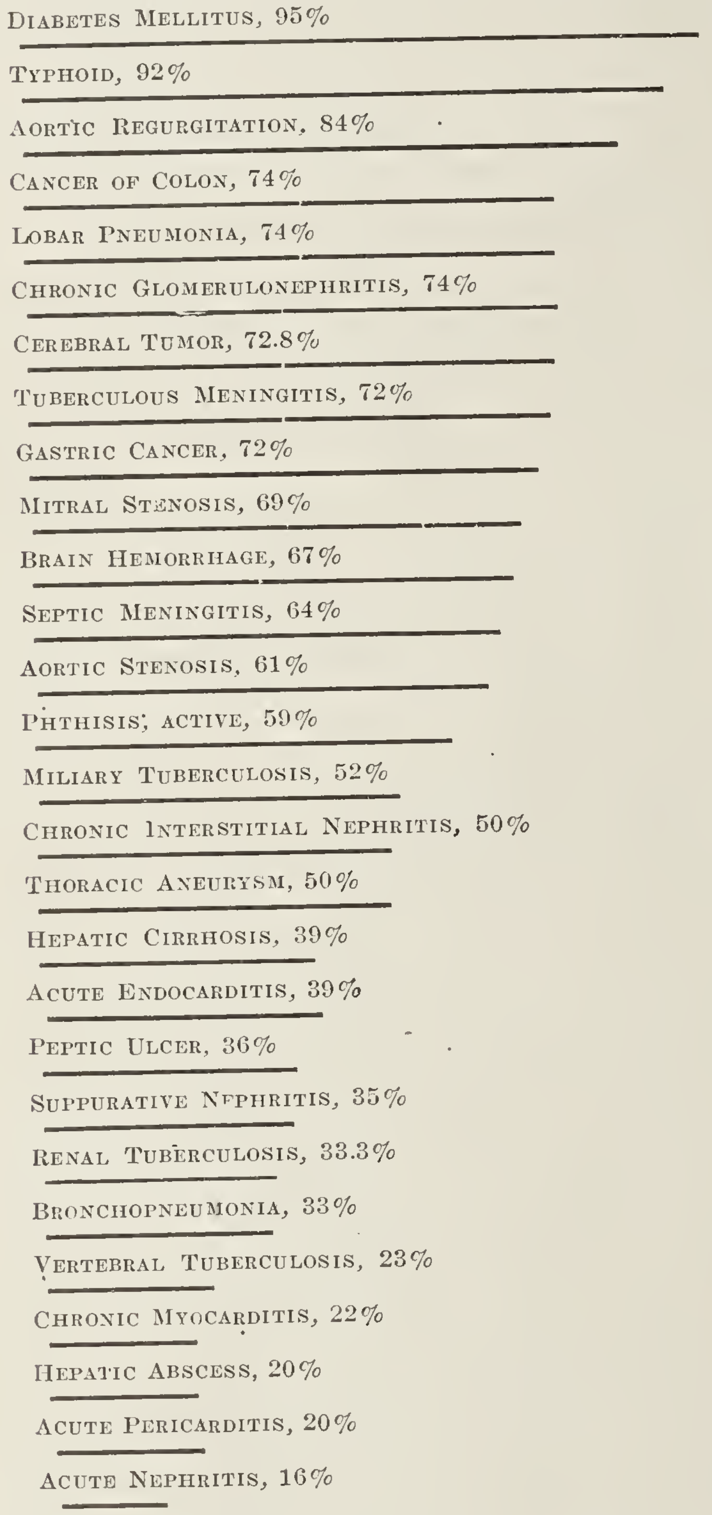
RELATIVELY UNFAMILIAR MISTAKES

VERTEBRAL TUBERCULOSIS

Most physicians believe that Pott's disease of the spine is easily recognized because of the "knuckle" in the spine, the pressure signs, muscular rigidity and secondary abscesses, but the difficulty is precisely in that group of cases which do not show these signs.

PERCENTAGES OF DIAGNOSTIC SUCCESS

TABLE SHOWING GRAPHICALLY THE PERCENTAGE OF CORRECT DIAGNOSES IN VARIOUS DISEASES



Some of the most humiliating yet almost unavoidable failures of my experience have been made in cases which showed post mortem the lesions of Pott's disease. Only four of the seventeen cases that came to autopsy in this series of 3,000 post-mortems were recognized in life. In ten of the thirteen "misses" there is "no blame to be attached to the officials in charge." The diagnosis was not suggested by any of the facts at our disposal. The clinical picture was usually that of an overwhelming infection (miliary) which was called "septicemia from pelvic abscess" (really a psoas abscess) "meningitis," "acute uremia" (two), "septic scrotum," "otitis media with pyemia," "pneumonia" (two) and "septic hand with general sepsis."

In two cases there was a slight kyphos which should have been noticed, but as it had been there for many years without change, it was ignored. In one case there was a gradual, even curve of the whole spine diagnosed by a skilful orthopedic consultant as spondylitis deformans.

The ages of the thirteen patients whose disease was unrecognized were: 26, 51, 54, 81, 29, 44, 49, 53, 50, 64, 65, 45, 40. The average is fifty years. In the four recognized cases the ages were: 34, 40, 34, 21 (average, 32).

The moral is that we do not look or ask carefully enough for evidence of old vertebral tuberculosis in elderly patients, because we associate the disease with youth.

ACUTE UREMIA

In this series and in private practice outside it I have never found a correct diagnosis of acute uremia. Yet the diagnosis is a very frequent one. Among the diseases wrongly diagnosed as "acute uremia" I have seen two cases of sporadic meningitis (due to Weichselbaum's diplococcus), two of miliary tuberculosis, one of general streptococcus sepsis, three of arteriosclerosis (especially cerebral, kidneys sound), one of hepatic cirrhosis, one of pyelitis and one of bladder cancer.

Most of the wrong diagnoses of acute uremia are made in comatose patients seen for the first time in that condition and with little or no history obtainable. The urine is drawn by catheter and found to be loaded with albumin and casts. The diagnosis follows, regardless of the fact that in practically all comatose patients we find abundance of albumin and casts, no matter what the cause of the coma may be. I will not deny that acute uremia may occur and be recognized post mortem as the cause of death, but in my experience and in the 3,000 autopsies which I have studied, it has never been so. In my experience, uremia is a chronic condition supervening gradually and in association with edema, vomiting, headache and retinitis in relatively young subjects. In these cases no other cause for coma is found post mortem and the kidneys are extensively diseased. The blood-pressure is usually high but may be low. In most of the cases diagnosed as "acute uremia," other well-recognized causes of coma are found post mortem, and the kidneys show no evidence of nephritis.

I have therefore ceased to consider acute uremia in the diagnosis of cases of sudden coma "out of a clear sky" or with only a few days' illness preceding.[1]

CIRRHOSIS OF THE LIVER

That this disease has a long period of latency when diagnosis is impossible, has long been recognized, and most of eighty cases autopsied in the Massachusetts General Hospital series merely corroborate this.

Of the eighty cases, thirty-one were recognized during life, and forty-nine were not recognized. In sixteen of the forty-nine "misses" the amount of interstitial change was but slight at autopsy, but there remain thirty-three cases unrecognized despite a well-marked type of the disease. In three cases the clinical picture was essentially that of apoplexy, though the brain was normal. Sudden death (toxemia) is by no means rare in cirrhosis, the fatal coma quickly supervening in apparent perfect health. If cirrhosis had been considered as a factor in the differential diagnosis of these cases it is possible that the diminution in liver dulness might have been recognized and the disease identified.

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[1] Puerperal eclampsia is of course often acute, but its cause does not reside in the kidney.

Three cases were mistaken for peptic ulcer on account of the profuse hematemesis. In time I think it will be recognized that this symptom is of more value in cirrhosis than in peptic ulcer since it occurs in only 20 per cent. or less of the ulcers (gastric or duodenal), and in 26 per cent. of the cirrhoses.[2] Moreover, hematemesis without other symptoms is far more characteristic of cirrhosis than of ulcer, which usually produces pain of a recognizable type and course.

In six cases the clinical picture was that of decompensated heart disease. I do not see how the cirrhosis could have been recognized, especially as not all the cases were alcoholic. The absence of alcoholism by no means excludes "alcoholic cirrhosis."

In three cases gall-stones were also present and caused all the symptoms.

Cirrhosis was latent in patients dying from hyperthyroidism, cancer of the prostate, cancer of the rectum, cancer of the cecum, pancreatic cyst, pancreatic cancer, pneumonia after fracture of the femur, cut throat, aortic aneurysm, dementia paralytica, diabetes, hemophilia (no jaundice), and many other diseases.

Cases without ascites were rarely recognized in this series, though in some of these non-ascitic cases the "causeless hematemesis" should have suggested the correct diagnosis. When ascites was present the disease was mistaken (in two cases) for tuberculous peritonitis (a disease which did not occur simultaneously in this series, though many such cases are on record.) The high lymphocyte count not infrequently found in the sediment of cirrhotic ascites helped to mislead us.

The terminal event was pneumonia in three cases, general streptococcus peritonitis in two.

My chief conclusions from this series are that we have underestimated the frequency of the disease and the difficulty of its recognition, that it must be remembered as a possibility in all cases of sudden "causeless" coma and especially when unexplained hematemesis is the main symptom.

CANCER OF THE COLON

Out of forty-three autopsied cases, eleven, or over 25 per cent., were not recognized in life. In this group two patients were operated on and even then the cancer was not found. Two others had brain-metastases, and all other symptoms (as in miliary tuberculosis) were overshadowed by the cerebral manifestations. Two were not recognized as springing from the colon because perforation of a stercoraceous ulcer above the obstruction had led to the formation of a large perienteric exudate so firmly fixed to the surrounding parts that in life a tumor springing from the pelvic bones was suspected. In studying the ante-mortem conjectures and post-mortem findings, it is clear that the perforation of stercoraceous ulcers had not been recognized as a frequent complication in cancer of the colon. The symptoms of a general peritonitis resulting from such a perforation constituted the first and last act of the clinical drama in one case of this series.

In two cases the most prominent symptoms were those of acute renal infection ("pyelitis").

Tumors were rarely felt. Most of the correct diagnoses were based merely on symptoms of chronic and increasing obstruction (often with intermissions of perfect health or of diarrhea) in elderly persons. The inference that cancer was the cause of this obstruction was made simply because statistics show that cancer is the only common cause of chronic obstruction in elderly people (average age, 59).

A long period of latency (palpable tumor for three years in one case) without symptoms and then a sudden acute obstruction, is a common clinical type of this disease.

I conclude therefore that in the diagnosis of cancer of the colon we must be guided chiefly by the evidence of obstruction, without obvious origin, in an elderly person, that we must remember the frequency of perforated stercoraceous ulcer as a prominent clinical feature in many cases, and that complications such as cerebral metastases or urinary infection may overshadow the intestinal symptoms.

HEPATIC ABSCESS (NON-AMEBIC)

In thirty autopsies there were six correct diagnoses (20 per cent). In three other cases the diagnosis perhaps should have been made on the evidence available.

The clinical picture is one of general septicemia, usually without definite signs pointing to the liver. We have learned, however, that fever, chills and leukocytosis following an appendix operation with drainage usually means hepatic abscess Five of the six correct diagnoses were in cases of postappendicular sepsis; one other followed cholecystitis.

Occasionally jaundice and an enlargement of the liver, demonstrable in the right back by signs identical with those of a small pleural effusion, give us a hint of where the pus is.

Many cases of so-called "toxemic" or "hematogenous" jaundice in sepsis are due in fact to hepatic abscess.

Pain and tenderness over the liver were not present in a single case of this series — as would be expected from the post-morten findings. The pus was always deep in the substance of the liver, never impinging on the capsule where all the liver's sensitive nerves are distributed.

General sepsis after operations involving drainage of the appendix or the gall-bladder, or after an attack of colitis, should always make us suspect hepatic abscess.

CANCER OF THE ESOPHAGUS

One of the simplest of diagnoses, one would say offhand, and yet among the twenty cases autopsied in this series four were not recognized in life, and in three others the diagnosis was doubtful.

In three of the four "misses" and one other case correctly diagnosed by esophagoscopy, there was no dysphagia whatever. In one of these blood was vomited and the clinical diagnosis was "cancer or ulcer of the stomach." In another there were no gastro-intestinal symptoms and no dysphagia. The clinical picture was of cardiorenal disease and this was confirmed at autopsy, but the gullet cancer was also obvious and extended into the cardiac end of the stomach. It has produced no constriction and no gross hemorrhage. Hence it was "silent" and unrecognized.

In a third case the patient complained only of a tumor in the neck. This was found at operation to be cancer, but its origin as a metastasis from the gullet was not suspected and, so far as I can see, could not reasonably have been suspected.

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[2] Rolleston: Diseases of the Liver, p. 263.

In the fourth of our "misses" there was dysphagia, but as this was associated with paralysis of the left vocal cord and an *x*-ray shadow interpreted as aneurysm or mediastinal tumor, we were thrown off the track. Hoarseness or aphonia (such as occurred here) was present in two other cases and should be remembered as a not uncommon sign of gullet cancer.

The percentage of wrong diagnoses in this series would have been larger but for the routine use of the esophagoscope in the later cases. Dangerous though this procedure is in any but the most experienced hands, it is yet a necessity for accurate diagnosis of the cause of gullet obstruction in many cases.

One case with hematemesis and intermittent (not constant) dysphagia had been considered a functional or spasmodic rather than a cancerous stricture until esophagoscopy revealed its true nature.

LATENCY OF ADVANCED PHTHISIS IN DIABETES MELLITUS

Though the frequency of phthisis complicating diabetes is a familiar fact, it is not generally recognized, I think, that there is a peculiar latency and lack of symptoms in this type of tuberculosis. In thirty-nine autopsies in cases of diabetes there were nine cases of active tuberculosis and not one of them was recognized in life. In one other case tuberculosis was diagnosed but pneumonia (not tuberculosis) was found. Most of these patients had no expectoration and slight or no cough — quite a different clinical picture from that usually seen in non-diabetic cases of phthisis in the same stage of the disease.

190 Marlboro Street.

ABSTRACT OF DISCUSSION

Dr. Charles G. Stockton, Buffalo, N. Y.: Two years ago in St. Louis Dr. Cabot delivered an address which I think was epoch-making in diagnosis in internal medicine. I have made it a practice to reread that address each year since then, and I commend the practice to my fellows here. It is a matter of great importance that one is able to carry out such a study in an institution where the records are so carefully kept and the examinations so well made. I should like to inquire, however, why such an inquiry had not been made before. Why is it not possible to do the same to-day in other institutions similar to the Massachusetts General Hospital? In most hospitals the records are not of a character permitting a review which would give valuable information. If nothing else comes from my remarks I hope that they may stimulate a desire to secure better and more uniform systems of records, so that more certain results may follow summarization. If this were done we would have an enormous mass of statistics from which we might make estimations that would be invaluable. Think what would follow if the men here present would present their results as these have been presented to-day by Dr. Cabot. Of course this requires the opportunity, and it requires the man as well.

What Is Dirt?—It is by hygienic precautions that certain diseases are prevented, and the basis of bacteriology is experiment in animals. But I should like to quote again from Professor Halliburton on the general questions of serum treatment, which has been stigmatized as "messy," besides some less elegant criticisms. "Filth or dirt," he says, "has been well defined as matter in the wrong place. Blood on a carpet, for example, is certainly messy and dirty; it ought not to be there. But blood or serum in the heart or in the arteries and veins is in its rightful place, and it does its duty of nutrition where it comes into more immediate contact with the tissues—the small tubes we call the capillaries. One of these duties is to exert a protective influence on the whole body, by destroying the germs of disease which get into the body in spite of all precautions." —F. M. Sandwith in *Clin. Jour.*

PATHOLOGIC LESIONS OF THE KIDNEY ASSOCIATED WITH DOUBLE URETERS

REPORT OF CASE OF HYPERNEPHROMA *

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In all branches of medical practice it is a great joy to the physician accurately and minutely to fix the seat of disease. Localization of trouble in one kidney with simultaneous exclusion of it from its fellow is such an old story to the urologist that this really clean-cut diagnosis no longer arouses amazement. Yet when some fortuitous anatomic or other condition makes possible a closer localization of a pathologic lesion, his enthusiasm is aroused. After all, in the apparently simple cases perhaps he is sometimes too sure of himself. Anomalies in the excretory apparatus may seriously upset his calculations and at times lead to most disastrous results to the patient. My interest in the subject of anomalies has been keenly aroused by the following case:

REPORT OF CASE

Patient.—A married woman aged 43, entered the Presbyterian Hospital of New York City, Jan. 23, 1912, in the service of Dr. Joseph A. Blake, to whom I am indebted for the privilege of making this report. The patient had pneumonia three years before admission, and had coughed blood one year before; a supravaginal hysterectomy had been done three months before admission.

Present Trouble.—The patient had attacks of hematuria and pain in the right lumbar region. One year before, the patient had felt a sharp non-radiating pain in the right lumbar region, lasting several hours. The next day very bloody urine was passed. A similar attack occurred six months later, and several more subsequently. There had been no frequency of urination and no loss of weight. Occasional night sweats and some cough were complained of recently.

Examination.—The patient was a small, thin woman, perhaps slightly emaciated. The heart was normal. The lungs showed a few scattered râles. The abdomen revealed nothing abnormal; the right kidney was easily felt, smooth, not tender, not much enlarged; the left kidney was not felt. By the vagina, a small cervical "polyp" was palpated. The urine the first few days contained a trace of albumin, little pus, sometimes a few red blood-cells, an occasional granular cast, no tubercle bacilli.

Cystoscopy and Catherization.—I was asked to try to determine the source of the hematuria. At the time of my first examination (January 27), the catheterized bladder urine was clear and microscopically free from both pus and red blood-cells. Cystoscopy was easily performed, and an excellent view of the bladder obtained. It presented no tumor or calculus, and the mucosa was entirely normal. The left ureteral orifice was of normal appearance and in the usual position, and functioned normally. In a corresponding position on the right side of the trigon was an orifice with a similar normal elongated contour. About 5 mm. dorsosuperior and apparently a little mesial from this orifice was a smaller and round depression which was seen to function as a ureteral mouth. Careful observation revealed entire independence of action of these two right ureteral openings. They were both easily catheterized and the catheters (No. 6 F.) were introduced about 25 cm. A typical intermittent flow was obtained from each, and 5 c.c. of urine simultaneously collected from each in the same interval of time. The specimen from the cephalic orifice was almost clear, contained 0.4 per cent. urea, no pus, and few red blood-cells. That from the caudal orifice was bloody from the start (a suggestive point, I think), contained only 0.2 per cent. urea, no pus and much blood. The cystoscope was removed from the bladder, catheters being left *in situ*, fitted with another pair of catheters and reintroduced. The catheters on the right side were noted to be in position, and the left ureter then catheterized. Its outflow was nearly clear, was microscopically negative but for a few blood-cells, and contained 0.6 per cent. urea.

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* Read in the Symposium on Renal Surgery and Pathology in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

Urine Test.—A phenolsulphonephthalein test was done, 6 mg. being injected intravenously. Color first appeared in the urine in four and one-half minutes. During the subsequent half hour the catheter in the caudal ureteral mouth discharged urine very slowly. In the first fifteen minutes the left ureteral catheter gave 12 c.c. of urine and 16.4 per cent. of the drug, the right "cephalic ureter" (an inexact phrase used for brevity) 8 c.c. and 7.2 per cent., the right "caudal ureter" 2 c.c. and 0.3 per cent. In the second fifteen minutes the left catheter gave 8 c.c. and 11.7 per cent., the right cephalic 5 c.c. and 3.5 per cent., the right caudal 1.5 c.c. and 0.4 per cent. Attention is called to these facts. Making abundant allowance for a possible extra catheter flow from the caudally placed ureteral mouth, it is to be noted that the right ureter with the cephalic orifice produced less than half as much phenolsulphonephthalein as the left ureter, and that the right "caudal ureter" produced less than half the amount recovered from the "cephalic ureter." It is to be remembered also that the urine from the two right ureters contained about the same relative percentages and amounts of urea, that is, twice as much from the cephalic as from the caudal ureter. In other words, the lower (the caudal) ureter mouth was associated with renal tissue of about half the functional ability (at least for excretion of urea and phenolsulphonephthalein at the time of the test) of the renal tissue drained by the other right ureter.

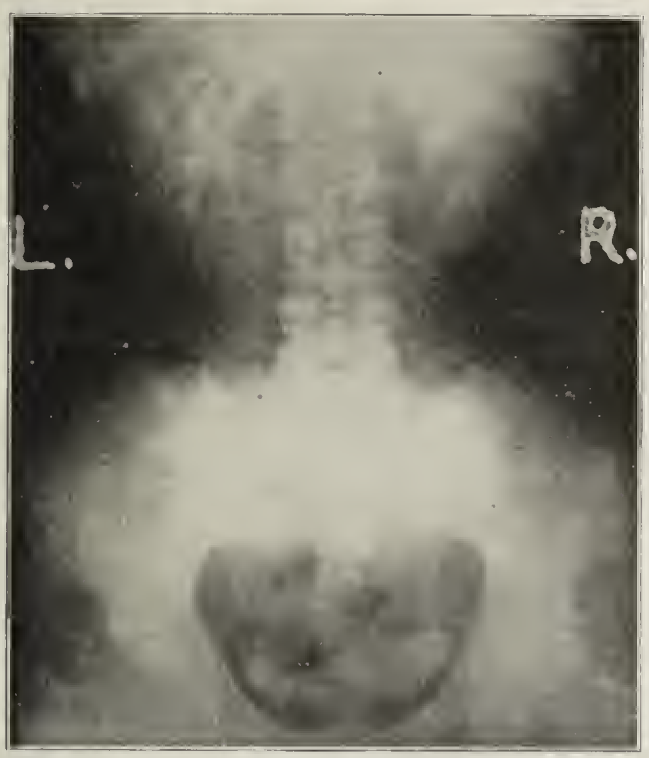

Fig. 1.—Radiograph with 20 per cent. argyrol. Left pelvis normal; lower right pelvis with tongue-like shadows at lower part; upper right pelvis very faint.

Argyrol Radiographs.—With the three ureteral catheters *in situ*, argyrol 20 per cent. was injected into each and a radiograph taken. It showed a normal left renal pelvis and ureter, and a smaller right renal pelvis with two thin shadows radiating inferiorly and laterally. Mesial to its ureter, another and fainter line was evident, leading up to a poorly outlined elongated shadow above the right pelvis just described (Fig. 1).

Skiagraphic catheters were passed into the two right ureters, February 2. The catheters were carefully marked, and the one entering the caudally placed ureteral orifice was injected with argyrol (through a misunderstanding it was again only 20 per cent.) and a radiograph taken. The other catheter was then injected till slight discomfort was produced, and a second plate exposed (Fig. 2). In this way the caudally placed ureter mouth was definitely associated with the lower (the caudal) portion of the right kidney. This lower portion of the kidney, then, represents a smaller amount of renal excretory function, according to the tests, than the upper portion of the right kidney, yet it is represented on all our *x*-ray plates by a larger renal pelvis (but by an abnormal one) draining a larger superior-inferior area. In view of this radiographic evidence, the function tests, the immediate appearance of blood when the ureteral catheter was passed up to the lower renal pelvis, and the negative bladder examination, the assumption seemed well grounded that if the blood came from the urinary tract, it had its origin in the lower pole of the right kidney and most likely in a neoplasm of this region.

Because of the presence of cervical polyps, some doubt was felt as to the source of the blood. These polyps were removed. Marked hematuria, however, recurred and bladder catheterization fixed the responsibility on the urinary tract.

Operation and Result.—February 24, Dr. Blake operated through a right lumbar incision. The fatty capsule of the kidney was adherent on the lower posterior surface. A tumor in the kidney substance was evident, and nephrectomy promptly done. Blood-vessels entering the lower pole of the kidney interfered with the dissection toward the pedicle. They were divided between clamps, which also included the lower ureter, as was clear later. The operation proceeded as usual. Most of the perirenal fat was excised. Convalescence was normal and progressive, the temperature never above 100 F., and a good output of urine was noted daily. The patient left the hospital March 17.

Pathologic Report.—The kidney (Figs. 3 and 4) is 12 cm. long and 4 cm. in thickness. Presenting from the lower half of the posterior surface, is a lobulated round sharply outlined tumor 4.5 cm. in diameter, with a very definite connective-tissue capsule. On cut section of the fresh specimen, the tumor is seen to form definite lobules arranged in the most part about a common center suggesting a hilum; the color is light yellow. The renal parenchyma of the upper part of the organ is normal in appearance and thickness. The upper pelvis presents two major subdivisions, each in turn draining three calices, two placed posteriorly, one anteriorly. These calices are all intact, are not associated with the tumor, and do not connect with the other pelvis. The lower pelvis is greatly flattened by pressure of the tumor and can be identified only with difficulty beyond its primary dilatation. The

Fig. 2.—Radiograph with 20 per cent. argyrol (too weak), showing two right renal pelves overlapping (non-communicating), and lead-impregnated catheters in double ureter.

blood-vessels entering the kidney are distributed along the anterior aspect of the hilum, and a few posterior to the lower pelvis. None of the veins contain tumor material.

Microscopic Examination.—Microscopically the tumor shows a mass of large epithelial cells with relatively small nuclei and clear cytoplasm, arranged in alveoli supported by a very delicate framework of connective tissue branching from dense trabeculæ. At points the alveoli form an adenomatous structure. The tumor seems well encapsulated and no invasion of renal parenchyma or pelvis was found. It evidently belongs to the group of tumors classed as hypernephromas, and was so diagnosed by Dr. W. C. Clark of the pathologic department of the hospital.

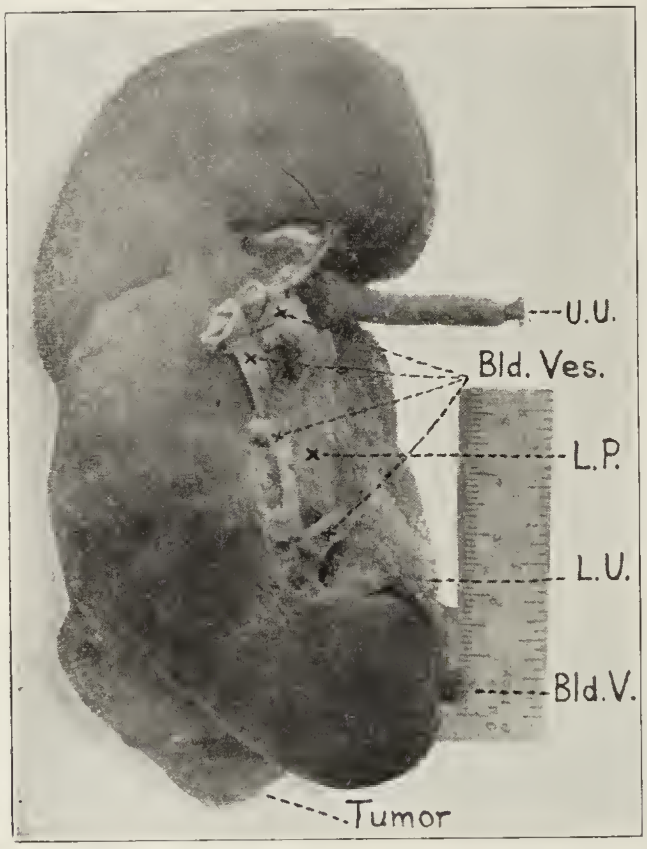

Fig. 3.—Anteromesial aspect of right kidney: U.U., upper ureter; L.P., lower pelvis; L.U., lower ureter. Lower ureter clamped and cut at operation with blood-vessels marked Bld. V.

LESIONS ASSOCIATED WITH DOUBLE URETERS

Double ureters may be incomplete or complete; that is, they may join and enter the bladder through a common opening or may remain apart and enter the bladder through independent openings. Normally in embryonic life the renal bud, soon after its appearance as an outgrowth from the wolffian duct, splits terminally into cephalic and caudal portions, which ultimately become the two main divisions of the pelvis. That portion of the wolffian duct between the renal bud and the cloaca becomes absorbed in the cloaca, thus affording separate openings for ureter and wolffian duct (the future vas deferens). Double ureters are thought to originate from double budding from the wolffian duct or by extension downward of the split occurring normally at the end of the renal bud. It seems likely that an extra renal offshoot gives rise to another fully developed pelvis and its development in adult life should be regarded as a supernumerary kidney, whether separated from or joined to its neighbor of the same side. The cleavage process, however, is regarded as the more probable explanation of reduplication of ureters (Meyers,[1] Pohlmann,[2] Huntington[3]). When the cleavage is complete, one finds completely double ureters — ureters with independent openings in the lower urinary tract. Subsequent development and unequal growth of the region of the lower ends of the ureters cause an apparent rotation which brings the orifice of the ureter from the upper pelvis mesial to and usually mesial and caudal to the orifice of the ureter from the lower pelvis, and the opening of the wolffian duct caudal to the ureter. Moreover, the lower pelvis, which as a rule is the larger, usually empties into the bladder at the *normal* site for a ureteral opening on the trigon.

I have outlined briefly these features of development to call attention to the fact that in the case here reported, the ureter from the lower pelvis did empty into the part of the bladder normally receiving a ureter; but contrary to rule, its fellow opened not distal but proximal to it. I have found but one other such instance, a report by Kerr[4] of an exactly similar relation of orifices of double ureters in a post-mortem observation.

It will be noted that, according to the *x*-ray plates, the ureters do not cross in their course from kidney to bladder. If they cross in a given case they must recross, as the ureter from the upper pelvis starts mesial and ends mesial to its fellow.

Because of the idea that many neoplasms have as a basis some congenital abnormality, and regardless of one's views concerning the histogenesis of hypernephromas, one is at first impressed with the association of this renal tumor with a congenital anomaly of the collecting apparatus. Yet embryologically I can see no relationship beyond the possible evidence of a general tendency of the particular organism to congenital abnormalities. The reduplication usually concerns the collecting apparatus only, not the kidney parenchyma which is derived from another and very different source. In fact, in these cases of double ureter the kidney has as a rule the contour of a normal organ; moreover, I have found no other instance of hypernephroma of the kidney associated with double ureter and pelvis. The nearest approach was a case of Kapsammer[5]— hyperne-

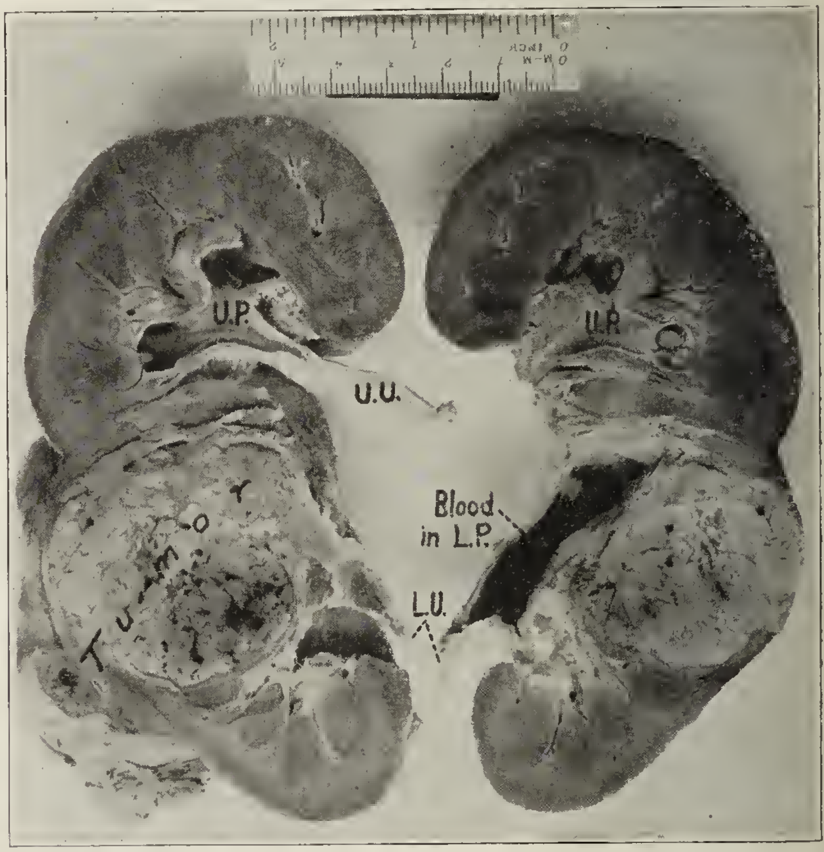

Fig. 4.—Section of right kidney through both pelves: U.P., upper pelvis; U.U., upper ureter; L.P., lower pelvis; L.U., lower ureter.

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[1] Meyers: Virchows Arch. f. path. Anat., 1907, clxxxvii, 408.
[2] Pohlmann: Am. Med., 1904, ii, 987.
[3] Huntington: Harvey Lecture, 1907.
[4] Kerr: Anat. Rec., 1911.
[5] Kapsammer: Nieren-Chirurgie, 1907, i, 2.

phroma of the right kidney and double ureters from the left kidney.

Contrary to the view of older writers, ureter duplication, in part or in whole, has a decided clinical interest and importance but only in recent years has a diagnosis been made before operation or necropsy. Kapsammer observed in 1905 perhaps the first case of bilateral complete doubling of the ureters diagnosed during life. The four orifices were catheterized and the two pelves of each kidney proved non-communicating by the injection of indigocarmin into one ureter and its failure to return through the other. The two right ureters gave normal urine; both left ureters discharged a little pus. This was cleared up by lavage.

Seelig[6] reported last year another case (observed in 1910) of this bilateral complete duplication with radiographic plates showing collargol in the four pelves and bismuth-impregnated catheters in the four ureters. Clinically his observations were most interesting — the right upper pelvis gave albumin and epithelial and blood-casts; the right lower pelvis, normal urine; the left upper pelvis, a definite amount of pus but no casts; the left lower pelvis, only a few leukocytes.

B. Lewis[7] and Newenow[8] reported cases of double ureters on the left side, with clear urine from one and pus (and gonococci in Lewis' case) from the other (determined by catheterization). The infection in both instances was cleared up by pelvic lavage.

Similarly Franke (quoted by Pasteau[9]) in a patient with two ureters from the right kidney, found one ureter excreting clear, and the other purulent urine. By operation, an artery crossing and partially obstructing one ureter was divided, and the patient's symptoms were relieved. Kapsammer's case of extensive tuberculosis of a left kidney having complete double ureter is of no special significance in this connection.

Of the reported cases of renal diseases associated with incomplete double ureter, those of Stark[10] and Wulff[11] are notable as having been correctly diagnosed before operation. The former on different days obtained clear and purulent urine from the left kidney, the output from the right kidney being always normal. Stark inferred that there was a bifurcation of the left ureter, and that his catheter had entered different pelves on the two examinations. Operation confirmed the diagnosis. The upper part of the kidney was normal, as was its ureter; in the lower part there was a pyonephrosis, and its ureter was much thickened. Stark feared infection of the remaining portion should he attempt a resection of the kidney, and consequently did a complete nephrectomy. Subsequent recurring infection of the bladder from the ureteral stump would seem to confirm his judgment. Wulff, in his case, obtained purulent urine from the ureteral catheter in the left ureter, but clear urine when this catheter was pushed higher. A forked ureter with two pelves, one infected, the other normal, was found at operation.

Rafin,[12] Kapsammer,[5] Israel[13] and Dumitreanu[14] report instances of infected kidneys each with two pelves and two ureters (i. e., a double ureter in at least its upper portion), discovered only at operation. In all of these four specimens, the infection (tuberculosis in Kapsammer's patient) was confined to the part of the kidney associated with *one* pelvis; while the other portion of the organ was normal. Kusnetsky's case[15] was similar; additional interest was afforded by the presence of a large stone in the ureter associated with the pathologic pole of the kidney, at the junction with its fellow ureter.

Bruci's report[16] concerned a like condition superficially. One end of the organ was virtually a pus sac, but the other with its ureter appeared normal. On section this supposedly normal pole showed miliary abscesses and intense interstitial infiltration. An attempt at resection here would have been worse than futile. Nevertheless a successful resection of a pyonephrotic sac with a part of its ureter, leaving the upper portion of the kidney and its ureter, was reported by D'Lennander.[17] He first did a lumbar nephrotomy, and later appendectomy and the partial nephrectomy through an abdominal transperitoneal wound. Probably one would feel justified in doing a heminephrectomy in few cases of infection of one-half a kidney with two pelves and ureters, for fear of subsequent involvement of the remaining portion. Just which cases are suitable is a matter for individual judgment. The difficulty of such an operation would depend largely on the arrangement of the blood-vessels. If the kidney substance should possess independent blood-supply at either end, and the intervening portion be of smaller diameter than the ends, as in Albarran's case,[18] the operation is comparatively simple. His patient had a lumbar fistula following nephrostomy performed by another surgeon. Ureteral catheterization disclosed a normal left kidney and a good quality of urine coming from the right ureter. Fluid injected into the latter did not come out of the nephrostomy wound. The anomalous condition found at operation was not suspected before. Albarran speaks of the findings as "two kidneys" placed one above the other, joined together, but each having its own blood-supply as well as pelvis and ureter. The upper end was pyonephrotic and was excised. Apparently no mention is made of the termination of the ureter from the excised kidney. If it ends in the neighboring ureter, one ureter probably represents embryologically an abnormal sprout from the other ureter. Such an explanation was offered by Huntington for a similar museum specimen.

The reports of Young[19] and Key[20] demonstrate that double ureters may be the cause of serious mistakes. The former recited the details of an interesting well-studied case of renal calculus. Pus was obtained from the right ureter, clear urine from the left. A radiograph showed a large calculus filling the right renal pelvis, but none in the left kidney. Right nephrolithotomy was performed. The autopsy disclosed two pelves in the left kidney, and two ureters joining before reaching the bladder. The upper pelvis contained calculi and pus but its ureter was plugged up, and the ureteral catheter passed on the left side went up to the normal pelvis. The *x*-ray plate had been placed too low to show the left renal calculus. Briefly, Key's patient presented a double renal pelvis on the right side. There had been pus in the urine, but none was present at the time of the examination. A radiograph gave a shadow mistaken

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6. Seelig: Ztschr. f. Urol., November, 1911.
7. Lewis, B.: Med. Rec., 1906, lxx.
8. Newenow: Fortschr. a. d. Geb. d. Roentgenstrahlen, 1910, xvi, 157.
9. Pasteau: Ann. d. mal. d. org. génito-urin., 1911, i, 693.
10. Stark: Ztschr. f. Urol., 1911, p. 466.
11. Wulff: Quoted by Pasteau: Deutsch med. Wchnschr., 1906, p. 1760.
12. Rafin: Ann. d. mal. d. org. génito-urin., 1909, i, No. [illegible]
13. Isreal: Chirurgische Klinik der Nierenkrankheiten, 1901.
14. Dumitreanu: Deutsch. med. Wchnschr., 1908, xxxiv, 1333
15. Kusnetsky: Ztschr. f. Urol., 1909, iii, 927.
16. Bruci: Ann. d. mal. d. org. génito-urin., 1911, i, 961.
17. D'Lennander: Arch. f. klin. Chir., 1900, lxii, 471.
18. Albarran: Médecine opératoire des voies urinaires, 1909, p. 265.
19. Young: Johns Hopkins Hosp. Rep., 1906.
20. Key: Ztschr. f. Urol., 1909, iii, 409.

for stone. This proved to be a tuberculous abscess in the upper part of the kidney. Here again the ureter draining this region was plugged, and only clear urine from the other pelvis reached the bladder from the right kidney.

Lastly, von Fedorow[21] reports an interesting case. Two normal ureteral openings were seen which on catheterization gave normal urine from the right side and a little pus from the left. Lateral to the left ureteral orifice was a thin-walled cyst. At operation, this was incised, found to lead upward to a ureter running close to the other left-sided one but without connection with it. A plastic operation was done on the cyst, relieving the symptoms — pain in the left kidney and frequent and painful urination. Six months later, the original left ureteral orifice gave urine free from pus, while its fellow, which at first probably had only a very small bladder opening but now had a large one, produced urine containing pus.

I have arbitrarily omitted the general subject of stricture of the ureter (a matter thoroughly discussed in comparatively recent papers, notably that by Bottomley[22]), and have considered only cases of double ureter presenting some associated renal lesion other than a possible hydronephrosis caused by congenital stricture of the ureter. In Bottomley's collection of fifty-six cases, eleven patients had supernumerary ureters.

Concerning the frequency of double ureters, Kerr[4] reports four instances of unilateral complete double ureters in 165 dissecting-room subjects; Pohlmann,[2] two complete double ureters in over sixty embryos; G. M. Smith,[23] three incomplete double ureters (bilateral in two cases) in 100 autopsies; in general autopsy work, unilateral double ureters are recorded in from 1 to 4 per cent., and more frequently on the left than on the right side. I find no justification for Stark's statement that incomplete doubling is usually unilateral, and complete doubling usually bilateral. Complete doubling with two bladder orifices is rare compared to incomplete doubling (Huntington); yet, as several writers have pointed out, in the former cases the two ureters are bound tightly together in their lower third and a complete case might easily be mistaken for an incomplete case, unless the ureters are carefully dissected. Bilateral complete duplication of the ureters is decidedly less common. Gould[24] in 1903 reported two such autopsy cases and said that he could find but eight others in the literature; I have come across eight instances of this condition reported since 1903 (Kapsammer,[5] Wwendensky,[25] Rendu,[26] Huntington,[3] Furness,[27] Decherd,[28] Comolli[29] and Seelig[6]).

Lichtenstern[30] reported a case diagnosed clinically as crossed ureters. I know of no such post-mortem observation. Kapsammer[5] has seen three cases which he interpreted as duplication of only the lower end of a ureter, simulating an *inverted* Y. He records no radiographic demonstrations, or irrigation test such as he employed to prove absence of communications of the two pelves of a kidney with complete double ureters. Embryologically such a condition is "contrary to nature" and most writers seem to think that it never occurs, but that for every ureteral opening in the bladder there is at least one renal pelvis that, when more than one, these pelves communicate rarely and only as the result of pathologic processes. As many as six ureteral orifices in one bladder have been reported (Schewkunenko[31]); and five cephalic divisions of one ureter (Glazebrook[32]). When one searches for other possible stumbling-blocks, the various renal malformations and ectopias come to mind, and the occasional presence of a third kidney or the rare occurrence of but one kidney. The many possible terminations of ureters, other than bladder, must also be remembered.

In conclusion, if one will except the rare true cases of solitary kidney, when a blind ureter may be found on the other side extending up a short distance from the bladder, the inference is certain that for every ureteral orifice in the bladder there is a renal pelvis — perhaps more than one — and that these pelves do not communicate. Also there may be present ureters terminating at their distal ends blindly or in some part of the genital or urinary tracts other than the bladder. When a ureter crosses the median line to reach its associated kidney, that kidney is usually caudal to the one normally belonging on that side. Of two ureters running from one kidney to the bladder, that with the more mesial and more caudal opening almost always corresponds to the upper pelvis of the kidney. The history and general examination will offer valuable leads, but our surest means of diagnosing renal conditions accurately are careful comparative examinations of urines obtained by ureteral catheter, associated kidney function tests, and intelligent use of the *x*-ray. In baffling cases urine from different levels of the ureter should be collected and it is best to inject the silver solution through a large catheter first in the renal pelvis, then at successively lower points in the ureter, before radiographs are made.

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ABSTRACT OF DISCUSSION

Dr. Hugh H. Young, Baltimore: The surgery of the double ureter is very interesting and complex and frequently leads us into a wrong diagnosis. I reported just recently in New York before another society an interesting double ureter case, in which when I first looked into the bladder I saw a diverticulum, but when the patient strained an immense prolapse came out, over which I found the ureter. I operated and found, instead of a diverticulum, another ureter. In another interesting case, catheterization showed pus issuing from the right ureter and clear urine from the left. I took an *x*-ray plate which seemed entirely satisfactory and which showed a mass of stones in one kidney quite high up; on the other side I could see the apparent outlines of the kidney. The patient was operated on and promptly died of uremia. At autopsy we found that above the apparently healthy kidney was another kidney which had a big stone in it. The *x*-ray plate had just missed it. The patient had two ureters on that side in the upper part, and a single one below.

Dr. Edwin Beer, New York: I have seen during the last forty-eight hours one of the most baffling cases that I have had the opportunity of examining. The patient complained of chronic pyuria. In 1902, this patient had been operated on for subphrenic abscess. The abscess refused to heal, and a secondary operation was done by a New York surgeon, who removed the kidney which had been the source of the original abscess. The sinus again refused to heal, and a partial ureterectomy was done. The pyuria continued. Subsequently to the operation a fecal fistula developed. The patient was operated on for the fourth time as the fistula refused to close. The pyuria continued. There was a mild form of sepsis. A ureterectomy was done, but still the pyuria continued. The patient came to me about ten days ago. I washed the bladder out regularly, but the pyuria did not diminish. June 3 I cystoscoped him, and I found on the right side a ureter 25 cm. long, full of foul pus. On the other side there was no sign of a ureter, but an enormous pouch. At first I thought this was a case in which the surgeon had not taken out the ureter, although he had operated for the ureter on two occasions, but on further consideration I am forced to conclude that the patient must have had a double ureter. Another case bearing on the same question was a patient with a double ureter which we proved on the cystoscopic table. One ureter was closed; mesial to the ureter there was a tiny point from which indigo-carmin escaped. The second ureter was 37 cm. long, and at operation we found that it led to the upper pole, which was normal, the lower pole being the seat of a hydronephrosis.

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[21] Von Fedorow: Ztschr. f. Urol., 1910, pp. 561, 860.

[22] Bottomley: Ann. Surg., 1910, p. 597.

[23] Smith, M.: Personal communication.

[24] Gould: Am. Jour. Med. Sc., 1903.

[25] Wwendensky: Folia Urol., Leipsic, 1911, vi, 345.

[26] Rendu: Bull. Soc. méd. d. hôp. de Lyon, 1911; abstr. in Ztschr. f. Urol., 1911, p. 974.

[27] Furness: Case reported February, 1912, to G.-U. Section of N. Y. Academy of Medicine.

[28] Decherd: Am. Jour. Med. Sc., 1904.

[29] Comolli: Monitore Zool. Ital. Florence, 1911, p. 113.

[30] Lichtenstern: Ztschr. f. Urol., 1908, p. 974.

[31] Schewkunenko: Ztschr. f. Urol., v, 851.

[32] Glazebrook: Quoted by Dorland: Surg., Gyn. and Obst., 1911, xiii, 303.

Dr. J. B. Roxby, Swarthmore, Pa.: An experience in the dissecting-room for a period of years confirms the fact that a large percentage of double ureter cases are in existence without having been known. An interesting case was seen recently in which there was a double ureter on the left side; the larger ureter was draining a small segment of kidney, the superior portion, while the small ureter was draining the majority of the kidney substance inferiorly. The caliber of the pelvis of the upper kidney substance was very much greater than the caliber of the lower kidney substance.

Dr. A. R. Stevens, New York: Dr. Young's case of bilateral renal calculus was referred to in the paper, but I omitted it in the reading because of lack of time. According to various statistics, double ureter, either complete or incomplete, occurs in from 1 to 4 per cent. The latter figure is probably nearer the facts, and hence warrants thoughtful consideration of the subject and watchfulness for these anomalies. While one should be mindful of all the possibilities in a given instance, from the data afforded by radiographs taken after injection of argyrol or collargol in the ureters and pelves one may learn precisely the course and cephalic ending of each ureter. Indeed, in some cases thought to be anatomically normal the shape of the pelvis may warn the observer of an overlooked ureter.

AN OVERLOOKED FUNCTION OF BARTHOLIN'S AND COWPER'S GLANDS

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In the male and female of all the higher animals, in connection with the sexual system, are found two sets of homologous glandular organs, much of the importance of whose office seems hitherto to have been overlooked. These are Bartholin's glands in the female and Cowper's glands in the male.

The fact that Bartholin's glands supply a mucus for the lubrication of the entrance to the vagina during sexual excitement, and that Cowper's glands secrete a mucous fluid which acts in part as a vehicle for the seminal discharge has long been noted. But each has a supplementary office in connection with the discharge of the urine, to which, so far as I know, reference has never been made, though one of distinct importance.

Every one who has suffered with irritability of the neck of the bladder or the bulb of the urethra is aware that immediately after voiding the urine an intermittent contraction is experienced in these parts for several seconds, which then gradually fades away. Such contractions, no doubt constantly present in the healthy subject, are probably experienced by the whole class of mammals; they indicate a double function for the glands.

One of these functions has already been mentioned as being related to the requirements of procreation. The other relates to the protection of the mucous membrane of the vestibule and adjacent parts in the female and of the urethra in the male against the irritating action of the urine.

When the urine is passed the mucous membrane is in large measure swept bare of its free mucus, and this privation Nature set out early to remedy. In accomplishing her purpose she found ready to hand the beforementioned glands, already developed for the accomplishment of an important office in the way of facilitating reproduction. These glands, like all other animal tubes or hollow organs, have their walls constructed in part of an external layer of longitudinal muscular fibers and an internal circular layer, a plan of structure which seems to have come up from the worms.

As soon as the act of urination has ceased a contraction of the walls of these glands takes place, extruding mucus into the passages to take the place of that which has been washed away by the passing urine, thus protecting the denuded mucous membrane. The contraction of the gland walls is reenforced by that of the walls of the urethra in the male, and in the female, by the contraction of the muscles about the outlet of the vagina. It is probable, too, that in all cases a reflex stimulus is conveyed to the glands which causes an increase in the quantity of their secretion.

In the mare, the contraction on the spongy, yielding tissues within the sphincters is so considerable that the vulva becomes quite everted under its operation. In the females of many other animals a distinct intermittent protrusion of the vulva may be observed under similar circumstances.

In the practice of medicine this condition is often a matter of distinct importance. In a large percentage of males the secretion is poured out with sufficient copiousness to cause it to be discharged from the urethra as a stringy mass; and the cases are without number in which men have consulted their physicians about an imaginary spermatorrhea, or have shamefacedly submitted to be robbed by conscienceless quacks, when nothing worse was going on than a beneficent effort of Nature to protect the mucous membrane against irritation by the urine. To the advertising quack this delusion has proved to be a veritable gold mine; and if statistics could be gathered of the amount of money annually paid out to these gentry by uselessly alarmed multitudes, the sum would be found absolutely astounding.

Field of Prevention.—The more we study preventive medicine and sanitation the wider grows the field, until we find that our horizon is almost boundless, being coincident with man's energies and ambitions; and wherever he goes and whatever he does we must henceforth stand by his side and guide him safely. No longer can our efforts or duties be limited by the actual presence of disease entailing the necessity for cure or for prevention of spread. We begin with the cradle, and in ordering the proper diet, clothing, temperature, air and exercise for the young child and watching his eyes, teeth, ears, nose and pharynx, we give him a better start in life than his father had. We follow him through school with the same care and see that he does not overtax his growing muscular system at football, baseball, rowing, track or gymnasium. When he goes into business it is, or ought to be, our duty to see that the office-building, store or factory is built, ventilated and heated aright; to see that the workers in all trades have plenty of fresh air to breathe, do not work in cramped positions, are not allowed consumptive fellow-workers, have good water to drink, have decent privies or water-closets, have time to eat their midday meals and not bolt them as some ravenous beast.—White in *Wis. Med. Jour.*

EFFECT ON LATER DEVELOPMENT OF SEVERE AND PROLONGED ILLNESS IN INFANCY *

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AND
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This study was undertaken, in the absence of published data, for personal considerations of curiosity and interest, since each one of the patients has been attended through serious and prolonged illness involving inanition of decided degree. No case that did not represent extreme conditions of illness and prolonged interference with nutrition has been selected. Tables of average measurements from text-books of Holt and Koplik have been utilized for comparisons.

Case 1.—B. S., a white boy aged 7 years 1 month; breast-raised. Ileocolitis at 13 months of age; temperature 104 on first day; bloody stools at frequent intervals; hopeless prognosis given family, by consultant, on fourth day; corneal surface lesion on fourth day, attributed to intensity of infection. Illness extending over three weeks and convalescence attended by a marked degree of inanition lasting for another month.

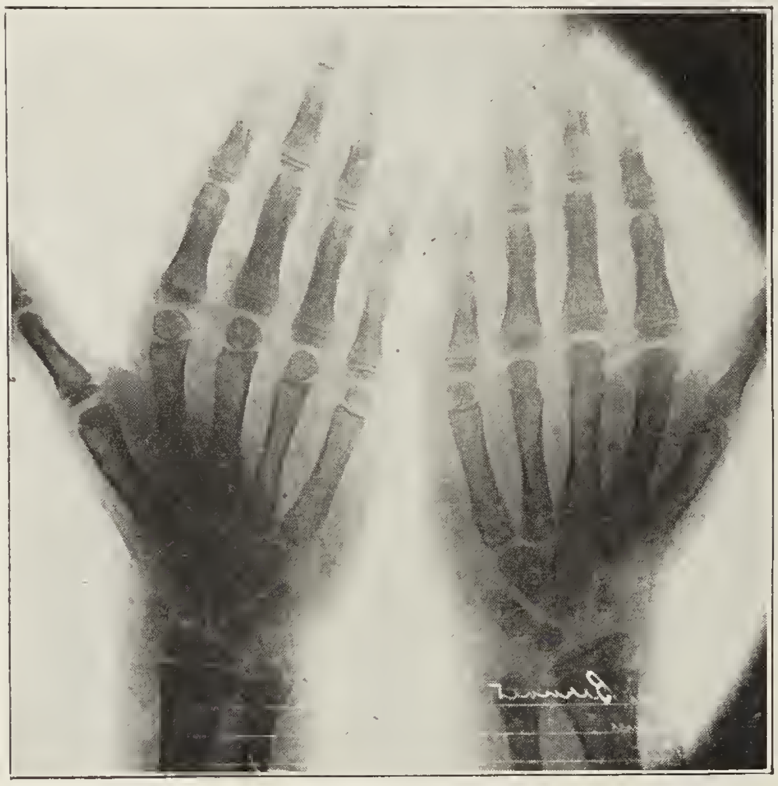

Fig. 1.—Case 1: The epiphysis of the ulna is undeveloped. The semilunar is likewise undeveloped. The wrist is below that which is normal at the age of 6¾ years. Actual age of patient, 7 years 1 month

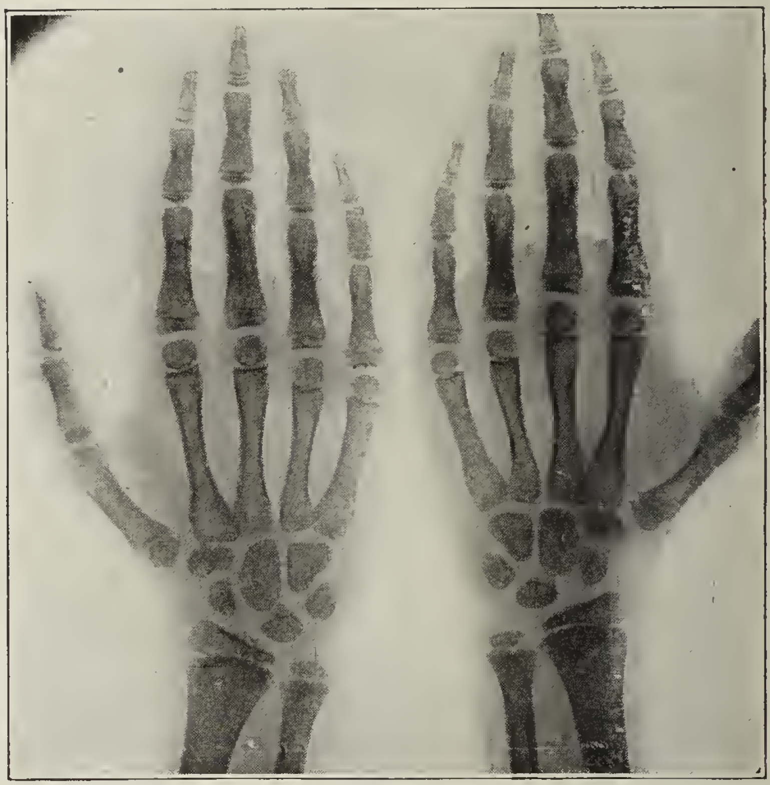

Fig. 3.—Case 4: All bones are present as expected for this age, but not more developed than for 6¾ years. Actual age of patient, 9 years 3 months.

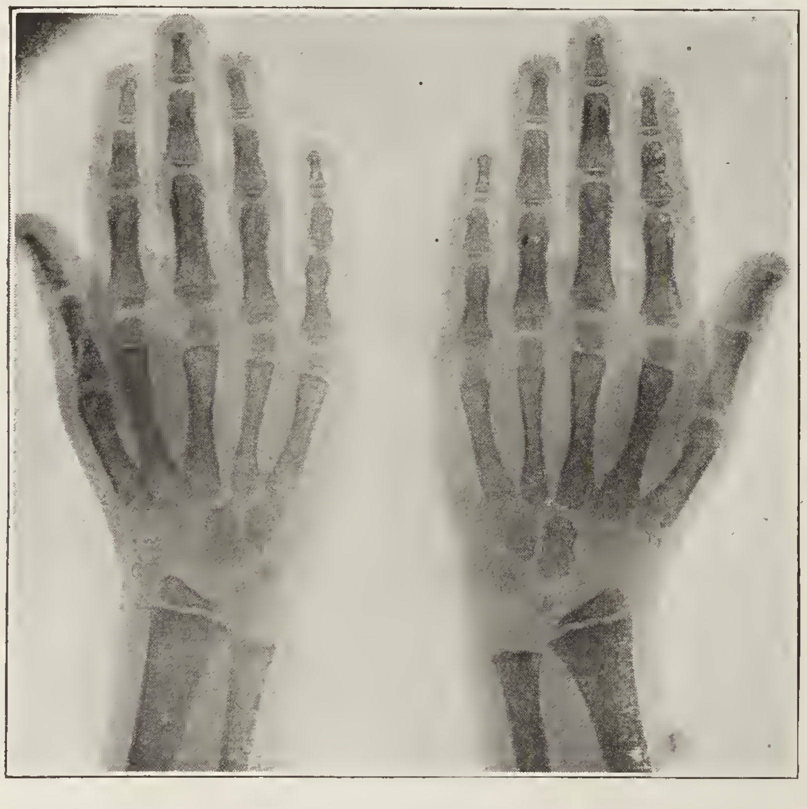

Fig. 2.—Case 3: The development of bones in the wrist is equivalent to that of the age of 3½ years. Actual age of patient, 6 years 10 months. There are no epiphyses of the ulna and no scaphoid.

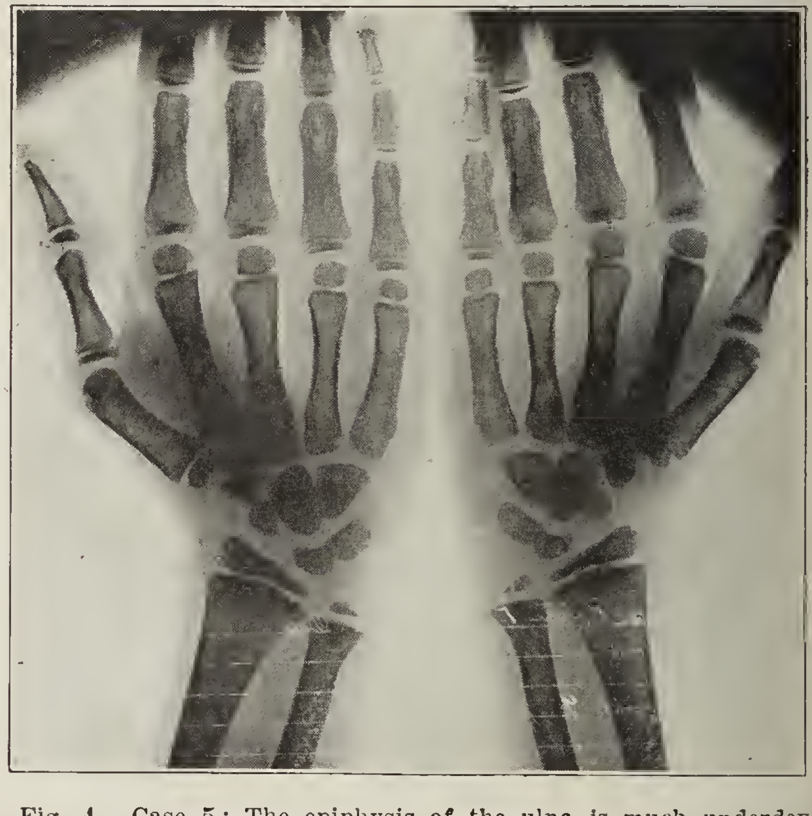

Fig. 4.—Case 5: The epiphysis of the ulna is much underdeveloped, the development corresponding to that of the age of 6 years. Actual age of patient, 8 years 11 months. See Plate 35, Rotch.

Measurements, May, 1912:

		Average of His Age
Height (inches)	50 1/2	46 1/2
Weight (pounds)	59	49 1/2
Chest (inches)	25	23 7/10
Waist (inches)	25 1/2	....

Case 2.—G. C., a white boy aged 6 years 1 month; breast-raised. At two years of age suffered from severe ileocolitis: high temperature from beginning; severe nervous symptoms,

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* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

manifested by screaming, insomnia of marked degree, self-injury necessitating splinting of arms and finally restraint of the wrists; emaciation marked. Convalescence prolonged. Patient, a bright, vigorous child not yet of school age.

Measurements, May, 1912:

		Average of His Age
Height (inches)	47 3/4	44
Weight (pounds)	46 3/4	45
Chest (inches)	22	23.2
Waist (inches)	22	....

Case 3.—S. K., a white boy aged 6 years 10 months; breast-raised. Ileocolitis at 20 months of age; high temperature for a week with frequent bloody actions. Development of meningitis and for ten days a fatal issue apparently inevitable. Patient blind for a month after unconsciousness passed off. Prolonged convalescence; emaciation extreme.

Measurements, May, 1912:

		Average of His Age
Height (inches)	47 1/2	46
Weight (pounds)	47 1/2	49
Chest (inches)	23 1/4	23 7/10
Waist (inches)	22	....

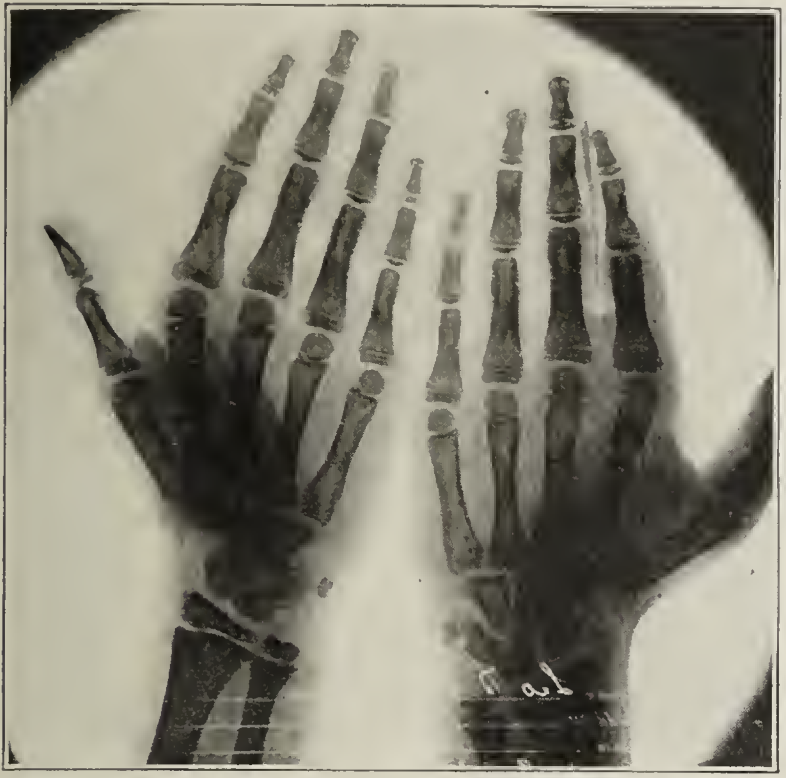
Fig. 5.—Case 6: The development of the pisiform is three years ahead of the patient's age, corresponding to that of 8¼ years (Rotch). Actual age of patient, 9 years.

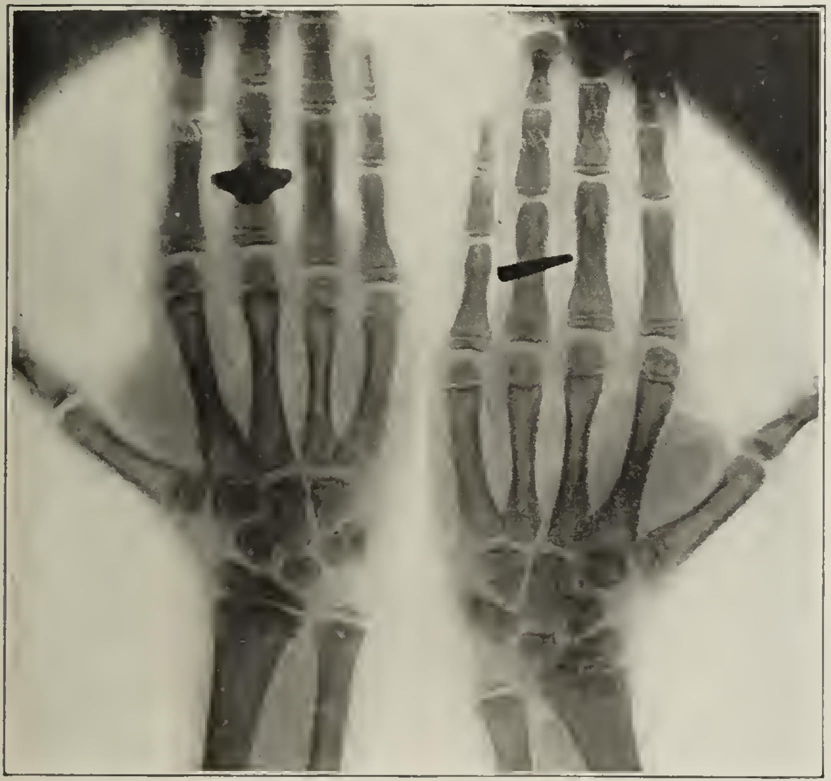
Fig. 6.—Case 7: The epiphysis of the ulna is much underdeveloped. The wrist corresponds to the normal wrist at 6¾ years. Actual age of patient, 8 years 10 months.

Case 4.—N. W, a white boy aged 9 years 3 months; breast-raised to 7 months. Shortly after weaning was forced through illness of mother, ileocolitis developed; temperature not so high as in most of the other cases, but disease ran a prolonged course and emaciation was extreme; at 6 years patient developed endocarditis as the result of tonsillitis, and valvular lesion existed since. He is bright and active and did well at school; he chafes under restrictions on fatiguing exercise, counseled by valvular leak. Measurements, May, 1912:

		Average of His Age
Height (inches)	53 1/2	50
Weight (pounds)	65	60
Chest (inches)	25	25 1/10
Waist (inches)	24	....

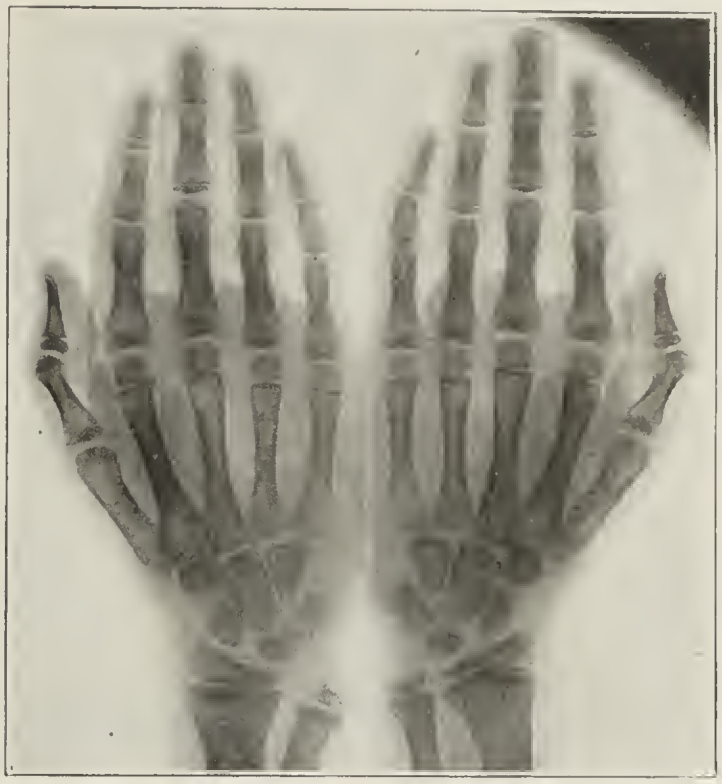
Fig. 7.—Case 8: The development corresponds to that of slightly under 9 years, based on lack of compactness and size. Actual age of patient, 9 years 11 months.

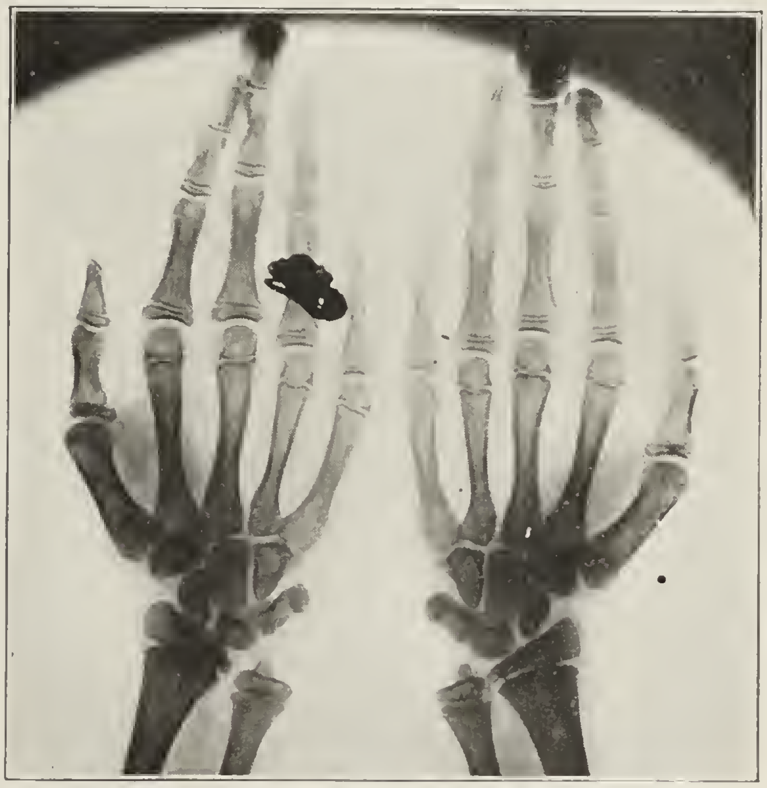
Fig. 8.—Case 13: The styloid of the ulna is larger than normal. The wrist is about normal. Actual age of patient, 10 years 5½ months.

Case 5.—P. P., a white boy aged 8 years 11 months; breast-raised; first seen at age of 2¾ years, suffering from chronic dysenteric condition dating back nine months. At age of 3 years bronchopneumonia; patient critically ill for a month; extremely emaciated, since intestinal condition had never been relieved. For the succeeding year patient was undernourished on account of frequent relapses of his intestinal disorder;

tonsils and adenoids have been removed in last six months; recommended on account of ear complication. The child is doing well at school.

Measurements, May, 1912:

		Average of His Age
Height (inches)	52 3/4	50
Weight (pounds)	63	60
Chest (inches)	24 1/2	25 1/10
Waist (inches)	25	....

Case 6.—L. S., a white boy aged 9 years; breast-raised. At 2 years of age severe attack of ileocolitis; fever three weeks; prolonged convalescence. Emaciation extreme. Metabolism affected for months. Patient doing well at school.

Measurements, May, 1912:

		Average of His Age
Height (inches)	54 1/4	50
Weight (pounds)	67 1/2	60
Chest (inches)	27	25 1/10
Waist (inches)	27	....

Case 7.—C. M., a white girl aged 8 year and 10 months; at 15 months of age severe attack of acidosis, with marked enlargement of the liver, labored breathing and prostration; inability to take any food for seven days; digestive capacity so affected by the acidosis that nutrition was seriously affected for more than a month. Patient doing well at school; an unusually active girl.

Measurements, May, 1912:

		Average at 9 Years
Height (inches)	51 1/4	49 6/10
Weight (pounds)	65	57 1/2
Chest (inches)	24 1/2	24 9/10
Waist (inches)	24	....

Case 8.—H. C., a white boy aged 9 years and 11 months, breast-raised; brother of the patient in Case 2. At 11 months suffered from ileocolitis, complicated by acidosis, enlarged liver and labored breathing. Patient extremely ill; colitis with malassimilation for a month following, with extreme emaciation. Slow convalescence in a cooler climate. Patient active, bright, and high in his studies.

Measurements, May, 1912:

		Average at 9½ Years
Height (inches)	55 1/4	50
Weight (pounds)	69 1/4	60
Chest (inches)	26	25 1/5

Case 9.—M. A., a white girl aged 13¼ years; breast-raised; at 16 months suffered an attack of ileocolitis ushered in by convulsions lasting for two days. Continued high fever for two weeks; malassimilation due to intestinal condition lasting for more than six weeks. Extreme emaciation; from age of 8 to 12, patient subject at times to attacks of acid intoxication of mild degree; tonsils removed at 12½ years.

Measurements, May, 1912:

		Average at 13½ Years
Height (inches)	61	58 1/2
Weight (pounds)	92 1/2	91
Chest (inches)	29	27 7/10

Case 13.—L. N., a white girl aged 10 years, 5½ months; breast-raised; at 18 months of age suffered from ileocolitis complicated by acidosis, with enlarged liver, labored breathing and marked prostration. After acidosis symptoms passed off colitis accompanied by high fever continued for two weeks. Marked interference with digestion and assimilation continuing for more than a month after the child was taken to the shores of Lake Michigan; emaciation extreme.

Measurements, May, 1912:

		Average at 10½ Years
Height (inches)	57 1/4	51 7/10
Weight (pounds)	86 1/2	64
Chest (inches)	26	24 7/10

Cases 10, 11 and 12 are normal so far as concerns serious illnesses and were selected because they were above the average in vigor and appearance.

The interpretation of the skiagrams, by Dr. Edmondson, is given in the legends.

Idiosyncrasy in Gout.—In no disease does idiosyncrasy, that great stumbling-block in therapeutics, make itself more evident than in gout.—Samuel West in *Clin. Jour.*

THE CALORIC REQUIREMENTS OF BOTTLE-FED INFANTS *

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There still seems to be a great difference of opinion among pediatrists as to the necessity of carefully computing the number of calories per kilogram or pound weight in every bottle-fed infant. The percentage method of feeding has so thoroughly embedded itself in the minds of American infant-feeders that the caloric requirements are usually entirely ignored or simply used as a check. As a matter of fact, this expression, "used as a check," usually means that the feeder either prescribes the food symptomatically, his experience in feeding having been great enough to allow him to guess at the quantity and strength, or he has certain rules of his own to go by. When the baby is not doing well, he reckons up the calories to see whether that individual child is getting a great deal more food than he needs or perhaps a great deal less. Another expression which is frequently used at the present time and which I have myself been guilty of using in the past is "thinking in percentages." However much a physician knows about percentage feeding, and however successful he may have been in using it, he cannot realize how much more accurate and successful his feedings would be if he would substitute for this or add to it "thinking in calories." It would hardly seem necessary to remind infant-feeders of the fact that the caloric requirements of adults have been worked out carefully and are used in a practical manner in the treatment of nephritis, diabetes, typhoid and many other conditions. How much easier it is to reckon calories in the bottle-fed baby who is fed definite quantities of milk, cream, sugar or gruels, than it is the more complicated diet of adult life!

Another criticism that I would like to make of those who do not reckon calories (and they are becoming fewer every day) is that their remarks are founded on their inexperience with this particular method. They have not followed week after week the calories of the babies which they are feeding, and therefore they do not realize the help that it will give them. They also seem to think that when they use the caloric method they do so to the exclusion of the digestibility and suitability of the food for any particular infant. This, of course, is entirely untrue, because before the infant is given the number of calories necessary for his nutrition and growth all digestive disturbances must be overcome. Even though his caloric requirements are much greater than are supplied in the food that we are giving him while overcoming the digestive disturbances, we always have in mind the number of calories which we shall eventually have to give before he will gain in weight.

It is also held by those who are not in favor of caloric methods that caloric requirements of the individual baby vary so greatly that it is impossible to determine definitely what any one child does need. It was with this idea in mind that I started the work of this present paper. My previous experience had taught me that some babies do require a great many more calories to gain on than others, and I sought some method of determining their individual caloric requirements. I therefore measured the food consumed, retained and digested each day over a prolonged period in a fairly large number of healthy infants of different ages, weights and habits of activity, and in infants in the various stages of nutritional and digestive disorders. In this way I attempted to find out the minimum amount of food on which a baby would thrive and gain in weight and the maximum amount which causes digestive disturbances or cessation of gain in weight. I then classified these babies in a rough way for practical help in feeding sick and well babies. For my experiments I selected babies living at home, whose mothers I could rely on for intelligence, accuracy and truthfulness. Naturally most of these were private patients, as it is notorious that bottle-fed babies do poorly in hospital wards. I myself examined the stools continuously in each case, and unless they were normal and there was no vomiting, the number of calories which they received was not considered of importance.

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* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

TABLE 1.—FEEDING RECORD IN CASE A NORMAL INFANT FED FROM BIRTH

Food			Calories			Weight						
									Gain in oz.			
Sugar oz.	Milk oz.	Water oz.	Total.	Per Kilo.	Per lb.	Lbs.	Oz.	Kilos.	Total.	Per Day.	Date.	Age.
0	2	8	40	12	6	7		3.2	0	0	5/23	3 days
¼	2	8	70	22	10	7		3.2	0	0	5/25	5 days
½	4	16	120	37	17	7		3.2	0	0	5/28	8 days
½	5	15	160	50	23	7		3.2	0	0	5/30	10 days
1	6	14	240	75	34	7		3.2	0	0	6/ 5	15 days
1½	8	12	340	103	48	7	6	3.4	6	1	6/11	21 days
1½	10	11	380	112	50	7	8	3.4	2	.3	6/19	29 days
1½	14	11	460	135	60	8	1	3.6	9	1.5	6/25	
1½	14	11	460	128	57	8	10	3.9	9	1.3	7/ 2	
1½	14	11	460	118	54	9	8	4.3	14	2	7/ 9	
1½	14	11	460	107	48	9	8	4.3	0	0	7/16	
1½	17	11	520	121	54	9	12	4.4	4	.8	7/21	2 months
1½	18	10	540	123	55	10	5	4.7	9	1	7/30	
1½	18	10	540	115	51	10	10	4.8	5	1.2	8/ 4	
0	18	10	360	80	34	10	10	4.8	0	0	8/ 6	
1½	18	10	540	113	51	11	1	5	7	1	8/13	
1½	18	10	540	108	49	11	4	5.1	3	.4	8/20	3 months
1½	21	14	600	118	54	11	12	5.3	8	1.1	8/27	
1½	23	12	640	120	54	12	3	5.5	7	1.2	9/ 2	
1½	23	12	640	116	53	12	5	5.6	2	.3	9/10	
1½	25	10	680	121	54	13	3	6	14	2	9/17	4 months
1½	25	10	680	113	51	13	11	6.2	8	1.1	9/24	
1½	25	10	680	110	49	13	13	6.2	2	.3	10/ 1	
1½	25	10	680	110	49	14		6.3	3	.4	10/ 8	
1½	28	14	740	120	54	14	11	6.7	11	1.6	10/15	
1½	28	14	740	110	49	15	2	6.8	7	1	10/22	5 months
1½	28	14	740	109	49	15	11	7.1	9	1.2	10/29	
1½	30	12	780	110	49	16	8	7.5	13	2	11/ 5	
1½	32	10	820	109	49	17	3	7.7	11	1.6	11/12	
1½	32	10	820	106	47	17	13	8.1	10	1.5	11/19	6 montns
1½	28	8	740	91	41	18	4	8.3	7	1	11/26	
1½	28	8	740	89	40	18	12	8.5	8	1 1	12/ 3	
1½	28	8	740	86	39	19	4	8.7	12	1.7	12/10	
1½	28	8	740	85	37	20		9.1	12	1.7	12/17	7 months
1½	28	8	740	81	35	20	2	9.1	2	.3	12/24	
1½	28	8	740	81	35	20	12	9 4	10	1.5	12/31	

TABLE 2.—FEEDING RECORD IN CASE 2, A NORMAL CHILD FED FROM 1 MONTH OF AGE

Food			Calories			Weight						
									Gain in oz.			
Sugar oz.	Milk oz.	Water oz.	Total.	Per Kilo.	Per lb.	Lbs.	Oz.	Kilos.	Total.	Per Day.	Date.	Age.
½	8	20	220	48	22	9	14	4.5	0	0	1/28	1 month
1	16	16	440	97	44	9	14	4.5	0	0	2/ 4	
1	20	16	520	110	47	10	6	4.7	8	1	2/11	
1½	20	16	580	123	56	11		5	10	1.4	2/18	
1½	20	16	580	116	53	11	6	5.2	6	.9	2/25	2 months
1½	20	16	580	111	50	11	12	5.3	6	.9	3/ 3	
1½	20	16	580	110	49	12		5.4	4	.6	3/10	
1½	22	14	620	115	52	12	8	5.7	8	1.1	3/17	
1½	24	12	660	116	52	13		5.9	8	1.1	3/24	3 months
1½	24	12	660	112	49	13	4	6	4	.6	3/31	
1½	26	12	700	117	53	14		6.3	12	1.7	4/ 7	
1½	26	12	700	112	49	14	12	6.7	12	1.7	4/14	
1½	26	12	700	104	47	15	4	6.9	8	1.1	4/21	4 months
1½	26	12	700	102	46	15	12	7.1	8	1.1	4/28	
1½	26	12	700	98	44	16	4	7.4	8	1.1	5/ 5	
1½	26	12	700	94	43	16	6	7.4	2	.3	5/12	
1½	28	14	740	100	45	17		7.7	10	1.4	5/19	5 months
1½	28	14	740	96	43	17	8	7.9	8	1.1	5/26	

I have used simple milk mixtures of whole milk, water and sugar, because such feedings are digested so much more easily than top milks. The babies thrive as well on them and the source of error is less than when we use more complicated feedings. Milk of which the fat-content was known was used. The sugar, which from its high caloric value might easily be a source of error, was carefully measured in accurate containers which I furnished the parents. I have used either cane-sugar or malt-sugar (dextrimaltose). It may be possible that the caloric requirements of infants fed with other foods than simple whole milk mixtures differ from those of my patients. First I shall show a tabulated feeding record of four cases, and then give the results of the rest of my cases as a whole.

Case 1.—Normal infant artificially fed from birth. It will be seen that on the third day when it was determined that the breast-milk could not be used, I gave a mixture containing no sugar but 2 ounces of milk and 8 ounces of water, making 10 ounces of food in twenty-four hours. This contained only 40 calories in twenty-four hours, or 12 calories per kilogram, or 6 calories per pound, the child weighing 7 pounds, or 3.2 kg. The food was increased gradually, there being no gain in weight until after two weeks, when with 1½ ounces of sugar, 8 ounces of milk and 12 ounces of water, the total calories had reached

340, or 103 per kilogram and 48 per pound. During these six days from June 5 to June 11, the child had gained 6 ounces, or 1 ounce per day. June 11, the weight being 7 pounds and 6 ounces, or 3.4 kg., the food was increased to 1½ ounces of sugar, 10 ounces of milk and 11 ounces of water, making the mixture which was nearly half-and half milk and water. Formerly this would have been considered an irrational food for a child 3 weeks of age. This gave us 380 calories in twenty-four hours, or 112 calories per kilogram, with a gain in weight of only 2 ounces in eight days, which was not so good as during the previous week when the child was getting only 103 calories, and therefore needs an explanation. I find that babies who have apparently been more or less starved will at first gain on fewer calories than they really need; but if this food deficient in calories is continued, the gain in weight will cease. Therefore the next week I increased the calories to 135 per kilogram, or 60 per pound, with a gain of 1½ ounces per day.

It will then be seen that the food was unchanged for one month, and therefore as the weight increased the calories per kilogram and per pound diminished until at the end of this time they got down to 107 calories per kilogram, or 48 per pound by July 9. The child was fed from July 9 until the 16th on 107 calories without any gain in weight. The food was again increased to 1½ ounces of sugar, 17 ounces of milk and 11 ounces of water, giving 121 calories per kilogram, or 54 per pound, with a gain of 4 ounces in five days, or 0.8 ounce a day, and the following week with the increase of 1 ounce of milk, making 123 calories per kilogram or 55 per pound, with the gain of 1 ounce per day. Again the food remained unchanged for about one month (with the exception of two days when the sugar was left out through an error) until by the increase of weight the calories per kilogram had sunk to 108, or 49 per pound, when we got a gain of only 3 ounces a week, or 0.4 ounce a day. This was a repetition of the diminished gain in the week previous to July 16 on 107 calories. The following week the increase in calories to 118 per kilogram gave a gain of 1.1 ounces per day, and this gain or even a greater one kept up continuously until the two weeks preceding October 1 and October 8, when on 110 calories per day there was a gain of only 0.3 and 0.4 ounce a day, respectively. From then on the child gained on a greatly diminished number of calories down to 81 per kilogram, or 35 per pound. The reason for this is that the child was then over 5 months of age, and a very fat baby, weighing 15 pounds and 2 ounces, and at 7 months, 20 pounds and 12 ounces. To summarize this case, my object was to find the minimum number of calories on which the baby would make a fair gain in weight, repeatedly allowing the calories per kilogram or pound to sink down to a point at which the gain ceased. This procedure I followed in most of my other cases. I found repeatedly that during the earlier months, a child will cease to gain on less than 110 calories per kilogram, or 50 per pound.

Case 2.—Normal child fed from 1 month of age, because of the mother's death. The weight was 9 pounds and 14 ounces, and the child was put on one-half ounce of sugar, 8 ounces of milk and 20 ounces of water, which gave 48 calories per kilogram and 22 calories per pound with no gain in weight. The following week the milk was increased to 97 calories per kilogram, 44 per pound, with no gain in weight. The following week, with 110 calories per kilogram, and 47 per pound, there was a gain of 8 ounces, or 1 ounce per day. This child then was kept on food representing more than 110 calories for nearly three months, until the week preceding April 21, when it had gained 5½ pounds, or an average of over 1 ounce a day throughout this period. It was then a fat, healthy baby of over 4 mounths of age, weighing 15 pounds and 4 ounces and, at this weight and age, gained on fewer calories. Each week the food remained unchanged, the weight, as it increased, decreasing the number of calories per kilogram or pound, until in the week preceding May 12 the child had gained only 0.3 ounce a day on 94 calories per kilogram. On increasing the calories up to 100 per kilogram, there was a gain of 10 ounces a week, or 1.4 ounces per day.

TABLE 3.—FEEDING RECORD IN CASE 3, SHOWING DIARRHEA WITH OVERFEEDING

Food			Calories			Weight						
									Gain in oz.			
Sugar oz.	Milk oz.	Water oz.	Total.	Per Kilo.	Per lb.	Lbs.	Oz.	Kilos.	Total.	Per Day.	Date.	Age.
1	12	12	360	86	31	9	3	4.2	0	0	5 /6	2 months
1	17	17	460	109	50	9	6	4.3	2	.3	5/13	
1	20	16	520	121	55	10		4.5	10	1.4	5/20	
1½	20	16	580	128	58	10	8	4.7	8	1.1	5/27	3 months
1½	24	16	660	140	63	11		5	8	1.1	6/ 3	
1½	26	14	700	140	63	11		5	0	0	6/10	Diarrhea
0	26	14	520	104	47	11		5	0	0	6/14	
½	24	16	540	108	49	11	4	5.1	4	.6	6/21	
1	24	16	600	118	54	11	14	5.4	10	1.4	6/28	4 months
1½	24	16	660	122	56	12	8	5.7	10	1.4	7/ 5	
1½	24	16	660	116	53	13		5.9	8	1	7/13	
1½	24	16	660	112	51	13	5	6	5	.7	7/20	
1½	28	14	740	123	56	13	12	6.2	7	1	7/27	5 months
1½	32	10	820	132	61	13	10	6.2	0	0	8/ 1	Diarrhea
0	21	21	420	68	31	13	8	6.1	0	0	8/ 6	
½	24	18	540	89	40	13	12	6.2	4	1	8/10	
1	26	16	640	103	47	13	12	6.2	0	0	8/14	
1½	26	16	700	113	51	14	5	6.5	9	1.3	8/21	

TABLE 4.—FEEDING RECORD IN CASE 4, THAT OF AN ATROPHIC INFANT

Food			Calories			Weight						
									Gain in oz.			
Sugar oz.	Milk oz.	Water oz.	Total.	Per Kilo.	Per lb.	Lbs.	Oz.	Kilos.	Total.	Per Day.	Date.	Age.
						6	14	3.1	..	..	3/28	2½ months
¼	5	20	130	42	19	6	14	3.1	..	..	4/ 1	
½	11	24	280	90	40	6	14	3.1	..	..	4/13	
1¼	12	24	390	126	56	7	3	3.3	5	.6	4/21	3 months
1½	13	24	440	133	61	7	9	3.4	7	.9	4/28	
1¼	12	20	390	114	52	7	9	3.4	0	0	5/ 4	
1½	16	20	500	147	66	8	1	3.6	8	1.1	5/13	
2	18	20	600	166	75	8	8	3.9	7	1.2	5/19	4 months
			Pertussis			8	8	3.9	0	0	6/16	
2	18	14	600	154	70	8	14	4	6	.8	6/23	5 months
2	22	14	680	170	75	10		4.5	18	1.3	7/ 7	
2	26	14	760	169	76	10	10	4.8	10	1.4	7/14	
2	28	14	800	166	75	11	6	5.2	12	1.2	7/24	6 months
2	28	14	800	154	70	12		5.4	19	1	8/ 3	
2	28	14	800	148	..	13		5.9	16	1.2	8/17	7 months
2	28	14	800	135	62	13	12	6.2	12	.9	8/31	
2	28	14	800	129	60	14	6	6.5	10	1.4	9/ 8	
2	28	14	800	123	56	14	12	6.7	6	.9	9/15	

This child will go on gaining on less calories as it gets older and fatter, until it will do well on about 80 calories per kilogram, or 35 per pound. As far as the feeding itself is concerned, it will be seen that at 3 months of age the child was getting two-thirds milk and one-third water with 1½ ounces of sugar added to the twenty-four-hour amount.

CASE 3.—Diarrhea with overfeeding. This child, 2 months of age, weighing 9 pounds and 3 ounces, did well, making good gains on 109 to 128 calories per kilogram, or 50 to 58 per pound. The week preceding June 3, the calories were raised to 140 per kilogram, or 63 per pound, and the child made a gain of 1.1 ounces per day, and stood this number of calories for one week very well. The following week, however, on the same number of calories, a diarrhea occurred. We all know that a child will stand any abuse in feeding for a number of weeks sometimes, without succumbing to the effects of that abuse, so that it was not until the second week of this high-calorie feeding that a diarrhea occurred. By cutting out the sugar and not changing the food in any other way except to boil the milk, the diarrhea was overcome in four days. On June 14, one-half ounce of sugar was added to the diet, giving 108 calories per kilogram, or 49 per pound, and we got a gain of 4 ounces, or 0.6 ounce per day, following our period of starvation. There was then a continous gain from June 21 to July 27, on food of 118 to 123 calories per kilogram, or 54 to 56 per pound. At this time a food containing 132 calories per kilogram or 36 per pound was given, resulting in a diarrhea which was controlled in five days by cutting out the sugar and giving half milk and half water, boiled. During this period there was a loss of 2 ounces in weight. The sugar was then gradually increased and the child again began to gain on 113 calories per kilogram, or 51 per pound. I do not mean to say that overfeeding in calories alone is always the cause of diarrhea, but I think that this case proves that it may be the sole cause in some instances. At other times this child digested well the food of the same strength and quantity, and the sugar was never increased by 1½ ounces in twenty-four hours, so that that may be eliminated as the cause of the diarrhea in this particular instance.

CASE 4.—Atrophic infant. This child, an emaciated, atrophic, marasmic, decomposition baby, weighing 6 pounds and 14 ounces at 2½ months of age, was white, vomited a great deal, and in bad condition generally. It did not gain until the vomiting was overcome by a dilute mixture containing little sugar and of low caloric value. The week preceding April 21, it gained 5 ounces, or 0.6 ounce a day on 126 calories per kilogram, or 56 per pound. It will be seen that the food was still dilute, being one-third milk and two-thirds water, with only 1¼ ounces of sugar. The following week increasing the sugar one-fourth ounce and the milk 1 ounce raised the calories to 133 per kilogram, or 61 per pound, and there was still a greater gain of 0.9 ounce per day. This small increase in the milk and sugar shows how much the calories per kilogram may be increased by a slight change in the food in small emaciated babies, and therefore how important it is to reckon calories in all our babies, especially the very sick ones, if we do not want to overfeed or underfeed them. The following week the food was reduced to 114 calories per kilogram, or 52 per pound, and the baby did not gain at all. The next week on 147 calories per kilogram, or 66 per pound, there was a gain of 1.1 ounces per day. The next week at 166 calories per kilogram it gained 1.2 ounces per day. At this time this unfortunate baby got the whooping-cough and vomited so much of the food that the reckon of calories was of no avail, but the food was kept the same throughout the period. During this period, however, there was no loss in weight at all. The week preceding July 7, the child had 2 ounces of sugar, 22 ounces of milk and 14 ounces of water, making 170 calories per kilogram, or 75 per pound, giving a gain of 1.3 ounces per day. It was kept on this high caloric food without any digestive disturbances, the number of calories per kilogram was gradually decreased, and there was a gain of 5 pounds and 8 ounces in two months, or considerably over 1 ounce per day. The baby was then fat and continued to gain on 110 to 120 calories per kilogram for the rest of the time that I had charge of it.

It would be useless to go on citing any more of my twenty-five cases that I have followed in this way, because they all show practically the same results. The average normal baby will do well on 110 to 120 calories per kilogram. I do not consider these figures absolute, but they are at least a good guide if we will also consider the general well-being of the child, the appetite, vomiting, stools and sleep; but I would give more weight to the calories than to the symptoms, as they are far more to be relied on. In many cases that I have had it is evident that some were much like Case 3 that I have shown you, in which, if we attempt to increase the calories above the infants' needs, we get these digestive disturbances. As we all know, some babies have a tendency to diarrhea, some have a tendency to constipation and some to gastric indigestion. Such babies must be kept on the lowest caloric value that will give them a gain in weight.

It has long been known that atrophic babies require food of much greater caloric value. It has been my experience in my other cases, as in the one that I have tabulated, that the much emaciated babies will require 160 to 170 calories, whereas those who are only moderately emaciated will require 130 to 150 calories. If such babies show a tendency to diarrhea, I would not dare increase the calories so high as I have in the one that I have shown, but would be contented to have a smaller gain on 150 calories.

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ABSTRACT OF DISCUSSION

DR. G. R. PISEK, New York: I take issue with Dr. Dennett, placing myself on the side of those men whom Dr. Dennett criticized, those who do not believe in the caloric method of infant-feeding. A study of his charts shows that gain in weight was his guide to influence his variations in the caloric feeding. We can all appreciate what there is of value in this method. It tells us that a baby will not do well below a certain minimum, and that it is in danger over a certain maximum number of calories per kilo.

DR. FRITZ TALBOT, Boston: I have had the opportunity of examining the nitrogen content of cow's milk from different herds of cows and have found that it may vary 20 per cent. Furthermore, the amount of fat in the milk of the different herds varied from 3.5 to 4.5 per cent. There again was an error of 25 per cent. Such figures as these are, therefore, only relative. I use the percentages as well as the caloric means of feeding babies. I feed the individual baby and not by rule of thumb. The well babies that I see in private practice usually need about 120 calories per kilogram of body weight, whereas the babies that I see in hospital clinics need from 80 to 160 calories. I believe the individual baby should be fed according to his peculiarities, using all the information we can command; and not by a single method.

DR. CHARLES DOUGLAS, Detroit: I think that in considering this subject we should remember the age of these children, and notice that most of them were taken from an early age; we should not apply those figures to the marantic child or the child who has been damaged by feeding. While Dr. Dennett was talking, I was running over the figures, comparing them with what I have been accustomed to do for many years, that is, so much milk daily per pound of the child's weight. Long before I commenced to use calories, which I use only as a check or measure, I had been in the habit of telling the mother that she could expect no gain in weight until she was able to give the baby each day so much per pound of weight. As soon as we reach that point, we find that the child will begin to gain. The figures are exactly the same as I have been in the habit of using right along. Whether one figures by percentage or by caloric method, the same conclusion is reached. One is really, therefore, a check on the other. We sometimes see a child who can use only a small percentage of fat; we therefore have to run up high on sugar and protein. It is not well for us to give a diet according to any one system. We need all the systems to measure our work and see that the child is given justice.

Dr. John L. Morse, Boston: If I understood Dr. Dennett I think that he said we should think in calories and not in percentages. I cannot agree with that. It seems to me that we should think in both percentages and calories, and if we are going to think of one first, we should think of percentages. If we think in calories first, we put the cart before the horse. What we really ought to do is to fit the food to the infant's digestion first, and then see if its caloric value is sufficient to cover the baby's needs. It seems to me that all these things should be taken into consideration in feeding fat to the individual baby. All my hospital charts have lines for calories per kilo just as for weight and percentages. I have found that the average baby in the first year needs between 100 and 120 calories in order to gain satisfactorily. Babies seldom hold their own on less than 70 calories per kilo, although I have seen babies that gain steadily on 50 calories per kilo. I do not know how they do it. I have seen others that were underfed on less than 160 calories.

Dr. H. D. Chapin, New York: The main objection to the use of the caloric method is that it overlooks the principal thing we are after in managing the baby, its growth. The caloric method is of value only as a check. If we are going to make it the essential thing, we can make up a food of suet and water and get our calories right, but the actual food will be all wrong. In the young the main factor is not heat and energy-producing food, but growth-producing food. A system of calories is much more valuable in adults in estimating food values than in babies and young children.

Dr R. H. Dennett, New York: I do not mean to put forth this theory of feeding as the only one to go by. I was misunderstood in a good many ways. I said that we should think in calories as well as in percentages, if we are using the percentage method. Of course, everyone recognizes that there is more than one successful method of infant-feeding, and we must not have our minds entirely on calories or entirely on any one thing. That is evident. In regard to Dr. Talbot's criticism of the assumption of the fat content, the error in the number of calories per kilo would be very small. I started to estimate the error; say that we did differ in our fats 0.5 of 1 per cent., the error in calories for a baby of this age and weight would be very small indeed, because of the matter of division; just as in making up percentage feedings the error in percentages is very small in the end. As to Dr. Talbot's remarks about the badly damaged child, Case 4 was one of the worst cases I have ever had the privilege of treating.

MOVING PICTURE ILLUSTRATIONS IN MEDICINE

WITH SPECIAL REFERENCE TO NERVOUS AND MENTAL DISEASES *

T. H. WEISENBURG, M.D.
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PHILADELPHIA

For the past five years I have been interested in the taking of moving pictures of nervous and mental diseases until at the present time I have practically completed my work in both these fields, having about 10,000 feet of film of the various diseases to which this particular specialty lends itself. Inasmuch as I have gained considerable knowledge not only in the taking of these pictures, but also in their demonstration and uses, I thought that it would be of some value if I recorded my experiences.

I shall first discuss the method of taking these pictures; secondly, the various diseases and subjects which can be photographed; thirdly, their availability for teaching purposes, and lastly, their scientific value.

TAKING THE PICTURES

Necessarily the greatest objection to the use of this method of teaching is the expense involved; but this can be greatly lessened if advantage is taken of some points. In my first attempt the subjects consisted of hemiplegics, diplegics and other patients in whom an attempt was made to demonstrate the gait, station, etc. In this I used four or five hundred feet or more for one subject, which was entirely too much, for in the average moving picture machine the rate of illustration is one foot per second and I have found that it is vastly better to show for about a minute a particular gait or patient in whom there is only one thing to demonstrate using about sixty feet, than to exhibit for four or five minutes, because the onlooker becomes tired of seeing the same thing for more than that period. I have now adopted the plan of even cutting down that time by using twenty or thirty feet. For example, I illustrate the catatonic form of dementia praecox by having the patient appear on the screen for less than half a minute. It is vastly better to have many subjects for twenty feet at a time than to show one patient, no matter how good, for a greater length of time. In dementia praecox twenty-six patients are used to illustrate the disease.

Then again, experience teaches just what is illustrative. In one's enthusiasm one may have a subject photographed at length only to find that many of the pictures when thrown on the screen are of no value. In addition, a great deal of patience and ingenuity has to be exercised to make the patient perform unconsciously during the time that the pictures are being taken, as in photographing various forms of tics. Sometimes, however, it is in the insane patient that the greatest care needs to be exercised. I remember that when attempting to take photographs of a number of paranoiacs the camera man came near being assaulted and having his instrument destroyed. One curious experience I had with epileptics. The superintendent of the colony who very kindly placed his material at my disposal selected eighteen of the many hundred epileptics; every one had fits daily, some of them hourly. We placed these patients in the sun with the camera trained on them ready to take a photograph the instant a spasm was manifested, and yet for three hours not a single patient had a sign of a spasm and it was necessary to come the following day before we were able to obtain the photographs. Even under these circumstances it was difficult to obtain the beginning of epileptic fits.

DISEASES WHICH CAN BE PHOTOGRAPHED

So far all my pictures have been either of the nervous or of the insane. Nervous diseases lend themselves particularly to motion photography because of the gaits, tremors, convulsions and different types of tics and spasms. In the organic diseases it is easy to illustrate the method of obtaining reflexes, spastic and ataxic gaits, ataxias, tremors, etc. I have excellent photographs of all these and also of the different diseases. In some, like syringomyelia, in which there is no particular gait or station to be illustrated, it is possible to show the patient's atrophy, contractures and trophic symptoms, at the same time outlining disturbances of sensation, which can be marked on the patient with different colored chalk for the different forms of sensation; it is even possible, for example in white patients, using charcoal over areas of loss of pain and temperature sensa-

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

tion, to indicate by words within this area in white what particular sensation is lost.

Of the functional diseases, the various tics, tremors and convulsions can be beautifully illustrated. Insane diseases are not so applicable for motion photography excepting in types like catatonia, mania and paresis, and in the facies of the various kinds of insanity.

So far as I know no attempt has been made to develop motion photography in the other specialties, but there is no reason why this should not be done. In diseases of the eye the different ocular palsies and pupillary changes can readily be shown, while in diseases of the ear it would be easy to illustrate nystagmus from aural involvement. These subjects, of course, have a direct relation to neurology.

In children's diseases it would be interesting to photograph whooping-cough and meningitis; even the different exanthems could be shown at various stages by color photographs. The discussion by the lecturer in demonstrating the pictures materially helps in their appreciation. It would be interesting to demonstrate the method of doing lumbar puncture. Again, what would be better in the present crusade of public health than to illustrate the right and wrong methods of bathing, dressing and clothing children, and other hygienic factors?

As a matter of fact, moving picture illustrations are already employed by public health bureaus in different states, notably in Louisiana, where the head of that department employed motion picture photography to show the menace of such diseases as small-pox, typhoid fever, etc.

In no branch of medicine, with the possible exception of neurology, can motion photographs be of so much value as in bacteriology. For some years photographs have been in existence showing the movement, growth and characteristics of different types of bacilli.

In general medicine they could be employed to illustrate pyloric spasm, movements of the chest in various heart and lung diseases and the abdominal movements in different diseases of the viscera. In surgery and obstetrics it would be easy to illustrate some types of operation. One of the first uses of moving pictures in medicine was to illustrate an operation by a French surgeon. These pictures were taken about 1902 and were shown in different parts of Europe, eliciting a storm of criticism because the operation was of an obstetric character. Unfortunately a type of these pictures has fallen into the hands of unscrupulous individuals and are being shown as motion picture curiosities. One of my naval friends on his return from a cruise in South America told me that he had seen such films in a public hall.

VALUE OF MOTION PICTURE FOR TEACHING PURPOSES

To my mind no new development in recent years for the teaching of medicine is of so much value as the use of motion pictures. I am aware that some will disagree with me; the only answer I can make is that they have not used such means. In my course in nervous diseases to medical students I now regularly employ these pictures. If, for example, I wish to discuss epilepsy I first lecture on the disease and then show the reel which contains the different types of fits. The reels are arranged according to subjects. As a case in point, take the subject of epilepsy: How many medical students or physicians are there who have seen typical jacksonian convulsions and different forms of epileptic spasms, such as I am able to show by these pictures? I remember that during my course as a medical student I did not see a fit, and it was not until I became a resident physician at the Philadelphia Hospital that opportunity was given me to observe one.

Even in the commoner diseases such as hemiplegia, diplegia and the different types of spastic paralysis, etc., examples of which can always be found in clinics, there is something peculiarly impressive in their being shown by means of motion photography. In large cities like Philadelphia where we have the unparalleled advantage of the wards of the Philadelphia Hospital we are always able to produce many examples of this type and I do not deny that it is better for the student to see the actual patient; yet what teacher is certain that the student pays attention when he lectures and shows these patients? On the other hand, the very novelty of moving pictures and the nature of the exhibition compel the student to pay attention. I have, for example, shown particular types of patients to students and quizzed about them later. Then I have shown other patients by means of motion photography, and have always found that the impression of the latter is much greater and that the student never forgets what has been so indelibly impressed on his visual memory.

Is there anything that a teacher appreciates more than to be able to produce at a moment's notice examples of various types of choreas, athetoid movements, astasia abasia, muscular dystrophies, etc.? I do not mean to say that I prefer to show motion pictures rather than the actual patient, but I do say that it is well to be able to show patients as they are and again to reproduce them by photographs.

USES OF MOTION PICTURES FOR ILLUSTRATIVE PURPOSES

The first attempt to illustrate text-books by motion pictures was that made in my article on "Nervous Diseases" in Anders and Boston's "Medical Diagnosis." In this, hemiplegia, locomotor ataxia, paralysis agitans and spastic gaits are demonstrated. I cannot say that I am entirely satisfied with the results. I have found since the publication of these pictures that it is necessary to have considerable explanatory legends so that the reader may understand the pictures more fully. This, however, is simply a beginning.

It is also possible to use motion photography to illustrate a scientific article. It occurred to Dr. C. K. Mills and myself that it might be interesting to study emotional expression by this means. Our method was first to illustrate normal crying and laughter, using actors for the purpose, who laughed and cried and attempted to do so on one side of the face. This was because we had a patient in whom there was loss of emotional expression on one side. Then we photographed patients who had either involuntary laughing or crying in such diseases as pseudobulbar palsy, multiple sclerosis, paralysis agitans, astasia abasia, hysteria, chorea, etc. The results were surprisingly striking. These pictures were shown before the College of Physicians of Philadelphia.

SCIENTIFIC VALUE

1. To my mind, the greatest value of moving pictures is to record diseases so that future generations of medical men may have a permanent record.

2. In the future we shall be able to exchange films of the different types of the same disease occurring in different countries.

3. Rare cases may be permanently recorded. In the nervous wards of the Philadelphia Hospital a patient presented the clinical symptoms of inability to laugh on one side of the face, and yet was able to use the facial muscles for every other purpose. This patient died and his brain was obtained and carefully studied.

This case was the basis of a paper by Dr. Mills, under whose care the man was. I believe that this is the first occasion in medicine when it was possible to give a history of the case, show the specimen and at the same time illustrate by motion pictures what the patient suffered from during life. I quote this only as an example.

4. These pictures are of the greatest scientific value because they furnish a new means of detection. I have, for example, a photograph of a man with jacksonian convulsions in which the fit starts in the right corner of the mouth and takes in successively the right side of the face, eyes and eyelids and then the muscles of the right hand and then the whole right arm. Ordinarily a convulsion of this type is so rapid that there is little opportunity to make extensive observations. In the showing of these pictures on the screen the size of the subject is greatly enlarged and it is most interesting to watch the succession of muscular twitching and to show the movement of both eyes, eyelids and brow. I have never seen a better demonstration of the fact that the unilateral cortical area controls the movements of both eyeballs, but the interesting part is that the eyeball on the side of the convulsion and also the eyelid and brow move more than the corresponding parts on the other side. Even, for example, in the taking of such a common sign as the knee-jerk, while we have been aware that there is a perceptible lapse of time between the striking of the patellar tendon and the forward movement of the leg on the thigh, yet this point was never permanently impressed on me until I saw a motion picture reproduction, when it was so obvious that I could not help but notice it; and so it is in many other signs and symptoms. As a matter of fact, I have become so impressed with the value of enlarged reproductions of signs and symptoms that I am now in the habit of having all the rare diseases and some of the commoner signs and symptoms photographed.

It is my pleasure to state that were it not for the generosity of Mr. Sigmund Lubin of Philadelphia it would have been impossible for me to do this work.

2030 Chestnut Street.

POSSIBLE TRANSMISSION OF POLIOMYELITIS THROUGH THE DOG

HENRY F. LANGHORST, M.D.
ELMHURST, ILL.

Among the many theories advanced as to the method of transmitting the contagion in acute anterior poliomyelitis, another may be permissible. Those theories which regard dust and flies as the agents of transmission have received the most attention. Recently, Rosenau has proved that the stable-fly (*Stomoxys calcitrans*) transmits the virus in the same manner in which the mosquito inoculates its victim with malaria, and his work has been confirmed by Anderson and Frost.[1] This is an important step toward the solution of the mystery, but it is not a complete solution, for there must be other methods of transmission. The disease exists in the winter months, in the absence of dust and flies. Many cases have appeared in Norway in the winter, and isolated cases spring up in our country from time to time.

Basing my contention on the recent findings relative to the transmission of infantile paralysis, and on the knowledge gained from a few of my cases, I wish to advance the following:

Poliomyelitis is undoubtedly transmitted to man through more than one intermediary. We know one to be the biting fly. We also know that the monkey may harbor the infection for some time after being a victim of the disease, and thus be a carrier. The biting fly attacks animals and transmits the contagion. The dog is subjected to the bite of this fly and may become infected. The dog may contract the disease in one form or another, and be an active carrier of the virus for some time.

Dogs are numerous in the countries that have suffered most with poliomyelitis; dogs are also more numerous in country districts, where the disease is most prevalent. I consider these facts significant, especially in connection with two cases in my practice in which dogs may have been the agents of transmission.

REPORT OF CASES

Case 1.—The patient, aged 35, was a man of good habits and athletic build. He was married and had one child. Previous history was negative, with the exception of what I shall mention later. He was taken with a severe cough and sore throat about one week before paralytic symptoms appeared. He continued his outdoor work of driving a wagon, which was arduous, at that time, on account of the extreme cold and snow. The symptoms developed rapidly; he felt weak in his limbs one afternoon, and that evening, after going to the toilet, he was unable to return without assistance. I saw him a few hours later and found him completely paralyzed. He was gasping for breath and was intensely cyanosed; his legs, arms, abdomen, chest, neck and throat were paralyzed. He spoke with great effort and was unable to swallow; his eye muscles were intact and their reflexes were normal. All of his other reflexes were absent; sensation of heat and cold was normal; only slight pain was present on pressure over nerve trunks; he could locate and differentiate between pin-pricks with the sharp and the blunt end. The sensorium was clear; the patient was in good spirits and had no sense of fear. Loud bubbling râles filled his chest and he was continuously making ineffectual efforts at coughing, to try and bring up the mucus that was choking him. His vesical and rectal sphincters were tonic. Pulse was 130, temperature 100, respiration 45.

By compressing his thorax, and by fixing the diaphragm (using pressure over upper abdominal region) we were able to help him to expectorate considerable mucus of a frothy nature. At times the respirations were so labored and the cyanosis so urgent that artificial respiration was resorted to, and kept up for hours at a time. Dr. Peter Bassoe saw the case, in consultation, and he favored the diagnosis of acute anterior poliomyelitis, but also considered the possibility of its being Landry's paralysis. On account of the increasing dyspnea, Dr. Richter, who had been using an improved pulmotor (made from a vacuum cleaner), was called in, to use his apparatus. This was used with good results, and was alternated with the Sylvester method. Atropin, strychnin, caffein and camphor were used hypodermatically; normal salt solution was used by rectum, by the drop method. The urine contained no albumin, and the examination of the sputum showed many leukocytes, and, among other pus organisms, Pfeiffer's bacillus. After the third day the patient was able to move his hands and legs slightly, but after five days of severe suffering he became delirious, and on the sixth day died.

From the history I learned that the patient's dog had been sick about two or three weeks before, and was unable to stand on its hind legs. The patient fed the dog and cared for him. The patient remembered that he had a few scratches on his hand, and that on one or two occasions, the dog licked his hand. Flexner has shown that the nasal mucosa is one of the points of egress of the virus. If the dog had been inoculated with the virus at some time and had not immediately contracted the disease, he may have been a carrier and not contracted the disease until his vitality was lowered by living in a kennel in the cold weather. The dog could have inoculated his master with the secretions from his nose and mouth.

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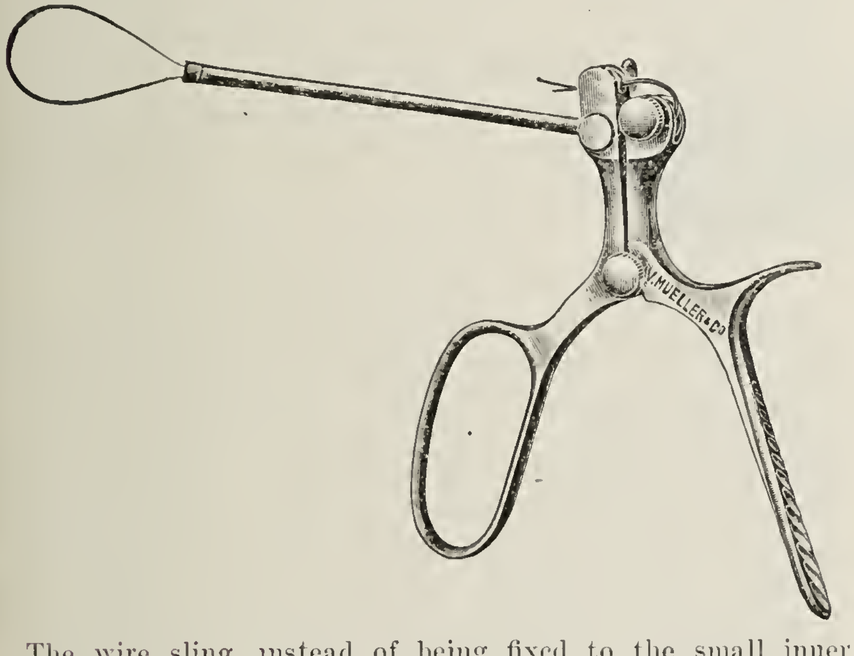
[1] Transmission of Poliomyelitis by the Stable-Fly (*Stomoxys calcitrans*), editorial, The Journal A. M. A., Nov. 2, 1912, p. 1627.

Case 2.—The patient, a boy of 6 years, was brought to my office Aug. 9, 1912, to be treated for a bite inflicted by his pet dog. I saw him about an hour after the injury and applied a 1 per cent. solution of formaldehyd and then used tincture of iodin. The wound healed nicely. The boy then accompanied his parents on a trip to Canada, leaving here August 23. While in Canada, on the 30th, the boy had a little fever and complained of his neck being stiff. The family immediately returned to Elmhurst, arriving here September 1. I saw the boy at this time; he had a slight fever (temperature 101), and did not complain greatly. He had pain in the back of his neck and in his head, and he felt weak. His reflexes were present and he was able to stand and walk. When I saw him the next morning he was paralyzed in all of his extremities; the chest and neck muscles were also involved. The reflexes were absent. Dr. Abt saw the patient with me and called it infantile paralysis. Dr. D'Orsay Hecht also saw him a few weeks later and agreed to the diagnosis. The boy is gradually recovering.

A NEW TONSIL-SNARE

W. Likely Simpson, M.D., Memphis, Tenn.

The snare shown in the accompanying illustration consists of a large and a small tube and a handle set at a right angle to the tubes. The small tube is attached to the posterior shank of the handle and is inserted within the large tube, which is attached to the anterior shank of the handle. A small wheel is attached with the small tube to the posterior shank of the handle. Both tubes are so attached to the shanks that they can move up and down. As the instrument is opened the small inner tube has a tendency to move upward and the large outer tube downward, but both working together make a tube which moves neither up nor down.



The wire sling, instead of being fixed to the small inner tube as in other snares, goes entirely through both tubes, around the small wheel at the posterior end of the small tube and forward to the attachment of the large tube with the anterior shank of the handle, doubling itself, where it is fastened with a screw. This is a most important feature of this snare, since the instrument can thus be made quite small; it will, however, close entirely over a wire loop larger than would be necessary for any tonsil. I would suggest the freeing of the tonsil from adhesions to the pillars or adhesions in the supratonsillar fossa, but I do not consider it necessary to dissect the tonsil from its normal bed in any way; when it is freed from adhesions, the tonsil and its capsule can be pulled through the snare without harm to the pillars. If there are no adhesions, the tonsil can be entirely removed in its capsule by pulling it well through the snare shutting down on the base.

The advantages of this snare are: It is sufficiently powerful to remove any tonsil; it has a handle with a powerful grip set at a right angle to the tubes of the snare, which is to be preferred to a snare with a straight pull backward in the direction of the tubes. One can exert the whole power of the hand if necessary, which is impossible in the ordinary snare. The tubes being movable up and down, the instrument can be opened and closed with ease.

A COMPRESSED-AIR OINTMENT APPLICATOR AND DISTRIBUTOR

Daniel W. Layman, M.D., Indianapolis
Attending Oto-Laryngologist, Indianapolis City Hospital and Indianapolis Orphan Asylum

Ointments as remedial agents to the nasal mucosa have not been extensively used, the nasal douche or spray being the more popular form of application, chiefly because remedial agents can be readily and easily applied in a fluid state.

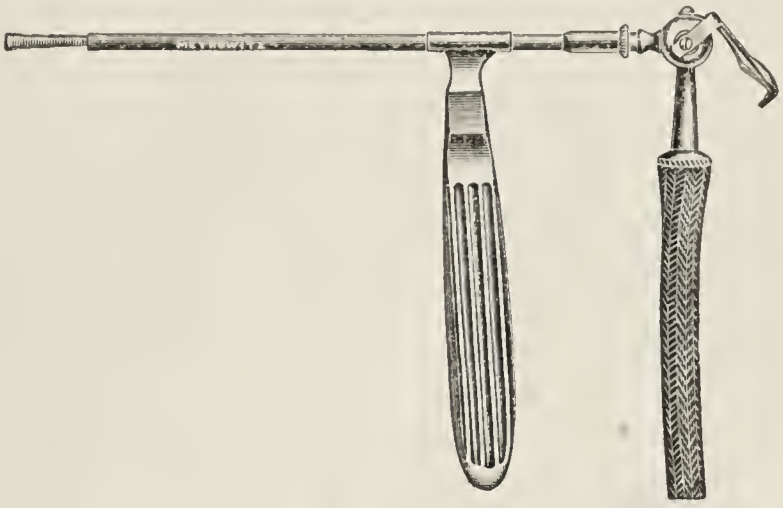


Fig. 1.—Compressed-air ointment applicator and distributor.

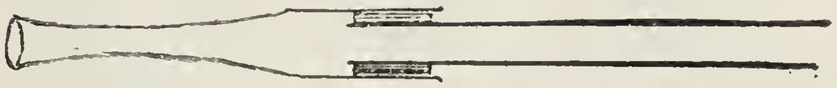


Fig. 2.—Glass tip fitted firmly over end of cannula by rubber tubing.

Ointments have been used principally to protect the skin and mucous membrane at the entrance of the nostrils from being excoriated by irritating nasal discharges. Occasionally they are used to protect the margins of a perforating ulcer of the septum or to stimulate granulation tissue to a more healthy action. It is certain that a greater quantity of active agents can be delivered to the nasal mucous membrane and can be retained for a longer period in ointment form than in the fluid state.

The objection to the use of ointments in the nose is the crude and inefficient methods of application. When pressed from a conical tube, the ointment is not carried beyond the anterior nasal chamber. When applied with a cotton-wound applicator (the method mostly used by rhinologists), the ointment is difficult to apply, as it adheres to the cotton closer than to the mucous membrane. At best, the ointment can reach only a limited area in the upper nasal chamber, and cannot reach the greater part of the ethmoid region and the area included in Ballenger's "vicious circle."

For the application of ointments to the nasal mucosa I have devised an instrument by means of which the ointment is applied and distributed by compressed air. This instrument (Fig. 1) consists of a metal cannula with a handle, or holder, and a glass tube. The opening of the cannula at the handle end is made to receive the tip of a compressed-air cut-off. In the latest model (Fig. 2), a glass tube is made to fit snugly over the other end of the cannula by means of a piece of rubber tubing. The tube is about 2 inches in length, and is made of glass for cleanliness and in order to gauge accurately the amount of ointment to be used. The tip is flaring, something like the end of a blunderbuss. With this instrument the application of ointments to the nasal mucosa is a simple procedure. The tips of many of the small collapsible ointment tubes on the market fit into the open end of the glass tube. When the ointment tube is thus inserted, as much of the ointment as is desired is deposited in the glass tube by pressure with the fingers. A blast of air of 15 or 20 pounds' pressure is passed through the cannula, from which it shoots the ointment to the parts directed, applying and distributing it over a considerable area of mucous surface and into small recesses or openings where the cotton-wound applicator cannot reach.

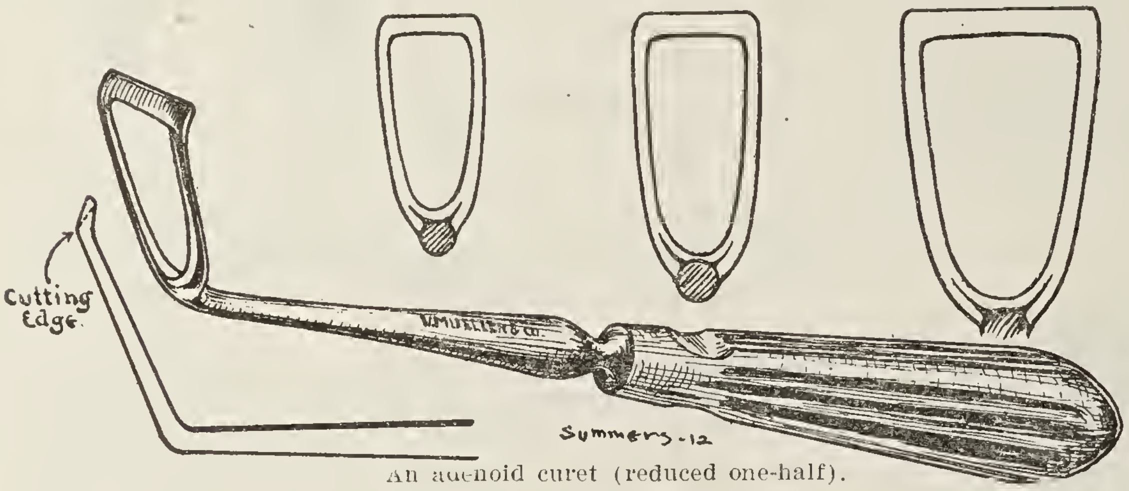
Nasal medication in ointment form is becoming more popular with rhinologists. Text-books on diseases of the nose and throat recommend ointments as valuable remedial measures. If any instruction is given as to application, it runs as follows: "Insert the elongated tube into the nostril and press slightly, or apply on pledget of absorbent cotton in the usual way."

The instrument I have described has been worked out to improve on this old method.

AN ADENOID CURET

Greenfield Sluder, M.D., St. Louis

The accompanying pictures show the form of a curet the cutting edge of which is further removed from the shaft than in any curet at present made, so far as I know. I designed it for use in throats (1) in which the distance between the hard palate and the rostrum of the sphenoid is much greater than the average and (2) in which there is a considerable excavation of the space between the basilar process of the occiput and the atlas. When this space exists it may harbor a considerable amount of lymphoid tissue which cannot be removed by any of the curets of the usual form. The upright portion of this one is tilted backward to an angle of 120 degrees, which permits it to reach upward and backward into this space. In using it for this purpose I begin by holding the shaft against the upper incisors and hard palate.



An adenoid curet (reduced one-half).

I have found that this instrument frequently serves well in removing tissue from the fossa of Rosenmüller. I have three sizes.

3542 Washington Avenue.

The Triumph of Hygiene.—For centuries man has tried to turn back, or at least to control disease by cure, yet knowing since the days of the creation of the mythologic Hygeia that prevention was the rational course. At no period in history has this truth been more forcibly shown than in the last quarter century by the triumph of hygiene over yellow fever. In connection with that disease therapeutics bore no burden. Not a single medicine in all materia medica had the least effect. Prevention, and it alone, has abolished yellow fever. And this broad application of hygiene to the masses brings wholesale health. And it should be noted that, as with typhoid fever, the prevention of one case prevents three cases of other diseases. Business has profited greatly by this triumph of hygiene over yellow fever, and government and morals and all other elements of civilization also.—J. N. Hurty in *Am. Jour. Public Health.*

Therapeutics

DISTURBANCES OF THE HEART

(Continued from page 2257)

TREATMENT OF BROKEN COMPENSATION

The consideration of this subject will include the following topics:

A. Hygiene.
B. Diet.
C. Elimination.
D. Physical measures.
E. Medication.
    1. Cardiac Tonics: Digitalis, strophanthus, caffein, strychnin.
    2. Cardiac Stimulants: Camphor, alcohol, ammonia.
    3. Vasodilators: Nitrites, iodids, thyroid extract.
    4. Cardiac Nutritives: Iron, calcium.
    5. Cardiac Emergency Drugs: Ergot, suprarenal active principle, pituitary active principle, atropin, morphin, and also some of the drugs already mentioned.

A. HYGIENE

Of all treatment for broken compensation or dilated heart nothing equals rest in bed. Sometimes it is the only treatment that is needed. The rigidness of this rest, the length of time that it should endure, and the period at which relaxation of such rest should be allowed depend entirely on the individual patient; no rule can be established. Most of the symptoms must disappear before exercise is allowed. Perhaps a not infrequent exception to the rule is when cardiac weakness, generally a myocarditis, develops in a patient after 50. It is not always wise to keep such a patient in bed; he may be rested and his exercise greatly restricted, but sometimes it is difficult to get him out of bed if he is kept there any length of time.

Fresh air, sunlight and anything else that makes the bedroom attractive and cheerful are essential and will aid in the recovery. The kind of nurse that is needed, trained, untrained, or a member of the family, and the amount of company or entertainment that the patient shall have must be entirely decided for the individual patient. The patient must be distinctly individualized and the proper measures taken to give mental and physical rest, to prevent excitement, worry, melancholia and depression, and to improve the general nutrition of the body as well as the condition of the heart.

Each occurrence of broken compensation in valvular disease causes another attack of cardiac weakness to occur with less excuse than before, and several serious attacks of broken compensation mean before long the loss of the heart muscle's ability to recover, so that permanent dilatation occurs.

B. DIET

The food given should be just sufficient for the needs of the body; the patient should not be overfed or underfed. Any large bulk of food or liquid should not be given. Pressure on the heart causes discomfort and is therefore inadvisable. Food that causes flatulence should be avoided. Theoretically the patient should receive a little meat, an egg or two, cereal or bread, a small amount of simple vegetables, a little fruit, often milk, a sufficient amount of non-effervescent water, perhaps a cup of chocolate or cocoa, a simple dessert, sometimes ice-cream; in other words, a varied, limited diet containing all the elements that are necessary to good nutrition. The diet should be varied from day to day to encourage the appetite.

It has for several years been recognized that a salt-free diet in dropsies due to disease of the kidneys is a valuable aid in causing absorption of such exudates and of preventing greater exudations. For this reason a salt-free diet is often ordered in dropsies occurring in valvular disease. Its value, however, is not so great as in kidney lesions, and if it causes hardship to the patient it should not be continued rigorously. On the other hand, large amounts of salt should of course be interdicted.

A most valuable aid in dropsies due to heart deficiencies is the so-called dry diet, which means that as little liquid as possible should be taken in order that the patient's blood may resorb the exudate in the tissues and not have the blood-vessels filled or overfilled with liquid from the gastro-intestinal tract. When dropsy is present, or even when serious pendent edemas are present, the patient should drink as little liquid as possible with his meals, and between meals should sip water rather than drink a large quantity of it. This is one of the reasons that a large milk diet, even with kidney disturbance due to cardiac lesions, is generally inadvisable. With cardiac or general circulatory weakness, a large amount of liquid to flush out the kidneys and the whole system, so long ordered for all kidney defects or mistakes in metabolism, is a serious mistake.

Whether it is better to give three or four small meals a day or to give a small amount of nourishment every three hours during the daytime must again depend on the individual and his ability to digest without fermentation and putrefaction or discomfort. As previously urged, not too much fluid, even milk, though it digest perfectly, should be given, as the greater the amount of fluid the greater the amount of work thrown on the heart.

C. ELIMINATION

A patient who has developed cardiac incompetency has always imperfect elimination. The skin, bowels and kidneys do not act sufficiently or well. The circulation in the skin is sluggish. The bowels are generally constipated, or there is diarrhea of the fermentative type. The amount of urine excreted is generally insufficient and likely to be concentrated and show various signs of imperfect kidney elimination. Therefore hot sponge baths, with perhaps warm alcohol rubs, are daily necessary. Gentle massage, generally in the direction to aid the circulation, will benefit the skin. If the skin is dry or in places scaly, oil rubs are of great benefit.

The bowels must be moved daily and sufficiently, but there should be no watery purging allowed or caused. If it seems advisable in the beginning of the treatment to give a calomel purge, it should be done, but such purging should ordinarily not be repeated, although occasionally a grain or two of calomel, combined with the vegetable laxatives needed, may act perfectly and without causing depression. Saline purgatives, or even laxatives, are generally not good treatment when there is cardiac weakness. The bowels should be moved by vegetable laxatives, as aloin, cascara sagrada, or some simple combination of either or both of these drugs.

Diuretics are often not satisfactory in cardiac insufficiency. The cardiac tonics that are given the patient, and the improvement of the heart from the rest in bed generally start the kidneys to secreting properly. A diuretic administered when the kidneys are suffering passive congestion from cardiac insufficiency does not generally act, and is therefore useless. If digitalis is administered, it will act as a diuretic; if caffein is deemed advisable, that will act as a diuretic. Squills may be administered, if it seems best. If for any reason the kidneys secrete less urine and become insufficient, the diet should quickly be reduced to a small amount of milk, cereal and water, and hot baths and local heat to the back should be inaugurated.

D. PHYSICAL MEASURES

Hydrotherapy is often of great value in restoring compensation by improving the surface circulation. Sponging with hot, tepid or cold water, as indicated, will increase the peripheral circulation and the normal secretions of the skin.

When compensation is perfect, in valvular lesions, more or less frequent warm baths are advisable, and often relieve the heart by equalizing the circulation. Cold sponging in the morning may be advisable, but may do harm when there is high tension; warm, not too hot, baths are of value. Anything is of value that improves the peripheral circulation and prevents the extremities from being cold.

The value of the Nauheim or other carbonated baths is perhaps often a question. They have seemed in many instances to aid in improving compensation in such patients as have been able to go abroad for the treatment. On the other hand, so many other regimens are ordered and inaugurated for these patients at these "cures" that it is hard to decide how much benefit the baths have really done. At home the artificial carbonated or carbonic acid baths do not seem to be of great value. Baths and bathing can do harm, and the decision as to which hydrotherapeutic measure shall be used and the extent to which they shall be used can be made only after careful observation of the patient by the physician.

Gentle massage while the patient is in bed is of undoubted value; more vigorous massage is later often of value, provided there is no arteriosclerosis. As the patient grows stronger and the circulation improves, the muscles are kept in good condition during the enforced rest by massage. When properly applied, it promotes not only the venous return circulation, but also the lymphatic circulation; it often removes muscle aches and muscle tire and restlessness.

While the patient is still in bed, various resistant exercises are of value, and should be begun. These tend to prepare the patient for his later greater activities; in other words, the surprise to the heart when the patient begins to sit up and walk is not so great if he has previously taken these exercises. Later, when the patient is ambulatory he should by gradual gradation walk a little more about the house and take a few steps of the stairs at a time, until gradually he is able to mount the whole flight. Later he should take outdoor exercise, and when his heart has become compensated for ordinary work, he should be given gradually graded hill-climbing with the idea of increasing his reserve cardiac power. If it is found that these increased exertions cause him to have pain or a more rapid heart than is excusable, even after persisting for a few days, the attempt to increase this reserve power of the heart should be abandoned. There is probably, at least at that particular time, considerable myocarditis, although the heart may eventually recuperate still more. Pushing it to overexertion, however, will not accomplish improvement.

Graded exercise was first used scientifically by Oertel and Schott, and has been for years designated by their names. Modifications of their rigid rules are generally advisable.

E. MEDICATION

1. *Cardiac Tonics.*—Digitalis: There is no drug that can take the place of digitalis in loss of compensation in chronic valvular disease. It acts specifically for good, and it has its greatest success in the valvular lesions that cause enlargement of the left ventricle, on which it acts the most intensely. It also acts for good on the right ventricle. It has but little action on the auricles. This is simply a question of muscle; the part that has the greatest amount of muscle will receive the greatest benefit from digitalis, and the parts that have the least, the least benefit. The heart muscle is somewhat similar to other muscles; when we attempt athletic improvement in any muscle of the body we "train" by stimulating it moderately at first, and are careful not to overwork it; the object, then, is to train the heart muscle. For this reason large doses of digitalis should ordinarily not be given to overstimulate suddenly an overworked and weak heart. While in some instances it has been declared that digitalis should be rapidly pushed to the full extent and then dropped for a time, careful experience shows that this method is often not tolerated, sometimes does positive harm, and has at times seemed to hasten death.

Another valuable activity of digitalis is in slowing the heart by action on the pneumogastric nerves. A dilated heart has lost more or less of its regulating mechanism; this is the cause of its irregularity and its increased rapidity. The action of digitalis in slowing the heart, giving it a longer rest, and preventing it from acting irregularly is of great value. This prolonged rest or diastole of the heart allows the circulation in the coronary arteries to become normal, and the nutrition and muscle tone of the heart improves. Digitalis also increases the blood-pressure, not only by improving the activity of the heart, but also by causing some contraction of the arterioles. This feature of digitalis action in arteriosclerosis renders its use sometimes a question of careful decision. The dose of digitalis under such a condition should not be large. It may be indicated, however, and may do a great deal of good, and it does not always increase the blood-pressure.

All preparations of digitalis deteriorate, and it is difficult to obtain from most druggists active preparations of digitalis, unless they have been freshly prepared. If the patient is sufficiently ill to require the best action of digitalis, an active preparation should be obtained. It was long supposed that the infusion presented activities that could not be furnished by the tincture of digitalis. This seems not to be true. The greater value of the infusion is generally because it is freshly made and active; the tincture that had been used previously in a given case was old and useless; also most physicians give a larger dose of the infusion than they ever do of the tincture. Owing to the uncertainty of the value of the digitalis leaves found in the various drug shops, however, and to variations in the preparation of the infusion, it is generally better to use a tincture of known character. The beginning dose of such a tincture should generally not be more than 5 drops, and it should not be repeated more frequently than once in eight hours. It is generally advisable, in two or three days, to increase this dose to 10 drops once in twelve hours, later perhaps to 15 drops twice a day, and still later to 20 drops once a day. This amount may then be decreased gradually, if the action is satisfactory. In other words, enough should be given to procure results, and then the dose should be brought down to what seems sufficient and best, administered once a day. The frequency advised in the administration of this drug is because it is eliminated slowly. Its greatest action develops a number of hours after it has been taken, and then the action lasts for many hours; the administration of digitalis once in twenty-four hours is perfectly satisfactory for many patients, and more satisfactory than any more frequent administration. On the other hand, some patients do better on a smaller dose once in twelve hours. This frequency is always sufficient.

The most reliable preparation that we can obtain is probably digipuratum. This may be obtained in tubes of twelve tablets, and is a very active preparation. The advice has been given for patients with loss of compensation to receive four tablets the first day, three the second, three the third, and two the fourth day. This, however, is generally an overdosage. The most that should generally be given is one of these tablets once in twelve hours, and many times a most splendid action from their use occurs when but one tablet a day is administered.

Another reliable preparation is digitol, a fat-free tincture of digitalis which is physiologically standardized and which bears on each package the date of manufacture. The dose is 0.3 to 1 c.c. (5 to 15 minims).

Digitalinum, one of the active principles of digitalis, is not very satisfactory. It may be given hypodermatically, but often causes irritation, and the proper dose, and its value are likely to be uncertain.

Digitoxin, another active principle of digitalis, has been declared by some investigators to be harmful, and to be likely to cause serious disturbance of a damaged heart. Other investigators have stated that it acts for good. A preparation termed digalen, said to contain "amorphous digitoxin," has been largely used, and many clinicians have thought, with value. The dose suggested by the instructions and by the medicine-dropper furnished with the sealed package is generally too large. While it sometimes undoubtedly causes cardiac pain, so may every preparation of digitalis. Digitoxin, and therefore probably this preparation, do not represent the whole value of digitalis, and in broken compensation digitalis itself, or some preparation embodying the majority of its activities, should be given. Digitoxin, however, is often valuable in conditions of cardiac debility or slight weakening in patients who do not have dilated hearts or edemas. The most satisfactory dose of digalen is from 5 to 10 drops once or twice in twenty-four hours.

Digitalis should not be used when there is fatty degeneration of the heart; it should ordinarily not be used when there is arteriosclerosis, and very rarely, if ever, when it is decided that there is coronary disease. Whether digitalis should be used when there is considered to be much myocardial degeneration is a question for individualization. One can never be sure that the heart muscle is so thoroughly degenerated that no part of it would be benefited by digitalis when compensation is lost; therefore, many times, especially if other drugs have failed, small doses of digitalis should be tried, to see if the heart will respond. Large doses or frequent doses would be contra-indicated.

The signs of overaction of digitalis are nausea, vomiting, a diminished amount of urine, a tight, band-like feeling around the head, perhaps occipital headache and coldness of the hands and feet, or frequently of one extremity only, combined with a feeling of numbness. The pulse is generally reduced to sixty or less a minute. Such symptoms require that digitalis be immediately stopped. They are the primary signs of cumulative action.

While many patients with ordinary dosage of digitalis may take the drug for months and years without ever showing cumulative action, other patients show this effect quickly. They are likely to be those in whom the kidneys are not perfect. The signs of such undesired action may develop slowly, as suggested by the symptoms just enumerated, or they may develop suddenly. The pulse becomes rapid and irregular, the heart action weak, there is severe backache in the region of the kidneys, a greatly diminished amount of urine, or even partial suppression, severe headache, vomiting, cold extremities and shiverings.

The treatment of such an undesired behavior of digitalis is, of course, to stop the drug immediately, give saline laxatives, hot sponging or hot baths, nitroglycerin and perhaps alcohol.

Strophanthus: Strophanthus cannot be compared with digitalis, except when the glucosid, strophanthin, is administered subcutaneously or intravenously. Strophanthus is given either in the form of the tincture, or as strophanthin. It has been shown that in neither of these forms, when the drug is administered by the stomach, is the muscle of the heart or the blood-vessels much acted on. In other words, compensation could not be restored by strophanthus. In emergencies of serious cardiac failure strophanthin intravenously has been shown apparently to save life. It acts quickly, and its power of stimulating the heart and contracting the blood-vessels lasts for many hours. It is rarely, however, that the dose should be repeated, and then not for twenty-four hours; but during that twenty-four hours the patient may be saved until other drugs which act more slowly have been absorbed, or perhaps until the emergency has passed.

There are many, however, who believe that they obtain considerable value from the tincture of strophanthus, and there seems to be no doubt that although strophanthus, given in the form of the tincture and by the mouth, may not increase the muscle power of the heart, it many times acts as a satisfactory cardiac sedative. Under its action the patient becomes less nervous, the heart often acts more regularly, and the low blood-pressure may improve. In other words, we should not be quite ready to discard the internal use of the tincture of strophanthus.

The tincture of strophanthus readily deteriorates, and the preparation ordered should be known to be a good one.

Caffein: This should not be given or allowed, even in the form of tea or coffee, to patients who have valvular lesions with perfect compensation, as it is a nervous and cardiac stimulant and may cause a heart to become irritable. It raises the blood-pressure slightly, acts as a diuretic, and hence is often of great value when used medicinally. It should be ranked as a stimulotonic to the heart. It increases its activity, but gives it a little more strength. It will rarely slow a rapid heart; it will often stimulate a sluggish, slow heart; it may increase the irritability of an irritable heart. As it is a cerebral stimulant, it should not be given late in the afternoon or evening, as it may prevent sleep.

The most frequent form of caffein used is the citrated caffein. The dose is 0.1 gm. (1½ grains) two or three times in the early part of the day, or 0.2 gm. (3 grains) once or twice during the morning. A cup of coffee may be given the patient medicinally, as a substitute for the drug, an ordinary cup of strong coffee containing between 2 and 3 grains. Other preparations of caffein may be selected if desired, or a soluble preparation may be given hypodermatically.

Caffein is indicated if digitalis is contra-indicated or does not act satisfactorily, and the patient is not nervously excited, but perhaps is stupid or apathetic, and also when diuresis is desired.

Strychnin: This is a valuable stimulator and heart tonic when properly used. It promotes muscular activity of the heart much as it promotes all muscular activities. It awakens nervous stimuli and nervous transmissions to normal in all sluggish nerve functions. If for these reasons the heart acts more perfectly, and the nutrition of the heart muscle improves it acts as a cardiac tonic. Many times, by improving the action of the heart, and also by the action of the drug on the vasomotor center, the pressure in the peripheral circulation may be increased. On the other hand, strychnin in the low blood-pressure of serious illness, such as pneumonia, by no means always raises the blood-pressure.

It should not be forgotten that strychnin is a general nervous stimulant, especially of the spinal cord. If it makes a nervous patient more nervous, or a quiet patient restless and irritable, it is acting for harm, and should be stopped, just as caffein under the same conditions should be stopped. Strychnin may cause diminished secretion of the skin. This is not frequent, but it does occur. It may prevent the patient from sleeping. If such be the fact, strychnin is not acting for good in a patient who has cardiac weakness.

Strychnin is a much overused drug. It is now given for almost everything and during almost every disease. It is true that the administration of strychnin is largely due to the evolution of the age in which we are now living. We have ceased to purge and bleed and sweat, and to give large doses of aconite or veratrum viride, we have ceased to starve the patient too long; we have ceased to load him with alcohol to the point of circulatory prostration, and we have recognized that he must be braced from start to finish; strychnin is the drug that has been used for this purpose, and, as above stated, overused. Strychnin given too frequently or in too large doses for a laboring heart can prevent its proper rest; the diastole is shortened and the relaxation of the heart is incomplete, its nutrition suffers, or even irregular and fibrillary contractions of a weak heart may apparently be caused. While a large dose of strychnin, even to one-twentieth grain hypodermatically, may be used once in serious emergency when it is deemed the drug to use, a dose larger than one-thirtieth grain hypodermatically is rarely indicated, the frequency of such a dose should seldom be more than once in six hours, and a smaller dose of strychnin may act more satisfactorily.

Strychnin is indicated when the heart is acting sluggishly and the contractions seem incomplete and when digitalis either is not indicated or is not acting perfectly. Small doses of strychnin may aid such a heart during the administration of digitalis. In many instances in which digitalis is contra-indicated, strychnin is of marked value. This is typically true in fatty hearts, and may be true in arteriosclerosis, in which it often does not increase the blood-pressure at all.

(To be continued)

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SATURDAY, DECEMBER 28, 1912

The large amount of space required for the Index in this issue necessitates the omission of some departments and the abbreviation of those used.

THE INDEX

The fifty-ninth volume of The Journal is indexed in this number. As usual, the Index covers everything that has appeared in The Journal, including the titles and abstracts from current medical literature. As the latter have been chosen for their timeliness and importance, a perusal of the Index will show at a glance medical progress during the last six months; but the practical side of the Index is its greatest value to most physicians. A glance at some of the subjects which are allotted considerable space will show this. There are 100 subtopics under anesthesia and anesthetics. Cancer and its treatment are considered in 174 references, grouped under 150 subtopics. There are 195 subtopics under children and 158 under infants, the latter including the diarrhea of infants, infant-feeding, hemorrhage of new-born infants, pyelitis, scorbutus and tuberculosis in infants, etc. Of the 30 subtopics under diabetes mellitus, 10 refer to articles on the dietetic or therapeutic management. There are nearly 90 subtopics under fracture and its treatment. Under obstetrics and the allied subjects of labor, eclampsia, pregnancy, placenta and cesarean section, there are 275 subtopics. Under syphilis there are over 130 subtopics; under tuberculosis over 320; under typhoid, about 80. As indicated in connection with cancer, the number of articles is much greater than the number of subtopics.

Practically all the foreign journals listed will be lent by The Journal to subscribers and members within the United States on receipt of an addressed envelope and postage to cover the expense of mailing. It is understood that journals will be sent back in seven days. Domestic journals, of course, can be obtained direct from the publishers. Thus the journals indexed are accessible to the general practitioner.

The Index consists of two parts — an author and a subject index. Under "Authors" appear the names of all who have contributed articles to The Journal or to any other medical journal listed in the current literature, as well as the names of those whose papers are abstracted in the medical society reports in The Journal. Under "Subjects" will be found complete references to all reading-matter in The Journal and references to the original articles in all domestic and foreign journals listed, arranged under the subject of the article with double entry when necessary and with numerous cross-references to facilitate the use of the Index. The figures in bold-faced type refer to reading-matter in The Journal.

For the convenience of those who wish a practical working guide in handy form, the Index is published separately under the title "Guide to Current Medical Literature." Physicians who have files of The Journal, either bound or unbound, will find this a convenience.

FALLACIES IN RELATION TO MICROORGANISMS AND FEVERS

We have already called attention to the assertion of Drs. Hort and Penfold of the Lister Institute in London that the febrile temperatures so commonly recorded after subcutaneous injections of various sorts are due to pyrogenic contaminations of the solvents used.[1] It was remarked that this fact — if it be a fact — must be taken into account in all further considerations in the field of experimental investigation or practical therapeutics where this method of injection finds an application. In the current conception of certain types of fever production the essential feature is the introduction or absorption of disintegration products of alien protein or foreign protoplasm such as that of microorganisms. If the studies and practices in this field have regularly been confused by the unsuspected injection of various substances which are contaminations of the common diluents employed, such as water or saline solution, fallacies have crept in and should be generally understood. The sterility of the liquids used affords no guarantee of the absence of the alleged substance, since it is described as a heat-stable pyrogenic substance.

More recently the same investigators[2] have directed attention to still other factors which, they believe, have introduced fallacies into much experimental inquiry on the fever produced by microorganisms. One of these relates to the volume of the diluent used. Thus if a fraction of a culture, non-lethal when given alone, was injected in a volume of water equivalent to from about a hundredth to a twenty-fifth of the body weight, death often ensued in an hour or two. Water alone, used in comparable quantities, did not cause death. Again Hort and Penfold report decided differences in the results of injections of extracts of certain bacteria depending on the use of physiologic saline (0.85 per cent.

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1. Fevers Following Subcutaneous Injections, editorial, The Journal A. M. A., Dec. 14, 1912, p. 2156.
2. Hort, E. C., and Penfold, W. J.: Microorganisms and Their Relation to Fever, Jour. Hyg., 1912, xii, 361.

sodium chlorid) solution in place of water. Finally, they refer to the masking of effects by undue dosage.

There is so much experimental work in progress relating to the pyrogenic effect of extracts of dead cultures of microorganisms, and the factors involved appear so pertinent in relation to the experimental and practical use of vaccines, that it appears timely to call attention again to what is here involved. As Hort and Penfold contend, if it is an advantage in the treatment of an established infection to occasion fever by the injection of impure vaccines, standardization of the pyrogenic content of a vaccine will in the future be no less necessary than that of its bacterial content.

The English writers insist that no injection experiments dealing with so-called protein fever, endotoxin fever, anaphylactic fever or bacterial fever can stand unless based on clear recognition of the numerous sources of fallacy which they have named. We have no experimental information respecting the validity of their assertions or the real existence of the alleged adventitious pyrogenic substances. Perhaps some of our readers are prepared to furnish authentic evidence on the subject under review. The far-reaching points involved are too important, however, to be dismissed without adequate critical review.

COMMERCIAL HASTE VERSUS SCIENTIFIC CONSERVATISM

Business demands promptness; science can afford to wait until its conclusions are tested and proved unquestionable. An example of business haste is furnished by an announcement made April last at the International Congress on Tuberculosis. Countess von Linden and her co-workers, Professor Meissen and Dr. Strauss,[1] read papers at the Congress describing a new remedy for tuberculosis, the result of work carried out under the advice and direction of the late Professor Finkler. The authors styled the new method a "chemical therapy of tuberculosis," suggesting a relation to the *therapia sterilisans magna* of Ehrlich; it employs a combination of iodin with methylene-blue, and a combination of copper with lecithin. It was also announced that the remedy would be put on the market "as soon as possible" by a certain German dye-firm.

Professor Selter, a former assistant of Professor Finkler, has now published an article[2] which throws some light on the hasty manner in which the reports of these so-called researches were prepared. Selter asserts that he was entrusted by Professor Finkler with the carrying out of these experiments, which were afterward taken over by the Countess von Linden. Selter then carried on some work under his own initiative and, contrary to the results of von Linden, found that no marked difference was observed between the treated and the control animals. His clinical trials also showed no decisive benefit from these remedies. Selter says that he protested to Countess von Linden and her colleagues against such premature publicity as they contemplated, feeling that the work had not yet reached a stage that made publication advisable. They refused to wait, however, and in their papers made no reference to Selter or his work. It seems as if ordinary prudence would have led these investigators, when requested not to publish their premature conclusions, to give at least some indication that other experimental trials had not been so favorable as those which they presented. The motive which prevented their doing so cannot be stated with certainty, but the connection with a powerful commercial firm is, without doubt, a strong temptation to optimism in such research. The close connection of this investigation with the firm previously referred to is shown by a recent article of von Linden,[3] in which she states that the analyses of the organs of her experimental animals were performed in the firm's laboratory. Apparently the firm is interested in the production of a new proprietary, and business interests demand that it be put on the market "as soon as possible."

In contrast with this business-like haste, the patient work and conservative conclusions of Selter appear to be characteristic of the true scientist, who regards time as nothing in comparison with the establishment of truth — not to speak of the humanitarian, who will hesitate to rouse without reason the often disappointed hopes of myriads of unfortunate consumptives, and who rather than do this will sacrifice some of his claims to priority in scientific discovery.

Current Comment

PROFESSOR MINOT IN BERLIN

The system of exchange of professors between some of the European and American universities inaugurated several years ago has already been productive of good results; it not only has brought to our shores some of the continental leaders of thought, but has also spread abroad a more favorable conception of the work of American teachers. It is singularly appropriate that the Harvard exchange professor for the current year at Berlin, the well-known embryologist Dr. Charles Sedgwick Minot, has emphasized the desirability of acquainting our German colleagues with the progress which has been made in this country in recent years in the pursuit of certain fields of science with which he is eminently familiar. In his introductory lecture at Berlin, Professor Minot stated that he regarded himself in a sense as a representative of science in America and accepted the duty of reviewing the contributions made by his fellow countrymen in recent years to the domain of anatomy and embryology. He pointed out that in several fields of research American investigators have taken a leading part, for instance, in the study of the origin of the lymphatic system, the interrelation of the nerves and the brain, the problems of cytomorphosis, and the origin of sex. Professor Minot also reviewed the peculiar, complex and varied organization of our American universities — a topic naturally confusing to the foreigner; he sketched the rise of the research institutions, commented on the place of collegiate education in our national life, and appropriately acknowledged the debt which America owes to Germany for encouragement and inspiration in the pursuit of science. With Professor Theobald Smith and Professor Minot representing us in Berlin in successive years as ministers to the court of German science, American medicine can feel a just pride in its status there.

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[1] Von Linden: Die Ergebnisse des Finklerschen Heilverfahrens bei der Impftuberkulose des Meerschweines, Beitr. z. Klin. d. Tuberk., xxiii, No 2. Meissen: Meine Erfahrungen bei Lungentuberkulose mit Jod-Methylenblau und Kupferpräparaten, ibid. Strauss: Meine Erfahrungen mit Jod-Methylenblau und Kupferpräparaten bei äusserer Tuberkulose, speziell bei Lupus, ibid.

[2] Selter: Beitr. z. Klin. d. Tuberk., 1912, xxiv, No. 2.

[3] Von Linden: München, med. Wchnschr., Nov. 19, 1912, p. 2560.

INHALATION OF DUST, AND TUBERCULOSIS OF THE LUNGS

On exposing normal guinea-pigs to the inhalation of various kinds of dust Cesa Bianchi[1] found that more or less inflammation of the bronchial mucous membrane and enlargement of the peribronchial lymph-nodes would result, but that otherwise the conditions in the exposed were quite like those in normal animals. When guinea-pigs exposed to dust were infected with tubercle bacilli, however, they almost without exception perished from tuberculosis, the process running a much more rapid course, and the pulmonary involvement being much more pronounced in the exposed animals than in the control animals. The results did not seem to be modified by different kinds of dust. There developed in some of the animals an extensive cavity formation in various parts of the lungs, especially those in which the tubercle bacilli were introduced through the air passages. It appears then that inhalation of dust in the guinea-pig reduces the resistance of the lung tissue to tubercle bacilli so that it becomes a more favorable soil for their development. It is well known that in normal guinea-pigs it is difficult to produce a tuberculosis which is predominatingly localized in the lungs; in animals exposed to dust, however, this seems to take place readily, especially when the infection is introduced by way of the respiratory passages. These results corroborate the results of clinical experience and statistical study to the effect that the inhalation of dust of various kinds is harmful and favors directly the development of pulmonary tuberculosis.

THE MODE OF INFECTION IN EPIDEMIC POLIOMYELITIS

The theory of the nasal route as one path of the virus of epidemic poliomyelitis to and from the body appears at present to be fairly well justified. It seems probable that the nasal mucosa is one at least of the sources of infection to other organisms as well as a means of the entrance of the virus into the infected organism. The experimental disease can be produced by intranasal swabbing with active virus; and the latter has now repeatedly been demonstrated in the tonsils, the nasal mucous membrane and the nasal washings from fatal and acute cases. The possibility of producing the infection by the nasal application affords an opportunity to determine the precise manner in which microorganisms may enter the body through such mucous membranes. Do they first reach the blood-stream and through this the central nervous system, or does the virus ascend directly along the lymphatics that unite the nasal mucosa with the central meninges? Flexner and Clark have recently furnished an answer to this question at the Rockefeller Institute for Medical Research.[1] It is known that the virus is present throughout the central nervous system in experimental poliomyelitis produced by any method of injection. The investigators therefore attempted to ascertain whether or not after an intranasal introduction the virus can be demonstrated equally early in all regions of the cord. The answer was definite. The infective agent passes from the nasal mucous membrane to the olfactory lobes and adjacent parts of the brain before it reaches the medulla or cord. This distribution, as the experimenters remark, is what we would expect were the ascent by the direct lymphatic path and not by the blood-stream. Were the dissemination by the latter route, one would anticipate early localization in those parts of the cord and medulla that possess an especial affinity for the virus.

Medical News

ALABAMA

New Officers.—Mobile County Medical Society at Mobile, December 7: president, Dr. R. H. von Ezdorf; secretary, Dr. W. W. Scales.——Butler County Medical Society at Greenville, December 6: president, Dr. W. E. Morris, Georgiana; secretary-treasurer, Dr. L. V. Stabler, Greenville.——St. Clare County Medical Society at Odenville, December 5: president, Dr. W. B. Johnson, Asheville; secretary-treasurer, Dr. J. P. Hawkins, Ragland.——Dallas County Medical Society at Selma: president, Dr. E. B. Ward; secretary, Dr. B. B. Rogan, both of Selma.——Houston County Medical Society at Dothan: president, Dr. M. S. Davie; secretary, Dr. W. C. Howell, both of Dothan.——Perry County Medical Society at Marion: president, Dr. R. C. Hanna; secretary, Dr. J. B. Hatchette, both of Marion.——Calhoun County Medical Society at Anniston, December 3: president, Dr. T. J. Brothers; secretary, Dr. I. P. Levi, both of Anniston.——Tuscaloosa County Medical Society at Tuscaloosa, December 4: president, Dr. G. H. Searcy; secretary-treasurer, Dr. Joseph A. Maxwell, both of Tuscaloosa.

ILLINOIS

Sanatorium for Kane County.—The Kane County Board of Supervisors, meeting in Aurora, December 11, appropriated $5,000 to purchase a site for a county tuberculosis sanatorium.

Fever Closes Schools.—Public schools and churches of Chandlerville have been closed, and all public meetings have been suspended by the Board of Health because of an epidemic of scarlet fever.

Dr. Ferguson Not Dead.—The announcement in The Journal, December 14, of the death of Dr. Harry Milton Ferguson of Morris, was incorrect. Dr. Ferguson, an esteemed member of the American Medical Association, secretary of the Grundy County Medical Society and coroner of his county, is still alive and in good health.

New Officers.—Vermilion County Medical Society at Danville, December 9: president, Dr. Frank M. Mason, Rossville; secretary-treasurer, Dr. Solomon Jones, Danville.——Adams County Medical Society at Quincy, December 9: president, Dr. Ray Mercer, Loraine; secretary, Dr. Elizabeth B. Ball,

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[1] Bianchi, Cesa: Ztschr. f. Hyg. u. Infektionskr., 1912, lxxiii, 166.

[1] Flexner, S., and Clark, P. F.: A Note on the Mode of Infection in Epidemic Poliomyelitis, Proc. Soc. Exper. Biol. and Med., 1912, x, 1.

Quincy.——Madison County Medical Society at Alton, December 6: president, Dr. J. Mather Pfeiffenberger, Alton; secretary, Dr. E. W. Fiegenbaum, Edwardsville. The next meeting will be held at Granite City, a joint session with the Madison County Press Club.

INDIANA

State Hospital Needs.—Dr. C. E. Laughlin, superintendent of the Southern Indiana Insane Hospital, Evansville, has informed the legislative committee that he will ask for appropriations of nearly $135,000 for the institution at the coming session of the legislature. Of this amount, $91,000 is required for two cottages where violent and untidy patients may be kept.

Tuberculosis in Indiana.—November statistics of the State Board of Health show that out of 2,864 deaths during that month 233 were due to pulmonary tuberculosis.——Negotiations are being carried on by the Fort Wayne Antituberculosis Association for the purchase of a tract of land of three or four acres on which to establish a tent colony for consumptives. Dr. E. A. Crull is in charge of the enterprise.

MARYLAND

Personal.—Dr. George W. Todd, Salisbury, has been appointed superintendent of the State Institution for the Care of Incurable Tuberculosis.——Dr. J. C. Holdsworth, Eckhart Mines, health officer of Allegany County, who has been ill with small-pox, has recovered.

Sanatorium Site Purchased by State.—The Pine Bluff Sanatorium near Salisbury, on the Wicomico river, has been purchased as a state institution for the care of incurable tuberculosis at a cost of $15,000. The property is twenty-eight acres in extent, covered with a dense growth of pine trees.

Baltimore

Personal.—Capt. J. Harry Ulrich has been commissioned chief surgeon of the Fourth Infantry, N. G. Md., vice Capt. William Guy Townsend who has accepted a position in the U. S. Marine Corps.——Dr. John C. Stansbury has been appointed assistant surgeon, M. C., N. G. Md.——Dr. B. Merrill Hopkinson gave a song recital at Lakewood, N. J., December 14, before the County Club.——Drs. Howard A. Kelly and John M. T. Finney addressed the congregation of Madison Avenue Methodist Episcopal Church, December 15, in advocacy of the uplift of social conditions in the city. Dr. Kelly called the church people sharply to task for their indifference in dealing with the social evil and the saloon question.

MASSACHUSETTS

Richardson's Estate.—The inventory of the estate of the late Dr. Maurice H. Richardson shows that his personal property was valued at $218,831 and his real estate at $23,770, making a total of $242,601.

To Provide Dental Nurses for School Children.—The Allied Dental Societies of Greater Boston have taken action in support of a bill to be introduced in the next legislature providing for the licensing and registration of dental nurses who shall be able to help the dentists in their efforts to prevent the decay of teeth, especially among school children.

MISSOURI

Personal.—Dr. J. A. Adcock, Warrensburg, has been appointed secretary of the State Board of Health.——Drs. J. A. Wall and J. V. S. Esposito have resigned as members of the resident staff of the St. Louis City Hospital.

Ambulances to be Used for Poor.—The St. Louis City Hospital Board has voted to give a three-months trial to the scheme of sending ambulances for sick people reported to the hospitals by organized charities. At present the ambulances are used only to answer dispensary calls from the police.

New Officers.—St. Joseph-Buchanan-Andrew County Medical Society at St. Joseph, December 4: president, Dr. A. L. Gray; secretary, Dr. W. F. Goetze, both of St. Joseph.——Rolla District Medical Society at Rolla: president, Dr. R. H. Finley, Cuba; secretary-treasurer, Dr. W. H. Breuer, St. James.——Worth County Medical Society, organized at Grant City, November 28: president, Dr. W. E. McKinlay; secretary, Dr. J. K. Phipps, both of Grant City.——Pike County Medical Society at Louisiana, December 3: president, Dr. C. L. Bankhead, Paynesville; secretary, Dr. F. V. Keeling, Elsberry.——St. Louis County Medical Society at Clayton, December 11: president, Dr. J. H. Armstrong, Kirkwood; secretary-treasurer, Dr. Horine Miles, Webster Groves.——Cape Girardeau County Medical Society at Cape Girardeau, December 9: president, Dr. E. H. G. Wilson; secretary, Dr. D. H. Hope, both of Cape Girardeau.——Grundy County Medical Society at Trenton, December 3: president, Dr. J. F. Fair; secretary, Dr. T. E. Moore, both of Trenton.

St. Louis

Opposes Fee-Splitting.—The St. Louis Medical Society at its last meeting voted to cooperate with the American Medical Association in its endeavor to stamp out the practice of fee-splitting and recommended that members found guilty be expelled from the society.

New Hospitals.—Plans have been completed for the Jewish Home for Chronic Invalids to be constructed on a fifty-acre tract of land on the east side of Fee Fee Road, near Creve Cœur Lake. Four principal buildings will be erected at a cost of $200,000. One of these will be known as the Shoenberg Memorial Building and will be used for the treatment of chronic cases of tuberculosis. A second building will be used solely for incurable patients suffering from diseases other than tuberculosis. The third building will be for cases of incipient tuberculosis and the fourth, for other diseases supposed to be curable.——Orthodox Jews of St. Louis have subscribed $10,000 toward the erection of a Kosher Hospital, to cost $15,000 and probably to be erected adjacent to the Jewish Orthodox Old Home.

NEW YORK

Physician Gives Site for Campus.—Dr. John P. Munn, New York City, president of the United States Life Insurance Company has offered the University of Rochester a lot 370 by 170 feet at the corner of Prince Street and University Avenue as a site for the Women's Campus.

New Officers.—Chautauqua County Medical Society at Amsterdam, December 11: president, Dr. N. G. Richmond, Fredonia; secretary-treasurer, Dr. J. W. Morris, Amsterdam.——Watervliet Medical Society, December 5: president, Dr. L. B. Rulison; secretary-treasurer, Dr. Robert J. O'Brien.

Hospital Notes.—A contract has been awarded for the construction of the Montgomery County Tuberculosis Hospital, Amsterdam, to cost about $16,000.——The subscriptions of the first day of the donation for the Rochester General Hospital amounted to more than $10,000.——An attempt is being made to raise $100,000 for the Infants' Summer Hospital, Charlotte.——Dr. William McCleary, a trustee of the Amsterdam Hospital, has presented the institution with a deed to property adjacent to the present hospital site.

Corner-Stone Laid.—The corner-stone of the Syracuse University Medical College Dispensary building was laid with formal ceremonies, December 14. After the laying of the corner-stone by Chancellor James R. Day, the adjournment was made to the College of Medicine where addresses were made by Dr. William S. Thayer of Johns Hopkins Medical School, Baltimore; Mr. Augustus S. Downing, first assistant commissioner of education and Hon. Allen C. Fobes, representing the Syracuse Free Dispensary Association.

State Society Prizes.—The committee having in charge the Merritt H. Cash and Lucien Howe Prizes of $100 each offers as suggestions the following subjects for essays:

Diagnosis and treatment of syphilis of the central nervous system.
The present status of serum therapy.
Latest research relative to cancer.
The order and sequence of vascular and cardiac disease.
The function of the state in limiting the increase of imbeciles and degenerates.
Surgery in functional and organic disorders of the stomach.

The essays must be in the hands of the chairman of the committee, Dr. Albert Vander Veer, 28 Eagle Street, Albany, not later than April 1, 1913.

New York City

Aschoff to Deliver Cartwright Lectures.—Prof. Ludwig Aschoff of the University of Freiburg, Germany, has accepted an invitation to deliver the Cartwright lectures of the Alumni Association of the College of Physicians and Surgeons in March.

New Home for Incurables.—A number of business women and social workers have founded a Home for Incurables in a twelve-room cottage at Bay Ridge, near the Shore Road, which was formally opened December 12. Dr. Ambrose A. Scouler will be in charge.

Free Immunization Against Typhoid.—The Department of Health in its circular of December 18, announces the establishment of immunization against typhoid as an established prophylactic measure of proved efficiency, and offers free inoculation on application on and after January 1.

Fire in Randall's Island Hospital.—A fire broke out in Ward 28 of the New York City Children's Hospital on Randall's Island on the night of December 13. One hundred and twenty crippled children were removed from the building without mishap and the fire was extinguished by a bucket brigade formed largely of nurses.

Babies' Welfare Association Permanent.—The Babies' Welfare Association, which is composed of numerous organizations interested in the reduction of infant mortality and which began its work on June 10 last, has become a permanent organization. Mrs. J. Borden Harriman has been elected president and Dr. Ernest J. Lederle, Health Commissioner, has been made honorary president. Representatives of other organizations were elected as vice-presidents, among these being Joseph H. Choate, Robert Fulton Cutting, Cardinal Farley, Dr. Abraham Jacobi, Dr. Ira S. Wile, Robert W. deForest and others. There are seventy-two organizations affiliated with the association. Dr. S. Josephine Baker in her report, said that there had been 600 fewer deaths of babies in 1912 than in 1911 and that they had cared for 50,000 babies and only 125 had died. Dr. G. R. Pisek called attention to the fact that the city hospitals had no way of caring for convalescent babies and steps will be taken at once to provide for this need.

NORTH CAROLINA

Work on Hospital Begun.—Work on the Patton Memorial Hospital, Hendersonville, has been commenced and it is expected that the building will be ready for patients by June 1.

Personal.—Dr. Henry J. Alexander of Mecklenburg County has been elected president of the State Farmer's Union for the fourth term.——Dr. W. J. Pitz, after four years in practice in Bristol, Colo., has located in Lenoir.

Report of State Hospital.—The biennial report of Dr. John McCampbell, superintendent of the State Hospital for the Insane, Morganton, shows that the recoveries, based on admissions, were 29 per cent. in 1911 and 39 per cent. in 1912, the average yearly death rate for the two years being 3.53 per cent. The average cost per capita for the biennium was $162.03. Of the fund appropriated by the last legislature for the maintenance of the institution, $16,942.21 was turned back into the state treasury. The report urges the need of an additional building to accommodate 200 patients and states that there are now ninety applicants on the waiting list.

OHIO

Campaign for Good Samaritan Hospital.—An eight-day campaign to raise $200,000 for the Good Samaritan Hospital, Cincinnati, opened December 3 under the auspices of an executive committee.

Lane in Cincinnati.—Mr. W. Arbuthnot Lane, London, gave a demonstration and lecture before the Cincinnati Academy of Medicine, November 25, at the City Hospital. Mr. Lane sailed for home November 26.

Staff Appointments.—At the annual meeting of the Volunteer Medical and Surgical Consulting Staff of the Ohio Soldiers' and Sailors' Orphans Home, Xenia, Dr. R. H. Grube, Xenia, was appointed dean of the staff and Dr. P. R. Madden, Xenia, secretary. Drs. E. S. Breese, Dayton, C. M. Shepherd and C. J. Shepherd, Columbus, were elected members of the staff.

Ill and Injured.—Dr. O. M. Hendershot, East Liverpool, who has been ill for two weeks, is reported to be improving.——Dr. C. N. Chrisman, Dayton, who was operated on in Chicago recently, has recovered and returned home.——Dr. E. von den Steinen, athletic director of Western Reserve University, Cleveland, was operated on for appendicitis November 30 and is reported to be doing well.——Dr. J. M. Hensley, Bellaire, is reported to be seriously ill.——Dr. J. M. Hoskins, Marion, was accidentally shot in the shoulder while hunting, November 19.——Dr. M. J. Davis, Mansfield, who was operated on recently for appendicitis, has recovered and resumed practice.

New Officers.—Belmont County Medical Society at Bellaire, December 10: president, Dr. J. C. Meek; secretary, Dr. A. C. Beetham, both of Bellaire.——Hancock County Medical Society at Findlay: president, Dr. T. S. Wilson; secretary, Dr. Cornelia B. Kennedy.——Montgomery County Medical Society at Dayton, December 6: president, Dr. W. C. Marshall; secretary, Dr. C. C. McLean, both of Dayton.——Tuscarawas County Medical Association: Dr. E. D. Moore, New Philadelphia, president.——Summit County Medical Society at Akron, December 3: president, Dr. G. M. Logan; secretary, Dr. A. S. McCormick, both of Akron.——Athens County Medical Society at Athens, December 3: president, Dr. J. M. Hyde, Nelsonville; secretary-treasurer, Dr. T. A. Copeland, Athens.——Williams County Medical Society at Bryan: president, Dr. J. A. Weitz, Montpelier; secretary-treasurer, Dr. D. S. Burns, Bryan.——Eighth Councillor District Medical Society at Marietta: president, Dr. H. R. Geyer; secretary-treasurer, Dr. J. R. McDowell, both of Zanesville.

PENNSYLVANIA

Aim of Red Cross Stamps.—Circulars in sixteen different languages explaining the purpose of the campaign were distributed from the Red Cross Seal Booth in the post-office by the Pennsylvania Society for the Prevention of Tuberculosis.

Gift to University.—Mrs. Montgomery has presented the zoologic department of the University of Pennsylvania with the valuable collection of microscopic slides and preparations left by her husband. The collection comprises upward of 3,800 mounted pieces and slides in addition to a large number of objects embedded in paraffin.

Hospital Contract Halted.—The county commissioners presented, December 9, a petition asking for a rule to show cause why the construction of the new hospital for the insane at Schuylkill Haven, now under contract, should not be completed by the county officials. The rule was granted and an early hearing decided on. The new building was to have been completed by July of last year.

State Charities Make Large Demands.—The State Board of Charities convened, December 11, and meetings will be held until January 1. Appropriations requested by the various state charitable institutions amounted to $4,000,000 more than was asked by the same institutions last year. Last year $19,000,000 was asked and $16,000,000 was granted, and it is thought that the legislature will grant no larger sum this year. Committees appointed by the board have been investigating the institutions who have asked state aid, and the report of these will have great weight in determining which institutions shall gain or suffer in the board's recommendation to the legislature.

Contagious Diseases.—Chester High School and Lincoln School buildings, Chester, were again closed for fumigation, December 10, because of diphtheria, while the Starr and Garside Schools were closed December 9, because of scarlet fever.——The community of Norwood, Delaware County, has such an epidemic of measles that public schools and all places of amusement have been ordered closed for twelve days. The entire district seems affected. There are thirty-five cases in Prospect Park, adjoining Norwood.——On December 11, the Board of Control closed the Schuylkill Avenue School building, Reading, because seven cases of typhoid have developed among the pupils.——The typhoid epidemic at Troy, Bradford County, is under control, the emergency hospital is to be closed and patients under quarantine released. In all there were 225 cases of the fever and 16 deaths.——The Elizabethville epidemic is also abating, the present record showing 21 persons quarantined, 5 deaths and 5 recoveries.

Philadelphia

Dinner to Jefferson Hospital Staff.—Mr. Daniel Baugh, a member of the board of trustees, gave a dinner, December 12, to the staff of the Jefferson Hospital. Dr. Hobart A. Hare was the toastmaster and impromptu speeches were made by Drs. J. Chalmers DaCosta, Thomas McCrae, W. M. Late Coplin and others.

Forced to Hold Daily Clinics.—The new Gray's Ferry Dispensary for the treatment of tuberculosis, recently opened in the southwestern section of the city has had such great demands made on it that beginning, December 9, the dispensary will be open daily from 10-12, instead of three times a week. The staff of examining physicians has been increased from one to four and additional visiting nurse has been added.

Formal Opening of Phipps Institute Postponed.—At the meeting of the board of trustees of the University of Pennsylvania, it was announced the Phipps Institute's new building at Seventh and Lombard Streets, will not be formally opened until next June, although the building will be partly occupied in January and will be entirely open in February, because Henry Phipps, who gave the building to the university will not be able to be present on February 22, the time first planned for the opening.

GENERAL

Surgeon-General Reappointed.—It is announced from Washington that the president has decided to reappoint Brigadier-General George H. Torney as surgeon-general of the Army. General Torney does not reach the age for retirement until 1914.

New Officers.—Seaboard Medical Association at Newbern, December 3-5: president, Dr. J. E. Rawls, Suffolk, Va.; secretary, Dr. C. P. Jones, Newport News, Va.——Nu sigma Nu Fraternity at Baltimore, November 29 and 30: president, Dr. H. W. Stiles, Syracuse, N. Y.; secretary-treasurer, Dr. E. E. Irons, Chicago.

Hookworm Conference.—The annual session of the Southern Conference for the Eradication of Hookworm, at Little Rock, Ark., closed December 18-19, with the election of Dr. Olin West, Nashville, Tenn., as president; Drs. A. G. Fort, Atlanta, Ga., and La Bruce Ward, Charleston, S. C., as vice-presidents, and Dr. S. D. Porter, New Orleans, as secretary-treasurer.

Personal.—Dr. Randolph W. McDowell, U. S. Navy, sustained a concussion of the brain and fracture of the collar bone and two ribs in a collision between an automobile and a street car in Philadelphia, November 28.——Surgeons S. S. Rodman and I. S. K. Reeves and Drs. D. C. Cather and W. E. Eaton, U. S. Navy, were given medals by the government of Santo Domingo for their services in attending the wounded at the battle of Azna.

Meeting of Southern Surgeons and Gynecologists.—At the annual meeting of the Southern Surgical and Gynecological Association held in Newport News, Va., December 17-19, Atlanta, Ga., was selected as the next place of meeting and the following officers were elected: president, Dr. John Young Brown, St. Louis; vice-presidents, Drs. Ap Morgan Vance, Louisville, and Lomax Gwathmey, Norfolk, Va.; secretary, Dr. W. D. Haggard, Nashville, Tenn., and treasurer, Dr. Le Grand Guerry, Columbia, S. C.

For Travelers' Health.—At the meeting of the Northwestern Sanitation Conference in St. Paul, December 5, a representation of all the northwestern railroads, resolutions were adopted calling for the introduction of bills in the coming session of the legislature of the various states, providing for the abolition of the common drinking-cup and roller towel, the fumigation of sleeping-cars every two months, the sweeping of cars with formaldehyd and airing and cleansing of all berth clothing after each trip, and the reporting of all illness on any train by the conductor to a physician at the next stop made.

LONDON LETTER

(From Our Regular Correspondent)

London, Dec. 7, 1912.

Medical Education

Medical education is a subject of perennial discussion and many schemes of reform are brought forward which never mature. A single portal by a state examination, such as exists in many Continental countries, has long been advocated but seems no nearer fulfilment. It offers the obvious advantage of a uniform standard which can be adjusted to any level of knowledge thought desirable. At present, about fifteen universities grant degrees in medicine and in addition there are several colleges which grant licenses to practice. Thus there are more than twenty avenues to qualification. The General Medical Council appoints inspectors to visit the various examinations and see that a proper standard is maintained, but this is a much less efficient method than a uniform single examination. It is well known that the examinations of different bodies vary considerably in standard. Moreover, the fact that some competition exists between the different licensing bodies has a tendency to lower the standard. The General Medical Council also supervises medical education and here, by its regulations, ensures a certain uniformity. Thus a five-year course of study and attendance on lectures in the various branches of medicine and the ancillary sciences, as well as the passing of various examinations, is rendered obligatory. This five-year course is an extension of the course which existed some years ago and amounted to only four years. Now the growth of science, especially of physiology and biochemistry, has been so great in recent years that five years is not regarded as sufficient, but the increased expense stands in the way of the adoption of a six-year course. A way out of the difficulty, advocated by some reformers, is to exclude the preliminary sciences, such as chemistry and physics, from the medical curriculum and insist on a certificate of knowledge of them before entering on it. Thus the whole of the five years can be devoted to medical study. This is the method adopted in France.

The Increasing Sale of Nostrums

In spite of the campaign against secret remedies their sale appears to be increasing. According to statistics issued by the Board of Customs and Excise the revenue from medicine stamp duty for the year ending March 31, 1912, was $1,600,000, an increase of $10,000 on the preceding year. On this basis the amount spent on secret remedies in Great Britain can be approximately calculated. All shilling (24-cent) packages must bear a 3-cent stamp. The revenue would therefore account for over 52,000,000 shilling packages, which would be sold for $12,500,000. This estimate is subject to the correction that some of the nostrums are of higher value and bear a higher revenue duty, but this correction would not make a substantial difference. The number of licenses issued during the year to venders of nostrums was 43,131, a slight increase on the preceding year.

PARIS LETTER

(From Our Regular Correspondent)

Paris, Dec. 6, 1912.

The Choice of Experts

The right of the general practitioner to give medicolegal evidence is seriously menaced by the vote which was recently taken at the Congrès de médecine légale approving the restriction of the privilege of making reports on industrial accidents to medicolegal experts alone. On the other hand, a recent court decision declared a report null because it had not been made by the physician who, although appointed by a magistrate and fully competent otherwise, was not in the list of experts named by the court of appeal. Owing to this condition of things the Syndicat médical de Paris discussed the question at its last general meeting, at which the following conclusions were reached: In view of the necessity in practicing medicine for the physician to have a working knowledge of legal medicine (1) thorough medicolegal instruction should be given again in all the Facultés de médecine with examinations; (2) the diploma of *médecin légiste*, since it is useless and prejudicial to holders of a professional diploma, ought not to be given. On the other hand, as moral and scientific guarantees are required of criminal experts and as the selection of these can be made only by their peers, who alone are competent to select them, the *syndicat* voted that the courts of appeal should consult professional and scientific men before drawing up the list of authorized criminal experts. Since civil expert reports, especially those of industrial accidents, require no information which it is not within the powers of general practitioners to furnish, the magistrate should not be forced legally to select medicolegal experts from the list drawn up by the court of appeal.

The Physicians' Home

Some years ago a number of physicians endeavored to establish a house of refuge for aged and destitute physicians. By donations they were enabled to purchase the little property of Brézolles, a few miles from Dreux (Eure-et-Loire). Thus three years ago the Maison du médecin was established to receive unfortunate physicians who through ill luck, sickness or improvidence found themselves in distress at the end of their career. Besides the kitchen, dining-room and sitting-room, the house at Brézolles has six sleeping-rooms. The most unfortunate are kept free of charge, but those who are able pay rent. The house is opened to all French physicians, civil, military, naval or from the colonies and their wives or widows. A special commission decides which applicants shall be admitted, giving preference to those who are oldest and who have suffered the greatest misfortune. For two years the Maison du médecin has taken care of ten pensioners, but as there are forty on the waiting-list, and as they cannot be taken care of owing to lack of room, the association is trying to enlarge the place or to buy another. For this purpose they are conducting a charity sale on the premises of the Faculté de médecine and have already raised the sum of 35,000 francs ($7,000).

Election of Professor Delezenne to the Academy of Medicine

At the meeting of December 3 the Académie de médecine by a vote of sixty-five out of eighty elected Professor Delezenne an honorary member of the section on anatomy and physiology to fill the vacancy left by Professor Marc Sée, who died last

May. Professor Delezenne of the Institut Pasteur was formerly *agrégé* professor of physiology at the Faculté de médecine of Montpellier, and since 1900 has been on the staff at the Institut Pasteur. Author of numerous works on physiology, physiologic chemistry, experimental pathology and pathologic physiology, Professor Delezenne has won a reputation particularly through his researches on pancreatic secretion and the coagulation of the blood.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Nov. 29, 1912.

Personal

Professor Kopp, director of the university policlinic for dermatology, died of leukemia, at Munich, November 25, aged 58.

Dr. Dippe of Leipsic has been chosen president of the Aerztevereinsbund, the organized medical chambers, as successor of the deceased Professor Loebker.

"First and Second Class" Patients

The *Münchener medizinische Wochenschrift* reports an interesting decision of the eighth chamber of the Seine judicial court. A physician lived in a building with two entrances, the rear entrance was for servants and tradesmen. The concierge opened the front door only to well-dressed patients, while those who seemed to be poor she sent to the back stairs. The physician's professional interests suffered from this conduct of the concierge, and he entered suit for damages which the court supported, declaring that such a classification constituted a violation of the duty of the lessor. The landlord was fined $60 (300 fr.). It is not stated whether the physician remained in the house and how much his rent was raised.

General Meeting of the Leipsic League for Promoting the Economic Interests of Physicians

The regular general meeting of this great association, the Leipziger Verband zur Wahrung der wirtschaftlichen Interessen der deutschen Aerzte, was held at Leipsic, November 25. It now includes over 75 per cent. of the German medical profession, the membership being about 25,000 on Oct. 1, 1912. The work of the association requires the services of 1,280 confidential agents and superintendents who serve without pay. During the past business year the department for exchanges of practice placed 3,600 physicians in suitable positions. The widows' fund, a fund made up of voluntary contributions, distributed to the widows of physicians $9,500 (38,000 marks). In preparation for the struggle which is expected to occur against the Krankenkassen in consequence of the new insurance law, a fund has been provided by contributions of at least 100 marks, loaned without interest, which now amounts to more than $250,000 (1,000,000 marks). The loan and death bureau, founded by the association in 1910, now includes 14,000 members. This serves the double purpose of making loans to its members on sufficient security and of providing a death benefit, which varies according to the contributions from $50 to $500. The bureau has hitherto loaned about $165,000 (665,000 marks).

Conference on Contract Practice

Of great interest was the statement that the minister of the interior was endeavoring to effect an agreement between the organized Krankenkassen and the medical profession. A conference has been called for the middle of December to which representatives of both have been invited. A sketch of the principles involved has been drawn up as a basis for discussion.

GRATIFYING PROGRESS

Also the conflict which arose between the post-office officials and the Leipsic league in regard to the medical treatment of the newly established postal clerks' sick benefit society seems to have been satisfactorily settled. The contracts made a few years ago with the life insurance societies have been satisfactory to all parties. Satisfactory success is reported also by the book business carried on by the league.

Conflicts with the Krankenkassen have materially decreased. During the twelve years of its existence the Leipsic league has taken a hand in about 1,100 disputes, 950 of which were decided in favor of the physicians and only sixteen turned out provisionally in favor of the Krankenkassen. In the last business year only sixty-six new disputes broke out. For the first time in the history of the league, last year the number of existing conflicts with the Krankenkassen was less than 100.

Marriages

JACOB WALTER LAYMAN, M.D., to Miss Eliza Templeton, both of Williamsport, Md., at Hagerstown, December 11.

ISRAEL ALBERT LOVELAND, M.D., to Miss Mary Elizabeth Gunn, both of Keene, N. H., December 11.

ROBERT B. STEWART, M.D., Topeka, Kan., to Miss Lenora M. Stubbs of Lawrence, Kan., December 18.

MAX HOROWITZ, M.D., Johnstown, Pa., to Miss Frances Moskowitz of Brooklyn, December 11.

ERWIN PALMER LEVI, M.D., Anniston, Ala., to Miss Carrie D. Burgunder of Baltimore, November 6.

FRED JOHNSON KINNEY, M.D., Olds, Ia., to Miss Mary Weisjohn of Brookston, Ind., December 4.

Deaths

John D. Pfister, M.D. Missouri Medical College, St. Louis, 1888; a member of the Missouri State Medical Association; of Creve Coeur, Mo.; formerly of Fern Ridge, Mo.; president of the Creve Coeur Bank; founder of the Creve Coeur Mutual Telephone Company and one of the organizers of the Creve Coeur Farmers' Club; died, December 11, from injuries sustained in an automobile accident, aged 49.

William Wallace Holliday, M.D. Western Reserve University, Medical Department, Cleveland, 1876; of Cleveland, O.; a member of the American Medical Association; one of the oldest and most prominent practitioners of Cleveland; died suddenly at the Lakeside Hospital, December 7, following an operation for stomach trouble, aged 61.

Peter Oliver Bleiler, M.D. Jefferson Medical College, 1876; of Allentown, Pa.; a member of the American Medical Association; vice-president of the Lehigh County (Pa.) Medical Society; died at his home, December 10, after an illness since last summer, when he suffered a sunstroke, aged 60.

Elias A. Rowan, M.D. Tulane University, New Orleans, 1866; a member of the Louisiana State Medical Society; for forty years a practitioner of Wesson, Miss., and senator for the state; was killed by an Illinois Central passenger train, December 10, aged 74.

Frank West Goodall, M.D. College of Physicians in the City of New York, 1863; of Bennington, Vt.; a member of the Vermont State Medical Association and other local medical societies; died November 28, from heart disease and arteriosclerosis, aged 65.

John Chester Egelston, M.D. University Medical College of Kansas City, 1893; of Kansas City, Mo.; a former superintendent of the General Hospital; formerly connected with the Santa Fe Hospital at Topeka, Kan.; died December 8, aged 47.

Glasgow Armstrong, M.D. New York University Medical College, 1898; Cornell University Medical College, New York City, 1899; of Staunton, Va.; a member of the Medical Society of Virginia; died at his home, December 7, aged 38.

William Henry Smith, M.D. Baltimore Medical College, 1900; of Unionville, N. C.; died December 5, from the effects of phenol, said to have been self-administered with suicidal intent, aged 41.

John Newton Ranger, M.D. University of Vermont, College of Medicine, Burlington, 1888; of Columbus, O.; formerly of Chicago; died at his home, December 11, from pneumonia, aged 45.

William Samuel Love, M.D. University of Pennsylvania, Philadelphia, 1860; of Winchester, Va.; a surgeon in the Confederate Army; died suddenly at his home, December 12, aged 75.

John Joseph Moran, M.D. Georgetown University School of Medicine, Washington, 1908; of Albuquerque, N. Mex.; was found dead in his rooms, December 8, from heart disease, aged 32.

Andrew Philip Carr, M.D. New York University Medical College, 1872; of Shickshinny, Pa.; a member of the Medical Society of the State of Pennsylvania; died November 13, aged 76.

John A. Axline, M.D. Medical College of Ohio, 1873; a member of the American Medical Association; died at his home in Noblesville, Ind., December 9, from internal cancer, aged 65.

Henry A. Williamson, M.D. Physio-Medical Institute, Cincinnati, 1873; a member of the Kentucky State Medical Association; died at his home in Grant, in November, aged 67.

Toliver Wertz, M.D. Bellevue Hospital Medical College, 1879; of Princeton, Ind.; formerly of Evansville, Ind.; died at the home of his daughter in Altoona, Pa., December 6, aged 70.

Omer Pillsbury Porter, M.D. New York Medical College, 1881; of Lowell, Mass.; a member of the Massachusetts Medical Society; died at his home, December 7, aged 55.

James A. Comstock, M.D. Medical College of Ohio, 1867; of Greenfield, Ind.; died in a hospital in Indianapolis, December 9, following a surgical operation, aged 67.

Southwood Smith, M.D. New York University Medical College, 1859; of Garnett, S. C.; died at his home, November 12, from arteriosclerosis, aged 71.

John Henry Stein, M.D. Washington University Medical School, St. Louis, 1876; of Mackinaw, Ill.; died, December 10, from heart disease, aged 61.

James H. Davis, M.D. Pulte Medical College, Cincinnati, 1888; of Wilmington, O.; formerly of Jeffersonville, O.; died suddenly, November 27.

Eli Holbrook Gale, M.D. University of Pennsylvania, Philadelphia, 1865; of Chicago; formerly of Aurora, Ill.; died December 14, aged 65.

John B. Shultz, M.D. Eclectic Medical Institute, Cincinnati, 1860; died at his home in Logansport, Ind., and was buried, December 10, aged 73.

Hans W. Hendrickson, M.D. University of Minnesota, Minneapolis, 1893; died at his home in Montevideo, Minn., November 29, aged 44.

Elmore Edgar Elliott, M.D. Bellevue Hospital Medical College, 1887; died at his home in Kingston, N. Y., November 9, aged 50.

William Carey Davies, M.D. New York University, New York City, 1879; died at his home in Granville, Ohio, December 4, aged 65.

Alfred Norton Sweet (license, Conn., 1893), died at his home in Middletown, Conn., December 9, from cerebral hemorrhage, aged 55.

Eugene Brittain, M.D. Marion-Sims College of Medicine, St. Louis, 1892; died at his home in Bremond, Tex., December 7, aged 38.

Correspondence

The Mongolian Spot

To the Editor:—In The Journal of Nov. 30, 1912, p. 1979, the editorial comment on "Mongolian Birthmarks" (!) is so peculiarly inadequate that it can hardly hope to escape correction. To begin with, a great deal of attention is given to observers who have simply reported the occurrence of these spots in another race, while no mention is made of the fundamental work of Adachi, who ten years ago established the exact morphology of these spots. He showed that the Mongolian spot, a blue spot, that occurs most frequently on the sacrum but also on the back and on the extensor surfaces of the extremities, is caused by large pigment cells deep in the corium, while the ordinary pigment that distinguishes races and individuals lies deep in the epidermis. These cells, if in sufficient number, appear blue on the surface much like the pigment of a tattoo mark, and are found in all deeply pigmented races. These spots have been reported in Japanese, Chinese, Burmese, Negroes, Negritos, Koreans, Anamites, Malayans, Javanese, Indonesians, Igorrotes, Hawaiians, Samoans, Eskimos, Pacific Islanders, Indians in Vancouver, Central America and Argentina, and in other races. Even in the Caucasian race they are visible once in several hundred babies, and then nearly always in the darker races and individuals. Microscopically Adachi found the cells present in 40 per cent. of white babies under 2¼ years old. In other words, the so-called Mongolian spot is not the heritage of any race; it is simply a vestigial normal human characteristic that appears in proportion as the race, or within the race the individual, is deeply pigmented. It is not an atavism, but a rudiment. "The value of these spots as a mark of identification" is therefore quite definite.

The statement that "apes and monkeys are said to have it constantly and throughout life" is likewise incorrect, or at least insufficient. Certain monkeys (cynocephalus, macacus) have throughout life a shimmering blue color, and in these Adachi found that the predominating pigment was in these deep corium cells, and not in the epidermis. In the higher anthropoid apes (chimpanzee) the tendency is to a predominance of epidermal over dermal pigment, as in the human race, and these apes have a brownish color. In the presimian types, as the lemur, epidermal and dermal pigment are both scant and the color is pale or flesh-colored. In the orang-outang with a dirty bluish-brown color, both pigments are abundant and more equally represented. Even to mention those spots in connection with "abortive types of spina bifida" is obviously redundant. Furthermore they not only "may disappear in the first few years of life," but nearly always do.

The most astounding statement, however, is that possibly "the blue spot might be found in negro babies if examined soon enough after birth," and this is supported by the authority of a French observer, Brucli. The clinical experience and familiarity with the literature shown by the author of the editorial are here on a par with that of the European writer who seriously stated that "negro babies were born white!" Ashmead went so far as to assert that the Mongolian spot was always a sign of negro descent! In 1907 there were published simultaneously in the *American Anthropologist* and in the *Archives of Pediatrics* my own observations on the blue spot in the negro baby, and its occurrence was reported in from 90 to 95 per cent. of colored babies under 1 year old. The paper was accompanied by microphotographs, high and low power, of histologic sections, of the skin of the sacrum of a stillborn negro infant that show these cells in a striking manner.

It seems to me that if the subject is worth discussing at all, it really deserves more reliable treatment.

Joseph Brennemann, Chicago.

Safety-Razor-Blade Scalpel

To the Editor:—A very satisfactory safety-razor-blade scalpel of the kind described in The Journal (Dec. 14, 1912, p. 2127) may be made by placing a Gem Junior safety-razor blade in the stropping attachment which is furnished with this razor. This does not necessitate the purchase of a special handle and the price is far below that of an ordinary scalpel.

W. H. Falker, Chicago.

Albumin Milk in Infant-Feeding; A Correction

To the Editor:—I notice in the discussion of Dr. Neff's paper, "A Series of Infants Fed on a High-Percentage Albumin Milk" (The Journal, Dec. 21, 1912, p. 2213), some statements attributed to Dr. Julius Hess in which I am sure Dr. Hess is incorrectly reported. The cases to which Dr. Hess referred were those of two infants to which large doses of calomel had been administered for a considerable period before admission to my service. As the records will show, the administration of calomel was stopped as soon as the babies came under my care. No cathartics have ever been administered to normal babies in my service. No child was ever rendered ill from cathartics while on my service, because long before I studied the stools of babies receiving cathartics I had the conviction that laxative drugs were given in excessive doses to infants and children. I shall be glad to have this correction made.

Isaac A. Abt, Chicago.

To the Editor:—In the discussion of Dr. Frank C. Neff's article on albumin milk in infant-feeding, which appears in last week's Journal, my remarks, printed on page 2215, on catharsis in infants are not correctly reported. The cases to which I referred in the discussion were given in Dr. Abt's paper on "Fallacies in the Treatment of Gastro-Intestinal Diseases," read before the Mississippi Valley Medical Association in 1911, and published in the *Interstate Medical Journal*, July, 1912. The cases to which I referred were *not* "normal babies sent to us for feeding because the mothers were sick." As Dr. Abt's article plainly states, one infant was suffering from pyelitis when admitted to the hospital and the other from tonsillitis. Calomel had been administered to both of these babies for a number of weeks *before* the two little patients were admitted to Dr. Abt's service. In both cases the calomel was immediately stopped as soon as the babies were admitted to the hospital and improvement at once followed. In the case of pyelitis, Dr. Abt says, "An infant 6 months of age who had received a cathartic drug in some form every day since birth was recently brought to the writer. For the first few weeks of life . . . calomel was given every other day. . . . Later on calomel was being administered in doses varying from 3/10 to 2 grains daily for two weeks. . . . All cathartics were withdrawn." In the other case Dr. Abt says, "The writer recently saw a little patient of 4 years who was taken ill about ten days previously with a tonsillar affection. The physician in charge began treatment . . . with 1 grain of calomel per day, and continued the administration of this remedy until the writer saw the patient on the tenth day. . . . It was only necessary to stop the calomel and treat the mucous membrane with astringent remedies to effect a cure in a few days."

The point of my remarks was that both of the babies in question had been given large doses of cathartics before they were admitted to the hospital, and that the withdrawal of the calomel and the administration of proper food were at once followed by improvement. The stenographer who reported my discussion evidently misunderstood me. No "experiments" were carried on with "normal babies." The report of my remarks as given in last week's Journal is entirely incorrect and misleading.

Julius H. Hess, Chicago.

Queries and Minor Notes

Anonymous Communications will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TREATMENT OF COMEDONES

To the Editor:—A trifle which is yet of much importance for the general practitioner is the presence of blackheads on the face, especially in the alae nasi regions. What is a good treatment for their eradication without any subsequent cosmetic defect? How satisfy the patients?

J. S. L.

Answer.—The skin should be rubbed with a tincture of green soap and washed vigorously with warm water, care being taken not to produce too great an amount of irritation. The blackheads, or comedones, can be removed by pressure by clean thumb-nails or by the use of a comedo extractor. At the same time such internal treatment should be given as will promote a healthy condition of the skin. Special attention should be given to the condition of the digestive tract and to the prevention of constipation. The subject is thoroughly discussed in works on skin diseases under the head of acne.

USE OF TUBERCULIN—THE WASSERMANN REACTION IN NON-SYPHILITICS

To the Editor:—1. What is your opinion in regard to the reliability of tuberculin as a test for tuberculosis? Would you recommend its use?

2. Is it possible to get a positive Wassermann reaction in a non-syphilitic patient? If so, what are the conditions of the patient?

J. M. Blum, M.D., Edgemont, S. Dak.

Answer.—1. See The Journal, Nov. 30, 1912, p. 1992.

2. The Wassermann reaction is sometimes positive in patients with other diseases, principally scarlet fever, frambesia and cancer. These conditions, however, can usually be eliminated by the history and circumstances of the patient. Aside from such cases, a positive Wassermann reaction is an evidence of uncured syphilis.

BINET-SIMON TEST FOR CHILDREN'S MENTAL CAPACITY

Dr. J. J. Levy, Syracuse, N. Y.: See The Journal, Jan. 13, 1912, page 132.

INTERNATIONAL MEDICAL CONGRESS

Dr. F. Bierhoff, New York: The secretary of the United States Executive Committee for the International Medical Congress is Dr. A. R. Allen, 2013 Spruce St., Philadelphia. This congress will meet in London, Eng., Aug. 6-12, 1913. See London Letter and general news in The Journal, Dec. 21, 1912.

AMERICAN MEDICAL ASSOCIATION INSIGNIA

Dr. Laura M. Johnson, Somerville, Mass.: Reference to information on the meaning of the American Medical Association button will be found by referring to The Journal of Sept. 14, 1912, page 896.

REMOVAL OF TATTOO MARKS

Dr. W. S. Nickerson, Davenport, N. D.: See The Journal, Sept. 14, 1912, page 895.

MUSIC AS A THERAPEUTIC AGENT

F. M. D.: A list of articles on this subject was given Oct. 19, 1912, page 1474.

HEART

Dr. E. J. Pengelly, Hibbing, Minn.: *Heart* is published by Shaw & Sons, Fetter Lane, Fleet Street, E. C., London, England. The subscription price is 20 shillings ($4.80) a volume.

FORMULAS FOR LIQUID SOAP

Dr. C. R. Morss, Coleraine, Minn.: See The Journal, April 22, 1911, page 1214, and June 8, 1912, page 1774.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal Medical Sciences, Philadelphia

December, CXLIV, No. 6, pp. 781-884

1 Partial Gastrectomy in a Case of Multiple Carcinoma of Stomach. J. H. Gibbon, Philadelphia.
2 *Effects of Medicinal Doses of Aconite on the Pulse-Rate. R. D. Rudolf and G. E. C. Cole, Toronto.
3 *Lupus Erythematosus and Raynaud's Disease. M. B. Hartzell, Philadelphia.
4 Gross Anatomy of the Spinal Cord and Nerve-Roots; Their Bearing on Symptomatology and Surgical Treatment of Spinal Disease. C. A. Elsberg, New York.
5 *Bence-Jones Proteinuria: Report of Four Cases. T. R. Boggs and C. G. Guthrie, Baltimore.
6 *Further Experiences with Complement-Fixation Test in Diagnosis of Gonococcus Infections of Genito-Urinary Tract in Male and Female. H. J. Schwartz and A. McNeil, New York.
7 Indicanuria. W. G. Morgan, Washington, D. C.
8 Adenocarcinoma of Thyroid, with Metastasis to the Cervical Glands and Hypophysis. D. J. McCarthy, Philadelphia, and H. T. Karsner, Boston.
9 *Softening of Spinal Cord in a Syphilitic After the Injection of Salvarsan. L. Newmark, San Francisco.
10 Banti's Disease and Allied Conditions. R. Stein, New York.
11 Cases of Juvenile Psychasthenia Illustrating Successful Treatment. T. A. Williams, Washington, D. C.
12 *Purpura in the Course of Chronic Pulmonary Tuberculosis. J. M. Cruice, Philadelphia.

2. **Effects of Aconite on the Pulse-Rate.**—During the past year the authors have tested the drug in many cases as regards the effects on the pulse-rate, always using medicinal doses, and this paper gives the results of their work. They used the ordinary B. P. tincture. The pulse-rate was usually taken for hours before and for hours after the administration, and in many cases the blood-pressure was also measured, but no effect on the circulation was detected. Often considerable fluctuations were seen, but it was found that these were mere coincidences and were just as apt to occur without the aconite. After finding no effects from the administration of these tinctures they secured a quantity of B. P. tincture "which had been tested by physiologically and by assay in the laboratory, and which was guaranteed to be of B. P. strength." Most of the experiments were done with this tincture, and were still negative. Crystalline aconitin, found by experiments on animals to be of full activity in solution corresponding in strength to the B. P. tincture, still gave negative results. It appears from these findings that the tincture of aconite on the market is usually inert.

3. **Lupus Erythematosus and Raynaud's Disease.**—Hartzell believes that the relationship which exists between these two maladies may be best explained by supposing both at times to be due to a common cause, most probably some toxin circulating in the blood, which acts primarily on the vessel walls producing vasomotor and inflammatory changes in the skin and subcutaneous tissues. Cases of the kind here considered seem to go far in support of the view that erythematous lupus should be regarded as a toxic erythema.

5. **Bence-Jones Proteinuria.**—The authors have observed four cases in fifteen months. It would seem that this type of pro-

teinuria is probably more common than the literature would lead one to suppose. Of these cases, two were clinically multiple myeloma, and a third was probably of the same type, although they have no objective proof. The fourth case was one of metastatic carcinoma from the breast. It is especially interesting to note that the detection of the last three cases followed definitely the interest aroused among local physicians by the presence of the first case, which led them to test the urine of their patients more carefully. The recognition of the Bence-Jones body in the urine in each instance antedated any suspicion of the true nature of the malady, with the exception of the last case, which was clearly associated with carcinomatous metastases. That this type of proteinuria may be present for some time before any clinical evidence of myelomatosis appears is shown by the first three cases noted.

6. **Gonococcus Complement-Fixation Test.**—The authors summarize their findings as follows: A positive reaction denotes the presence or recent activity in the body of a focus of living gonococci. A negative reaction does not exclude gonococcus infection but, for the reasons stated, should be accorded considerable importance. A strong positive reaction is not to be expected earlier than about the fourth week, and then only in very acute cases with some complication. A positive reaction is not obtained if the disease is limited to the anterior urethra. A positive reaction does not entirely disappear until seven or eight weeks after cure. In other words, if a strong positive reaction is obtained seven or eight weeks after apparent clinical cure, the patient should be looked on as still harboring gonococci. In chronic cases, isolation of the gonococcus in culture is the only absolute, bacteriologic proof of gonococcus infection. The technic of a complement-fixation test is simpler than that of isolation of the gonococcus in culture and the possibilities of error are less. In cases regarded clinically as postgonorrheal, a positive reaction is obtained in 31.4 per cent. In sixty-two cases of chronic prostatitis giving a history of gonococcus infection within three years, a positive reaction was obtained in 54.8 per cent. In 165 patients looked on as clinically cured for at least three months, a positive reaction was obtained in 13.2 per cent. In women, a positive reaction is probably not obtained unless there is at least some involvement of the cervix. On account of the unreliability of the bacteriologic diagnosis of gonococcus infection in women, the complement-fixation test should prove of special usefulness in gynecologic conditions.

9. **Softening of Spinal Cord After Salvarsan.**—A man who had been infected with syphilis three years before presented the first symptoms of a fatal softening of the cord fifty-six hours after an injection of salvarsan.

12. **Purpura in Tuberculosis.**—Eight cases of purpura seen by Cruice occurred in the terminal stage of chronic pulmonary tuberculosis. The first case was an undoubted case of purpura hemorrhagica, and occurred only five days before death. A second case, although there was hematuria and at one time bloody stools accompanying a diarrhea, was simple purpura, the hematuria being accounted for by tuberculosis of the kidney, ureter and bladder. Four cases were instances of simple or cachectic purpura. One case, in which the thrombosis of the internal saphenous vein was the exciting cause, was what Osler calls a mechanical purpura, being caused by a venous stasis. The last case might be called either a simple purpura complicating the tuberculosis or a toxic purpura complicating the intense jaundice. Whether, however, a simple or a toxic purpura it was a purpura occurring at the termination of chronic pulmonary tuberculosis complicated by a most unusual form of caseous tuberculosis of the liver.

Journal of Experimental Medicine, Lancaster, Pa.

December, XVI, No. 6, pp. 719-875

13 *Chemistry of Blood-Serum. A. A. Epstein, New York.
14 *Differences in the Effects of Stimulation of the Two Vagus Nerves on Rate and Condition of the Dog's Heart. A. E. Cohn, New York.
15 *Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice. III. The Changes in the Blood Following Splenectomy and Their Relation to the Production of Hemolytic Jaundice. R. M. Pearce, J. H. Austin and J. H. Musser, Jr., Philadelphia.
16 *Idem. IV. A Study, by the Methods of Immunology, of the Increased Resistance of the Red Blood-Corpuscles After Splenectomy. H. T. Karsner and R. M. Pearce, Philadelphia.
17 *Idem. V. Changes in the Endothelial Cells of the Lymph-Nodes and Liver in Splenectomized Animals Receiving Hemolytic Serum. R. M. Pearce and J. H. Austin, Philadelphia.
18 Nitrogen Retention in the Blood in Experimental Acute Nephritis of the Cat. O. Folin, H. T. Karsner and W. Denis, Boston.
19 *Pathology of Primary Splenomegaly (Gaucher Type), with Report of Autopsy on a Male Child Four and One-Half Years of Age. F. S. Mandlebaum, New York.
20 Selected Action of Gentian Violet on Closely Related Bacterial Strains. J. W. Churchman and W. H. Michael, Baltimore.
21 Lymph Formation and Edema of the Liver with Experimental Nephritis Produced by Cantharidin. E. L. Opie, St. Louis.
22 *Experiments on Insect Transmission of the Virus of Poliomyelitis. C. W. Howard and P. F. Clark, New York.
23 Studies on Ferment Action. V. Immunization with Proteolytic Cleavage Products of Pneumococci. J. W. Jobling and S. Strouse, Chicago.

13. **Chemistry of Blood-Serum.**—The most striking feature observed by Epstein in this study is the extensive variation of the blood-serum in relation to its proteins. It was found that in certain diseases the globulin fraction is markedly increased, whereas the total protein of the serum may be normal, or may fall far below normal in amount. The diseases in which an increase in the globulins takes place are grouped as follows: (1) cardiac diseases associated with decompensation and serous effusions, (2) pulmonary or respiratory affections of inflammatory or non-inflammatory origin (pneumonia, emphysema, polycythemia), (3) diabetes mellitus, and (4) parenchymatous nephritis. In the serum of chronic parenchymatous nephritis the increase in the globulin content was most pronounced and constituted nearly all the protein, or as much as 95 per cent. The globulin content of serum was normal or diminished in the following diseases: (1) simple achylia gastrica (short duration), (2) tuberculosis, (3) diabetes insipidus, and (4) chronic interstitial nephritis. Other ingredients of the sera analyzed showed variations which could not be definitely classified; but in a general way it appears on careful analysis that an accumulation of water and salt occurs in diseases in which the globulin fraction of the blood-serum is increased.

14. **Effects of Stimulation of Two Vagus Nerves.**—It is concluded by Cohn from results obtained by experiments that stimulation of the right vagus nerve in the dog usually causes arrest of all the chambers of the heart; stimulation of the left vagus nerve exerts a moderate negative chronotropic effect on the auricles; stimulation of the left vagus nerve has a profound effect on the conduction of impulses over the auriculoventricular system. The degree of effect exercised on the auriculoventricular system by stimulation of the left vagus nerve varies. In some dogs conduction is depressed to an extent which causes only a delay in the conduction of impulses from auricles to ventricles (P-R time); in other dogs the conduction is depressed to a degree which results in incomplete heart-block; while in still other dogs conduction is so depressed that although the auricles continue to contract, no impulses pass from them to the ventricles. When stimulation of either the right or left vagus nerve causes asystole of nomotopic ventricular contractions, ectopic ventricular contractions may occur. The time which elapses before ectopic ventricular contractions occur depends on the irritability of the ventricular muscle, and this may vary in different dogs. Stimulation of the left vagus nerve may rarely cause sino-auricular block. Possibly stimulation of the right nerve may also produce this effect. There is consequently usually a great qualitative difference in the action of the two vagus nerves on the heart of the dog.

15. **Changes in Blood After Splenectomy.**—The results of a study of the changes in the blood after splenectomy and of the effect of the administration of hemolytic serum lead the authors to the following tentative conclusions: (1) The failure of a hemolytic serum to cause jaundice is due in some way to the anemia which frequently follows splenectomy. Animals, whether splenectomized or not, which have a low blood-count and low hemoglobin content do not readily develop jaundice after administration of a hemolytic serum. On the other hand, in animals with a normal blood picture such a serum readily causes, during early periods after splenectomy, a well marked

jaundice. (2) The difficulty of producing hemoglobinemia and jaundice in animals splenectomized one month or more, is due, as shown by blood-count, to the use of hypotonic salt solution test, and by the search for the presence of hemoglobin in the serum and urine, to an increase in the resistance of the red cells. The results of detailed serologic tests on this point will be presented later. (3) It is possible that spontaneous jaundice occurring at long periods after splenectomy is an accompaniment of the complete regeneration of the blood. The study of the blood in animals splenectomized for long periods, seven to ten months, indicates that spontaneous jaundice occurs only when the animal has recovered from the initial period of anemia and has a high cell count and high hemoglobin content. (4) As to the mechanism responsible for the anemia following splenectomy and for the increased resistance of the red cells, they offer no explanation.

16. **Increased Resistance of Red Cells After Splenectomy.**—The authors found that the erythrocytes of splenectomized dogs show increased resistance to the action of hypotonic salt solutions and to specific hemolytic immune serum. The degree of resistance appears to increase with the length of time that has elapsed after splenectomy. This increased resistance of the erythrocytes is not due to an increased antihemolytic power of the animal's serum or to a diminished complementary value of the serum, but is a property depending on the erythrocytes themselves. Non-splenectomized animals receiving a single injection of specific hemolytic immune serum and developing a temporary anemia show likewise on recovery an increased resistance of the corpuscles without the presence of antihemolysin in demonstrable amount. As anemia of varying grade is a characteristic result of splenectomy, it would appear that the increased resistance of the corpuscles is a concomitant of the regeneration of the red cells following such anemia and is thus analogous to the increased resistance of such cells not infrequently observed in various forms of experimental anemia. There is no evidence to indicate that the anemia after splenectomy is due to the presence of hemolytic bodies, or that the increased resistance of the cells is due to antihemolytic bodies, accumulating in the serum as the result of the ablation of the spleen. It is evident, therefore, that the spleen in some way controls or regulates blood destruction (and regeneration?), and in the hope of throwing light on the subject, an investigation of the bone-marrow and lymph-nodes of splenectomized dogs is now under way.

17. **Increase in Number of Endothelial Cells of Lymph-Nodes After Splenectomy.**—In a large proportion of dogs that had been splenectomized for periods of two weeks or more, the authors found a great increase in the number of endothelial cells of the lymph-nodes. In most splenectomized dogs that succumbed to an injection of hemolytic immune serum within forty-eight hours, the sinuses of the lymph-nodes contained large numbers of endothelial cells, phagocytic for red cells. This was not seen in normal dogs receiving hemolytic serum. Likewise a similar power of phagocytosis was seen frequently in the stellate cells of the capillaries of the liver. Both in the lymph-nodes and the liver these cells appeared to be formed *in situ*. The authors found no evidence that they have been transported to these organs. They suggest the possibility of the lymph-nodes assuming some of the function of the spleen.

19. **Pathology of Primary Splenomegaly.**—Mandlebaum maintains that primary splenomegaly of the Gaucher type is a distinct disease, related in all probability to the blood diseases. It begins usually at an early age, frequently affects several members of a family, and runs a chronic course. The clinical manifestations are: pronounced hypertrophy of the spleen, subsequent enlargement of the liver, absence of palpable lymph-nodes, absence of jaundice and ascites, absence of characteristic blood changes, discoloration or pigmentation of the skin, and a tendency to epistaxis or other hemorrhages. The lesions are found in the spleen, lymph-nodes, bone-marrow and liver. These organs show the presence of iron-coating pigment, and large multinuclear cells with a characteristic cytoplasm. In the early cases peculiar large phagocytic cells arising from atypical large lymphocytes are found in the follicles (keimcentra) of the hemapoietic system. After leaving the follicles these cells possess phagocytic qualities for a certain period. As a result of the phagocytosis the cells enlarge, the nature of the cytoplasm changes, and the cells acquire a characteristic vacuolated and wrinkled appearance. The cells are carried from the spleen through the portal system of the liver, where they are destroyed. The irritation produced by this destructive process gives rise to an increase in the intralobular connective tissue. The disease is eminently a chronic one, without any of the manifestations of malignancy, and always terminating as the result of some intercurrent affection. The etiology is unknown, although a family predisposition to some toxic agent which causes an irritability of the follicles in the hemapoietic system probably exists. The possibility of some protozoan infection as an etiologic factor must not be overlooked.

22. **Insect Transmission of Virus of Poliomyelitis.**—It is claimed by Howard and Clark that the domestic fly (*Musca domestica*) can carry the virus of poliomyelitis in an active state for several days on the surface of the body and for several hours within the gastro-intestinal tract. Mosquitoes (*Culex pipiens*, *C. sollicitans*, and *C. cantator*), in their experiments, have not taken up and maintained in a living state the virus from the spinal cord of monkeys. Lice (*Pediculus capitus* and *P. vestimenti*) have not taken the virus out of the blood of monkeys or maintained it in a living state. The bedbug (*Cimex lectularius*) has taken the virus with the blood from infected monkeys and maintained it in a living state within the body for a period of seven days.

Journal of Oklahoma State Medical Association, Muskogee

November, V, No. 6, pp. 237-290

24 Diseases of Heart Muscle. L. J. Moorman, Oklahoma City.
25 Fracture of Skull: Fifteen Recent Cases. R. Grosshart, Tulsa.
26 Sarcoma of Kidney in Infants: Report of Case. T. H. McCarley, Atoka.
27 Pylorospasm. W. M. Taylor, Oklahoma City.
28 Preventive Gynecology. A. B. Leeds, Chickasha.
29 Treatment of Constipation. F. L. Hughson, Vinita.

Journal of Ophthalmology and Oto-Laryngology, Chicago

November, VI, No. 11, pp. 361-393

30 Lingual Tonsils in Health and Disease. J. H. Johnson, Coffeyville, Kan.
31 Severe Burn of Eye from Contents of Fluid Core Golf Ball. W. O. Nance, Chicago.

Washington (D. C.) Medical Annals

November, XI, No. 5, pp. 217-277

32 Syphilitic Tracheal Stenosis. E. H. Reede, Washington, D. C.
33 Obstructions of Alimentary Canal. W. P. Carr, G. T. Vaughan, H. H. Kerr, E. P. Magruder and T. A. Groover, Washington, D. C.
34 Pellagra; a Food Poisoning, Attributed to Use of Indian Corn. P. S. Roy, Washington, D. C.
35 Acid Nitrate of Mercury in Dermatologic Surgery. H. H. Hazen, Washington, D. C.
36 Carcinoma of Stomach. D. S. Lamb, Washington, D. C.
37 Relations of Vascular System to Certain Ocular Diseases. W. H. Wilmer, Washington, D. C.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

November, IX, No. 107, pp. 481-528

1 Infant-Feeding. F. G. Crookshank.
2 *Cutaneous Reaction to Tuberculin in Childhood. C. P. Lapage.
3 Case of Rheumatoid Arthritis in Child Six Years of Age. W. R. Jordan.

2. **Cutaneous Reaction to Tuberculin in Childhood.**—To determine the value of the cutaneous reaction in the diagnosis of tuberculosis in children, Lapage collected and analyzed the results of the tests in 1,000 children. These have been chiefly children showing indefinite signs which may point to tuberculosis. All the cases tested have been carefully examined clinically by the ordinary methods of physical examination. The number of children reacting to the test increased steadily with advancing age, although probably the increase of infection is not so rapid after the tenth year. In the less suspicious cases comprising the last 483 cases, a smaller percentage of children reacted at each age-period. The reaction occurs with a steadily

increasing frequency as the clinical examination progresses from negative to definite. The older the child is, the higher is the percentage of clinically doubtful cases giving a reaction. There is greater difficulty in diagnosing tuberculous infection after the age of 2 years by clinical examination. This is explained by the fact that in older cases tuberculous infection is very common and is not the cause of the illness under consideration. On the other hand, in infants up to the age of 2 years, an infection has such marked results and is so often fatal that the clinical diagnosis is more easily made. Thus we see that as indicating a tuberculous illness the test is like'y to be of greater value in young than in older children.

Glasgow Medical Journal

November, LXXVIII, No. 5, pp. 321-399

4 Three Hundred Consecutive Cases of Appendicitis. G. T. Beatson.
5 Sanatorium Treatment of Pulmonary Tuberculosis. J. W. Allan.
6 Case in Which Certain Symptoms of Syringomyelia Followed Enteric Fever. J. Brownlee.

Practitioner, London

November, LXXXIX, No. 5, pp. 589-744

7 *Cirrhosis of Liver. D. Duckworth.
8 Indications for Mastoid Operation. S. Hastings.
9 Nose, Throat and Ear in Relation to General Medicine. G. W. Badgerow.
10 Common Varieties of Tonsils and Their Recognition. F. C. Pybus.
11 Pulmonary Fibrosis in Children. C. Miller.
12 Recent Cases of Severe Anemia. C. H. Melland.
13 Suturing of Tendons. J. R. Kerr.
14 Recent Literature on Diseases of Lungs. A. J. Jex-Blake.
15 Recent Work on Heart-Block. C. E. Lea.
16 *Inunction Treatment of Measles. D. I. Connolly.
17 Significance of Abdominal Pain in Enteric Fever. A. K. Gordon.
18 Hypertonic Saline Treatment of Cholera, with Special Reference to Pathology, Prevention and Treatment of Choleraic Uremia. G. B. Sarkar.
19 Etiology of Lead-Poisoning as Illustrated by Two Recent Outbreaks. T. M. Tibbetts.
20 Biliary Pulmonary Fistula. A. C. Roper.
21 Ruptured Sarcoma of Right Kidney Simulating Appendicular Abscess. G. C. F. Robinson.

7. **Cirrhosis of Liver.**—The early symptoms of cirrhosis, Duckworth says, demand treatment for the gastric catarrh and intestinal sub-inflammatory conditions. Tartrate of sodium in effervescence is useful for this, with a few minims of dilute hydrocyanic acid in each dose, given every six hours. Milk and arrowroot, or yolk of egg and milk, is an appropriate diet. Whey, or curds and whey, and Koumis are useful. A mustard cataplasm to the epigastrium is helpful, if there is a tendency to esophagismus or vomiting. Bromid of ammonium relieves the irritability of the pharynx. When the digestive powers return, the best treatment for the liver consists in full doses of ammonium chlorid and liquid extract of taraxacum, sweetened with liquid extract of liquorice; this should be maintained for some weeks. If the digestive powers are weak, sodium bicarbonate with gentian, rhubarb, tincture of capsicum and some nux vomica will prove of advantage. All strong liquors are forbidden, and all precautions taken to ensure this. The patient should be duly informed as to the nature of his ailment, and made to understand the risks of continuance in his vicious acquired habits. Inunction with biniodid of mercury ointment may be carried out from time to time over the hepatic region.

16. **Inunction Treatment of Measles.**—As soon as the child is received into the special ward assigned to measles, a hot bath is given. Then follows a thorough application of eucalyptus oil to the whole of the body, with the exception of the hands and the part of the face round about the nose, mouth and eyes. The mouth is irrigated twice daily with weak alum lotion, and glycerin and borax is applied to the interior of the mouth and to the gums. The throat (tonsils and fauces) is treated with carbolic oil (1-10) morning and evening. Every day for the following four days the child is blanket-bathed morning and evening, and again rubbed all over with eucalyptus oil, the throat and mouth having the same treatment as on admission. In most of the cases, it was found by Connolly that the gums were very red and more or less swollen, and often quite definite ulceration was present on the inner side of the cheeks and lips, much larger and whiter than Koplik's spots. Further, it was believed that by attacking the mouth and throat he was striking at one of the chief strongholds of the virus. Connolly is of the opinion that the moist spray and particles, coughed out by the patient, are highly infectious to a susceptible person. In those cases in which bronchopneumonia is already established, the statement holds true to a greater degree.

As regards the thorough rubbing in of the eucalyptus oil, some local effect would, doubtless, be produced, but the main idea was to get the vapor inhaled into the air passages. If the virus were dwelling in the skin or the subcutaneous tissues, it seems reasonable to suppose, too, that direct conflict would take place between the eucalyptus absorbed and such virus as might be present. The face area was omitted, because of the irritation caused to the eyes by the vapor, and it was not thought necessary to apply the oil to the hands. The total number of patients so treated was 160; of these, complications were present in 110, equal to a percentage of 68.75 per cent. In fifty cases complications were absent throughout, a percentage of 31.25 per cent. Forty of the children, 25 per cent., had more than one complication. Complications were already present on admission in ninety-nine cases, 61.9 per cent., while in eleven cases (6.9 per cent.) complications developed in the course of the disease. Bronchopneumonia was present on admission in nineteen cases, or 11.9 per cent., and in two other instances it developed later. Inflammation of the eyes, including acute and chronic conjunctivitis and trachoma, was in evidence twenty-nine times (18.1 per cent.). Another frequent complication was stomatitis, present in twenty-one cases (13.1 per cent.). Gastro-enteritis, most often severe, occurred in twelve children (7.5 per cent.), while a simple gastric catarrh was noticed in two cases. Another fairly frequent and troublesome complaint (always when found, present on admission) was vulvitis in little girls, being observed in twelve cases (7.5 per cent.). A similar percentage of the children had bronchitis (7.5 per cent.). Otitis media complicated the measles in six cases (3.75 per cent.); in four of these it was present on admission. In eleven cases (6.19 per cent.), acute laryngitis was a serious complication. Inflamed tonsils were observed seven times (4.4 per cent.), and skin diseases, such as ringworm, eczema and intertrigo, were present in six cases (3.75 per cent.). Whooping-cough developed in two children (1.25 per cent.) early in the disease; and meningitis was present in the same number on admission. In one doubtful case of measles, meningitis developed some days after admission. The remaining complications were tetany (one), tubercular disease (two), both on admission and one child had an axillary abscess due to a septic focus in the right upper arm.

The total number of deaths was eight, giving a case mortality of 5 per cent. Comparing this result with the case mortality prevailing before the introduction of the inunction method and its accessories, Connolly found that there were 100 cases of measles at the Manchester Union Hospital during the period extending from April, 1910, to the early part of May, 1911. The total number of deaths in this period was eleven, a case mortality, of course, of 11 per cent The first death in Connolly's series coincided with the one hundred and thirty-third case. Seven were due to gastro-enteritis, which disease was present on admission. One child had only slight gastro-enteritis, and had a doubtful history of measles just previous to admission; meningitis supervened later. Among the seven just mentioned, one was dying from tuberculous cachexia.

Presse Médicale, Paris

November 19, XX, No. 95, pp. 961-972

22 *Fracture of Lower End of Femur. (L'ostéosynthèse appliquée aux fractures fermées diacondyliennes de l'extrémité inférieure du fémur.) P. Alglave.

November 20, No. 96, pp. 973-980

23 *Modern Views in Regard to Chronic Nephritis. (Les grands syndromes fonctionels du mal de Bright.) F. Widal.

22. **Fracture of the Lower End of the Femur.**—Alglave refers in particular to the form of simple fracture in which the epiphysis is torn away from the shaft while the shaft is fractured in the groove between the condyles. The condyles spread

far apart and there are thus three loose pieces with possibly additional sequesters. He describes three cases in which clinically normal conditions were restored in a remarkably short time by the technic described with twenty illustrations. It is not applicable for a compound fracture, but only when there is absolute asepsis of the tissues to be operated on. After the accident the leg is cleansed, disinfected and temporarily immobilized in a wire splint until any excoriation of the skin has healed. In about a week he paints the region with iodin and operates with tricot gloves drawn over rubber gloves to protect them. He obtains access to the fracture from the front by a U incision and saws through the patella or through the anterior tuberosity of the tibia. The flap of bone and soft tissue thus formed is turned back, the knee is flexed still more, and after cleansing the joint and region of clots, etc., the condyles are reduced and held in place with screws and the epiphysis is then reduced, the leg extended straight, and a metal plate is screwed to hold the parts in good position or a wire is wound around them. Two patients were women of about 42, the other a man of 32. The conditions were determined by radiography two or three days after the trauma. The eighth day after the operation the leg was left free in bed, the patient was allowed to get up the thirty-fifth day, and by the forty-fifth day in one case and the seventy-fifth in the other, was using the leg normally without any support. The radiographs show the unusually complex nature of the fractures, and Alglave declares that no other technic could possibly have given such functional results in such a short time.

23. **Chronic Nephritis.**—Widal emphasizes that the progress of science has made the examination of a patient with nephritis now mainly a problem in physiology. The important point is to determine the functional capacity of the kidneys. It is no longer enough to say that the patient has acute or chronic nephritis, of interstitial or parenchymatous origin; the diagnosis now must be completed with the specification as to whether the disease has a single or a multiple syndrome; that is, whether there is retention of chlorids or of nitrogen and whether there is abnormally high blood-pressure, isolated or associated. Modern science enables the symptoms from each of the above to be sorted out and the treatment applied accordingly.

Berliner klinische Wochenschrift

November 25, XLVIII, No. 48, pp. 2253-2296

24 Further Experiences with Combined Thyroid, Epinephrin and Sodium Cacodylate Treatment for Thyroid Insufficiency. (Weitere Erfahrungen mit der Schilddrüsentherapie.) H. Stern (New York).
25 Acetonuria as Sign of Pregnancy, Normal or Extra-Uterine. (Ueber Acetonurie bei Extrauteringravidität und bei gynäkologischen Erkrankungen.) J. Novak and O. Porges.
26 *Tuberculin Treatment to Arrest Fever in Pulmonary Tuberculosis. (Entfieberungen bei Lungentuberkulose mittels Tuberkulin, insbes. mit kleinsten Dosen.) J. W. Samson.
27 Nature of Tuberculin Reaction. R. P. v. Calcar.
28 Radiotherapy of Pernicious Anemia. (Aktinium X-Behandlung, insbes. der perniciösen Anämie.) P. Lazarus.
29 *Etiology of Vasomotor-Trophic Disturbances. A. Zweig.
30 Successful Removal of Chondroma Adjacent to Pituitary Fossa. (Chondrom des Clivus Blumenbachii.) H. Coenen.
31 *Primary Sarcomas in Muscle. F. Landois.
32 The Crystals in Cystic Kidneys. (Die Kristalle der Cystenniere.) S. Weil.
33 *By-Effects of Hormonal. (Ueber Hormonalwirkung.) A. Schönstadt.

26. **Tuberculin Treatment of Fever in Pulmonary Tuberculosis.**—Samson reports convincing evidence as to the efficiency of minute doses of tuberculin in arresting the fever and thus improving the general condition and affording other measures a chance to work. He gives the tuberculin for this purpose in extremely small doses, the aim being not to induce tolerance and lead up to large doses, but merely to influence the organism in such a way that it can get the upper hand of the fever. By thus limiting the disease to its focus, the patient recovers if a cure is possible; the nearer to the hectic type, the less promising the outlook. He thinks the special tuberculin to be used is of comparatively less importance. The temperature curve in eight clinical cases is shown, demonstrating the effect on the fever which had proved rebellious to all other measures. In the first case he commenced with 0.0001 mg. "old" tuberculin, and the temperature began to go down when 0.0015 mg. was reached. His closing dose was 10 mg. with a four months' course. The patient was a boy of 14 with a large cavity in the left lung and temperature of 38.1 C. (over 100 F.) after three months of general sanatorium treatment. He is now in good condition, two years later.

29. **Etiology of Vasomotor-Trophic Disturbances.**—In the case described by Zweig the syndrome was made up of three different sets of symptoms, from abnormal conditions in the circulation, in the thyroid and in the psyche. In this, as in Roth's similar case, there was evidently a constitutional overexcitability of the sympathetic nerve system, and of its vasomotor elements in particular; the thyroid syndrome was evidently secondary to this. In exophthalmic goiter, on the other hand, the thyroid element is the primary factor, the rest of the syndrome being consecutive to the abnormal thyroid functioning. The psychic disturbances in Zweig's case persisted unmodified after the other symptoms had subsided, confirming its independence of the thyroid and cardiovascular functioning. The somatic symptoms and the abnormal psychic reactions were probably all traceable to a third element, probably the product of some disturbance in the internal secretions acting on a constitutionally predisposed brain and nervous system. The main symptoms were acute hallucinations, recurring urticaria—suggesting an angioneurotic purpura—sudden enlargement of the thyroid, tremor, exophthalmos, rapid pulse, etc., but no albuminuria and no symptoms on the part of the heart at any time. The patient was an unmarried woman of 52.

31. **Sarcoma in Muscle.**—Landois states that in the last eleven years at the Breslau surgical clinic twenty cases of sarcoma in the soft parts have been encountered, and in nine of these the sarcoma was in the muscles, on the arm in two men of 38 and 44; on the leg in four men between 19 and 36; on the trunk in two women, 15 and 38, and on the head in a girl of 15. The tumor was successfully removed in only five of the cases (leg and trunk), but three in this group already have a recurrence, so that only two of the patients were cured by the operation, the interval since being one and two years. The unfavorable prognosis in these muscle sarcomas should compel early and exceptionally radical removal of the growth.

33. **By-Effects of Hormonal.**—Schönstadt reports three cases of appendicitic peritonitis in which he gave hormonal, and he deplores the fact that this medicinal article was placed in the hands of the general practitioner without a warning that it contains an element liable to induce a serious drop in the blood-pressure. He was appalled at its by-effects in one case: A man of 68 with good and strong pulse at 120 was given an intravenous injection of 0.2 c.c. of hormonal according to directions. Two minutes afterward there was general tremor, then convulsive twitchings, collapse, and death the twentieth minute. In another case a robust man of 32 was given an injection of 0.2 c.c. without the slightest effect being apparent. A fresh supply was obtained directly from the manufacturers and a second injection given the next morning, but no effect on the intestine or heart followed. There was likewise no sign of a reaction to the hormonal in his third case, the peritonitis progressing to a fatal termination about the third day, apparently uninfluenced by the hormonal, although there was no paralysis of the intestines in either of these latter cases.

Deutsche medizinische Wochenschrift, Berlin

November 21, XXXVIII, No. 47, pp. 2201-2248

34 Antisepsis and Asepsis. F. Pels-Leusden.
35 *Traumatic Exophthalmic Goiter. (Zum Kapitel des traumatischen Morbus Basedow.) F. Dyrenfurth.
36 Formation of Vagina Out of Small Intestine; Two Cases. (Künstliche Schiedenbildung aus dem Dünndarm.) M. Henkel.
37 Technic for Concentrated Mercurial Treatment of Syphilis. (Zur Technik der Anwendung hochkonzentrierter Quecksilbermischungen in der Syphilisbehandlung.) K. Zieler.
38 *Toxicity of Urine and Measles. (Harntoxizität und Masern.) H. Mautner.
39 Acidity of Urine in Various Diseases. (Azidität des Harns in einigen Krankheiten.) G. Quagliariello and F. Medina.
40 *Origin of Polycythemia. K. Wakasugi.
41 Placenta Praevia. G. Zinke (Cincinnati).
42 Carbon Dioxid Snow in Skin Disease. (Vorrichtungen für die Gewinnung fester Kohlensäure zur Behandlung von Erkrankungen der Haut.) H. L. Heusner.
43 *Simple Test for Hemin in the Blood. (Vereinfachung der Häminkrystallprobe.) Nippe.
44 *Cancer in Children. (Maligne Tumoren im Kindesalter.) W. Usener.

35. **Traumatic Exophthalmic Goiter.**—Dyrenfurth reports three cases of exophthalmic goiter developing after an accident. In two cases a predisposition was evident, with stigmata of hysteria; these cases sustain the general assumption that when exophthalmic goiter develops after a trauma, the individuals were not previously entirely sound. In the third case, however, a man in apparently perfect health was involved in an automobile-street car accident, and two or three weeks after the physical pain had subsided, nervous symptoms developed and. six months later, symptoms of exophthalmic goiter. It is a question whether the physical or psychic shock was the predominant factor. The experiences to date with exophthalmic goiter of traumatic origin do not encourage the hope of recovery from operative measures. Operations of various kinds which benefit under other conditions seem to do little good on patients suffering from the effects of an accident. He has advised an operation on the thyroid in these cases, but doubts whether this will attack the evil at its root. The fact that a trauma may entail exophthalmic goiter seems rather to support the assumption that the disturbed functioning of other glands as well as of the thyroid is of causal importance. Every hypothesis of defective functioning of any glands is based on the disturbance in the innervation of the glands, and this again sustains the conception of the causal importance of the psychic trauma in such cases.

38. **Toxicity of the Urine in Measles, Etc.**—Mautner reports ten cases in which the toxicity of the urine was tested, the results showing that abnormally high toxic power is not peculiar to measles, but may be encountered in diphtheria, scarlet fever, peritonitis and other affections, as well as in the healthy under certain conditions.

40. **Polycythemia.**—Wakasugi reports a case of polycythemia in which necropsy showed abnormal proliferation of the red bone-marrow as the only probable cause for the polycythemia. These findings confirm those reported in the ten other cases with post-mortem findings on record.

43. **Test for Hemin.**—Nippe states that the crystals of hemin develop beautifully when the specimen of blood is mixed with a few drops of a solution of 0.1 gm. each of potassium bromid, iodid and chlorid in 100 gm. of acetic acid. This durable solution shows up the crystals even in putrefied blood and in blood mixed with rust and long exposed to the weather. The specimen on the slide is warmed until it bubbles, when the crystals form at once. The excess of fluid is then taken up with blotting paper and the crystals mounted in Canada balsam without removing the cover-glass.

44. **Cancer in Children.**—Usener reports a round-celled sarcoma of the clavicle in a boy of 8, a sarcoma of the right kidney in a girl over 4, a sarcoma in the abdominal wall in a girl of 13, and a sarcoma of the jejunum in a boy of 9. These malignant tumors formed 2.3 per cent. of 173 tumors of various kinds encountered in two recent years at the Leipsic children's hospital. It is remarkable that kidney cancer generally occurs at such an early age. Monti found forty-four under 5 in his fifty-five cases, and Steffen 194 in his 222 cases. Only ten of the eighty-eight operative cases had a permanently favorable outcome, the other children succumbing to the operation as in the case described. The cancer in the abdominal wall seems to be the only case of the kind on record; Steffen has reported two cases in infants, probably congenital, and the tumor was in the subcutaneous adipose tissue on the extremities in these cases. The boy of 9 was cured by removal of the round-celled sarcoma in the jejunum. The prognosis of these cases is bad on account of the early metastasis. Of the thirteen known to date, the patients were all boys but one. An operation was done in three cases, but the one here reported is the only one with a favorable outcome, and for this appendicitis was responsible. This compelled operative treatment, and during the operation the invaginated cancer was discovered. The condition would probably have continued a long time without much disturbance if it had not been for the casual discovery during the operation on the appendix. In all the other cases the intestinal sarcoma was practically inoperable when first discovered, and metastasis soon followed.

Medizinische Klinik, Berlin

November 24, VIII, No. 47, pp. 1893-1930 and Supplement

45 *Typhoid. (Abdominaltyphus.) H. Hochhaus.
46 Vasomotor-Trophic Neuroses. (Rolle des vegetativen Systems in der Pathologie der vasomotorisch-trophischen Neurosen.) R. Cassirer.
47 *Clinical Research on 1,400 Healthy Persons. (Einiges über Albuminurie, Pulsfrequenz, Kniereflex, vasomotorisches Nachröten, Augen-, Zungen-, Händezittern, Mac Burneyschen und Erbschen Druckpunkt, Mastodynie, Ovarie; nach Untersuchungen an Gesunden.) O. Schellong.
48 The Blood in Potassium Chlorate Poisoning. (Zur Hämatologie der Kalichloricumvergiftung.) F. Gaisböck.
49 *Treatment of Obesity. (Einfache Methode der Bekämpfung der Fettleibigkeit.) A. Galisch.
50 The Build of the Thorax and Pulmonary Tuberculosis. (Thoraxbau und Tuberkulöse Lungenphthise.) C. Hart.

45. **Typhoid.**—Hochhaus reports some unusual and puzzling cases, among them that of a young woman suspected of typhoid but all the signs were negative and the symptoms indicated merely a pyelocystitis; typhoid bacilli were found in pure culture in the urine and the usual symptoms developed after a time. In a case recently reported by Jores a middle-aged man succumbed to fulminating sepsis; even at necropsy nothing characteristic of typhoid was found, but the blood in the heart was swarming with typhoid bacilli. Hochhaus suggests that fulminating sepsis of this kind might occur in an old typhoid bacilli carrier, and that typhoid and paratyphoid infections might occur together from new auto-infection. The low leukocyte count, retarded pulse and diazo are instructive differential points for typhoid. In prophylaxis he calls attention to Perl's recent finding that typhoid bacilli are found on the teeth and tonsils late into convalescence. Hochhaus' experience confirms the advantage of strict dieting for three weeks but then feeding soft foods more abundantly than has hitherto been the rule. Meat had better be avoided until the temperature is permanently normal. The newly acquired knowledge in regard to the distribution of the bacilli explains the lack of effective action from calomel, etc. He adds that there does not seem to be much prospect for serotherapy of typhoid, as Pfeiffer has recently reiterated.

47. **Clinical Tests on the Healthy.**—Schellong tabulates his findings on examination of 1,400 presumably healthy persons applying for positions in the postal and telegraph service during a period of twelve years. Albumin was found on boiling the urine in only 4.5 per cent. of 1,400 men, confirming the rarity of albuminuria in the healthy. The pulse was found 88 or over in 35.7 per cent. of 1,000 male and female candidates; 96 and over in 22 per cent.; 100 and over in 14.5 and 108 to 120 in 6.7 per cent., the women and most robust men having the fastest pulse. The knee-jerk was exaggerated in 85 per cent. of 500 candidates; tremor of the tongue was evident in 33 per cent. of 219; of the closed eyelids in 70 per cent. of 240 examined; and tremor of the spread fingers of the extended right arm in 26 per cent. of 217 examined. McBurney's point was tender in only six of 500 examined. The relative frequency of these nervous phenomena in the healthy persons examined shows that they must not be regarded as testifying to neurasthenia, hysteria or a traumatic neurosis in clinical cases; they are all within the range of the physiologic reactions of the nervous system. Congestion and tenderness of the ovary and neuralgia of the mammary gland, on the other hand, were conspicuous by their absence in the hundreds of women examined. The least nervous excitability was found in the persons whose previous occupation had kept them in the open air. The number of seconds that elapse before redness develops in the skin after a line has been drawn on it with the finger, is a useful test of the vasomotor excitability, as also Steinert's definition of the knee-jerk, namely, only that in which the pronounced reflex action follows the blow on the patella or tibia, not on the quadriceps tendon.

49. **Treatment of Obesity.**—Galisch has been very successful in reducing the weight of his over corpulent patients by the one simple measure of reducing the amount of food taken after midday, thus giving the body less nourishment at night to build fat out of. The patient eats until satisfied at breakfast and noonday dinner, but after this takes only a little coffee or tea and one small sandwich for tea and supper. Exercise and work during the afternoon provide for utilization of the food

taken up to noon. All his patients lost one or two pounds a week on this restriction of food after the noon meal, and all thrived on it.

Münchener medizinische Wochenschrift

November 19, LIX, No. 47, pp. 2545-2600

51 *Improved Technic for Blocking Nerves. (Ueber Leitungsanästhesie unter Zuhilfenahme elektrischer Reizung.) G. Perthes.
52 Technic for Perineal Prostatectomy. (Erfolge der nach meiner Methode ausgeführten perinealen Prostatektomien mit seitlichem Schnitt.) M. Wilms.
53 The Oxidation Processes in the Cells. II. O. Warburg.
54 *The Neutral Red Reaction in Milk. E. Moro.
55 Glycogen in Optic Nerve in Two Cases of Diabetes. (Erkrankung der Nerven des Auges bei Diabetes mellitus.) M. Hoffmann.
56 *Salt by the Mouth in Prevention of Anaphylactic Shock. (Ueber Schutzwirkung wiederholter Kochsalzgaben per os gegenüber dem anaphylaktischen Schock.) H. Langer.
57 Spectroscopic Test for Hemibilirubin in Pathologic Urine. H. Fischer.
58 Surgery in the Navy in Action. (Grundzüge der allgemeinen Seekriegschirurgie.) M. zur Verth.
59 Copper Salts in Treatment of Tuberculosis. (Weitere Erfahrungen mit einer Chemotherapie der Tuberkulose.) G. v. Linden.
60 *Apparatus for Resuscitation of the Apparently Drowned or Asphyxiated. (Verfahren für die künstliche Atmung bei Scheintoten und Asphyktischen.) L. Lewin.
61 Technics for Examination of Cerebrospinal Fluid in Syphilis. G. L. Dreyfus.
62 Retention of Urine from Bladder Tumors. (Vesikale Harnstauung bei zottigen Blasengeschwülsten.) O. Zuckerkandl.

51. **Nerve Blocking for Local Anesthesia.**—Perthes has found that it is possible to determine whether the cannula is in direct contact with the nerve by sending a minimal electric current through the cannula, insulated except at the tip. A slight twitching follows in the muscle fibers innervated directly by the nerve, and this shows the exact moment when to inject the anesthetic. The stimulation is too slight to cause pain; he gives a sedative before local anesthesia to keep the patient in a twilight, hazy condition although still able to respond to appeals.

54. **Neutral Red Reaction in Milk.**—Moro states that a 1 per cent. solution of neutral red turns human milk yellow and cow's milk purple. One drop of the stain on a teaspoonful of drawn breast-milk changes the tint to a reddish purple at once if the human milk has been kept too long and is thus unfit for use.

56. **Salt in Prophylaxis of Anaphylactic Shock.**—Langer some time ago announced that the action of morphin was attenuated by ingestion of a strong salt solution. He found this same mitigating action evident in guinea-pigs treated with alien serum and then given strong salt solution by the mouth five minutes before the injection of serum was repeated. Further experiments showed that this same protection against anaphylaxis could be attained by a course of small amounts of salt taken by the mouth. These results suggest the application to man of this method of protecting against anaphylaxis by prolonged administration of salt in amounts too small to induce an appreciable reaction. A connection between ingestion of salt and anaphylaxis is suggested by Heilner's experiments, although in an opposite direction. He found that injection of a hypertonic salt solution in serum-treated animals, elicited phenomena of anaphylaxis just like those of an anaphylaxis-inducing second injection of the serum.

60. **Artificial Respiration Table.**—Lewin gives an illustrated description of a folding portable table apparatus on which the individual to be resuscitated is fastened and with which it is possible to combine all the improved methods for artificial respiration, including application of the principle of Schultze's swinging. The apparatus is said to work so simply and easily that one person alone can manage it. A similar table on a smaller scale would prove useful in reviving infants born asphyxiated.

Hygiea, Stockholm

October, LXXIV, No. 10, pp. 1057-1184

63 Direct Visual Inspection of Interior of Abdomen and Chest. (Om laparo- och thoracoskopi.) H. C. Jacobæus.
64 *Artificial Pneumothorax in Pulmonary Tuberculosis. C. Saugman.
65 Calculus in Prostate. (Om prostatasten.) G. Naumann. (Fall af prostatasten.) K. Belfrage.

64. **Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis.**—Saugman remarks that this unfortunate name has probably deterred some from adopting this method of treatment as the mere idea of a pneumothorax conjures up such dangers. He has applied it in the last five years in 104 cases but found conditions in thirty-one cases (30 per cent.) preventing effectual compression of the lung. This percentage of failures is much larger, he adds, than in the American reports, probably because in America the procedure is applied before the disease has reached such advanced stages as in his material. In his entire series of 2,100 injections of nitrogen he has had only one fatality, his ninety-eighth patient, and important lessons were learned from this case. The patient was a young man who dreaded the procedure intensely. The puncture pierced only the chest wall and no gas could be injected. Repeating the puncture it proved possible to inject 2 c.c. of the nitrogen until the manometer showed a slight negative pressure during respiration. After waiting for eight or ten minutes the cannula was introduced for the third time. When the manometer showed slight negative pressure the flow of gas was arrested. The young man suddenly collapsed, with signs of heart failure; after vomiting copiously he ceased to breathe. There was no electric current available, but all other means of stimulation were tried in vain, including massage of the heart. Necropsy failed to disclose any cause for the fatality; no lacerated vessel could be found so that air embolism can probably be excluded. The findings were like those in a fatal chloroform accident. Everything pointed to reflex paralysis of the heart from pleura shock. The case teaches that the injection of gas should not be made soon after eating, and that the reflex excitability should be reduced by a preliminary injection of morphin, and further, that not more than one puncture should be made at one sitting. Saugman has often made one, two, three or four punctures at one sitting, without any inconvenience, but he is convinced that this young man would not have died thus if only one puncture had been made that day. Another lesson taught by the case is to have ether, camphor and digitalis at hand and also an electric induction current. The possibility of a fatality must always be borne in mind, as with general anesthesia, but the same as with this, fatalities are so rare that the fear of them should not deter from the use of this valuable measure. Aside from this fatality, the only by-effects noted were in a few cases transient dizziness, seeing black, or distress, or brief paresis in one arm, with brief clonic contraction. A few patients with a habit of swooning fainted, but none lost consciousness and there were no disturbances in the pupil or field of vision. In two cases there was a suspicion of air embolism; the nitrogen was being injected under high pressure and a sudden movement of the patient may have ruptured an adhesion and thus torn a vessel in it, but the immediate subsidence of the symptoms apparently excluded the assumption of air embolism. He tabulates the details under sixteen headings of the entire 104 cases, especially the signs indicating the possibility of effectual compression. They are far from conclusive to date and further research is urgently needed on means to determine beforehand whether the pleural cavity is open or not. Even Litten's diaphragm phenomenon sometimes proved misleading. In seventy-two of the total 104 patients effectual compression was realized and effects were obtained, he says, surpassing those possible with any other method, especially in a group of thirty-five pure cases, free from complications. Of four patients with temperature over 39 C. three became entirely afebrile; five of seven with temperature of 38 to 39 C., and five of six with subfebrile temperature, while nine with occasional febrile periods have been entirely free from them since. In all of this group of thirty-five the tuberculous process was severe, involving the entire lung with much destruction of tissue in some, and the other lung showed some involvement in a few instances, in three of half of the lung and more. He prefers puncture to an incision, citing four cases in eighty on record in which fatal infection developed after the incision technic for pneumothorax. He thinks this positive danger far outweighs the hypothetical danger of air embolism with the puncture technic.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, January 14. Chairman, Dr. W. H. Sanders.

Arizona: Phoenix, January 6-7. Sec., Dr. John Wix Thomas.

Colorado: State House, Denver, January 7. Sec., Dr. David A. Strickler, 612 Empire Building.

District of Columbia: Washington, January 14. Sec., Dr. George C. Ober, 125 B Street, S.-E.

Illinois: Coliseum Annex, Chicago, January 22-24. Sec., Dr. James A. Egan, Springfield.

Indiana: Room 57, State House, Indianapolis, January 14-16. Sec., Dr. W. T. Gott, State House.

Minnesota: Pathological Institute, University of Minnesota, Minneapolis, January 7. Sec., Dr. Thomas S. McDavitt, Lowry Building, St. Paul.

New Mexico: Santa Fé, January 13. Sec., Dr. W. E. Kaser, East Las Vegas.

New York: January 28-31. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

North Dakota: Grand Forks, January 7. Sec., Dr. G. M. Williamson.

Oklahoma: Oklahoma City, January 14. Sec., Dr. John W. Duke, Guthrie.

Oregon: Portland, January 7. Sec., Dr. E. B. McDaniel, 702 Electric Building.

Rhode Island: State House, Providence, January 2. Sec., Dr. Gardner T. Swarts, State House.

South Dakota: Watertown, January 8. Sec., Dr. L. G. Hill.

Utah: Salt Lake City, January 6-7. Sec., Dr. G. F. Harding, 310 Templeton Building.

Vermont: Montpelier, January 14-16. Sec., Dr. W. Scott Nay, Underhill.

Washington: Spokane, January 7-12. Sec., Dr. F. P. Witter, Traders' Block.

Wisconsin. Milwaukee, January 14-16. Sec., Dr. John M. Beffel, 3200 Clybourn Street.

Pennsylvania June Examination Questions

The following are the questions asked by the Bureau of Medical Education and Licensure of Pennsylvania, at the examination held June 24 to 26 inclusive, 1912. It is interesting to note that closely related subjects have been combined for the examinations held in each half-day session. This differs quite markedly from the usual procedure. The arrangement of subjects in the five half-day sessions and the questions asked are as follows:

First Half-Day Session

PHYSIOLOGY, PATHOLOGY AND BACTERIOLOGY

1. Given an acute attack of peritonitis due to perforating appendicitis, state the pathologic conditions that may be present and give the determining cause, together with a method of demonstrating this cause.

2. In acute lobar pneumonia (croupous pneumonia) detail the local conditions, the determining cause of these conditions and state briefly their effect on the normal function of the lungs, as well as on metabolism.

3. Discuss briefly the lesions in the diffuse form of arteriosclerosis, both in the blood-vessels and in important associated organs. Explain the effect on the function of these organs.

4. Describe two lesions of the liver that will cause lessening of the supply of bile, and discuss in detail the effect of this loss.

5. Detail the lesions in typhoid fever, describe the determining cause and explain the sources of elimination.

6. Given a patient with an incipient tuberculosis of the lungs, explain the local lesions, describe at least two laboratory methods by which the diagnosis may be verified and discuss in detail each method.

7. Describe a method pursued in the preparation of diphtheria antitoxin and give the reasons for the various steps.

8. Describe the lesions, name the causes and outline the technic of a method of demonstrating the variety of ophthalmia neonatorum.

9. In carcinoma of the female breast, name the varieties, describe the gross appearance of each and enumerate the avenues and usual points of metastasis.

10. Enumerate four of the usual pathologic lesions capable of causing hematuria, describe two of these conditions (one of cystic, the other of renal origin) with a method of demonstrating each in life.

Second Half-Day Session

SYMPTOMATOLOGY, DIAGNOSIS, TOXICOLOGY AND MEDICAL JURISPRUDENCE

1. State the local and the constitutional symptoms of follicular tonsillitis and differentiate it from diphtheria.

2. Enumerate the diagnostic symptoms of angina pectoris and name other diseases that resemble it, stating their points of difference.

3. Enumerate the symptoms and physical signs diagnostic of lobar pneumonia and differentiate it from subacute pleurisy with effusion.

4. Describe in detail the symptoms of scarlatina and differentiate this disease from measles.

5. Given a patient brought into the hospital unconscious, with a history of having fallen in the street, name four diseases which might exist and give the differential diagnosis.

6. State the diagnostic symptoms of acute miliary tuberculosis; name another disease with which it may be mistaken and differentiate the two diseases.

7. What is ptomain poisoning? Enumerate the diagnostic symptoms of same and state other conditions that may resemble it.

8. State the symptoms of acute anterior poliomyelitis in its different stages and differentiate it from neuritis.

9. Give the symptoms of acute (fatal) arsenical poisoning and enumerate a legal question which must be considered by the physician under these circumstances.

10. What medicolegal reasons would justify a physician in terminating a pregnancy? What steps should be taken prior to this action?

Third Half-Day Session

OBSTETRICS AND GYNECOLOGY, HYGIENE AND PREVENTIVE MEDICINE

1. Name the common abnormalities of the breasts after confinement; their causes, prevention, local and hygienic treatment.

2. What methods would you adopt in order to relieve the vomiting of pregnancy, and on what theory would you use the various methods mentioned?

3. What symptoms would lead you to the apprehension of an oncoming attack of eclampsia before the convulsions set in? What is its treatment, both before and after the convulsions?

4. What are the dangers of abortion (miscarriage)? If abortion occurs, how are these dangers avoided; and, if they are not avoided, how are they overcome?

5. What is the significance of excessive menstrual bleeding; intermenstrual bleeding; entire absence of bleeding?

6. Name the more usual bacteria which cause puerperal septicemia together with the methods of their introduction into the birth canal, the results of their presence there and the prevention of these results.

7. Name four abdominal enlargements which might be mistaken for pregnancy and differentiate them from pregnancy.

8. Outline the essential conditions surrounding a safe and healthful supply of drinking-water. If unsafe, how may the water be rendered safe for use?

9. During an epidemic of typhoid fever what precautions are necessary, both as to the immediate family and as to the community at large?

10. In inspecting a house as to its plumbing, what are the essential points to establish?

Fourth Half-Day Session

ANATOMY AND SURGERY

1. Enumerate the lesions to be considered resulting from a severe blow on the nose, and give the method of treatment of any two forms of injury selected.

2. Outline the essentials of a good amputation; describe any one major amputation, giving the surgical anatomy of the part selected.

3. Enumerate five of the more usual conditions capable of causing peritonitis; describe an operation that might be required for any one condition selected.

4. What conditions would warrant the enucleation of an eye? Describe an operation for the same.

5. In severe injury about the ankle-joint, enumerate what possible lesions should be considered.

6. Describe the technic of intravenous infusion; state the veins accessible for infusion, and how to locate each.

7. What surgical conditions must be considered in retention of urine? Outline an operation for the correction of any one condition selected, with the reasons for selecting this.

8. State the usual position of the fragments in an oblique fracture of the lower third of the femur and the muscular control of the fragments

9. State possible lines of transmission of infection in palmar abscess and give the external landmarks for the location of the palmar arches.

10. What symptoms and conditions referable to the gall-bladder or liver would call for operative interference?

Fifth Half-Day Session

MATERIA MEDICA, THERAPEUTICS

1. (a) What is ergot? (b) give its official name; (c) enumerate the official preparations; (d) give dose of each; (e) what are its most pronounced physical actions?

2. Write a prescription in the metric system with the directions for administration, containing a nitrite, and state what effect you would aim to produce; another prescription containing an ammoniacal heart-stimulant, and a third containing a hydragogue cathartic in pill form.

3. From what class of organic substances are acetanilidum and acetphenetidinum obtained? What is their general physiologic action? What is the action of most of this class of drugs on the blood? Give the dose of the two above named. How are they excreted?

4. Give the official name of five salts or other preparations of mercury and state the therapeutic indications of each.

5. How would you treat a case of typhoid fever, together with the more important complications? Give dose and frequency of administration of each remedy you would use in this disease, together with reasons for its employment.

CHEMISTRY

1. What is the chemical reaction of blood? To what is it due? What is hemoglobin? Oxyhemoglobin? Methemaglobin?

2. Describe a quantitative test for urea in urine. What is the usual composition of biliary calculi? Describe their physical appearance. In what manner do they originate?

3. What is chlorin? How does it chiefly occur in nature? Describe its physical properties. In what form is it found as a component part of the human body? Mixed in equal proportions with hydrogen, what chemical action takes place?

4. Differentiate between human and cow's milk, as to percentage of water, proteid matter, sugar, fat and ash.

5. Describe the technic of Fehling's test for sugar in urine. In case the test proves positive, what is the visible evidence thereof and on what chemical basis does it rest?

Book Notices

Arthritis. A Study of the Inflammatory Diseases of Joints. By Peter Daniel, F.R.C.S., Senior Surgeon, Metropolitan Hospital, London. Edited by James Cantlie, M.A. M.B. No. 3, the Medico-Chirurgical Series. Cloth. Price, $4. Pp. 515. New York: William Wood & Co., 1911.

This book abounds in personal experiences, and represents the author's views and opinions based on knowledge and observation. He is emphatic in his statement that "except as a result of trauma, arthritis is only a symptom of a disease whose real nidus is in some distant part of the body." Nor would he differentiate synovitis from arthritis, because "only a very short acute inflammation can possibly involve the synovial membrane alone." He also emphasizes the fact that the arthritis may be secondary to a disease in some other part of the body even years after the subsidence of the primary infection. Sepsis and arthritis—this is the sequence of events. Daniel has found that by far the commonest source of arthritis is sepsis in the oral cavity—a fact to which all experienced clinicians now subscribe. As for the toxic arthritis, he suspects a microorganism as being the real cause of the trouble in every case.

Considerable space is devoted to a discussion on rheumatoid arthritis, which the author believes to be caused by a multiplicity of bacterial processes, foremost among these being genital infection. The treatment advocated in all these lesions is one which combats the primary cause of the trouble—the original infection—and which prevents local deformity and destruction of tissue. Specific treatment of the local trouble, which fails to take into account the primary nidus, is condemned, and rightly so. The trouble is not, Daniel says, a local one. The joint symptoms are merely a local manifestation of a systemic affection or a localized infection in some other part of the body. Therefore, they combat infection and prevent destruction of tissue. He employs, as a routine, Bier's hyperemia, aspiration of cavities containing pus, injection of iodoform and glycerin emulsion, and extension. The latter is emphasized as being the only effective means to prevent deformity.

The book is well written and contains a mine of information on an exceedingly important subject.

Common Disorders and Diseases of Childhood. By George Frederic Still, M.A., M.D., F.R.C.P., Professor of Diseases of Children, King's College, London. Second Edition. Cloth. Price, $5.50. Pp. 813, with illustrations. Oxford Medical Publications. London: Henry Frowde, 1912.

Since this book was reviewed in The Journal in 1909 changes and additions have been made to bring the work up to conform to the present understanding of the various subjects in pediatrics. Among the additions in this edition are sections on enlarged tonsils and adenoids, epilepsy, asthma and hydrocephalus. The sections on infantile paralysis and congenital syphilis have been revised to correspond with later information on those subjects. The work still retains its former character of a record chiefly of the personal experiences and opinions of the author, who is well qualified to impart most valuable information on the common disorders and diseases of childhood.

The Chemical Constitution of the Proteins. By R. H. A. Plimmer, D.Sc., Assistant Professor of Physiologic Chemistry, University College, London. Monographs on Biochemistry. Second Edition. Two Parts. Part I—Analysis. Cloth. Price, 5 shillings, 6 pence. New York: Longmans, Green & Co., 1912.

The Physiology of Protein Metabolism. By E. P. Cathcart, M.D., D.Sc., Grieve Lecturer on Chemical Physiology in the University of Glasgow. Monographs on Biochemistry. Cloth. Price, $1.25 net. Pp. 142. New York: Longmans, Green & Co., 1912.

The monographs of this series which have so far appeared entirely fulfil the hopes with which the outcome of the enterprise was awaited. As we have stated before, this seems to be the best way yet devised for publishing such rapidly developing subjects as biologic chemistry. The publication of small and inexpensive monographs, each written by a man specializing in the field he covers. permits accurate presentation and frequent revision. We note with pleasure that some of these monographs are already appearing in a second edition. While all are of extreme value to specialists in biologic chemistry and the many related subjects, several are also of great interest to the progressive physician, and none more so than Cathcart's "Physiology of Protein Metabolism." We can strongly recommend to any physician who wishes to acquaint himself with the modern developments in our knowledge of protein metabolism, with all that this subject means for nutrition and dietetics, a careful reading of this monograph. In it will be found as careful, accurate and interesting an exposition as can be desired. Plimmer's review of the chemical composition of the proteins and the methods of analysis used in their study is of more direct interest to the biologic chemist than to the physician, but to the latter it should be of value as a reference work to elucidate the terms of protein chemistry which are now so frequently met in medical literature.

Primary Malignant Growths of the Lungs and Bronchi. A Pathologic and Clinical Study. By I. Adler, A.M., M.D., Professor Emeritus at the New York Polyclinic. Cloth. Price, $4 net. Pp. 325, with 17 illustrations. New York: Longmans, Green & Co., 1912.

Primary cancer of the lung is usually regarded as one of the very rare forms of cancer, but the number of cases being recorded indicates that after all it perhaps is not so rare. In his monograph Adler collects reports of 374 cases of primary carcinoma, ninety cases of sarcoma and about 100 other cases in which the diagnosis was not conclusive. The anatomic features and the clinical manifestations are discussed fully and interestingly. Surely any physician who reads carefully the hundred odd pages devoted to this discussion will be better prepared to detect early the existence of cancer of the lung. So far the treatment of primary cancer of the lung has been practically only symptomatic and for the purpose of relief, any hope of cure being regarded as out of the question. It has been asserted that lung cancer is unique because absolutely beyond the reach of the surgeon. Even if surgery might become better equal to the task it would be of no use because the diagnosis cannot be made early enough. In the meantime the technic of lung surgery has developed rapidly and in actual cases of lung cancer there has been operation, with relief to the patient and possibly lengthening of life. Adler emphasizes strongly the principle that with this advance in surgery, which is likely to continue, added responsibility is placed on the physician as the only hope lies in early diagnosis. He should realize that the disease is not so infrequent but that he may meet a case any day. Adler recommends exploratory thoracotomy in cases suspected to be lung cancer but not susceptible of definite diagnosis. This operation may prove of service also in relieving distressing symptoms.

Sexual Impotence. By Victor G. Vecki, M.D., Consulting Genito-Urinary Surgeon to the Mount Zion Hospital, San Francisco. Fourth Edition. Cloth. Price, $2.25. Pp. 394. Philadelphia: W. B. Saunders Company, 1912.

The fourth edition of this standard monograph on impotence is much enlarged and contains many facts that have been brought out since the third edition was published. The author considers impotence as a symptom and discusses thoroughly its etiology, pathology, symptomatology and treatment. There is an exhaustive chapter on prophylaxis, and finally a review is given of all known methods of treating impotence. These are thoroughly discussed, and the experience of the author with each of these methods is reported. Any physician who will spend the time to read Dr. Vecki's book will learn a great deal about this common, complex and obscure symptom, impotence.

Diagnose der Simulation nervöser Symptome. Ein Lehrbuch für den Praktiker. By Dr. Siegmund Erben, Vienna. Paper. Price, $2.15. Pp. 194, with 24 illustrations. New York: Rebman Company, 1912.

This short compendium on the diagnosis of simulated nervous symptoms is complete in itself and calculated to warn the practitioner of the numerous errors into which he may fall when examining for simulation. The work can be recommended especially to those who are frequently called on to testify in the courts in questions involving nervous diseases of a functional character, sustained through railway or other accidents. An English translation would be welcome.

EXPLANATION OF THE USE OF THE INDEX

This is an index not only to the reading matter in The Journal, but also to original articles in the principal medical periodicals of this and other countries. The reading matter appearing in The Journal is distinguished by the use of **black-faced numerals.**

The letters used to explain in which department the matter indexed appears are as follows: "E," Editorial; "C," Correspondence; "T," Therapeutics; "Ml," Medicolegal; "P," Propaganda for Reform; "ME," Medical Economics; "ab," abstract; the star (*) indicates an "Original Article" in The Journal.

This is a subject index and one should, therefore, look for the chief word, with the following exceptions: "Deaths" and "Society Proceedings" are indexed under these titles at the end of the letters "D" and "S." Matter pertaining to the Association is indexed under "American Medical Association."

All matter is indexed under the most important word of the heading used in The Journal, and also under the subject heading. For instance, abscess of the brain will be found under "abscess," as well as under "brain." Such titles as "ocular manifestations, etc." have been indexed under "Eye." Cross references have been liberally used.

The figures in parentheses refer to the paragraph, the number following to the page in The Journal, for example:

ABDOMEN, gun-shot wound complicated by 22 intestinal perforations, ***1886**

This reference is to an original article in The Journal, as shown both by the star and by the black-faced numerals indicating the page.

ACID solution for examination of cerebrospinal fluid, preparation of, **960**

This reference, as indicated by the black-faced figures, is also in The Journal, and on turning to page 960 we find an answer to a question in the Department of Queries and Minor Notes.

ABDOMEN, echinococcosis of, (5) **1222**—ab

In this one, the page number, being in black-faced type, shows that the matter is discussed in The Journal, "ab" indicating that it is an abstract. Turning to page 1222, we find (5) refers to an article by T. S. Tirumurti in the *Indian Medical Gazette*, August.

ABDOMEN, adhesions, preadhesions and postadhesion in pelvis and, (52) 2003

The fact that in this last reference the page is given in ordinary type indicates that only the title of the article is given. Turning to page 2003 we find that the numeral (52) refers to a paper on that subject by F. E. Walker which appeared in the *Journal of the Iowa State Medical Society*, November.

In the Author's Index are the names of the authors of articles which have appeared in The Journal of the American Medical Association and of articles that have been listed from week to week in the Department of Current Medical Literature as having appeared in other journals. The black-faced numerals indicate that the article is in The Journal, either in full or in abstract. The star (*) preceding the page number, indicates an original article.

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SOCIETIES

Abbreviations:

Acad.—Academy.
Am.—American.
A.—Association.
Conf.—Conference.
Cong.—Congress.
Internat.—International.
M.—Medical, Medicine.
Pharm.—Pharmaceutical.
S.—Society.
Surg.—Surgical, Surgery, Surgeons.

- Am. A. for the Study and Prevention of Infant Mortality, **1387, 1614, 1737**
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Campbell, A. M., (19) 1571
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Campbell, E. K., (20) 70
Campbell, H., (13) 485, (7) 578, (15) 820, (38) **2006**
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Cantieri, A., (141) 2196
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Cutting, C. T., (74) 2095
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Simpson, V. E., (52) 1921
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Smith, H. H., (34) 675
Smith, J. K., (54) 2184
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Smith, M., (76) 748, (31) 2006
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Swayne, W. C., (38) 753
Sweet, E. M., (5) 2096
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(*Continued from Front Cover*)

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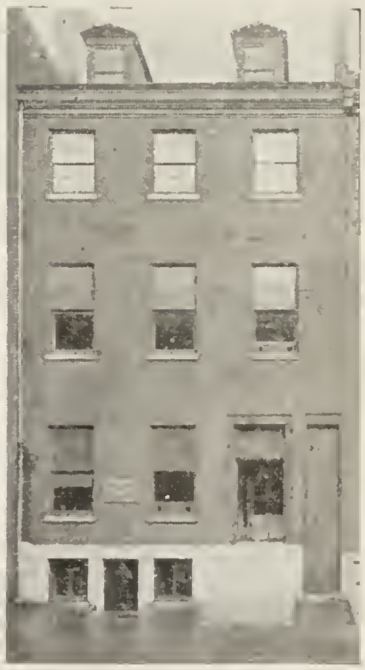

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Hawaiian Territorial Medical Society	W. G. Rogers, Honolulu	Wm. C. Hobdy, Honolulu	
Idaho State Medical Association	J. W. Gue, Caldwell	Ed. E. Maxey, Boise	Twin Falls, 1913.
Illinois State Medical Society	L. H. A. Nickerson, Quincy	Edmund W. Weis, Ottawa	Peoria, May, 1913.
Indiana State Medical Association	A. C. Kimberlin, Indianapolis	Chas. N. Combs, Terre Haute	West Baden, Sept. 25-26, 1913.
Iowa State Medical Society	V. L. Treynor, Council Bluffs	J. W. Osborne, Cit. Nat. B'k. Bldg, Des Moines	Des Moines, May 7-9, 1913
Isthmian Canal Zone, Med. Assn. of	W. E. Deeks, Ancon	Howard V. Dutrow, Ancon	
Kansas Medical Society	George M. Gray, Kansas City	Chas. S. Hoffman, Columbus	
Kentucky State Medical Association	David O. Hancock, Henderson	Arthur T. McCormack, Bowling Green	Bowling Green, 1913.
Louisiana State Medical Society	B. A. Ledbetter, New Orleans	L. R. DeBuys, 141 Elk Pl., New Orleans	Baton Rouge, 1913.
Maine Medical Association	Stanley P. Warren, Portland	W. Bean Moulton, 622 Congress St., Portland	
Maryland, Medical and Chir. Faculty of	A. C. Harrison, Baltimore	John Ruhräh, 1211 Cathedral St., Baltimore	
Massachusetts Medical Society	Walter P. Bowers, Clinton	Walter L. Burrage, 282 Newbury St., Boston	Boston, June 10-11, 1913.
Michigan State Medical Society	Walter H. Sawyer, Hillsdale	Wilfrid Haughey, 24 W. Main St., Battle Creek	Flint, Sept., 1913
Minnesota State Medical Association	Richard J. Hill, Minneapolis	Thos. McDavitt, 210 Lowry Bldg., St. Paul	
Mississippi State Medical Association	S. W. Glass, Dublin	E. F. Howard, 1st Nat. B'k. Bldg., Vicksburg	Vicksburg, 1913.
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Montana State Medical Association	J. M. Scanland, Warmsprings	Herbert D. Kistler, Murray Hospital, Butte	Great Falls, 1913.
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New Hampshire Medical Society	John W. Staples, Franklin	D. E. Sullivan, 7 No. State St., Concord	
New Jersey, Medical Society of	Norton L. Wilson, Elizabeth	Thos. N. Gray, E. Orange	Spring Lake, June 17-19, 1913.
New Mexico Medical Society	L. S. Peter, Silver City	R. E. McBride, Las Cruces	
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North Carolina, Med. Soc. of the State of	John P. Munroe, Charlotte	John Ferrell, Raleigh	Morehead City, June 17, 1913.
North Dakota State Medical Association	A. J. McCannel, Minot	H. J. Rowe, Casselton	
Ohio State Medical Association	J. C. M. Floyd, Steubenville	J. H. J. Upham, 186 E. State St. Columbus	Youngstown, 1913.
Oklahoma State Medical Association	J. L. Shuler, Durant	Claude A. Thompson, Muskogee	Enid, 1913.
Oregon State Medical Association	R. E. Ringo, Pendleton	M. B. Marcellus, 901 Selling Bldg., Portland	Medford, 1913.
Pennsylvania, Med Soc. of the State of	Lewis H. Taylor, Wilkes-Barre	Cyrus Lee Stevens, Athens	Philadelphia, Sept. 22-25, 1913
Philippine Islands Medical Society	R. E. L. Newberne, Manila	V. L. Andrews, Manila	Manila.
Rhode Island Medical Society	Alexander R. Briggs, Ashaway	J. Perkins, 106 Waterman St., Providence	
South Carolina Medical Association	Chas. M. Rees, Charleston	Edgar A. Hines, Seneca	Rock Hill, April, 1913.
South Dakota State Medical Association	C. E. McCauley, Aberdeen	R. D. Alway, 212 Main St., Aberdeen	Vermilion, 1913.
Tennessee State Medical Association	O. Dulaney, Dyersburg	Perry, Bromberg, 315 Jackson Bldg., Nashville	Nashville, April 8-10, 1913.
Texas, State Medical Association of	J. S. Turner, Dallas	H. Taylor, W. Nat'l Bank Bldg., Fort Worth	San Antonio, 1913.
Utah State Medical Association	A. J. Hosmer, Salt Lake City	W. Brown Ewing, 801 Boston Bldg., S. L. City	Salt Lake City, 1913.
Vermont State Medical Society	B. H. Stone, Burlington	C. H. Beecher, Burlington	Burlington, 1913.
Virginia, Medical Society of	Southgate Leigh, Norfolk	Paulus A. Irving, Farmville	Lynchburg, 1913.
Washington State Medical Association	C. J. Lynch, N. Yakima	C. H. Thomson, Walker Bldg., Seattle	Everett, 1913.
West Virginia State Medical Association	Frank L. Hupp	A. P. Butt, Davis	Charleston, May 21-23, 1913.
Wisconsin, State Medical Society of	A. J. Patek, Milwaukee	Charles S. Sheldon, 251 Langdon St., Madison	
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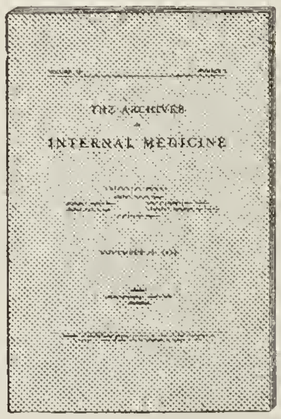

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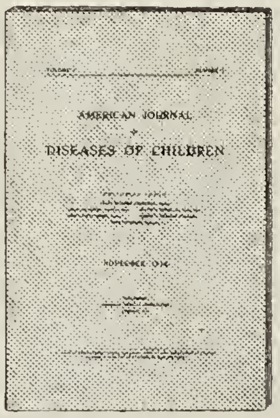

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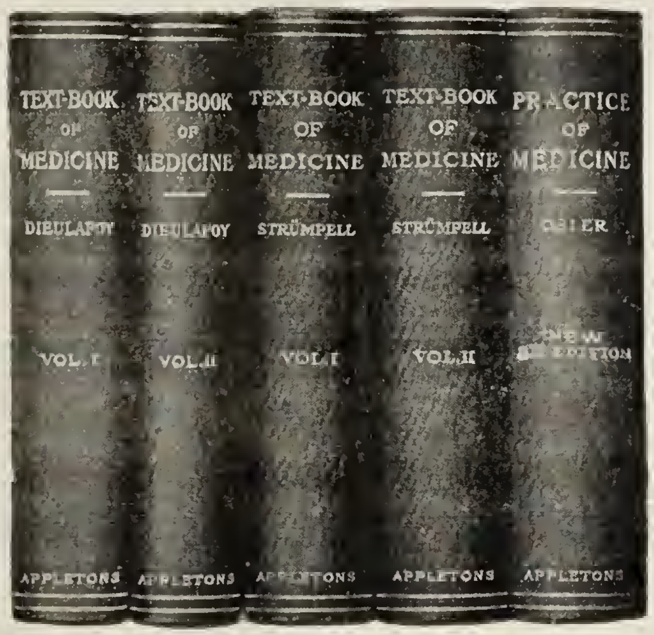
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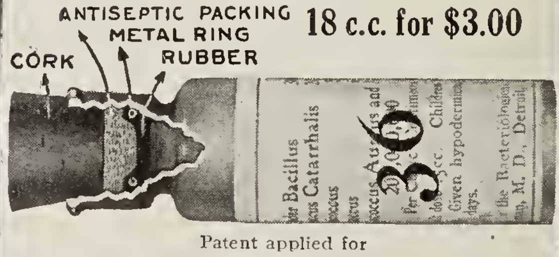

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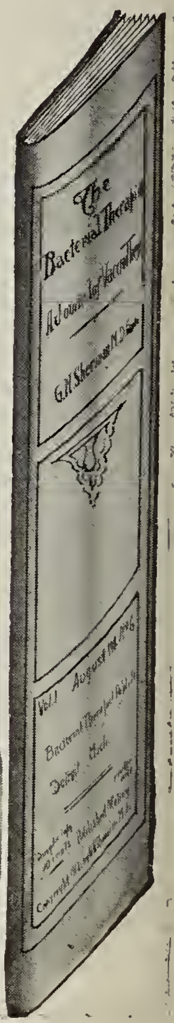

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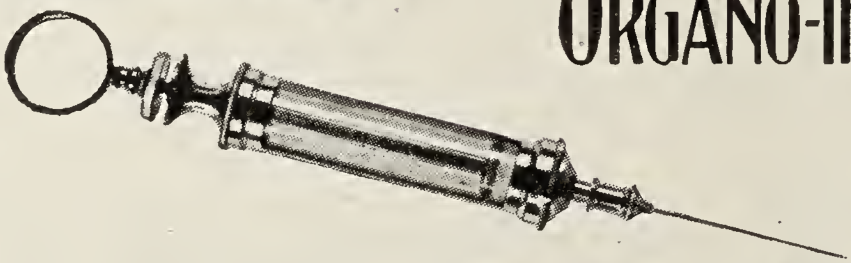

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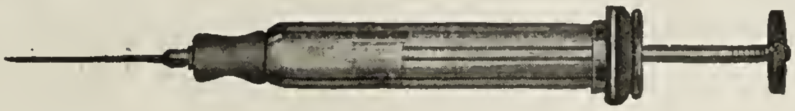

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Dr. H. REINHARDT: "Apotheker-Zeitung," 1909, page 90. See also "Vierteljahrschrift fur pract. Pharmacie," 1908, Part 4, page 311.

Dr. KURT PEIN (Rudolph Virchow Hospital, Berlin): "Die Therapie der Gegenwart," Part 3, March, 1910.

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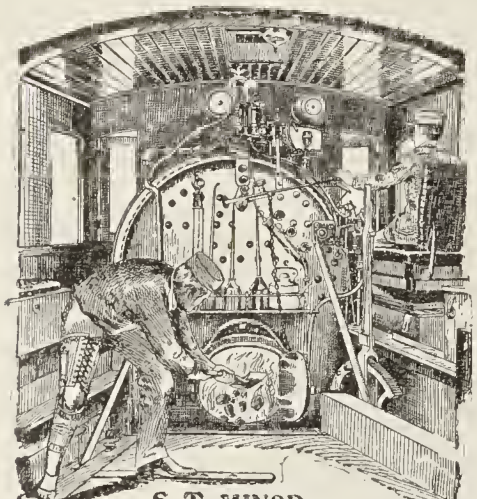

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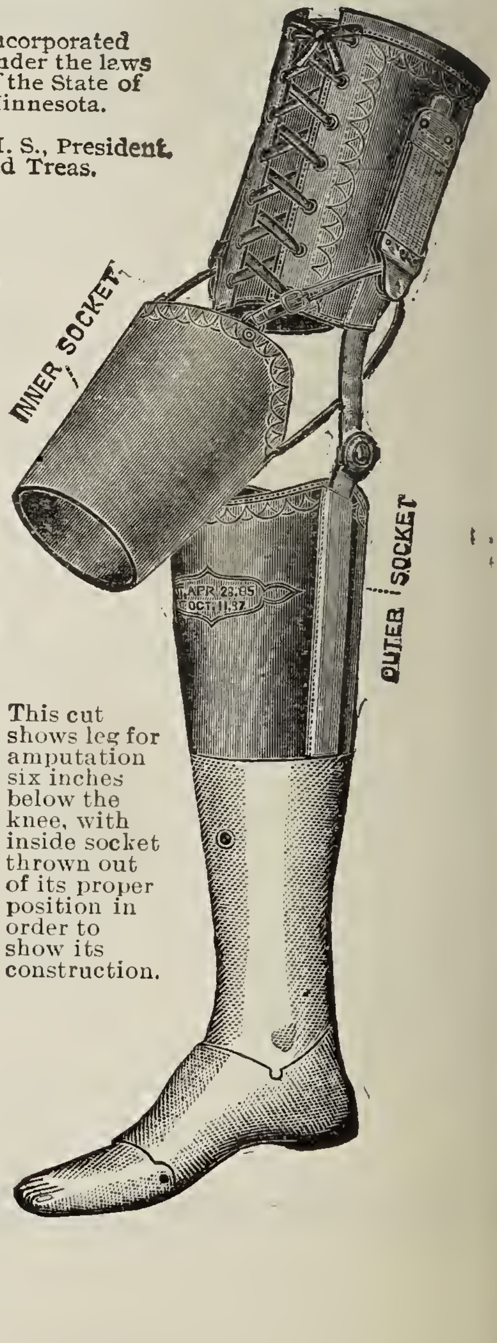

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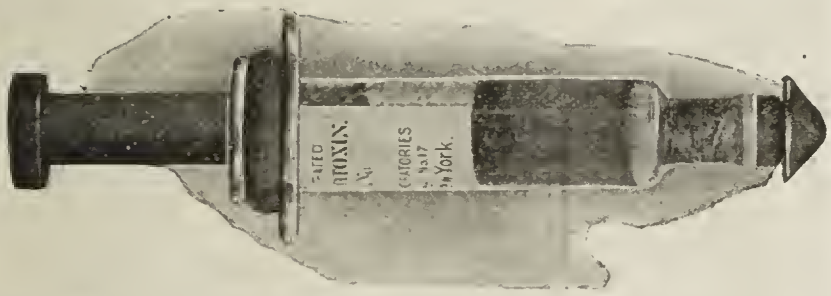


FIGURE 1 shows the syringe as the physician receives it

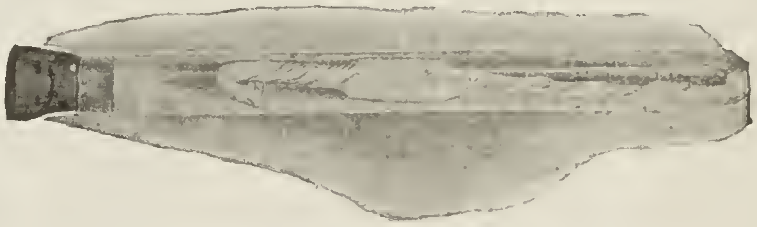


FIGURE 2 shows the needle wrapped and encased in a glass tube in which it has been sterilized

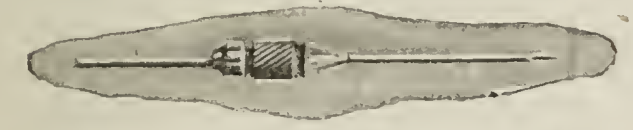
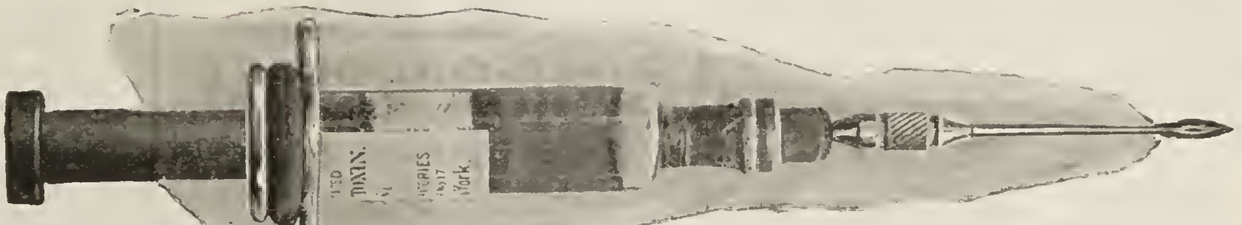


FIGURE 3 shows the needle with the paper wrapping removed



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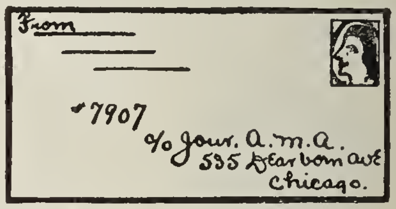

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- Otis H. Maclay
- Albert H. Andrews

PATH., BACT. and
MICROSCOPY
- John A. Graham

Chicago, December 26, 1912

Dear Doctor:

We wish to announce that the next four weeks forenoon course of SYSTEMATIC INSTRUCTION in ANATOMY, PATHOLOGY, DIAGNOSIS, TREATMENT and OPERATIVE SURGERY of the EAR, NOSE and THROAT will begin JANUARY 6, 1913, under the direction of DRS. ALBERT H. ANDREWS, WM. G. REEDER and B. F. ANDREWS.

Afternoon clinical work in EAR, NOSE and THROAT is given throughout the year under the direction of DRS. OTTO T. FREER, CHARLES M. ROBERTSON, OTIS H. MACLAY and DAVID FISKE.

Beginning FEBRUARY 3, 1913, and continuing throughout the month, the afternoon and evening will be devoted to SYSTEMATIC and PRACTICAL DIDACTIC INSTRUCTION on REFRACTION, ANATOMY, PATHOLOGY, DIAGNOSIS and TREATMENT of the EYE, together with a thorough OPERATIVE COURSE on the CADAVER and PIG EYES, under the direction of DRS. CHARLES H. FRANCIS, CHARLES P. SMALL and EARL J. BROWN.

Full forenoon clinical work in EYE is given throughout the year under the direction of DRS. GEO. W. MAHONEY, S. M. HAGER and CHARLES H. FRANCIS.

Similar courses in the above subjects will begin the first week of each alternate month.

Practitioners desiring to take the DIDACTIC and OPERATIVE WORK should be present at the beginning of each course.

GENERAL CLINICS, GENERAL OPERATIVE SURGERY and LABORATORY COURSES are continuous throughout the year.

Very respectfully,

M. L. Harris

Secretary.

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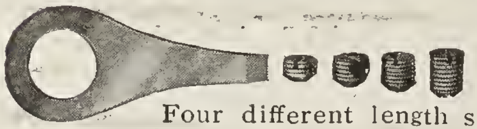

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Intended for men, for women who do not wear corsets, or who must wear support in bed.

KNOCKS AND BOOSTS

(Continued from page 20)

paid personal "write-ups." I would not be without my copy for three times its cost. Howard V. Dutrow, M.D., Cristobal, C. Z.

—o—

PROMPT INFORMATION

To the Editor:—I could not get along without THE JOURNAL. I wish to thank you for your very prompt response, through the Queries and Minor Notes department, to an inquiry I made recently. Please keep up my subscription. J. A. Collins, M.D., St. Jacob, Ill.

—o—

NO TIME FOR FREAK CASES

To the Editor:—It is not a matter of finance, but the trouble is this: you cannot please all. The profession is divided. There are elements who devote their time to specialty, and for these men THE JOURNAL is a grand thing. But there is another class of doctors to which the majority of articles in THE JOURNAL (i. e., freak cases on some special work, two or three pages devoted to some case that probably ten doctors in the United States have never seen, hypothetical cases of rare conditions in lines of certain specialties, etc.), are absolutely worthless. Don't misunderstand me. These men all come from good schools and are as bright as any and your articles are interesting, but not instructive or practical. What the general run of M.D.'s wants is a journal that devotes itself to every-day practical cases and to mistakes that we meet in our every-day work. If a few men wish research (which is absolutely necessary) work, or have time to read freak cases and can afford it, then I say get out a special journal for this special bunch. Again, I say in closing: I have got lots of good things out of THE JOURNAL, but while I put in ten years in a large city specializing surgery and enjoy your articles, I realize I need articles on the every-day cases, mistakes, hurts, treatments, and in fact "the do and don'ts" of the cases we meet in every-day life—and not being able to have several journals, must get one that covers my work. Thanking you for past favors, and again requesting you to stop THE JOURNAL, I am in haste, George B. Owen, Polson, Mont.

—o—

A DICTIONARY OF QUACKERY

The American Medical Association has issued a volume for $1 that contains more things than any other medical book on the market unless it be a medical dictionary. The title of this book of 509 pages is "Nostrums and Quackery." As well as we thought we knew the American people, we are utterly astonished at the number of medical frauds that have been perpetrated on them, and in most cases without any protest on the part of the victims. Through the influence of numerous persons having a desire for better things—the Postoffice Department and a few public prosecutors—the lives of some of these framed promoters have at times been made unhappy. *Collier's Weekly* has been a busy watcher, and the fraud detective department of the A. M. A. has given these people but little peace. The attention of the general public has been aroused, and the public are not sure of anything of a medical kind unless it is the honesty of the family physician, to whom they sometimes come for advice in relation to cures. It is unfortunately true that numerous fraudulent proprietary nostrums have come into general use through physicians who were imposed on by smart agents and unscrupulous medical journals which were willing for a money consideration to use their advertising pages to defraud physicians and the public. This book is intended to furnish to the profession and the public information on these matters which may be regarded as correct. The physician who has a copy of this book will be in a position to answer any questions a patient may ask in relation to any drug or cure and also be able to fortify his statement by a book reference to the same.—*Journal of Iowa State Medical Society.*

Jokes — New and Old

THE AVARICIOUS HOUSE SURGEON

A patient swallowed a half-penny and next morning the house surgeon extracted it from the rectum. It had passed down without much trouble, but had been unable

(Continued on next page)

COURSE IN VACCINE THERAPY

DOCTOR: Do you want instruction in Vaccine Therapy?

Course consists of 25 lessons covering Essential Bacteriology, Preparation of Bacterins, Opsonic Index, Agglutination Tests, Immunity, Anaphylaxis, the treatment with Bacterins, including administration, dosage and interval of dosage in all diseases amenable to the Bacterins. Write for full particulars. Class limited. **Autogenous vaccines prepared for physicians.**

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Blood Taker's, Needles, Test Tubes, especially made Test Tubes for Vaccines. All Laboratory Materials and Outfits.

Free Instruction how to do the Wassermann Test

SEE PAGE 20 FOR COST OF CLASSIFIED AND COMMERCIAL ANNOUNCEMENT ADVERTISEMENTS.

(Continued from page 20)

WANTED — TWO ASSISTANT PHYSICIANS in mining district, northern Minnesota, who have had previous hospital experience and are reliable, moral, ethical, Protestant and of good habits. Add. 3957 B, % AMA.

WANTED —PHYSICIANS AT THE STATE institutions, Howard, R. I.; service includes practice in all acute and chronic diseases, with some surgery; also in maternity ward; salary, $25 per month and found.; excellent opportunity to prepare for general practice. Add. F. B. Jewett, M.D., Superintendent. B

WANTED—WOMAN PHYSICIAN, AS ASSOCIATE in established sanitarium; New York State; twenty to forty patients, mostly women; no mental cases, no surgery; laboratory experience desirable, but experience in care of patients essential; in answer give age, college, experience, salary expected. Add. 3945 B, % AMA.

WANTED—RESIDENT PHYSICIAN FOR hospital of 30 beds in middle western state; must be single, not over 30 years of age, of good habits and competent; graduate of a No. 1 school; one with hospital experience preferred and non-Catholic; work largely surgical; $75 per month and maintenance; send photo and full details. Add. 3942 B, % AMA.

WANTED—ASSISTANT IN CONTRACT mining practice with small hospital; 12 beds; Pennsylvania; splendid opportunity for hustler; practice of all kinds; must be good anesthetist and fair laboratory man, willing to work; must be licensed in Pennsylvania; $50 per month and maintenance to start; $25 raise if make good. Add. 3927 B. % AMA.

WANTED—ASSISTANT SURGEON, PUBLIC health service; salary $2,000 per annum with chance for promotion; age limit 23-32 years; examination will be held in Washington, D. C., on Jan. 13, 1913. For further information concerning examinations, requirements of candidates, references, etc., add. Surgeon-General, Public Health Service, Washington, D. C. B

INTERNS WANTED

WANTED—INTERN FOR TERM OF SIX months in hospital of over 50 beds in good-sized city in Southern Indiana; excellent opportunity for physician desiring experience in all departments of medicine and surgery; write at once for full information, stating how soon you can enter the service. Add. 3955 D, % AMA.

WANTED—ONE INTERN FOR TERM OF one year, beginning June 1, 1913; board, room and laundry furnished; no salary; general medical and surgical service; appointment will be made January 15. Sheltering Arms Hospital, Hansford, W. Va. D

WANTED—TWO INTERNS FOR GENERAL hospital of 100 beds; will pay $300 per annum, board and washing; position open in same hospital for pathologist; salary $1,200 to $1,500 per year, board and washing. Add. 3953 D, % AMA.

WANTED—A PROMINET GENERAL HOSPITAL in Chicago, having a large eye, ear, nose and throat service, desires the services of a physician to act as intern in charge of this special service; no salary but splendid opportunity; length of service at least one year; longer if desirable. Add. 3904 D, % AMA.

WANTED—AN INTERN FOR THE SANATORIUM of the Jewish Consumptives' Relief Society, located near Denver; capacity, 115, to be increased to 140; excellent opportunity for the study of tuberculosis in all stages; terms, $20 per month for the first six months; $25 per month for the second six months, room, board and laundry; fare to Denver returned after a service of six months; opportunities for advancement. Add. Superintendent, Edgewater, Colo. D

GENTLEMEN — PLEASE DISCONTINUE my advertisement, number —, as I have sold my practice—and it only took one insertion. THE JOURNAL cannot be too highly recommended as an advertising medium. Thanking you very kindly for the courtesies extended me, I am yours truly, ————.

(Continued on next page)

JOKES—NEW AND OLD

(Continued from preceding page)

to pass the rectum. I think this was the case in which the house surgeon got into trouble with the lay governing body of the hospital. He was charged with having extracted a fee from an outpatient. But as the amount in dispute was small, he thought he had better hand it over to the hospital authorities to avoid prosecution.—Harrison Cripps in *Clinical Journal*, London.

—o—

JUST WHAT SHE MEANT

"So you think I smoke too much?" asked the intern just to keep up a conversation that seemed to be languishing.

"Not at all," the nurse answered, not very skilfully concealing a yawn.

"You said you thought so."

"Pardon me. I don't think you are smoking too much."

"Didn't you say that I'd die if I didn't cut it down?"

"Yes—that's what I said."

It took him a long time to get it, and then he was quite angry.—*Evening Sun.*

—o—

A DOG AT THE CAT SHOW

Dr. Tellum—I took my dog to the cat show and got the first prize.

Dr. Askim—Come off; you couldn't win first prize at a cat show with a dog.

Dr. T.—I didn't say I won the first prize; I said I got it. To be explicit, my dog got the cat that got the first prize. Now is it clear?

—o—

BRIGHT KID—WHAT?

A little girl with the mumps said: "A headache has slipped down into my neck."

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

OUTLINES OF PSYCHIATRY. By William A. White, M.D., author of "Mental Mechanisms," Superintendent Government Hospital for the Insane, Washington, D. C. Nervous and Mental Disease Monograph Series No. 1. Fourth Edition. Paper. Price, $3. Pp. 318. New York: Journal of Nervous and Mental Disease Publishing Co., 1913.

PRÉCIS PRATIQUE D'ÉLECTRICITÉ MÉDICALE. Electrologie et Instrumentation Rayons X et Courants de Haute Fréquence. Par G. Geiger, Docteur en Médicine de la Faculté de Paris. Paper. Price, 6 francs. Pp. 409, with 122 illustrations. Paris: Jules Rousset, 1, Rue Casimir-Delavigne, 1913.

DIE KLINISCHE STELLUNG DER SONGENANNTEN GENUINEN EPILEPSIE. Referate, Erstattet auf der Tagung der Gesellschaft deutscher Nervenärzte in Hamburg, 1912. Von Prof. Dr. E. Redlich and Geh.-Rat Prof. Dr. O. Binswanger. Paper. Price, 6 marks. Pp. 146. Berlin: Julius Springer, 1913.

DU STRABISME. Recherches étiologiques Pathogénie Mécanisme du traitement. Par Dr. Pierre Lagleyze, Professeur d'Ophtalmologie a l'Université de Buenos-Aires. Paper. Price, 15 francs. Pp. 409, with 43 illustrations. Paris: Jules Rousset, 1, Rue Casimir-Delavigne, 1913.

HYSTERISCHE LÄHMUNGEN. Studien über ihre Pathophysiologie und Klinik. By Dr. H. Di Gaspero, I. Assistent an der K. K. Universitäts-Nervenklinik in Graz. Paper. Price, 8.50 marks. Pp. 174, with 38 illustrations. Berlin: Julius Springer, 1912.

OPEN-AIR SCHOOLS FOR THE PREVENTION AND CURE OF TUBERCULOSIS AMONG CHILDREN. By B. S. Warren, Passed Assistant Surgeon. Paper. Price, 15 cents. Pp. 20. Public Health Bulletin No. 58. Washington: Government Printing Office, 1912.

SUGAR AT A GLANCE. The Influence of Sugar-Beet Culture on Agriculture and Its Importance in Relation to National Economics. By Truman G. Palmer. Paper. Document 890. Pp. 63. Washington: Government Printing Office, 1912.

JAHRBUCH FÜR ORTHOPÄDISCHE CHIRURGIE. Von Dr. Paul Glaessner, orthopädischer Assistent der chirurgischen Universitäts-Poliklinik in der Kgl. Charité zu Berlin. Vol-

(Continued on next page)

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The Journal excludes questionable or illigitimate ads from its columns to maintain the good faith of its patrons. For rates and other information, see page 20.

(Continued from preceding page)

WANTED—INTERN FOR MODERN CHILdren's and maternity hospital in large eastern city; moderate salary; medical, surgical and exceptional maternity services; practical laboratory work; unusual opportunity for exhaustive course in modern scientific infant-feeding; state school, date of graduation and subsequent experience. Add. 3856 D, % AMA.

LOCATIONS WANTED

WANTED—UNOPPOSED OR SLIGHTLY opposed country practice, in Pennsylvania, Ohio or Michigan; would consider partnership with prospects of buying later; nothing considered below $3,000 to $4,000 practice; will buy property up to $5,000 if suited; 40 years old; best references; can take possession at once. Add. 3959 E, % AMA.

WANTED—GOOD PAYING VILLAGE AND country practice, with or without property, in northern Illinois or Wisconsin; must be well located and on railroad; give detailed description of everything in first letter if answer wanted; have driving outfit and instruments; ready to make deal and pay for it. Add. Dr. J. E. W., Brodhead, Wis. E

WANTED—LOCATION—IN OHIO, INDIana or Colorado; unopposed preferred; want a large practice and good pay; give complete description and good terms. Add. 3951 E, % AMA.

WANTED—LOCATION OR PARTNERship by graduate A1 college; also scientific degree; 18 months' interneship, 4 years' successful private practice; satisfactory references, character and ability; town of 2,000 or more; Kansas, Colorado, Nebraska or middle western states reciprocating preferred; cash for suitable proposition, preferably without real estate; give details. Add. 3947 E, % AMA.

WANTED — LOCATION IN SOUTHERN Iowa or southeastern Nebraska, in modern town of 2,500 or over, a good unoppoesd country practice near city will be considered. What have you to offer? Tell everything in relation to competition, people, business, religion, roads, practice, property, sale or renting price; introduction. Add. 3926 E, % AMA.

WANTED—GOOD LOCATION, GENERAL practice, contract practice, assistantship to busy practitioner or first-class institutional position by May 1, 1913, in Pennsylvania, California or Colorado; married; 7 years' practice; 5 years Army medical service; 4 years in large tuberculosis sanatorium. Add. 3759 E, % AMA.

WANTED—LOCATION IN SOUTHWEST, preferably Arizona or New Mexico, competent surgeon; will consider partnership with established practitioner, interest in paying hospital or general or contract practice; have the price; will consider some real estate; large town preferred. Add. 3875 E, % AMA.

LOCUM TENENS WANTED

WANTED—LOCUM TENENS FOR FOUR or five months, beginning at once, or Jan. 5, 1913; unopposed village and country practice, northwestern Iowa; will lease residence furnished to M.D. with small family; state salary expected. Add. D. C. Steelsmith, Melvin, Iowa. F

PARTNERS WANTED

WANTED—EXPERIENCED PARTIES TO take financial interest of few thousand dollars and full manageemnt new sanitarium, Cedar Rapids, Iowa; only sanitarium in or near city; parties of high standing in sanitarium work will have hearty cooperation of citizens and physicians. Write James C. Young, 707 Metropolitan Life Bldg., Minneapolis, Minn, for special circular. G

PARTNERSHIP WANTED

WANTED — EAR, NOSE AND THROAT specialist, well up except in major operations, desires good location or position as assistant or partner; have had general practice of ten years; come from leading universities; am strictly temperate and can furnish best references; have had considerable hospital experience in specialty and chest work. Add. 3857 H, % AMA.

(Continued on next page)

BOOKS RECEIVED

(Continued from preceding page)

ume 3, 1911. Paper. Price, 6 marks. Pp. 122. Berlin: Julius Springer, 1912.

ÉTUDE HISTORIQUE ET CRITIQUE SUR LES GÉNÉRATIONS SPONTANÉES ET L'HÉTÉOGÉNIE. Par le Dr. H. Grasset. Paper. Price, 4 francs. Pp. 189. Paris: Jules Rousset, 1, Rue Casimir-Delavigne, 1912.

REPORT OF THE CONNECTICUT AGRICULTURAL EXPERIMENT STATION, New Haven, Haven, Conn. Food Products and Drugs, 1912. Being Part II of the Annual Report of 1912. Paper. Pp. 208.

REPORT OF THE PELLAGRA COMMISSION OF THE STATE OF ILLINOIS. November, 1911. Frank P. Norbury, M.D., Alienist, Board of Administration, Springfield. Paper. Pp. 250.

LA VIE DU RÈGNE MINÉRAL. Par René Schwaeblé. Paper. Price, 3 francs. Pp. 118, with illustrations. Paris: Jules Rousset, 1, Rue Casimir-Delavigne, 1913.

CHICAGO FRESH-AIR HOSPITAL. Second Annual Report of Superintendent. For Year Ending June 30, 1912. Paper. Pp. 23, with illustrations. Ethan A. Gray, Supt.

SYNTHÈSE DU BACILLE DE KOCH. Albert and Alexandre Mary. Paper. Price, 1 franc. Pp. 15. Paris: Jules Rousset, 1, Rue Casimir-Delavigne, 1913.

THIRTY-SEVENTH ANNUAL REPORT OF THE FREE HOSPITAL FOR WOMEN, BOSTON. Paper. 1911-1912.

SIXTH REPORT OF THE BABIES' DISPENSARY AND HOSPITAL OF CLEVELAND. Paper. 1912.

The Public Service

Medical Department, U. S. Army

Changes for the week ended December 21:

Browne, Rhoderic W., first lieut., M.R.C., granted four months' leave of absence.

Miller, Alvin C., first lieut., Medical Corps, is relieved from duty at Fort George Wright, Wash., and will proceed to Fort Alcatraz, Cal., for duty.

The following named medical officers are relieved from duty in the United States and will proceed to San Francisco in time to take the transport sailing from San Francisco for the Philippine Islands, on or about April 5, 1913: Maj. R. M. Thornburgh, Capt. Lloyd L. Smith, Capt. L. H. Hanson, Capt. Paul W. Gibson, First Lieut. F. N. Chilton, First Lieut. J. L. Robinson, First Lieut. Josiah H. Holland, First Lieut. Lloyd A. Kefauver, First Lieut. W. H. Myers, M.R.C., First Lieut. Henry F. Lincoln, M.R.C.

The following named officers have been relieved from duty in the Philippines division on or about April 15, 1913, and will proceed to the United States and report to the adjutant general of the Army for assignment to duty: Capt. J. W. Hanner, Capt. Edward B. Vedder, Capt. Theodore Lamson, Capt. J. D. Heysinger, Capt. J. B. Huggins, Capt. H. C. Coburn, Jr., First Lieut. T. W. Penrose, M.R.C., First Lieut. Edgar F. Haines, M.R.C.

MacDonald, Robert C., first lieut., is relieved from duty, Fort Baker, Cal., and will take the transport to sail from San Francisco on or about Jan. 5, 1913, and will report on the arrival of that transport in Hawaii to the commanding officer, Fort Kanehamoha, for duty.

Clark, Albert P., first lieut., is relieved from duty at Fort Williams, Me., and will proceed to San Francisco and take the transport sailing from that place on or about Feb. 5, 1913, for Hawaiian Territory, and on arrival will report to the commanding officer, Schofield Barracks, for duty.

Huntington, Bert R., first lieut., is relieved from duty at Fort Worden, Wash., and will proceed at the proper time to San Francisco and take the transport to sail from there on or about Feb. 5, 1913, for Hawaiian Territory, and on arrival will report to the commanding officer, Fort De Russey, for duty.

Feely, James F., A.D.S., December 14, returned to Fort Hamilton, N. Y., from detached duty.

Miller, Alvin C., first lieut., Medical Corps, is relieved from duty at Fort George Wright, Wash., to take effect on the departure of the 25th Infantry from that post. Lieutenant Miller will accompany that regiment to San Francisco and will proceed from that place to Alcatraz, Cal., and report in person to the commandant, Pacific branch, United States military prison, for duty. The travel directed is necessary in the military service.

Stationery For Professional Men—Letterheads envelopes, etc., for physicians, druggists, dentists. Finest quality *Engravureprint* process at about one-half the price of ordinary printing. Portfolio of samples and price-list sent free upon request. Write for them *today!*

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(Continued from preceding page)

SITUATIONS WANTED

WANTED—ASSISTANTSHIP — GRADUATE of St. Louis University wants to associate himself with either a surgeon or general medical man in city of Chicago or other large city; have had fine experience, hospital training, etc.; remuneration a secondary consideration; trained in eye, ear, nose and throat specialty; reliable, temperate, steady; aged 40; healthy, good appearance; write me. Add. 3944 I, % AMA.

WANTED — ASSISTANTSHIP — YOUNG man, married, moral and ethical, who has built up lucrative practice in internal medicine and surgery in five years, has obvious reasons for making change; especially successful in abdominal diagnosis; can qualify in all laboratory methods and radiography; prefer assistancy to general practitioner or busy surgeon; recommendations available at once. Add. 3961 I, % AMA.

WANTED—POSITION AS ASSISTANT OR partner with physician or busy surgeon, by young man, 27, single, energetic; graduate A1 school; 14 months' internship; for some time clinical assistant in one of the graduate schools of Chicago; northwest states preferred; give full particulars in first letter. Add. 3956 I, % AMA.

WANTED—CONTRACT LOCATION (MINE, mill, etc.) or assistantship; have just completed hospital work in one of the large New York hospitals; aged 28 years, single; can furnish best references; have West Virginia license; prefer West Virginia, Kentucky or Tennessee, but will go anywhere; can come at once. Add. 3934 I, % AMA.

WANTED — PRIVATE CASE BY MALE nurse; 12 years' successful experience with demented; best of references furnished. Add. Lock Box 128, Bancroft, Neb. I

WANTED — SALARIED POSITION BY physician experienced in contract, hospital and private practice; would like institutional, contract or detail work; aged 35; married; no children; graduate A1 eastern school; good surgeon; not afraid of work; best references; good habits; available at once; give particulars and salary in first letter. Add. 3940 I, % AMA.

WANTED—BY IOWA PHYSICIAN SALARIED position; graduate of good school; aged 27; unmarried; one year hospital experience; 3 years' successful private practice; prefer assistantship to busy practitioner and surgeon in city who wants capable assistant; references furnished; write fully in first letter regarding salary, etc. Add. 3858 I, % AMA.

WANTED — CONTRACT PRACTICE OR position, mine, mill, corporation, etc., by physician, aged 29; one year hospital experience; three years' general work; prefer Michigan, Minnesota, Wisconsin, Illinois, Iowa; can come at once; references first-class; state proposition fully; will come for interview if desired. Add. 3922 I, % AMA.

WANTED — BY A GRADUATE NURSE with one year's experience in giving anesthetics, a position as anesthetist with surgeon in office or institution. Add. 3907 I, % AMA.

WANTED—SITUATION IN A HOSPITAL or with a physician as radiographer; experienced with plaster cast work and ether; am a graduate nurse, registered by state board; can furnish best of references. Add. A. W. B., 54 W. Newton St., Boston, Mass

WANTED—POSITION AS DETAIL MAN or to represent some good medical house; have detail experience and can give best of references; am a graduate of A1 college. Add. 3864 I, % AMA.

WANTED—OPHTHALMIC SURGEON AND skilled refractionist desires position on hospital staff or with busy oculist; graduate Class A1 medical college, with thorough general and special hospital training; aged 37; Bachelor of Arts; speaks English and German; good mixer; health and habits excellent; best reference. Add. Oculist, 1456 West Monroe St., Chicago, Ill. I

GENTLEMEN — PLEASE DISCONTINUE my advertisement, as I have made disposition of the property. Yours respectfully, ————.

(Continued on next page)

WANTED—NORTHWESTERN GRADUATE with three years' general and neurologic hospital experience, including inebriety and addictions, wishes institutional appointment or association with busy physician; graduate in arts; speaks English, Spanish and German; aged 36; formerly teacher of various medical subjects; available immediately; references exchanged; can go anywhere. Add. 3892 I, % AMA.

WANTED—ASSISTANTSHIP WITH NO. 1 eye, ear, nose and throat surgeon or position as superintendent of eye, ear, nose and throat hospital; aged 29; 18 months as intern in No. 1 eastern hospital and 2 years as intern in No. 1 eye, ear, nose and throat hospital; best references can be given; prefer west or north, but will go anywhere. Add. 3879 I, % AMA.

MISCELLANEOUS—WANTED

THE CARTWRIGHT PRIZE OF THE Association of the Alumni of the College of Physicians and Surgeons, Medical Department of Columbia University, New York. This biennial prize of $500, open for universal competition, will be awarded at Commencement, 1913. If no one of the competing essays is deemed sufficiently meritorious, the prize is not awarded.

An essay, in order to be held worthy of the prize, must contain the original investigations made by the writer. This prize is not awarded to an essay which is the work of more than one author, or which is at the same time submitted for another prize, or that has been previously published in any form. It must be on a medical, surgical or kindred subject. Each competitor is required to send with his essay a statement that these requirements have been complied with. Essays in competition for this prize must be sent to the undersigned on or before April 1, 1913. Competing essays must be typewritten, and they must be in English, marked with a device or motto, and accompanied by a sealed envelope similarly marked, containing the name and address of the author. The payment of the prize money to the successful essayist will be made on his filing with the treasurer of this association a printed copy of the essay. In 1914 the Alumni Prize will be offered. The requirements of this are the same as those of the Cartwright prize, excepting that competition is restricted to P. & S. Alumni. H. E. Hale, M.D., Secretary of the Association of the Alumni of the College of Physicians and Surgeons, 770 West End Ave., New York City. J

WANTED—A PHYSICIAN TO TAKE A fine village and country practice, unopposed; will rent or sell one two-story modern dwelling house with barn; first-class schools; must be married and registered in Michigan or papers to reciprocate; nothing to purchase unless you wish; a snap for the right man. Add. 3939 J, % AMA.

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FOR SALE—NELSON 14-PLATE STATIC machine. Add. S. A. M., 319 Broad St., Providence, R. I. K

FOR SALE—ONE VICTOR GIANT EYE magnet, on crane with a foot rheostat and flexible tip for the magnet, $60. Apply to works chief clerk, Western Electric Co., Hawthorn Station, Chicago, Ill. K

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FOR SALE—SIXTEEN-PLATE VAN HOUTEN and Ten Broeck static machine, with gasoline engine, dynamo, speed controller and motor for power; this is a complete equipment and a bargain for some one; would consider trade for late model two-passenger runabout fully equipped; must be right; this plant f.o.b. Add. A. W. Ball, M.D., Rushville, Ill. K

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BOOKS WANTED AND FOR SALE

FOR SALE—THE FOLLOWING AT HALF cost: Green's Pathology; Taylor's Practice Medicine; Landois-Stirling's Physiology; Keyes' Genito-Urinary Diseases; Flint's Manual Percussion; White's Materia Medica; Hyde's Diseases Skin; Billings' Medical Dictionary; McClellan's Regional Anatomy; Loomis' Physical Diagnosis; Morrow's Atlas; Skin, Venereral Diseases; United States Dispensatory; Strümpell's Text-Book Medicine; Dow's Portable Electric Assistant; Otis' Dilating Urethrotome; Skene's Hawkbill Uterine Shears and other instruments. Dr. Martin, Wellington, Kan. M

WANTED—WE WILL PAY $1 EACH FOR January, 1911, issues of the *Archives of Internal Medicine*, returned in good condition. Add. Am. Med. Assn., 535 Dearborn Ave., Chicago, Ill. M

FOR SALE—TO HIGHEST BIDDER—OLD medical books. Goods' Study of Medicine, in four volumes, by John Mason Good, M.D., 1823. (Index to Vol. IV damaged.) Goods' Physiological System of Nosology, 1823. (Index damaged.) Rush, on Diseases of the Mind, 1827. Chapman's Therapeutics, in two volumes, 1831. Magendies' Elementary Compend of Physiology. Translated from the French, 1824. All bound in leather, well preserved, except as noted. Add. 3850 M, % AMA.

WANTED—THE FOLLOWING NUMBERS of THE JOURNAL A. M. A. are needed to complete volumes: Vol. 3, No. 4; Vol. 18, Nos. 1, 2; Vol. 19, Nos. 2, 19; Vol. 21, No. 8; Vol. 22, Nos. 4, 10, 14; Vol. 30, No. 12; Vol. 52, Nos. 22, 25, 26; Vol. 58, No. 17. We will buy any of the above numbers, paying 10 cents per copy. Ten or more copies sent by express, charges collect at returned periodical rates. American Medical Association, 535 Dearborn Ave., Chicago. M

PRACTICES FOR SALE

FOR SALE — EASTERN COLORADO — Large country practice in town about 400 with large surrounding territory; one competitor; plenty of work for two; established 7 years; dispense drugs; will sell office equipment and drugs alone or small residence and automobile; object, rest and post work; fine climate for tubercular. Add. 3946 N, % AMA.

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FOR SALE—COLORADO — $8,000 CASH practice, mostly office and surgical work; in richest irrigated district; medium altitude, eastern part of state, together with office equipment, automobile aud equipment for 8-bed hospital; leases for same for $5,500; answer or wire at once if you mean business. Add. 3937 N, % AMA.

FOR SALE — ILLINOIS—IN TOWN OF 5,000; complete office equipment at about 75 cents on the dollar; practice runs from $5,000 to $5,400 per year; will take from $1,000 to $1,200 to swing it; best opening in Illinois to-day for a good man who will act quickly. Add. Doctor, 4318 Olive St., St. Louis, Mo. N

FOR SALE — NORTHERN ILLINOIS—$4,000 practice in town of 2,500; will sell $400 worth of hospital stock, automobile, instruments and practice for $1,500; am only surgeon in town; this is ideal location for young man who can do good surgery. Add. 3885 N, % AMA.

FOR SALE—INDIANA—$4,000 TO $4,500 practice; 9-room house and 3-room modern office (new) on same corner lot; town 700; rich farming country and large territory; one other doctor; good pike roads; high school; 3 churches; every line of business represented; price, $4,500; part time; going west account wife's health. Add. 3841 N, % AMA.

FOR SALE — CENTRAL INDIANA — SUburban town, about 500, on traction line; large practice, 95 per cent. collectable; large territory, thickly settled; all graveled and stone roads; cottage house, three-room office, barn and outbuildings; fruit, shade trees, garden; $1,500; outfit optional; one old competitor; a young man preferred. Add. 3950 N, % AMA.

(Continued on next page)

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FOR SALE — SOUTHEASTERN IOWA— $2,200 growing practice, auto, office fixtures, drugs, four-room residence, in town of 1,000; 3 railroads; prosperous German-American community; competition clean, light; practice may be increased by doing own surgery; must be good refractionist; price, $2.250, cash. Add. 3948 N. % AMA.

FOR SALE—KENTUCKY—$3.500 PRACtice in Blue Grass region of Kentucky; 12 miles from Lexington in railroad village; no opposition; 8-room residence; good water; splendid stable and all outbuildings; 2 acres of ground; bargain; reason for selling, will remove to city. Add. X. % Dr. Charles F. Anderson, City National Bank Bldg., Lexington, Ky. N

FOR SALE—LOUISIANA — $3.500 CASH practice, new 10-room modern residence, static machine, other up-to-date office equipment; only *x*-ray in 100 miles of here; only doctor with best drug store in town; new buggy and team all for $4,500; population 4,500; good schools, churches and roads; county seat; important appointments; terms on $1,500 or $2,000 if desired; best of reasons for selling; will introduce. Add. 3903 N. % AMA.

FOR SALE—NORTHERN MEXICO — AT sacrifice; practice free; budded paper-shell pecans and oranges; irrigated land; beautiful valley; railroad; edge of town of 5,000; practice, second year, $4,900; splendid climate and grows figs, dates, aguacates, cotton, corn-cane; $1,000 cash necessary; no examination. Add. 3799 N, % AMA.

FOR SALE — CENTRAL MINNESOTA— Seven-room house on a lot 100x148½ feet; barn 18x22 feet, and auto shed large enough for two autos; home furnished; office furniture, two rooms, value $1,100; heat and electricity; $1,250 automobile as good as new; in a German settlement; collections 100 per cent.; a surgeon can do from $5,000 to $6,000 first year; will give possession of home at once; price, $5,250. Add. 3936 N. % AMA.

FOR SALE — MINNESOTA — $2.500 to $3,000 yearly practice and large office building for $500; also will rent or sell on time; finest residence in the town of 600 in southern part of Minnesota. Add. 3876 N. % AMA.

FOR SALE — NORTHEAST MISSOURI— town and country practice, $2.500 to $3,500 yearly; good pay; good farming community; practically no competition; railroad town; fine opportunity for good man. Add. 3895 N. % AMA.

FOR SALE—NEBRASKA PRACTICE OFfered—In one of the finest moderate-sized cities in Nebraska; practice $4,000 yearly; fine office outfit, etc., worth $500 and over, included, free on purchase of residence; going Florida; part cash; town in one richest counties Nebraska; county seat; paved streets; get full particulars; Nebraska reciprocates. Add. or wire Dr. J. T. Potter, Seward, Neb. (Kniest-Omaha-Agency). N

FOR SALE—NEW JERSEY — DO YOU want to make $2.500 cash your first year? $500 cash buys practice, office equipment, 1912 Ford runabout, instruments, drugs, etc.; must vacate immediately; apply at once if you mean business; will personally introduce if on the job by Jan. 1, 1913. Apply Box 309, Sussex, N. J. N

FOR SALE — EASTERN NEW YORK — $5,000 unopposed practice; several transferable contracts and life insurance companies; good collections, roads, schools, churches and bank; on railroad; will retire on March 1, 1913; satisfactory introduction; rigid investigation invited; if you are looking for a cash business and a fine location, write to-day for particulars. Add. 3911 N. % AMA.

FOR SALE NORTHERN NEW YORK — $3,500 cash practice; nice town; good roads, high school, churches, railroad; new modern house and offices combined; waterworks, electric lights, furnace, large barn; price, $7,000; want $3,000 cash, balance on time; best reasons; large office practice; have to keep only one horse. Add. 3938 N, % AMA.

FOR SALE — CLEVELAND, OHIO — 33 years' established practice given purchaser of home containing office suite; also instruments, safe, office furniture and fine medical library; commodious house, 10 rooms, halls and 2 bath-rooms, well built; good barn; excellent location, near church, school and public library; wide street; reason for selling, death of physician. W. T. Holliday, 1215 Williamson Bldg., Cleveland, Ohio. N

FOR SALE—OHIO—PRACTICE PAYING about $7,000 annually will be given to purchaser of office fixtures which consist of electrical and optical equipments, instruments, library, furniture, etc., at invoice price; this proposition is made owing to the sudden death of Dr. J. H. Davis on November 27, and is a golden opportunity for the right man. Add. Heber R. Davis, Wilmington, Ohio. N

FOR SALE—OHIO — SOUTHWESTERN —$3,600 unopposed village (500) practice; splendid collections; well-improved village; rich country, thickly inhabited; excellent roads; competition 5, 8, 12, 13 miles; 9-room house, including office; furnace heat; one railroad; good fees; price, $3,500 for property; well-equipped office; very large drug stock, 6-bottle nebulizer and driving outfit; not charging for practice; going to city. Add. 3752 N, % AMA.

FOR SALE—OHIO—$2,500 TO $3,000 UNopposed country practice; nice 9-room house, large concrete porch, 2 acres land, including fine shady lawn, large garden, fruit, barn, garage and other necessary outbuildings; good schools, churches; best roads in state shortly; local brick roads in spring; collections good; taking postgraduate work; price, $3,000; terms. Add. 3877 N. % AMA.

FOR SALE—OKLAHOMA—$3,000 PRACtice, modern 6-room cottage, barn, outbuildings; water and light; county seat; best coal town in the southwest; population 6,000; state institution costing half million dollars; $50,000 public school building; $25,000 private school; will sell or trade for Missouri property; write. Add. [illegible] N. % AMA.

FOR SALE — PENNSYLVANIA — FINE residence, 12 rooms, modern improvements; also barn; been residence of doctors for 15 years; ideal country town on railroad; surrounded by rich farming country; former doctor enjoyed excellent business; fine opportunity for doctor that wants a good practice and fine home; competition weak; good doctor needed; cash $3,500. Add. 3905 N, % AMA.

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(Continued on next page)

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FOR SALE—TEXAS—EYE, EAR, NOSE and throat equipment, all new; F. A. Hardy goods; worth $1,500; established 2 years; first year $2,000; second year, $2,500; next year, $3,000 or more easily; one competitor; town 11,452, county 40,000; strong support of profession; especially good for Catholic; $1,000 cash, $1,000 terms; good reasons. Add. 3872 N, % AMA.

FOR SALE—NORTHERN WISCONSIN— In a town of 3,000, with electric lights, water and sewage systems; a $3,500 practice, established 28 years; only one competitor; a man could hardly help but make good from the start; $800 takes practice and office fixtures; am going to take postgraduate work. Add. 3941 N, % AMA.

FOR SALE—WASHINGTON STATE PRACTICE offered; $3,000 practice; no real estate; fine climate; population 900; one competitor; big fees; this is a snap; get full particulars. Add. Deal No. 193, % F. V. Kniest, Medical Broker, Omaha, Neb. N

FOR SALE—WASHINGTON — A $2,500 practice for $500, which is price of office fixtures and drugs; in a town of 600 population, with large surrounding territory; one other doctor in town; collections good and good roads; nice climate; write for particulars. Add. 3851 N, % AMA.

FOR SALE — WASHINGTON — UNOPPOSED practice yielding $4,000 cash yearly in new growing town in central part of state; has electric lights and artesian water system; surrounded by very thickly settled irrigated country; people very well to do and engaged in diversified farming, fruit and hop raising; climate excellent; price, with office equipment, $500 cash; residence and automobile optional; very desirable location for beginner. Add. 3847 N, % AMA.

FOR SALE—WASHINGTON — VILLAGE and country practice; runs $5,000 to $6,000 annually and could be considerably increased by man who could do surgery; collections 95 per cent.; firmly established; thorough introduction; good will and complete office equipment, including library. $900; terms; no real estate. Add. 3898 N, % AMA.

FOR SALE—EASTERN WASHINGTON— German-American practice of $3,000 to $6,000 annually; town of 1,000; electricity 24-hour service; city water; farming community; nicely equipped office; fine residence; railway appointment; insurance contracts and good will transferred for the price of the property; terms can be arranged. Add. 3878 N, % AMA.

FOR SALE—WISCONSIN—MY LOCATION and office contents in an inland village; 9-12-16-18 miles to competition; in agricultural and dairy section; price, $100 to $300, whatever is taken; business from the first; occupied by M.D. 40 years; this adv. appears but once; reason for selling, the best. Dr. R. J. Drew, Kingston, Wis. N

THE ADVERTISEMENT IN THE JOURNAL certainly did bring large returns. Best of all, it brought applications from a highly desirable class of citizens—a something which is not invariably true of advertisements.

(Continued on next page)

FOR SALE—WISCONSIN—$4,000 PRACtice and introduction to the purchaser of my modern 8-room house in best town in Wisconsin; population 23,000; property valuation $6,000; German Catholic preferred; going southwest on account of health of family; must leave January 10. Add. 3900 N, % AMA.

TO THE PHYSICIAN WHO INVESTS $5,000 cash in or buys $5,000 worth for cash of my city, country, town or farming property, I will give $6,000 cash practice and sell office outfit at his own price; long lease; prominent location; 100,000 Pacific Coast city; excellent climate; act quickly; going abroad. Add. 3684 N, % AMA.

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FOR SALE — AN OLD-ESTABLISHED maternity hospital in a live eastern city; the institution is now running and has been for years; is a paying property for anyone who can devote their whole time to it; a woman physician could do well here with small capital; the grounds and buildings are ideal for a place of this kind and cost about twice the asking price; the best of reasons for selling, and will be made known to any interested party having $5,000 for a first payment; nothing better was ever offered to one desiring institutional work. Add. 3952 O, % AMA.

FOR SALE—SANITARIUM OF TWENTY-two rooms and large grounds in thrifty city of New York state; established 15 years; for treatment of nervous and habit cases; gross receipts $12,000 yearly; can easily be doubled; the proposition is especially attractive and will demand an investment of $15,000; the present owner is in the south on account of his health. Add. 3943 O, % AMA.

FOR SALE—SANATORIUM FOR OUT-patients only; hospital construction separate departments for men and women; built and equipped elaborately for all forms of physical therapy, including hydrotherapy, thermotherapy, electrotherapy, vibrotherapy, phototherapy, etc.; exceptional opportunity to secure institutional practice in Chicago; owner retiring; for particulars enclose commercial references. Add. 3807 O, % AMA.

FOR SALE — A TWENTY-ROOM SANItarium located in one of the best farming counties and railroad centers of central Michigan; a manufacturing city of 12,000 inhabitants; 3 floors; full basement; modernly equipped; established business; no other city hospital; reason, lost health; price, $8,000; easy terms. Dr. Bliss, Owosso, Mich. O

FOR SALE — COMPLETE EQUIPMENT and good will of a private hospital of 30 beds, with training school; established 12 years and patronized by many physicians; buildings can be leased at reasonable price. Add. East Side Hospital, Providence, R. I.

FOR SALE—GEORGIA — ESTABLISHED addiction sanitarium property, business, good will; celebrated Piedmont section; climate unequaled; house modern; completed last July; unsurpassed location adjoining city park; business now profitable; can be doubled; reason for sale, junior partner's health failed after senior partner had permanently retired; attractive price and terms for quick sale. Add. "Hospital," 308 Atlanta Ave., Atlanta, Ga. O

FOR SALE—TEXAS—SANITARIUM FOR diseases of lungs and throat, including tuberculosis; established 7 years; located in best health resort in southwest; no competition; accommodates forty patients; well patronized; new modern building, cost $20,000; also 28 cottages; well furnished throughout; 5 acres of land; price, $35,000; $15,000 cash, balance on easy terms. Add. 3891 O, % AMA.

FOR SALE—NEW YORK CITY—PRIVATE surgical hospital; 8 beds, room for more; operating-room, modern equipment; opportunity for general surgeon and nose and throat specialist; established general and surgical practice, practically unopposed; last year's business about $12,000; price, $10,000 for hospital furnishings and practice; good reason for selling; will introduce. Add. 3701 O, % AMA.

See page 20 for cost of classified and commercial announcement advertisements.

(Continued on next page)

Manufactur under U. S. patent 1,012,326, issued Dec. 11, 1911

REG.U.S. PAT.OFF. TRADE MARK

NAME ____________

Address ____________

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Write to-day for full particulars.

MODEL "F"

X-RAY AND HIGH FREQUENCY COIL

GIVES

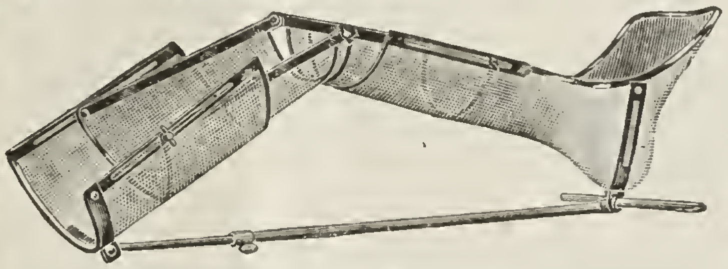
A heavy 10-inch spark for X-Ray work.
A D'Arsonval Current up to 1500 M. A.
A Tesla Current for vacuum electrodes.
Also Cautery, Sinusoidal, Thermo Faradic and Lamp Current.

DETAILS

Quarter sawed oak or mahogany cabinet piano finish, height to top of cabinet 4 feet, width 5 feet, depth 2 feet, weight 250 lbs.

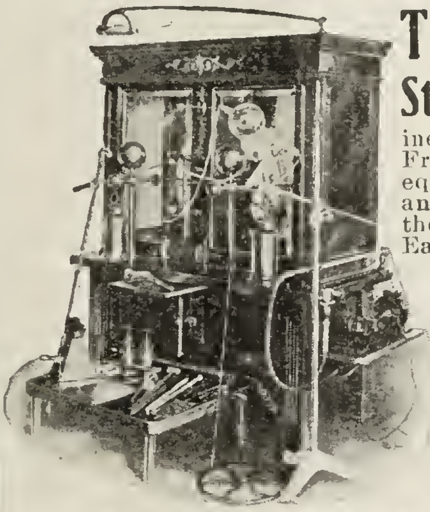
CAMPBELL ELECTRIC CO. MAIN OFFICE AND FACTORY **Lynn, Mass.**

YOU HAVE FRACTURE TROUBLES



These may be easily done away with by using the **DEPUY COMBINATION LEG SPLINT** and at the same time give comfort and satisfaction to your patient. On account of its great adaptability it is largely used in private and hospital practice. In this one single splint you have the well known bucks, Hodgens and McIntyre. We make two sizes, large size No. 65 and the small size No. 66. They are ten dollars each with express charges prepaid. It will give us pleasure to send our little booklet, also our price list of our full line of splints.

DEPUY MFG. CO. :: 401 Center St. :: WARSAW, INDIANA



The Nelson Type "A" Static and X-Ray Machine

including the Anco Oudin Tesla High Frequency Resonator, makes an ideal equipment for the general practitioner, and is guaranteed to be the most up-to-date outfit now before the profession. Let us tell you all about the "Clean Easy" or divided stationary plates, combination polehanger, etc. With the aid of the Intensifying Screen radiographs of heavy parts are now made with short exposure. We will ship the Anco O. T. High Frequency Resonator on trial if in doubt as to its merits. Write for our No. 12 catalog, also our special offer on the above outfits. We furnish repairs and also repair all standard makes of Static Machines. Any information desired will receive our best attention.

ANDERSON NORDEN CO.
427-441 W. Randolph St. Chicago, Illinois

PROTECT YOURSELF AGAINST ACCIDENTS AND SICKNESS

DOCTOR: You have always said you would take out some accident insurance. Why put it off longer? You can secure it now at two-thirds the usual rate.

We offer you

STANDARD AND RELIABLE ACCIDENT AND HEALTH INSURANCE

at greatly reduced cost.

Our Company furnishes

Weekly indemnity up to $50.00 per week. It secures to physicians protection **against accident, infection or disability from any cause.**

Send for circular giving full particulars

STATES ACCIDENT INSURANCE CO. **DEE A. STOKER, Sec'y**

Telephone Wabash 2035 Suites 1015-1017 Insurance Exchange Bldg., CHICAGO

LOCATIONS FOR SANITARIA

FOR SALE — WASHINGTON — PUGET Sound, where the world can regain health; balmy, delightful climate; no insects; fine opportunity to develop special or general sanitarium; large building; scenic location, overlooking Sound; suburb (growing) to city of 125,000; connected by trolley and beautiful automobile drive; $5,000, $3,000 cash; lease privilege purchaser. E. E. Bair, Steilacoom City, Wash. P

MISCELLANEOUS—FOR SALE

FOR SALE — SOUTH CAROLINA — IN Beaufort county on a beautiful, healthy water front; truck farm that will produce $2,000 of lettuce when properly treated; flowing artesian water; an excellent opportunity for retiring physician; cheap trained labor abundant. Add. R. F. D., Box 21, Burton, S. C. S

FOR SALE OR TRADE — NEBRASKA— One or two quarter sections of good land off railroad; best investment in world; will double in value in 2 years; have more than I can handle; might take auto in part payment; terms on part; let me hear from you. Add. Doctor, Box B, Butte, Boyd Co., Neb. S

DRUG STORES FOR SALE

FOR SALE—DRUG STORE IN ST. LOUIS —An exceptionally fine opportunity for physician; high-class store doing splendid business; opportunity of a lifetime for right man. For full particulars add. P. O. Box 1524, St. Louis, Mo. U

GENTLEMEN — PLEASE DISCONTINUE my for sale advertisement. I had to go to you in Chicago to find a man here in Philadelphia. Very truly yours, ———.

The Aldine Hotel

Chestnut St., above 19th
PHILADELPHIA, - PA.

Is situated in the centre of the most select and exclusive residence section of the city, and is convenient by car line to the shopping district, the theatres and railway stations. Its accommodations, service and special conveniences are of the very best.

American and European plans

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FOR SALE—THE ONLY DRUG STORE IN a community of 1,000 inhabitants; well stocked with drugs, patent medicines, toilet articles, druggists' sundries, paints, brushes, etc.; a fine tenement over the store; stable connected; fine spring water in the tenement and store; nearest drug store 12 miles; fine situation for a physician; will sell cheap for cash; reason for selling, going out of business. Add. 3932 U, % AMA.

FOR SALE—TWO GOOD DRUG STORES; good places for doctor; can give some time on the fixtures; both situated in good coal mine towns, in Wyoming; no triflers; must have cash in full to cover stock; possession any time in January; going to city. Add. 3954 U, % AMA.

COLLECTIONS AND MED. BROKERS

DRUG STORE (SNAPS) WITH AND WITHOUT practices; medical practices handled and furnished, likewise dental and veterinary practices; nurses furnished and located; drug positions; all states. F. V. Kniest, R.P., Omaha, Neb. Estab. 1904. EE

DO YOU WANT TO BUY, SELL OR EXchange?—Write us if you do. Service furnished; 2c brings "Opportunity List" or selling plans. Opportunity Agency, E 17th St., Little Rock, Ark. EE

WANTED—MEDICAL ASSISTANTS—WE have several vacancies in hospitals and sanitariums, for salaried assistants; we also have openings in general practice for partners, assistants and substitutes. Practices bought and sold in all sections of the United States. List of practices for sale and other information sent free on application by addressing "The Medical Echo," Lynn, Mass.

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WANTED — YOUNG WOMEN OF GOOD moral character and personal appearance from 20 to 30 years of age to enter the training school of a first-class hospital which is recognized under the laws of Illinois. The hospital is located opposite the beautiful Washington Park and affords a delightful place to live. Apply Supt. of Nurses, Washington Park Hospital, 447 East 60th St., Chicago, Ill. C

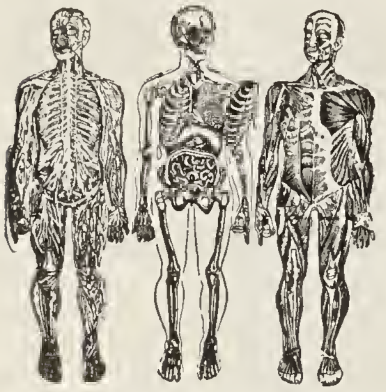
PUBLISHERS AND PRINTERS

STEEL DIE EMBOSSED STATIONERY— Distinctive and impressive for the medical profession; will send samples and prices upon request. Hammond Printing Co., Fremont, Neb. GG

JUST PUBLISHED — OUR NEW CATalogue of medical and scientific books. Physicians interested in reading the latest additions to science and medicine will be sent the catalogue free on request. See adv. page 8, this issue. When writing mention THE JOURNAL. Longmans, Green & Co., 4th Ave. and 30th St., New York City. GG

(Continued on next page)

Pilz Anatomical Manikin



'THE MASTERPIECE'

Adopted by the Medical Department U.S.A.

Present in LIFE SIZE and in NATURAL COLORS the relations of all the structures of the body, and the contents, in normal position, of various cavities. Made of Indestructible Linen cardboard.

Female Manikin with Obstetrical Supplement $15.00

Sexless or Male Sex $12.00

Sent C.O.D., or on receipt of N.Y. current funds. Guaranteed exactly as represented

Write for full description in pamphlet form.

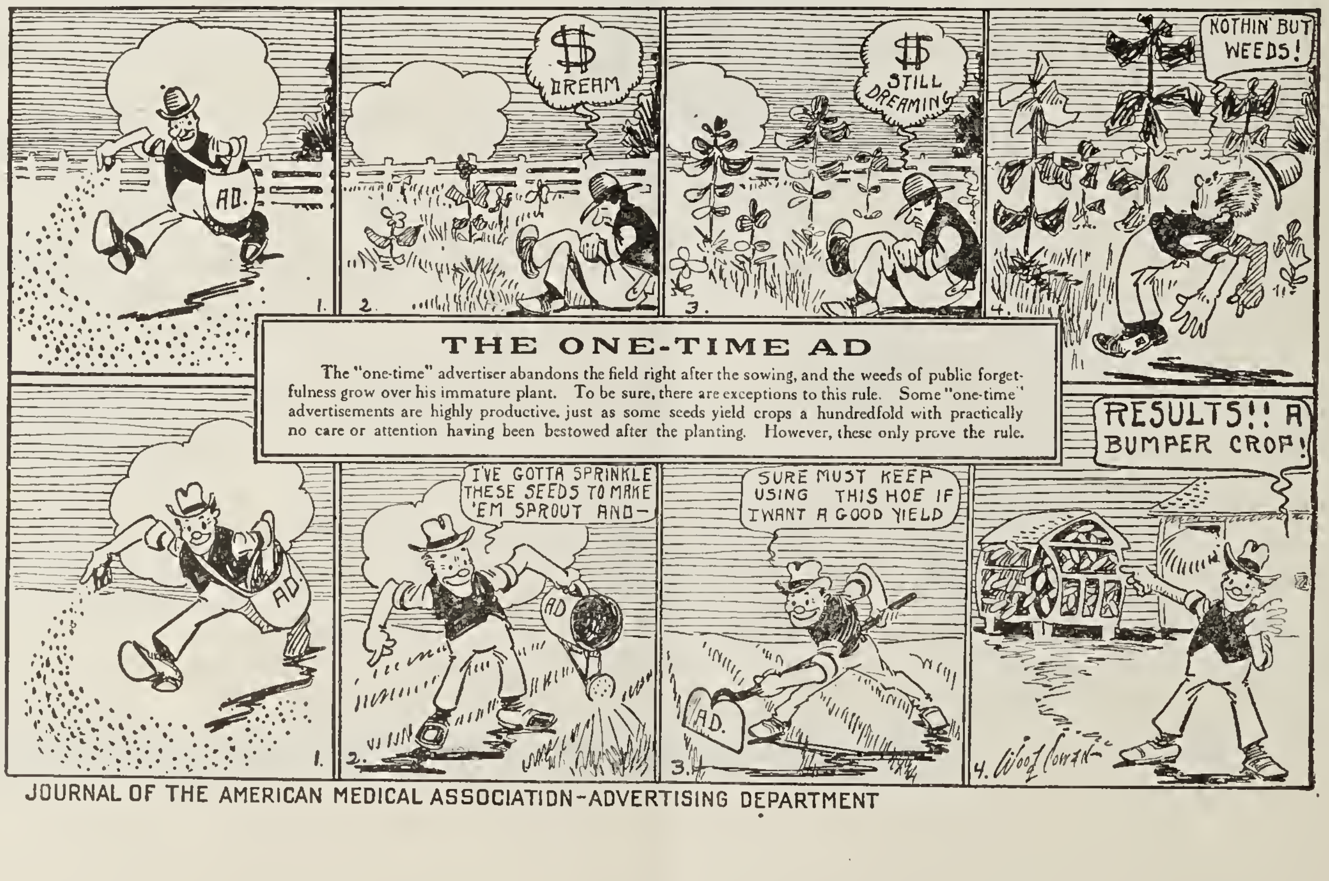
AMERICAN THERMO-WARE COMPANY
Sole Importers
16 A Warren Street NEW YORK

This is the New Button of the American Medical Association

The emblem is solid gold and will be sent to members, postpaid, on receipt of $1.00.

YOU SHOULD WEAR THE NEW BUTTON

American Medical Association
535 Dearborn Ave.,
CHICAGO, ILL.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STILL DREAMING
NOTHIN' BUT WEEDS!
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4.
RESULTS!! A BUMPER CROP!
I'VE GOTTA SPRINKLE THESE SEEDS TO MAKE 'EM SPROUT AND—
SURE MUST KEEP USING THIS HOE IF I WANT A GOOD YIELD
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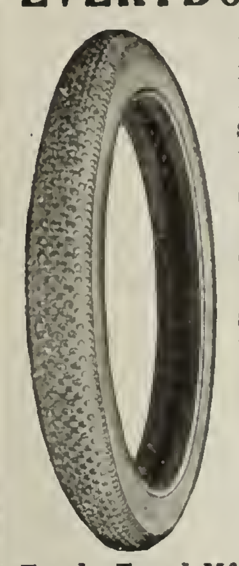
Wood Cowan

THE ONE-TIME AD

The "one-time" advertiser abandons the field right after the sowing, and the weeds of public forgetfulness grow over his immature plant. To be sure, there are exceptions to this rule. Some "one-time" advertisements are highly productive, just as some seeds yield crops a hundredfold with practically no care or attention having been bestowed after the planting. However, these only prove the rule.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION-ADVERTISING DEPARTMENT

EVERYBODY KNOWS



that *Steel* and *Leather* is more durable than rubber, therefore save money by equipping your car with

Triple Tread Tires

Chrome leather treads fitted with steel studs constitute a tire that is

NON-SKID AND PUNCTURE PROOF

Write for our proposition for New Triple Tread Tires or for retreading your old tires.

Triple Tread Mfg. Co. 1549 Michigan Ave. Chicago, Ill.
549 Van Ness Ave., San Francisco, Cal.
52 Gertie St., Winnipeg, Manitoba.

JUST THE THING FOR A CHRISTMAS PRESENT

ST. ANDREWS CROSS

Marks your car as that of a Physician

Gives you the right of way. It is being used by hundreds of members of the A. M. A. *Why not you?* Write for booklet No. 5 *now!*

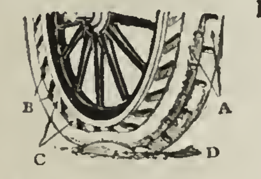
This cross on your car gives prestige and recognition.

Hickok Mfg. Co.
Rochester, N. Y.

MOTZ Cushion Tires

For Pleasure Cars and Light Delivery Cars

Send for Pamphlet 151



A—Shows *double*, notched treads.

B—Shows undercut sides.

C—Shows slantwise bridges.

D—Shows absorbing means when passing over an obstruction.

THE MOTZ TIRE AND RUBBER COMPANY

Executive Office: Akron, Ohio

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300 N. Craig St., Pittsburgh
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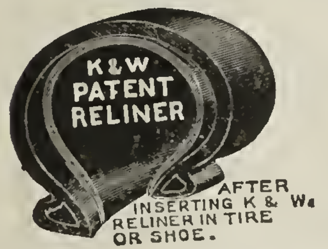
STANDARD TIRE & RUBBER CO.,
4 Dundee Street, Boston, Distributors, New England States

DOCTORS



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WRITE US NOW—will allow you a Special Price if we have no agent in your vicinity handling our Reliners, Patches, Boots, etc.

K & W Mfg. Co.
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"EMCO" AUTOMOBILE OIL No. 300

is refined by us from Pennsylvania Crude Oil. It contains **No Carbon, has High Fire Test, Low Cold Test and Great Viscosity.**

Sold by all dealers or will be shipped direct from our refinery, Bradford, Pa., in 5 or 10 gal. cans, barrels or half barrels. Your money back if not satisfactory in every respect.

Prices and samples upon request.

EMERY MFG. CO., **BRADFORD, PA.**

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An Automobile for sale? Do you want to buy a second-hand car? Use the *Classified Columns* of this *Journal.* Small cost, large returns. Try and you'll be convinced.

READ THESE JOURNALS DURING 1913—Physicians subscribing now for *The Archives of Internal Medicine* (yearly subscription, $4) or *The American Journal of Diseases of Children* (annual subscription, $3) will be sent the November and December issues free of charge. If you are already a subscribed to THE JOURNAL A. M. A., you will be allowed a discount of $1 from both of the above subscription prices. The discussions of modern methods in diagnosis and new outlines in successful therapy which these publications present are of practical importance to every general practitioner. Sample copy of current number of either journal sent on receipt of 4 cents in stamps. See adv. page 6, this issue, for additional information. Amer. Med. Assn., 535 Dearborn Ave., Chicago. GG

YEAR BOOKS OF PRACTICAL MEDICINE for 1912 are now complete and ready for delivery. Price for entire series, $10. Complete descriptive circulars free on request. Mention THE JOURNAL when writing. Year Book Pubrs., 180 N. Dearborn St., Chicago. Read our adv., page 17, this issue. GG

NOSTRUMS AND QUACKERY—EVERY physician should know the details of the methods employed by the advertising quack medicine concerns which flourish in our large cities and do a profitable business by mail. This book throws light into the innermost recesses of their business. The Alpha Medical Institute, B. F. Bye Cancer Cure and a large number of such fraudulent concerns are described in the present volume. Also Sanatogen, Eno's Fruit Salt and a great many other nostrums are written up, which will plainly show the fraud, greed and danger that are inseparable from "patent-medicine" exploitation. Over 500 pp. Fully illustrated. Cloth cover. Price, $1. American Medical Assn., 535 Dearborn Ave., Chicago. GG

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AUTOMOBILE OWNERS, WE WANT YOU on our mailing list to show how we can down your up-keep. Example: Ford "T" radiators at $18; Model N-R-S radiators, at $23. Everything at correspondingly low prices. Autoparts Mfg. Co., Detroit, Mich.

FOR SALE — TWO BICTSON DETACHABLE tire treads, 36"x4½"; never used; slightly shopworn; listed at $84, will sell for $40. Add. 3844 CC, % AMA.

GUARANTEED 5,000 MILES WITHOUT puncture. If your tires are old, don't throw them away or you'll throw away $50 to $200. With Durable Treads we give you a written guarantee for 5.000 miles without puncture. This is binding, whether your tires are new or old, tread-worn, rim-cut or rut-worn. Durable Treads cost only half as much as tires. Write for booklet and special discount at once to Colorado Tire & Leather Company, 1240 Majestic Bldg, Chicago, 535 W. 34th St., New York City, or 1040 Broadway, Denver, Colo. CC

"MOTOR CAR ANATOMY" IS THE TITLE of a handsome 106-page, cloth-bound booklet issued by the Buckeye Manufacturing Co. of Anderson, Ind. This booklet is devoted to explaining the general make-up of an automobile. It tells about carbureters, magnetos, cooling the motor, transmission, etc.; and about the Lambert car in particular. Every physician, whether he now owns a car or intends to get one, could read this book to advantage. A copy will be sent complimentary if you mention THE JOURNAL. CC

SALESMEN WANTED

WANTED—DO YOU WANT TO TRAVEL in the South this winter? We can offer you a remunerative and pleasant occupation; the work consists in soliciting orders for leading medical publications, also collecting delinquent accounts, etc.; liberal commissions are paid and an additional weekly cash salary as bonus is offered, based on the amount of business sent in; our solicitors are furnished advance information so that their work may be mapped out in detail in advance; we keep in close touch with your work and assist you in every way to obtain the maximum results; all necessary supplies furnished free; exclusive territory in the South now open; only men of good ability and satisfactory references need apply. For full particulars add. 3653 H % AMA.

(Continued on next page)

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Used in More Than 30 States

For Automobile, Carriage or Horse

Slip on or off with one motion. No buckles—No straps. Wearer needs no lap-rugs.

Black Leather $4.00

For horseback, order with fasteners 50 cts. extra.

Send measure from bottom of heel to top of knee-cap, and girth of calf over trousers.

We pay expressage. Will refund cost if returned in good condition.

Circulars tell more than this adv. does—Send for them.

THE DUSELL COMPANY
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PRESERV-O
TIRE
PAINT
50 CENTS
Enough to cover 6 big tires
Money back if not satisfied
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Manufacturers of TIRE-DOH
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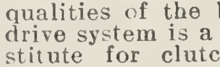
SAVE YOUR TIRES

Examine your tires carefully and notice the thousands of little breaks, some no bigger than a pin prick. These are the beginning of decay. If you want your money's worth out of those tires **stop the decay now.** You can do it by applying Preserv-O Tire Paint. It fills every little break and covers the whole tire surface with a coating of pure white waterproof rubber. It dries quickly, cannot hurt the tire, and lasts longer than any other tire paint. Let us ship you a can express prepaid. Money back if you ask it. Send 50 cents (or a $1 bill for two cans) today. Made and guaranteed by the Tire-Doh people.

ATLAS AUTO SUPPLY CO.
3237 W. LAKE STREET : CHICAGO, ILL.

The Best Automobile



Is the one which best does the work. Nothing goes through mud and snow like the Duryea Motor Buggy. Nothing is so light, simple, so strong and reliable and so cheap to run. These cars combine the best features of the automobile with the "stand-by" qualities of the buggy. The patented roller drive system is a perfect and trouble-free substitute for clutch, gears and transmission, which add so much to the weight and complexity of an ordinary automobile. Air-cooling by patented copper spine system does away with radiator and water. Perfected 2-cycle engine dispenses with valves and cams. Large wheels with solid rubber tires make easy riding, save tire cost and delay, and make possible this WINTER AUTOMOBILE. Send for catalogue.

C. J. DURYEA MOTOR CO., Saginaw, Mich.

A CLASSIFIED Advertisement inserted in THE JOURNAL will be read by about TWO-THIRDS of the medical profession.

This Space Has Been Taken

for a year—every fourth issue—to tell readers of the advertising pages of the Journal Am. Med. Assn. about the

LONDON TEA BOB

¶ This Bob automatically applies to the family Tea Pot the **London Tea Market Method** of brewing Tea with precision. It gets out the exact value, whether it be a good, bad or indifferent grade of Tea leaf.

¶ The London Bob allows the Tea leaves to steep just long enough to allow the dissolving of the theine, then by its self-action lifts the leaves above the level of the beverage.

¶ Doctors and other dieticians approve the Bob because it does not allow the accumulation of tannic acid. Tho highest exponents of good cooking and good living are taking up the Bob because it makes Tea a better beverage.

¶ If not at your dealers send for family size Bob in Guernsey ware, $2.00. In English Rockingham ware, $1.25. Money back if not satisfactory.

THE BEVEFUSER CO., 29 Central St., BOSTON

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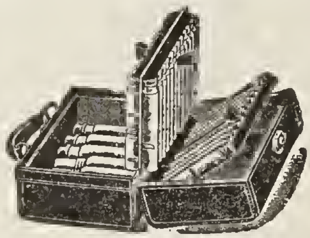
REGISTERED



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PHYSICIANS' BAGS and CASES

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MAKERS
178 N. Wabash Ave. Chicago

FORBES DRY PLATES
"In Business since 1883"

To insure getting the best results, use

FORBES X-RAY PLATES

They are made expressly for X-Ray work, and are specially adapted to produce the finer shadow effects that are so often lacking in radiographs.

Try them in your work. If your dealer hasn't them, order direct from the

FORBES DRY PLATE CO.
261 Post Ave., Rochester, N. Y.

BARGAINS

Display Samples and Second Hand Office Furniture.

Write for our list No. 2 of Special prices on Tables, Chairs, Cabinets and Office Accessories.

W. D. ALLISON COMPANY, 915 N. Alabama St., Indianapolis, Ind.

Doctor: Children's Blocks

What child ever had enough blocks to build what they wanted? Let us send you "nearly a bushel" of clean, sanitary building blocks for children. Enough worth while. No paste, paint or paper. Shaped like bricks. Three sizes. Dandy red mission bag to keep them in. $1.00 buys enough. Make the children happy. Send today.

Sterling Sanitary Block Co., Box A, Mt. Sterling, Ohio

TRANSACTIONS OF THE SECTIONS OF THE AMERICAN MEDICAL ASSOCIATION

Send for Complete Price List

One physician says: "You cannot be praised too highly for the dispatch and accuracy and astonishing cheapness and neatness of these books and for the help you bring the quiet workers. Gratefully yours, ————"

Prices: **$1** and **$1.50** per vol., according to Section desired.

AMER. MEDICAL ASSOC.
535 Dearborn Ave.

WANTED—MEDICAL BOOK CANVASSers; qualified salesmen, physicians or former detail men: must have experience; exclusive territory; highest commissions. Add. Rebman Company, 1123 Boadway, New York. II

WANTED — PHYSICIANS DESIRING TO travel or detail men who wish a change of work can secure permanent and profitable employment with us; we have something novel to offer the right man; commission and salary; write us. C. V. Mosby Medical Book and Publishing Company, Metropolitan Bldg., St. Louis, Mo. II

MISCELLANEOUS COMMER. ADVTS.

"FLAT-FOOT FACTS" AND "FEET AILMENTS"; reprints free; special adjustable arch supports; light, comfortable, efficient, $2; made for doctors only; send feet outlines. Dr. Tracy, South Boston, Mass. KK

DO YOU WISH TO PREPARE FOR STATE board examinations? Physicians entering my classes now for January and February quiz will receive a reduction. See adv. page 20, this issue. Add. Dr. Wm. A. Kimmet, 927 Fullerton Ave., Chicago. KK

POSTGRADUATE INSTRUCTION—PHYSIcians who are thinking of taking p.-g. courses this winter should not fail to read our special announcement on page 21, this issue. Instruction under the direction of prominent Chicago specialists is given in all the clinical and operative branches. For full information add. Dr. M. L. Harris, Sec., Chicago Policlinic, 219-221 W. Chicago Ave., Chicago, Ill.

PHYSICIANS' ACCOUNT BOOKS—SEND for sample sheets and interesting illustrated pamphlet descriptive of our system of accounting for physicians. Mailed free if you mention J. A. M. A. See adv. page 6, this issue. Add. Adolph Bernd & Co., P. O. Box 598, St. Louis, Mo. KK

OUR "HANDBOOK OF LIGATURES" CONtains many interesting facts on the preparation, methods of sterilization, determination of the strength and all important details of the commercial manufacture of catgut ligatures. Physicians wishing information on this subject will be sent the "handbook" free on request. See adv. page 45, this issue. When writing mention J. A. M. A. Johnson & Johnson, New Brunswick, N. J.

CAUTERY ELECTRODES OF SPECIAL design are described in our adv., page 50, this issue. The use of the electric cautery in all classes of special surgical work reduces the dangers of infection and hemorrhage to a minimum. Write for price and descriptive circular on our special equipment for this work. Mailed free to physicians mentioning J. A. M. A. Chas. Lentz & Sons, 18 N. 11th St., Philadelphia. KK

SECOND-HAND MEDICAL BOOKS, SURgical appliances and office furniture. Have you such to sell? Why not turn them into cash? Surgical instruments, books, chairs, vibrators, etc., are always of use to some doctor. Over 56,000 physicians read THE JOURNAL each week. Let them know what you have for sale. Insert a small adv. in these columns. You will be agreeably surprised at the profitable offers you will receive. KK

TEA AS A MILDLY STIMULATING BEVerage is greatly improved if properly made. Our London Tea Bob prevents the accumulation of tannic acid—it makes tea a better beverage. You will be interested in reading our adv. at top of this page. The Bevefuser Co., 29 Central St., Boston.

FOR SOLD RIDES IN WINTER YOU WILL find our leggings, as illustrated on page 31, this issue, a great convenience. They take the place of lap rugs, require no strapping or buckles and slip on or off with one motion. Literature free to physicians mentioning J. A. M. A. Dusell Co., 4101 Walnut St., Philadelphia. KK

ARE YOU INTERESTED IN LIGHT therapy? We manufacture two therapeutic lamps of different types. These outfits are an invaluable aid in building up an office practice. A large number of dermatological and surgical affections and chronic congestions due to defective metabolic changes respond promptly to the application of this form of therapy. Write for booklet giving full information. See adv. page 47. Mention THE JOURNAL. Hanovia Chem. & Mfg. Co., 239 N. J. Railroad Ave., Newark, N. J. KK

Revised and Enlarged

HANDBOOK of THERAPY

Edited by

Dr. Oliver T. Osborne, Prof. of Materia Medica, Therapeutics and Clinical Medicine in Yale Medical School.

Almost every patient who comes to you asks two questions:

(1) What's the matter with me?
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℞	Gm.		
Caffeinæ citratis ...	2		ʒss
Sodii bromidi	20	or	ʒv
Sodii bicarbonatis ..	10		
Acidi tartarici	10	āā	ʒiiss

M. et fac. chartulas, 10.

Sig.—One powder in half a glass of water and repeated in six hours if necessary.

℞	Gm or C.c.		
Methylis salicylatis.	15		
Ichthyolis	15	āā	℥ss
Glycerini	100	or	℥iii
Alcoholis ad	200	ad	℥vi

M. et Sig.—Use externally over painful joint.

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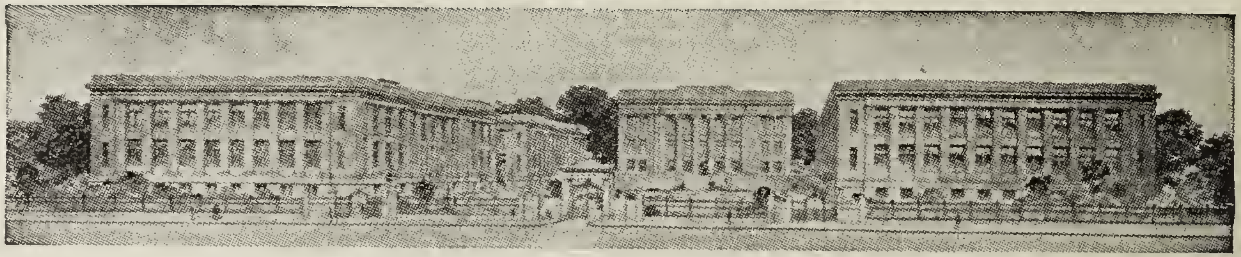

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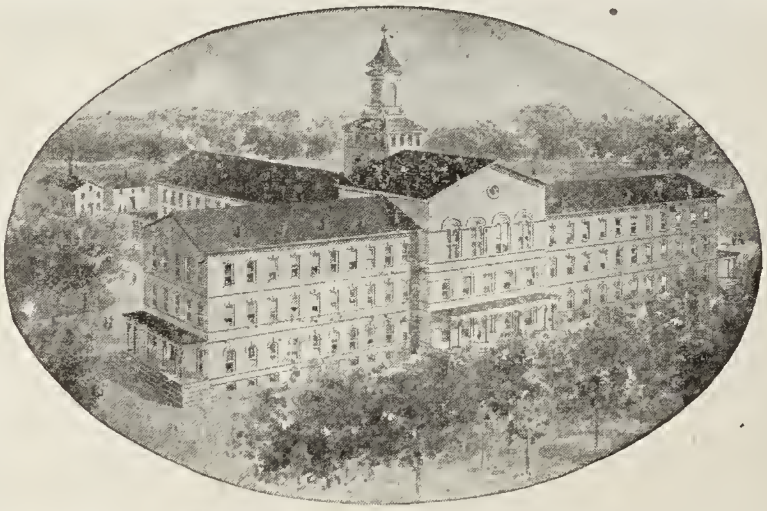

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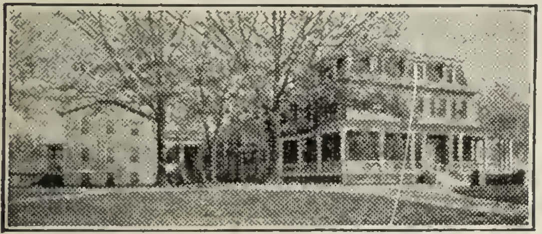

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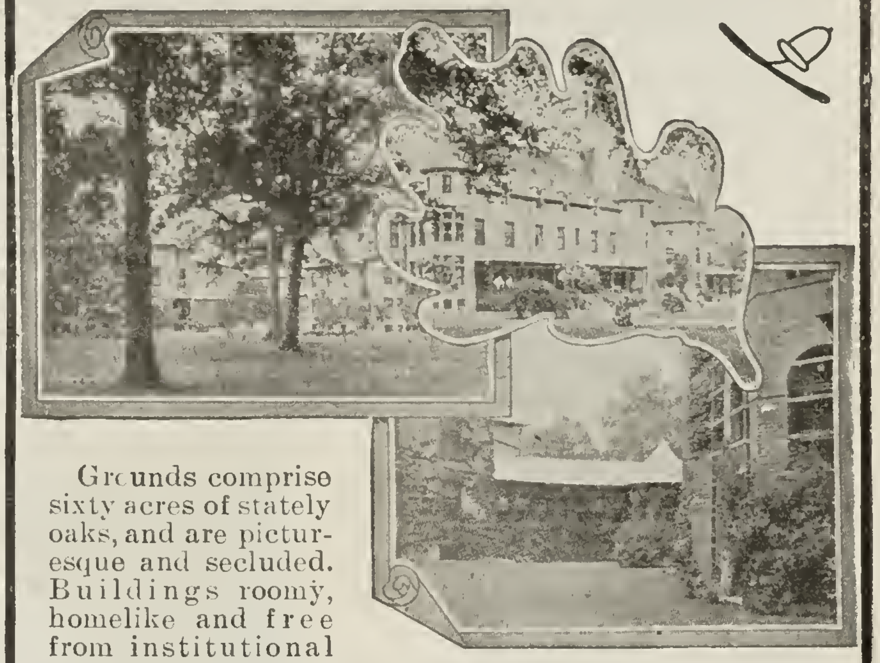

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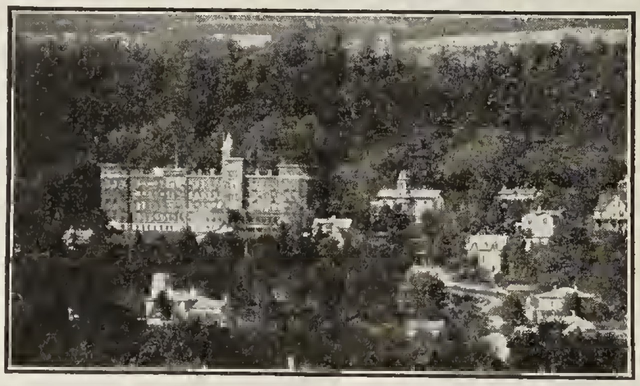

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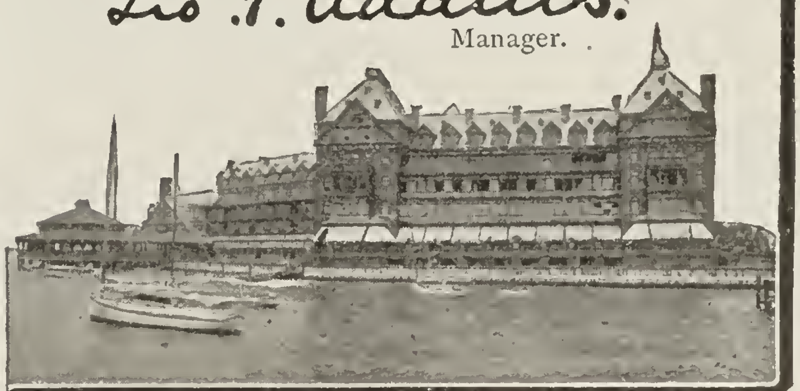

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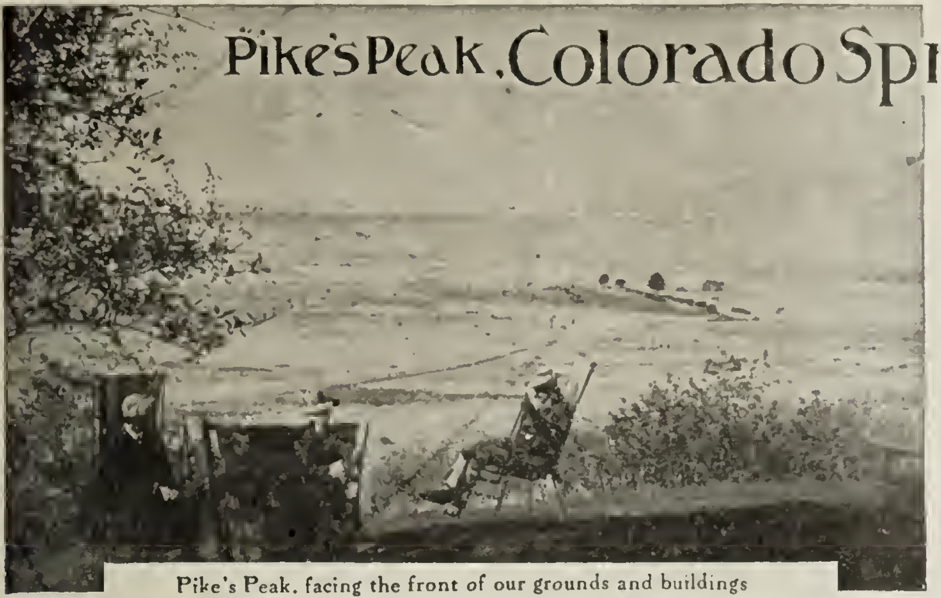

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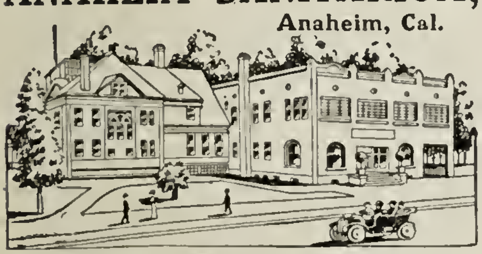

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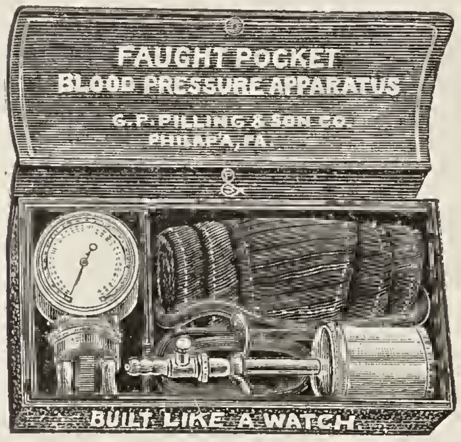

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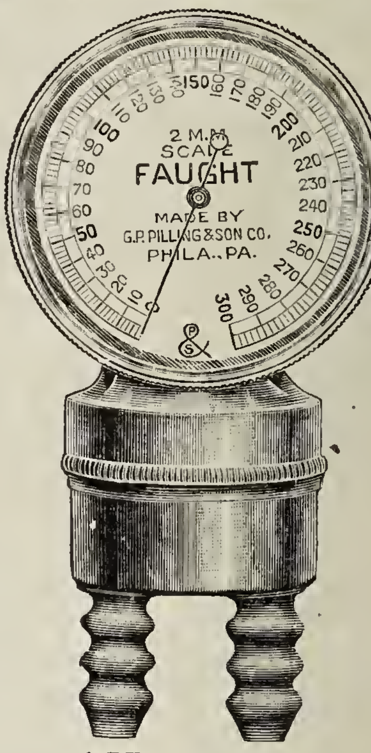

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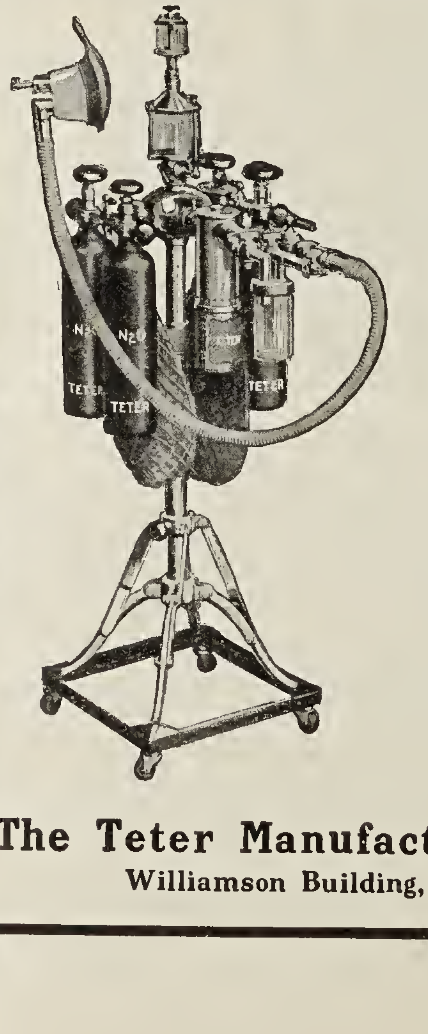

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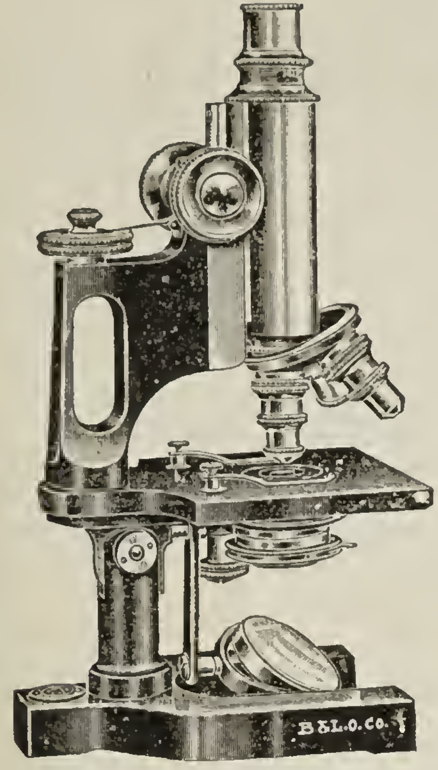

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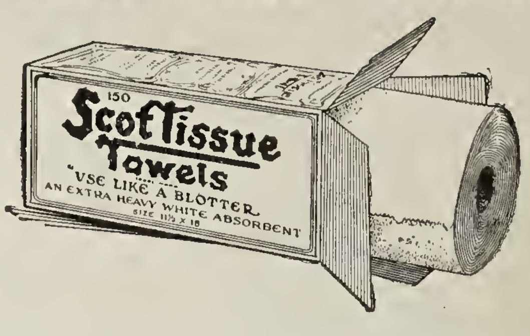

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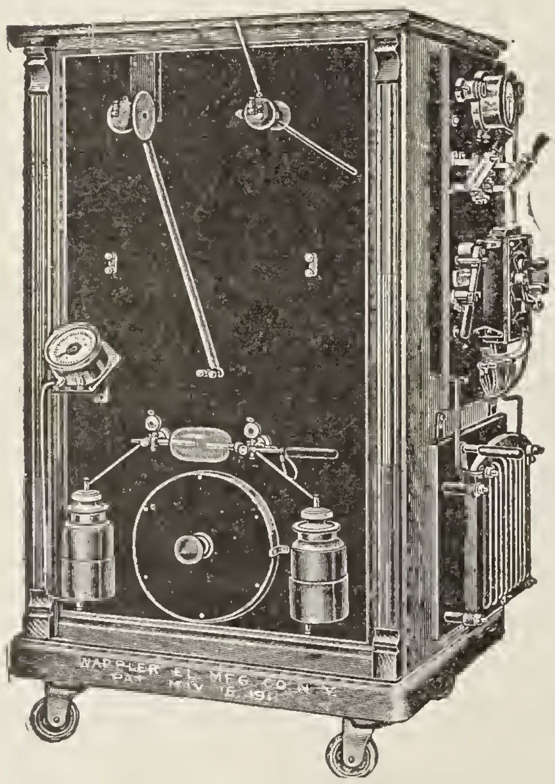
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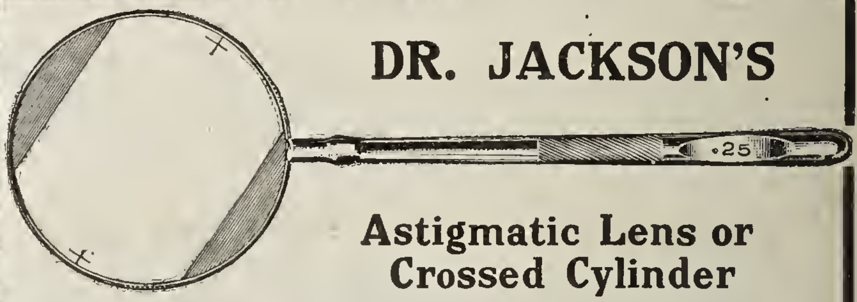

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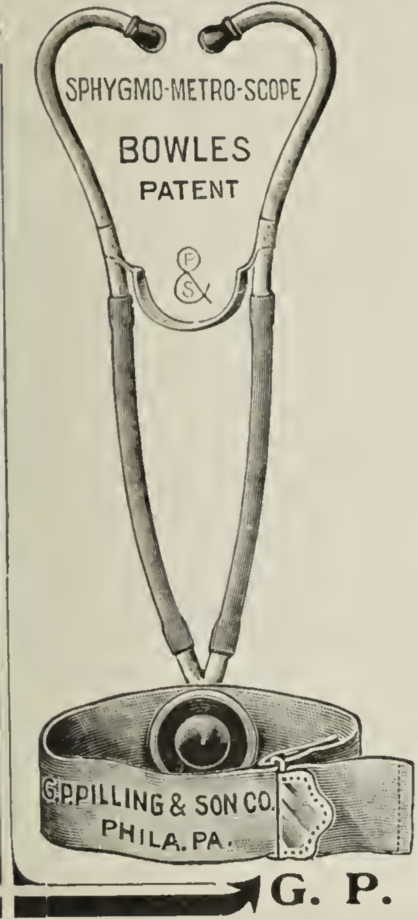

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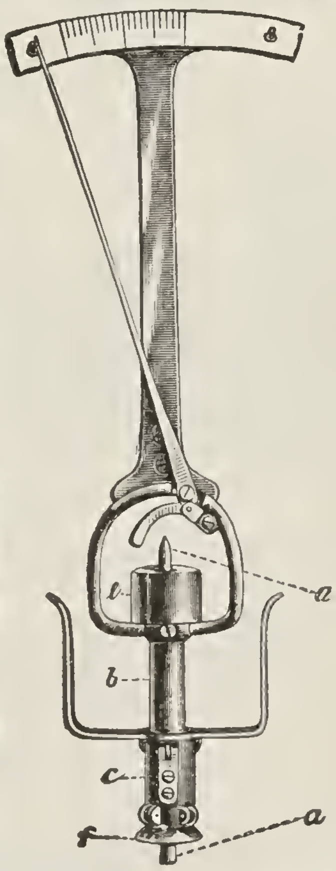

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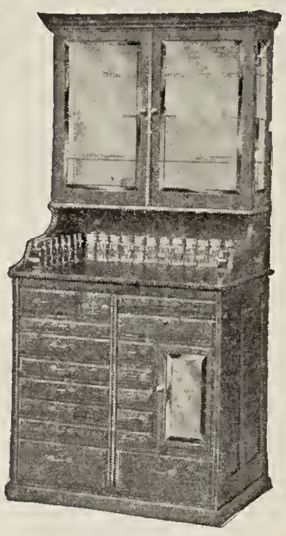

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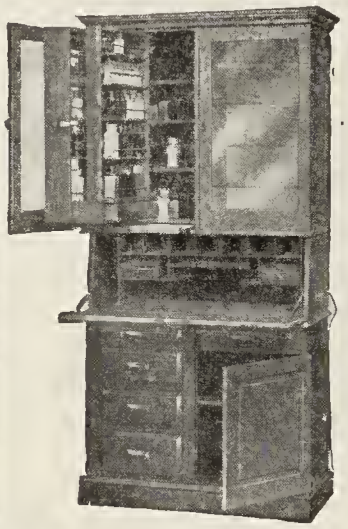

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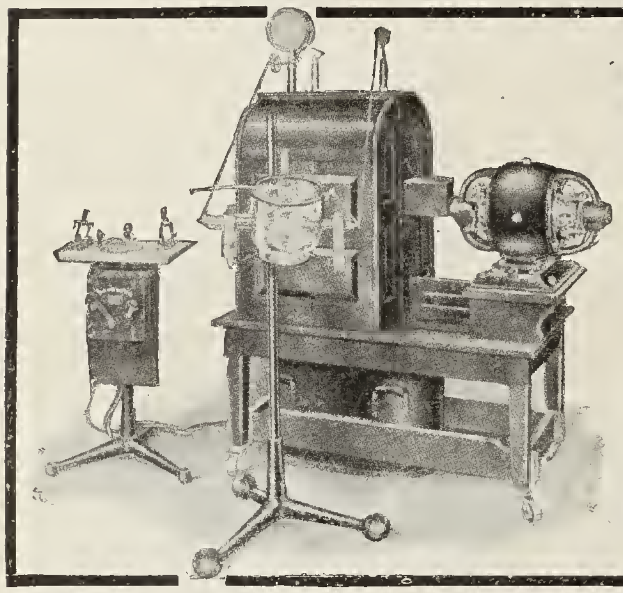

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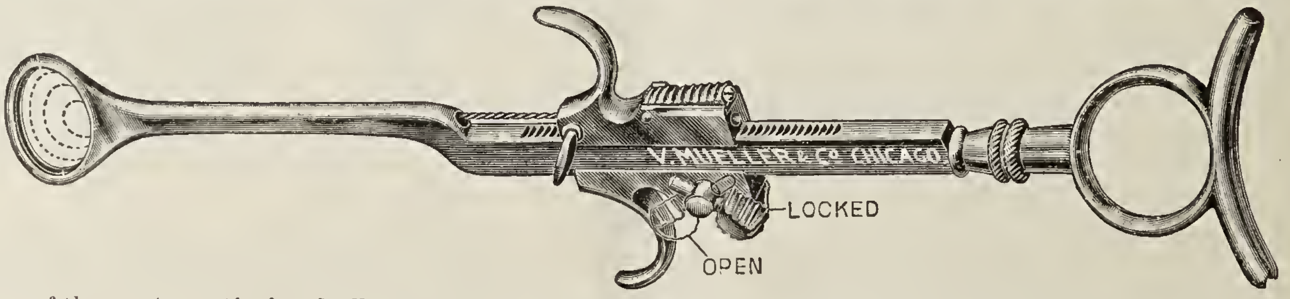

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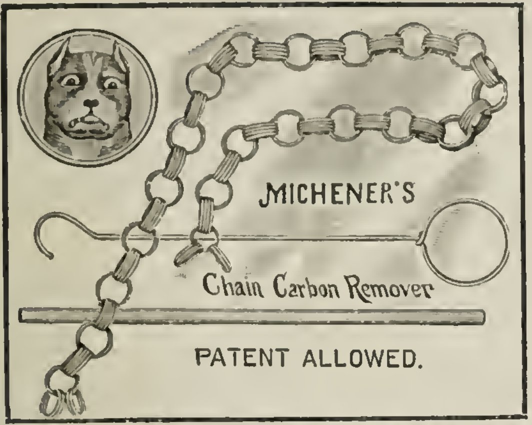

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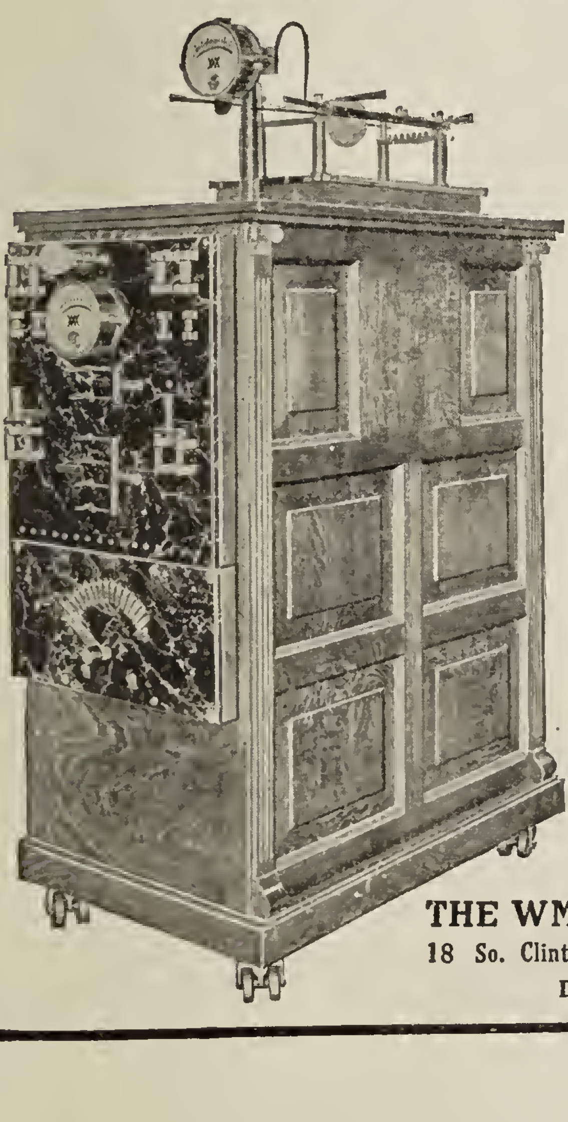

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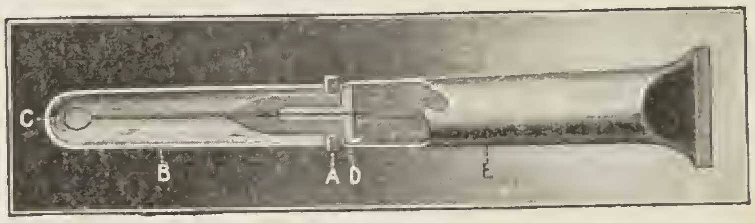

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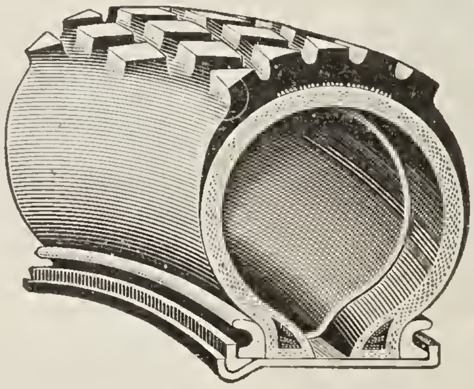

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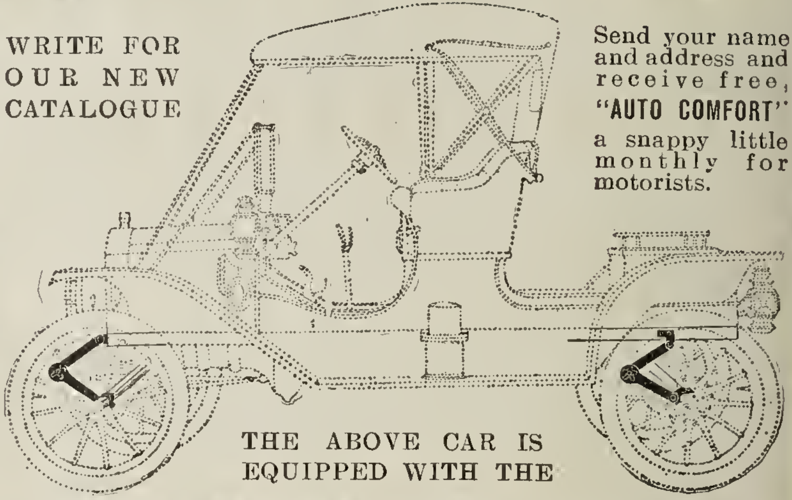

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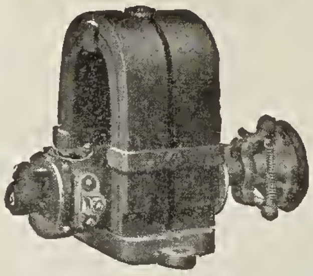

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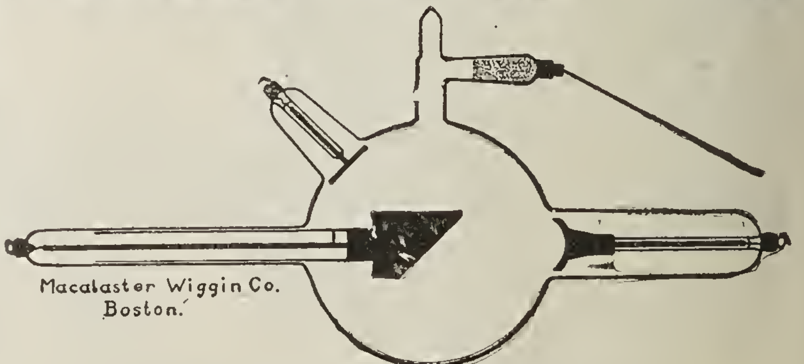

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With **Durable Treads** the resilience of your tires is just as great—high speed just as easy—cost of gasoline no more.

This is perhaps the most liberal guarantee ever given with a tread.

Durable Treads

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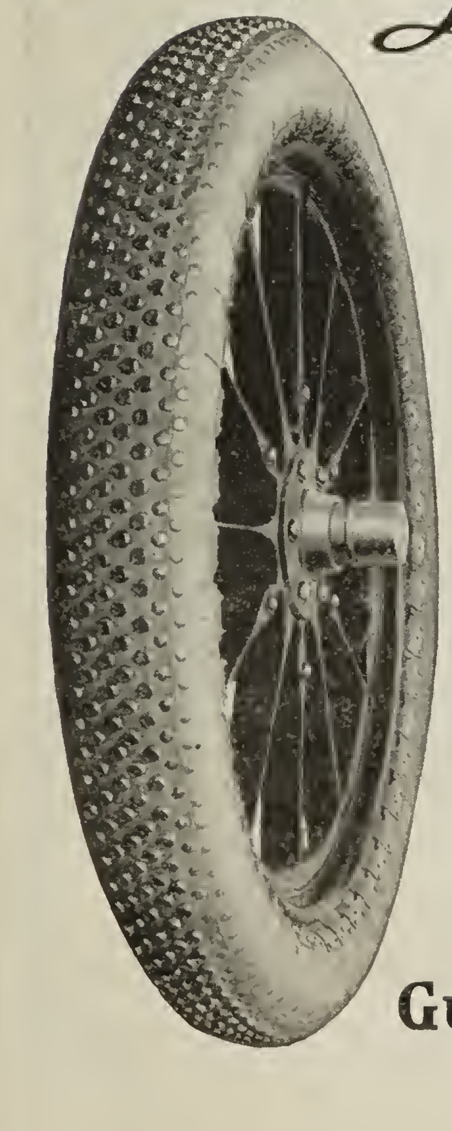

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Your tire expense is now actually 1½ to 4 cents per mile. *It is greater than that of gasoline and oil combined. Yet it can be eliminated through **Durable Treads.** For with **Durable Treads** punctures, blow-outs and tire repairs will be eliminated. If you'll stop to figure out what that means, you'll find that you spend enough on **repairs alone** each season to almost maintain your car.

Forcing Recognition!

Every day the list of **Durable Treads** converts are growing. And only because **Durable Treads,** through their remarkable advantages, are **forcing** that recognition. Car owners are awakening to the fact that they can save that 1½ to 4 cents per mile.

Cost Half of Tires

A set of tires costs $50 to $200. But **Durable Treads** cost **less than half** that. Hence, isn't it more economical to **protect** these costly, delicate tires?

Isn't it more economical to buy **Durable Treads,** at half the cost of tires, than to buy new tires each season? **Durable Treads** are a leather and canvas cover—studded with steel rivets—that covers the entire tire just as it stands on your car.

Test at Our Expense

We want you to know just what **Durable Treads** are before you invest a cent or promise to buy. We will ship you a pair or full set, with your permission, for inspection.

We pay all express charges—you are not put to a cent's expense, obligation or trouble. This examination will cost you nothing.

Special Discount

If **Durable Treads** are not already represented in your territory, we will make shipment to you direct from the factory and allow you our **full dealers' discount** on your initial order.

This is merely to introduce them. It is an excellent opportunity for you to equip your car at almost cost.

Send Coupon For Facts

We have explained to you without exaggeration just what **Durable Treads** will do! We have shown you how to save $50 to $200 each season. Now we want you to send the coupon to us at once for copy of our legal guarantee and other conclusive proofs. We will send you a sample of **Durable Treads** leather. If you can rip it, you must be unusually strong. Simply fill in and mail the coupon—but be **quick!**

ADDRESS NEAREST OFFICE

COLORADO TIRE & LEATHER CO.

1203 Majestic Bldg., Chicago, Ill. 536 W. 34th St., New York City

1019 Broadway, Denver, Colo. 431 Golden Gate Ave., San Francisco, Cal.

COLORADO TIRE & LEATHER CO.,
1203 Majestic Bldg., Chicago, Ill.; 536 W. 34th St., New York City;
1019 Broadw'y, Denver Col.; 431 Golden Gate Ave., San Francisco, Cal.

DEAR SIRS:—Please send me at once, without obligating me, sample of Durable Tread leather, booklet, copy of guarantee, price of Durable Treads and special discount offer.

Name..

Street Address..

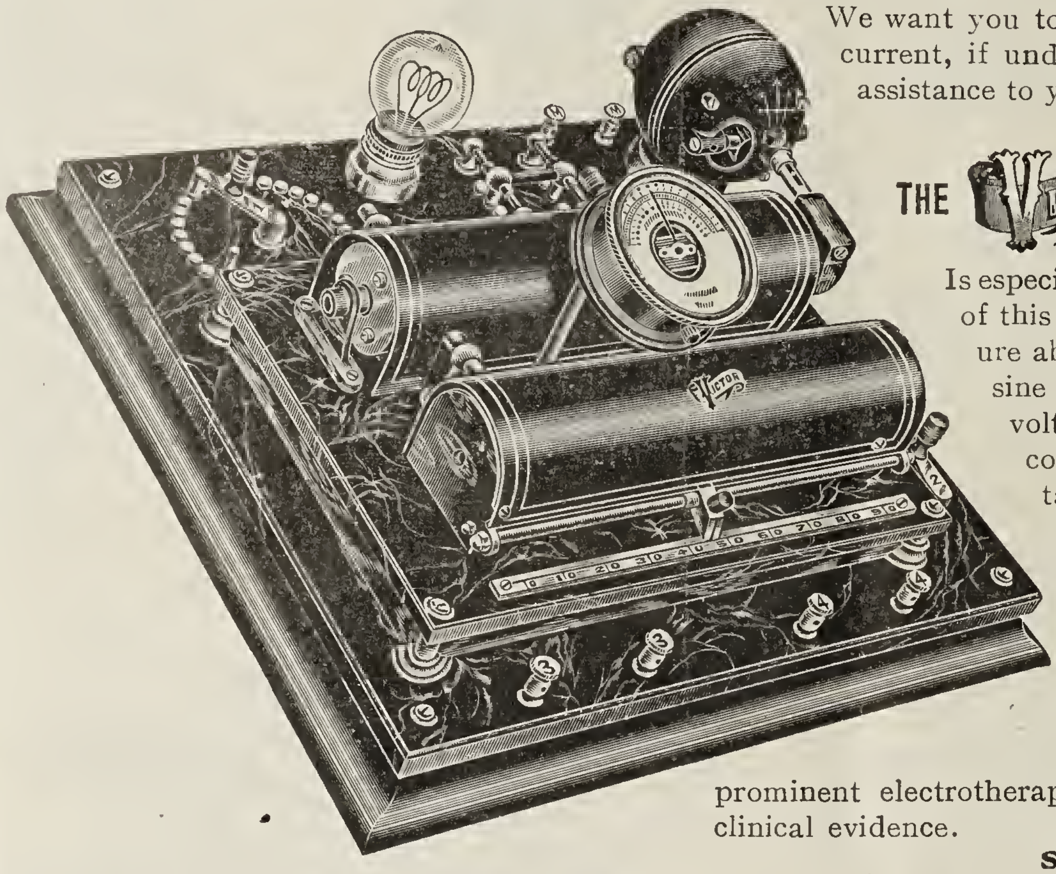
City.. State..........

My Tire Sizes are..

Guaranteed 5,000 Miles Without Puncture

The Employment of the Sinusoidal Current

In the treatment of general or localized atony is gaining new disciples daily



We want you to investigate and determine whether this current, if under proper control, will not be of infinite assistance to you in your work.

THE VICTOR MULTIPLEX SINUSOIDAL OUTFIT

Is especially designed for the generation and control of this current and galvanism. The unique feature about this machine is that the frequency of sine waves is controlled independently of the voltage, thus making it possible to alternately contract and relax any of the heavy involuntary muscles as well as the most delicate muscles or nerves, each at their normal periodicity.

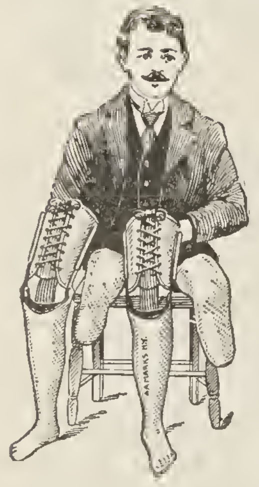
Two pieces of literature regarding this current are at your disposal, viz: a booklet giving the physics and physiologic effects, and a reprint written by a prominent electrotherapeutist, this paper containing abundant clinical evidence.

SEND FOR THEM

VICTOR ELECTRIC CO., Jackson Blvd. and Robey St., CHICAGO

HE HAS TWO GOOD LEGS

Both Made by MARKS



Although a man may lose both his legs, he is not necessarily helpless. By using artificial legs, with Marks improved rubber feet, he can be restored to usefulness.

The engravings represent Mr. James McDonald of Mamaroneck, N. Y., who wears two artificial legs of Marks Patent.

He is so ready on his artificials that many of his neighbors are not aware of the absence of his natural legs.

The latest information we have received from him informs us that he can dance, ride a bicycle, and skate nearly as well as if he had his natural legs.

With the old methods of complicated ankle-joints, such perfection could not be obtained, but with Marks rubber feet with spring mattress he is practically restored.

Arms restore appearance, and assist greatly in the performance of labor. From our illustrated measuring sheet, artificial limbs can be made and shipped to all parts of the world, without the presence of the patient, with guaranteed success.

Over 40,000 in use. Eminent surgeons commend Marks Artificial Limbs. They are endorsed by the United States and many other Governments.

Manual of Artificial Limbs sent free; also measuring sheet.

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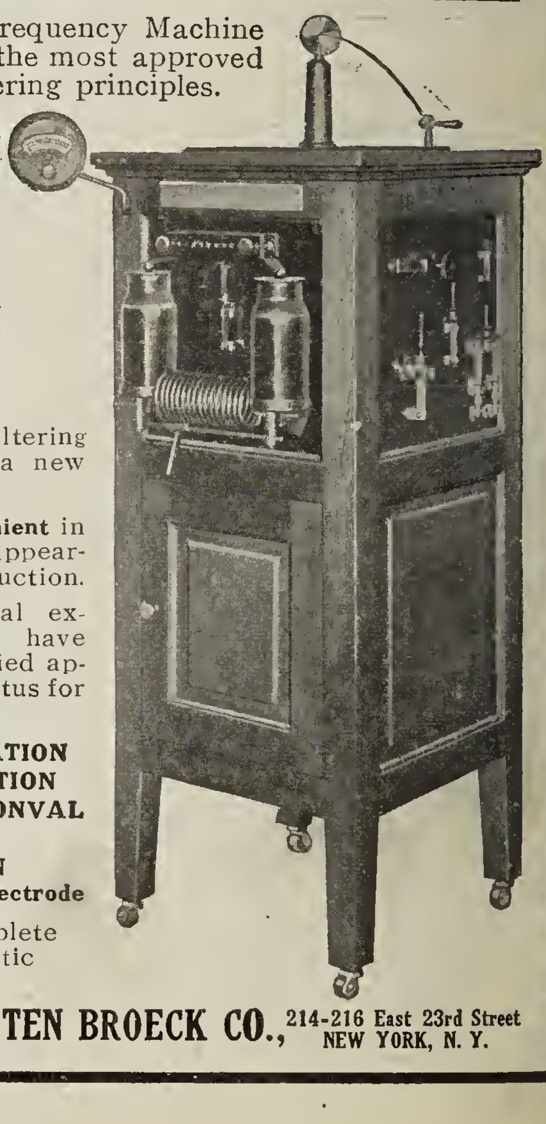
HIGH FREQUENCY APPARATUS

Our new High Frequency Machine is constructed on the most approved up-to-date engineering principles.



Fireproof—with extra insulations. Transformers and Coils encased in metal instead of wood.

Sparkgap—Multiple and Adjustable—practically noiseless—controls the change of current from minimum to maximum without altering the frequency—a new feature.

Compact and **Convenient** in size; graceful in appearance—solid in construction.

Well-known medical experts, after tests, have given their unqualified approval of this apparatus for its efficiency in:

THERMO-PENETRATION
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Write for a complete Electro-therapeutic catalogue.

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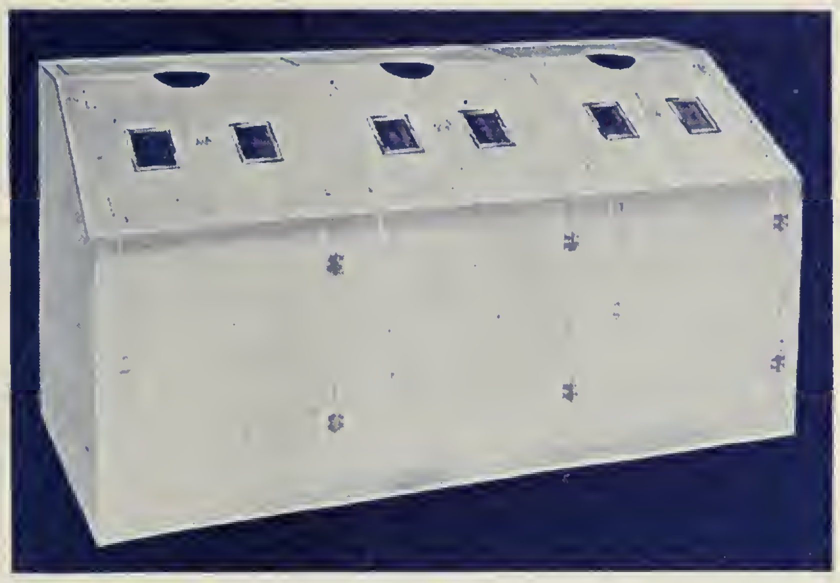
For an Operating Table, Instrument Cabinet, Sterilizing Outfit, Irrigator, Sphygmomanometer, Battery and 50 other Instruments is a winner. Shall we tell you about it?



$60 Electrically Lighted Rectal Set, complete with Rheostat, Cord, etc., ready to attach to the Lamp Socket, and Brinkerhoff's complete Set and every instrument, as shown, while they last, $24.75.

The top illustration shows a Set of 3 heavy Steel Turkish, Russian and Medicated Vapor Baths, finished white enamel. Others get $600. Our price $185.

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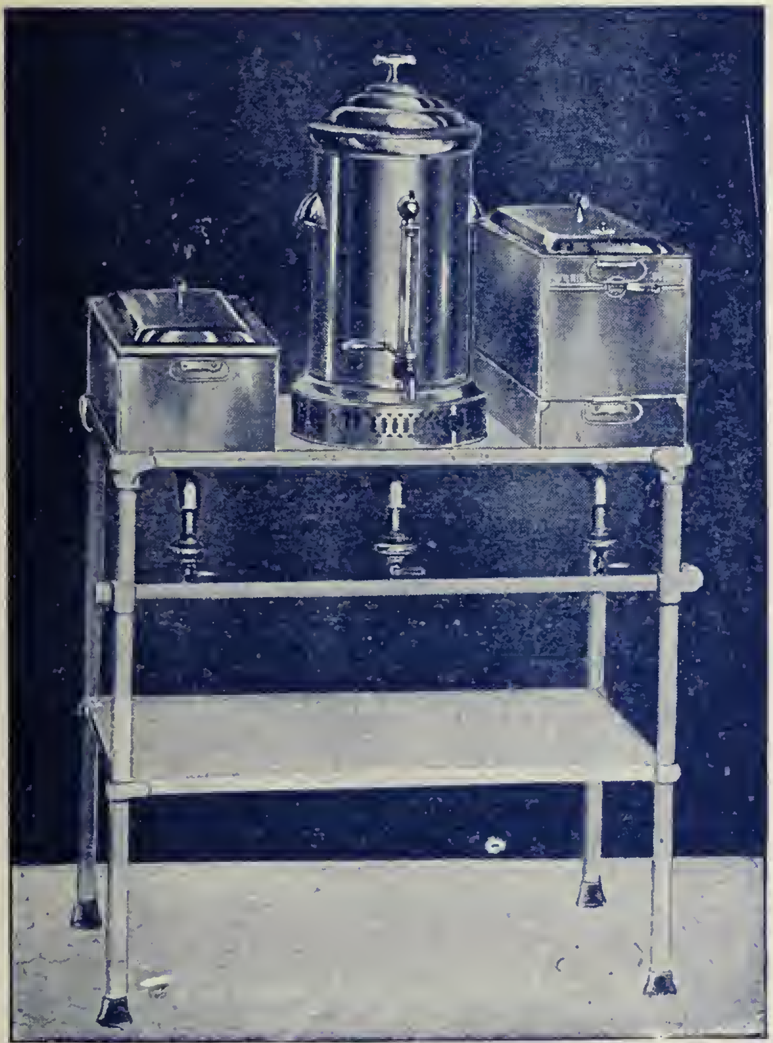

Castle Three Piece Sterilizing Outfit

The Castle Rochester Sterilizing Outfits

THERE are seven different kinds of heating arrangements with which Castle Outfits may be equipped, making it possible to use an Outfit anywhere.

While Gas Burners are used most commonly there are conditions which call for other forms. Electric Heaters are easy to control, radiate a minimum amount of heat into the room, and are odorless. In buildings where high pressure steam is available a Steam Heating Coil is convenient and economical.

Besides these, the Outfits can be furnished equipped with Gasoline, Acetylene or Alcohol Burners, or with Primus Blue Flame Kerosene Burners.

The various forms, sizes, finishes and heating arrangements of Castle Outfits make 168 combinations for you to select from. There is one of them which will exactly meet your requirements. You can get a Catalogue and Price List of all these various combinations from your dealer, or by writing directly to

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Manufacturers of Pressure and Non-Pressure Sterilizers
For all Purposes
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It is this PURITY that makes

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(LINEN-MESH) Underwear

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We claim it to be the most healthful, protective garment known.

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It gratifies us to note that the medical profession generally have appreciated our determination that, notwithstanding growing and aggressive competition, the reputation for reliability long since established for our preparations shall be at all times maintained.

We have had a large and continued practical experience of more than fifty years, during all of which time we have made it a point to surround ourselves with the most skilful chemists and pharmacists obtainable, and we desire at this time to again assure our many medical friends that we shall not, under any conditions, supply any but products of the highest standard and unquestioned therapeutic merit, skilfully prepared from carefully selected materials which in every instance have been accurately assayed and standardized by approved chemical and physiologic methods.

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